

TEXT

5.6.2006

ENTRANCE EXAM FOR ENGINEERING CURRICULUM

INSTRUCTIONS

The entrance examination has two parts:

- 1) Read the given text carefully. You are given 20 minutes to read the text. You can take notes on the article.
- 2) Before doing the given tasks the text will be handed back. The tasks related to the text will be given simultaneously with the problems of the mathematics, logical deduction and physics/chemistry part. The duration of the text comprehension test and the problems is 2 h 45 min.

DO NOT TURN THE PAGE UNTIL YOU ARE GIVEN THE PERMISSION TO DO SO.

Mike Edwards (National Geographic 2004/February)

Han Dynasty

Another hallmark of the Han: durability. Among the longest of China's major dynasties, it survived, with minor interruption, for more than four centuries. From its founding in 206 B.C. the Han state was as powerful and prestigious in East Asia as the Roman Empire, its approximate contemporary, was in the West. Like Rome, it expanded into "barbarian" territory on its flanks, particularly to the northwest, where its armies cleared the way for trade along the Silk Road. And, like Rome, the dynasty spawned its share of weak rulers and sloughed into turmoil before collapsing, in A.D. 220.

In many fields Han workers were far ahead of their Roman counterparts. They employed the wheelbarrow and pulley to move goods, the water-powered trip-hammer to pulverize grain and ores, and the bellows to pump air into furnaces. When an emperor went out in his carriage, he rode in the shade of a regal parasol that - unique in its time - could be collapsed, thanks to sliding metal ribs. And the Han were the first to make a commodity that revolutionized learning, which they called *zhi*. We call it paper.

Only a few paper fragments bearing writing have been found in Han tombs. For all we know, the Han used paper mostly to wrap fish. Yet they were writing like mad: poetry, complex mathematical problems, history, a huge dictionary, government reports, and the world's earliest surviving large-scale census (57,671,400 people in A.D. 2). They wrