

The Song Confucian Revival

Scholar-Officials of the Song

The Song period saw the full flowering of one of the most distinctive features of Chinese civilization — the scholar-official class certified through highly competitive **civil service examinations**.

Most scholars came from the landholding class, but they acquired prestige from their learning and political clout by serving in office. In a society in which most people were illiterate, scholar-officials stood out by virtue of their reading and writing skills. Their **Confucian education** encouraged them to aspire for government service, but also to speak up when they thought others were pursuing the wrong course, making them **courageous critics of power**.

The Examination System

Since the **Sui Dynasty (581-617)**, it had been possible to become a government official by passing a series of written examinations. It was only in the Song, however, that the examination system came to be considered the normal ladder to success.

From the point of view of the early Song emperors, the purpose of the civil service examinations was to draw men with literary educations into the government to counter the dominance of military men. So long as the system identified men who would make good officials, it did not matter much if some talented people were missed.

From the point of view of those taking the examinations, however, **fairness was crucial**. They wanted to be assured that everyone was given an equal chance and the examiners did not favor those they knew. To increase their confidence in the objectivity of the examiners, the Song government decided to replace candidates' names with numbers and had clerks recopy each exam so that the handwriting could not be recognized.

Scholars in and out of the government regularly debated what should be asked on the examinations, but everyone agreed that one element should be **command of Confucian texts**. Candidates were usually asked to discuss policy issues, but the examinations tested general education more than knowledge of government laws and regulations.

Candidates even had to write poetry in specified forms.

To prepare for the examinations, men would memorize the Confucian classics in order to be able to recognize even the most obscure passages.

In Song times **exam success came to carry such prestige** that the number of men entering each competition grew steadily, from fewer than 30,000 early in the dynasty, to about 400,000 by the dynasty's end. Because the number of available posts did not change, a candidate's chances of passing plummeted, reaching as low as one in 333 in some prefectures.

Men often took the examinations several times, and were on average a little over 30 when they succeeded. The great majority of those who devoted years to preparing for the exams, however, never became officials.

Primary Source Document:

“REMONSTRANCE AGAINST THE NEW LAWS” By Cheng Hao

Introduction

The Song dynasty (960-1279) was weaker than its predecessor, the Tang, and ruled over a smaller territory. To the north and northwest, the Song faced strong alien regimes: the Khitan Liao dynasty (907-1125) and the Tangut Xixia (990-1227). These regimes posed a constant military threat, which the Song defused by making payments of silk and other goods to both the Xixia and the Liao according to negotiated agreements. Still, the burden of maintaining troops for the defense of the empire was significant and caused serious financial problems for the imperial government (the cost of the payments to the Xixia and the Liao was small by comparison).

The officials of the Song dynasty approached the task of government with the inspiration of a reinvigorated Confucianism, which historians refer to as “Neo-Confucianism.” Song officials such as Fan Zhongyan (989-1052), Su Shi (1037-1101, also known by his pen name, Su Dongpo), and Wang Anshi (1021-1086) worked to apply Confucian principles to the practical tasks of governing. As with any group of scholars and officials, different individuals had different understandings of just what concrete measures would best realize the moral ideals articulated in the *Analects* and *Mencius*. Such disagreements could be quite serious and could make or unmake careers.

Wang Anshi was a noted scholar and official. He distinguished himself during a long term of service as a country magistrate. In 1068, the young Shenzong Emperor (r. 1068-1085), then twenty years old, appointed Wang Anshi as Chief Councilor and charged him with carrying out a thorough-going reform of the empire’s finances, administration, education, and military. The intention was to address a serious problem: declining tax revenue and mounting government expenses, including the huge and growing cost of maintaining a large standing army. Wang Anshi proposed a series of reforms, which were carried out. Many in the court disagreed with the reforms. The following document is a memorial in which Cheng Hao (1032-1085), a contemporary and former supporter of Wang Anshi, tells the emperor what he thinks of the “New Laws.”

Remonstrance Against the New Laws By Cheng Hao

The mind of Your Majesty does not hesitate to make a change; it is only the minister in charge of the government who still persists in his obstinacy. Thus the people’s feelings are greatly agitated and public opinion becomes more clamorous. If one insists on carrying these policies out, certain failure awaits them in the end. . . . Rather than pursue one mistaken policy at the expense of a hundred other undertakings, would it not be better to bestow a grand favor and reassure the people’s minds by doing away with the disturbances caused by those sent out to enforce these decrees and by manifesting your humanity to the extent of abolishing the interest charged on the crop loans?

Questions:

1. On what grounds does Cheng Hao criticize the Crop Loans measure?
2. How does Cheng Hao view the responsibility of the emperor?
3. According to Confucian principles, how should an emperor react to such advice?

The Cities of the Song

A New Kind of City Emerges

The quickening of the economy in Song times fueled the **growth of cities**. Dozens of cities had 50,000 or more residents, and quite a few had more than 100,000. As in previous dynasties, the Song's largest cities were its capitals — first **Kaifeng** in the North, then **Hangzhou** in the South. Both capitals are thought to have had about a million residents. (The population of London at the time was around 15,000). (1)

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Urban Life

Like the city in the scroll, the Song capitals boasted a **lively street life**, with markets, shops, restaurants, and houses right on the street. Some of these buildings were multi-story.

Kaifeng did have an **external wall**, but its population spilled beyond it. Unlike previous capitals, such as the Tang dynasty's Chang'an, the Song capitals did not have walled wards. The wall we see in the scroll had no military purpose, but its gate (see images below) still formed an impressive entrance into the city.

To combat **fire in the city**, the government stationed 2,000 soldiers at 14 fire stations within the city and more outside it.

Poverty

Poverty was more of a problem in crowded cities than in the countryside. The Song government not only distributed alms, but operated public clinics, old age homes, and paupers' graveyards.

Hangzhou and the Urban Elite

According to Marco Polo

Marco Polo described Hangzhou, capital of the Southern Song, as **the finest and most splendid city in the world**. Situated at the southern end of the Grand Canal, Hangzhou was a natural center for trade.

Marco Polo reported that Hangzhou had ten marketplaces, each half a mile long, where 40,000 to 50,000 people would go to shop on any given day. There were also innumerable restaurants and bathhouses with either hot or cold water baths:

PRIMARY SOURCE:

When you have left the city of Changan and have travelled for three days through a splendid country, passing a number of towns and villages, you arrive at the most noble city of Kinsay [Hangzhou], a name which is as much as to say in our tongue "The City of Heaven," as I told you before.

And since we have got thither I will enter into particulars about its magnificence; and these are well worth the telling, for the city is beyond dispute the finest and the noblest in the world. ...

First and foremost, then, [the city of Kinsay is] so great that it hath an hundred miles of compass. And there are in it twelve thousand bridges of stone, for the most part so lofty that a great fleet could pass beneath them. And let no man marvel that there are so many bridges, for you see the whole city stands as it were in the water and surrounded by water, so that a great many bridges are required to give free passage about it. ...

All the streets of the city are paved with stone or brick, as indeed are all the highways throughout Manzi, so that you ride and travel in every direction without inconvenience. Were it not for this pavement you could not do so, for the country is very low and flat, and after rain 'tis deep in mire and water. ...

You must know also that the city of Kinsay has some 3000 baths, the water of which is supplied by springs. They are hot baths, and the people take great delight in them, frequenting them several times a month, for they are very cleanly in their persons. They are the finest and largest baths in the world; large enough for 100 persons to bathe together.

At the opposite side the city is shut in by a channel, perhaps 40 miles in length, very wide, and full of water derived from the river aforesaid, which was made by the ancient kings of the country in order to relieve the river when flooding its banks. This serves also as a defence to the city, and the earth dug from it has been thrown inwards, forming a kind of mound enclosing the city.

In this part are the ten principal markets, though besides these there are a vast number of others in the different parts of the town. The former are all squares of half a mile to the side, and along their front passes the main street, which is 40 paces in width, and runs straight from end to end of the city, crossing many bridges of easy and commodious approach. At every four miles of its length comes one of those great squares of 2 miles (as we have mentioned) in compass. So also parallel to this great street, but at the back of the market places, there runs a very large canal, on the bank of which towards the squares are built great houses of stone, in which the merchants from India and other foreign parts store their wares, to be handy for the markets. In each of the squares is held a market three days in the week, frequented by 40,000 or 50,000 persons, who bring thither for sale every possible necessary of life, so that there is always an ample supply of every kind of meat and game, as of roebuck, red-deer, fallow-deer, hares, rabbits, partridges, pheasants, francolins, quails, fowls, capons, and of ducks and geese an infinite quantity; for so many are bred on the Lake that for a Venice groat of silver you can have a couple of geese and two couple of ducks. Then there are the shambles where the larger animals are slaughtered, such as calves, beeves, kids, and lambs, the flesh of which is eaten by the rich and the great dignitaries.

Those markets make a daily display of every kind of vegetables and fruits; and among the latter there are in particular certain pears of enormous size, weighing as much as ten pounds apiece, and the pulp of which is white and fragrant like a confection; besides peaches in their season both yellow and white, of every delicate flavour.

Neither grapes nor wine are produced there, but very good raisins are brought from abroad, and wine likewise. The natives, however, do not much are about wine, being used to that kind of their own made from rice and spices. From the Ocean Sea also come daily supplies of fish in great quantity, brought 25 miles up the river, and there is also great store of fish from the lake, which is the constant resort of fishermen, who have no other business. Their fish is of sundry kinds, changing with the season; and, owing to the impurities of the city which pass into the lake, it is remarkably fat and savoury. Any one who should see the supply of fish in the market would suppose it impossible that such a quantity could ever be sold; and yet in a few hours the whole shall be cleared away; so great is the number of inhabitants who are accustomed to delicate living. Indeed they eat fish and flesh at the same meal.

All the ten market places are encompassed by lofty houses, and below these are shops where all sorts of crafts are carried on, and all sorts of wares are on sale, including spices and jewels and pearls. Some of these shops are entirely devoted to the sale of wine made from rice and spices, which is constantly made fresh and fresh, and is sold very cheap. (1)

The Song Economic Revolution

Between 750 and 1100, China's population doubled, money supply grew tenfold, paper money came into use, and trade and industry grew rapidly. There was no single cause of this great transformation. Advances in technology helped, especially in agricultural technology, and each advance helped foster others.

A Population Boom

In 742 China's population was approximately 50 million, very close to what it had been in 2 CE. Over the next three centuries, with the expansion of rice cultivation in central and south China, the country's food supply steadily grew, allowing its population to grow as well.

By 1100, the population reached 100 million. China was certainly the largest country in the world at the time. Its population probably already exceeded that of all of Europe, as it has in more recent centuries.

Commercialization

Farmers in Song China did not aim at self-sufficiency. They had found that producing for the market made possible a better life. Farmers sold their surpluses in nearby markets and bought charcoal, tea, oil, and wine. Some of the products on sale in the city depicted in the scroll would have come from nearby farms, but others came from far away. In many places, farmers specialized in commercial crops, such as sugar, oranges, cotton, silk, and tea.

Merchants in the cities became progressively more specialized and organized. They set up partnerships and joint stock companies, with a separation between owners (shareholders) and managers. In large cities merchants were organized into guilds according to the type of product they sold. Guilds arranged sales from wholesalers to shop owners and periodically set prices. When the government wanted to requisition supplies or assess taxes, it dealt with the guild heads.

Transport

As the economy became more commercialized, the **need for transport** grew. In the scroll, we see goods carried in backpacks, larger wheelbarrows, wagons, and on donkeys and camels. Camels carried goods from Inner Asia or further west across large deserts.

Water transport, however, has always been far cheaper than going over land. The South, with its many rivers and waterways, had an advantage in this respect, but northern cities, too, were served by water transport, often canals. The Grand Canal linked the North to the Yangzi River region. One section of the Beijing qingming scroll shows men unloading bales of grain from a river boat, as a merchant, seated, directs them.

From Copper Coins to Paper Notes

Helping to grease the wheels of trade during the Song was the **world's first paper money**. For centuries, the basic unit of currency in China was **the bronze or copper coin** with a hole in the center for stringing. Large transactions were calculated in terms of strings of coins, but given their weight these were cumbersome to carry long distances.

As trade increased, demand for money grew enormously, so the government minted more and more coins. By 1085 the output of coins had increased tenfold since Tang times to more than 6 billion coins a year.

The use of paper currency was initiated by merchants. To avoid having to carry thousands of strings of coins long distances, merchants in late Tang times (c. 900 CE) started trading receipts from deposit shops where they had left money or goods. The early Song authorities awarded a small set of shops a monopoly on the issuing of these certificates of deposit, and in the 1120s the government took over the system, **producing the world's first government-issued paper money.**

Iron and Steel

During Song times, heavy industry — especially the iron industry — grew astoundingly. Iron production reached around 125,000 tons per year in 1078 CE, a sixfold increase over the output in 800 CE.

Iron and steel were put to many uses, ranging from nails and tools to the chains for suspension bridges and Buddhist statues. The army was a large consumer: steel tips increased the effectiveness of Song arrows; mass-production methods were used to make iron armor in small, medium, and large sizes; high-quality steel for swords was made through high-temperature metallurgy. Huge bellows, often driven by waterwheels, were used to superheat the molten ore.

From Charcoal to Coal

At first charcoal was used in the production process, leading to deforestation of large parts of north China. By the end of the 11th century, however, **coal** had largely taken the place of **charcoal**.

Textiles and Silk

The common people mostly wore clothes made of plant fibers such as hemp and ramie, and, at the end of the period, cotton — but **the most highly prized fabric at home and abroad was silk.**

The feeding of silkworms (which devoured vast quantities of mulberry leaves), the cleaning of their trays, the unraveling of the cocoons, the reeling and spinning of the silk filaments — **all this was women's work**, as was the weaving of plain cloth on simple home looms.

Professional weavers, mostly men working in government or private workshops, operated complex looms to weave the fancy damasks, brocades, and gauzes favored by the elite.

According to Marco Polo – PRIMARY SOURCE

Marco Polo was astounded at **the boat traffic on the Yangzi River**. He claimed to have seen no fewer than 15,000 vessels at one city on the river, and said other towns had even more:

You must know that when you leave the city of Yanju, after going 15 miles south-east, you come to a city called SINJU, of no great size, but possessing a very great amount of shipping and trade. ... And you must know that this city stands on the greatest river in the world, the name of which is KIAN [Yangzi]. ... This it is that brings so much trade to the city we are speaking of; for on the waters of that river merchandize is perpetually coming and going, from and to the various parts of the world, enriching the city, and bringing a great revenue to the Great Kaan.

And I assure you this river flows so far and traverses so many countries and cities that in good sooth there pass and repass on its waters a great number of vessels, and more wealth and merchandize than on all the rivers and

all the seas of Christendom put together! It seems indeed more like a Sea than a River. Messer Marco Polo said that he once beheld at that city 15,000 vessels at one time. And you may judge, if this city, of no great size, has such a number, how many must there be altogether, considering that on the banks of this river there are more than sixteen provinces and more than 200 great cities, besides towns and villages, all possessing vessels? (1)

Technological Advances during the Song

Rice Cultivation

During Song times, new developments in rice cultivation — especially the introduction of **new strains of rice** from what is now Central Vietnam, along with **improved methods of water control and irrigation** — spectacularly increased rice yields. Rice was used primarily as food, but was also used to brew the wine consumed in homes and taverns.

Rice was grown primarily south of the Yangzi River. This area had many advantages over the north China plain, as the climate is warmer and rainfall more plentiful. The mild temperatures of the south often allowed two crops to be grown on the same plot of land — a summer and a winter crop.

The many rivers and streams of the region facilitated shipping, which reduced the cost of transportation and, thus, made regional specialization economically more feasible. During the Song period, **the Yangzi River regions** became the **economic center of China**.

A Labor-intensive Crop

As grown throughout East Asia before modern times, **rice required much labor** — to level the paddy fields, clear irrigation ditches, plant and especially transplant the seedlings, as well as to weed, harvest, thresh, and husk.

Farmers developed **many varieties of rice**, including drought resistant and early ripening varieties, as well as rice suited for special purposes such as brewing. They also remade the landscape by **terracing hilly land**, so that rice could be grown on it. **Agricultural manuals** helped to disseminate the best techniques for rice cultivation.

To feed all the city people, most Chinese had to remain farmers. The rectangular fields in this scene from the scroll (left) are divided by irrigation channels, but the scene does not give us enough information to determine which crops are growing there. We do know, however, that **millet, wheat, and sorghum were the basic subsistence crops in the north**, while **rice predominated in the south**.

Printing

By the 9th century, Chinese craftsmen had developed **a way to mass produce books** by carving words and pictures into wooden blocks, inking them, and then pressing paper onto the blocks. Each block consisted of an entire page of text and illustrations.

Movable Type

In the 11th century **movable type** (one piece of type for each character) was invented. Movable type was never widely used in China because whole-block printing was less expensive, but when movable type reached Europe in the 15th century, it revolutionized the communication of ideas.

Movable type was first created by **Bi Sheng (990-1051)**, who used baked clay, which was very fragile. The Yuan-dynasty official **Wang Zhen** is credited with the introduction of wooden movable type, a more durable option, around 1297.(1) Cast-metal movable type began to be used in Korea in the early 13th century, and the first font is believed to have been cast there in the 1230s.

Shipbuilding

The Song Chinese were world leaders in **shipbuilding**. Watertight bulkheads improved buoyancy and protected cargo. **Stern-mounted or stern-post rudders** (see right) improved steering. Sounding lines were used to determine depth. Some ships were powered by both oars and sails and large enough to hold several hundred men.

The Compass

Also important to oceangoing travel was the perfection of the **compass**. The way a magnetic needle would point north-south had been known for some time, but in Song times the needle was reduced in size and attached to a fixed stem (rather than floating in water). In some cases it was put in a small protective case with a glass top, making it suitable for sea travel. The first reports of a compass used in this way date to 1119.

Gunpowder

Song military engineers found gunpowder to be helpful in **siege warfare**, leading to the development of early types of rockets, cannons, bombs, and mines.

The *Wujing zongyao* (“Collection of the Most Important Military Techniques”), a military manual from 1044 CE, records the first true gunpowder formula and describes how to produce it on a large scale. Gunpowder was first used in warfare as an incendiary, or fire-producing, compound. Small packages of gunpowder wrapped in paper or bamboo were attached to arrows and lit with a fuse.

Bombs of gunpowder mixed with scrap iron would be launched with **catapults**. Another use was “fire-spurting lances,” which were a kind of flame-thrower using bamboo or metal tubes for their barrels.

Weapons involving gunpowder were extensively used by both the Chinese and the Mongol forces in the 13th century. Song efforts to continually improve their weapons were one reason they were able to hold off the **Mongols** for several decades. But the Mongols, like the **Khitans** and **Jurchens** before them were equally ready to adopt new and better military technology, often by capturing the Chinese engineers and gunners.

Experimentation and Innovation by Song Dynasty Officials

Quite a few educated men in Song times took an interest in matters related to **engineering**, as well as **inquiry about the physical world**.

Su Song and the Mechanical Clock Tower

One high official, **Su Song (1020-1101)**, is famous for having designed and constructed a mechanical clock tower (almost 40 feet high) by adding a chain-driven mechanism to the existing water-powered clock. The clock told not only the time of day but also the day of the month, the phase of the moon, and the position of certain stars and planets in the sky. At the top was a mechanically rotated armillary sphere that showed the changing location of the planets and stars.

Shen Gua (Shen Kuo) – PRIMARY SOURCE

Another notable polymath of the time was **Shen Gua (1031-1095)**, who made contributions in fields as diverse as mathematics, geography, economics, engineering, medicine, divination, archaeology, military strategy, and diplomacy. In his writings Shen Gua described the use of petroleum and explained in detail how Bi Sheng first

made movable type from clay. He often analyzed issues mathematically, and once computed the total number of possible situations on a game board, and another time the longest possible military campaign given the limits of human carriers who had to carry their own food as well as food for the soldiers.

Shen Gua is especially known for the explanations of natural phenomena found in his famous 11th-century book, *Meng Xi Bi Tan* (*Meng Ch'i Pi T'an* or “Brush Talk from a Dream Book”; more commonly known as the “Dream Pool Essays”). In these pages he presents his theories on a variety of topics, including the **deflection of the compass** from due south:

When the point of a needle is rubbed with the lodestone, then the sharp end always points south, but some needles point to the north. I supposed that the natures of the stones are not all alike. Just so, at the summer solstice the deer shed their horns, and at the winter solstice the elks do so. Since the south and the north are two opposites, there must be a fundamental difference between them. This has not yet been investigated deeply enough. (1)

In another chapter he identifies **petrified bamboo** and from its existence argues that the region where it was found must have been much warmer and more humid in ancient times:

In recent years [c. 1080] there was a landslide on the bank of a large river in Yung-Ning Kuan near Yenchow. The bank collapsed, opening a space of several dozens of feet, and under the ground a forest of bamboo shoots was thus revealed. It contained several hundred bamboos with their roots and trunks all complete, and all turned to stone. ... Now bamboos do not grow in Yenchow. These were several dozens of feet below the present surface of the ground, and we do not know in what dynasty they could possibly have grown. Perhaps in very ancient times the climate was different so that the place was low, damp, gloomy, and suitable for bamboos. ... (2)

In another place Shen Gua argues against the theory that **tides** are caused by the rising and setting of the sun and demonstrates that they correlate rather with the cycles of the moon:

Lu Chao says that the tide of the sea is formed because it is stirred up by the rising and setting of the sun. This has not the slightest basis. If the tide were due to this cause it would have a diurnal regularity. How could it happen that it sometimes comes in the morning and sometimes in the evening?

I have myself given much study to its periodic motion, and found that the tide comes to high water whenever the moon makes its meridian transit. if you wait for this moment you will never miss the tides. ... (3)

To explain his theory about why **the sun and the moon are spherical**, not flat, Shen Gua wrote:

The Director asked me about the shapes of the sun and moon; whether they were like balls or (flat) fans. If they were like balls they would surely obstruct (*ai*) each other when they met. I replied that these celestial bodies were certainly like balls. How do we know this? By the waxing and waning (*ying khuei*) of the moon. The moon itself gives forth no light, but is like a ball of silver; the light is the light of the sun (reflected). When the brightness is first seen, the sun (-light passes almost) alongside, so the side only is illuminated and looks like a crescent. When the sun gradually gets further away, the light shines slanting, and the moon is full, round like a bullet. If half of a sphere is covered with (white) powder and looked at from the side, the covered part will look like a crescent; if looked at from the front, it will appear round. Thus we know that the celestial bodies are spherical. (4)

Shen Gua did not, however, realize that the sun and moon had entirely different orbits and, later in this same passage, explained that “they could meet without obstructing one another” because they were both made of *qi* (vital energy) and “(have) form but no solid substance.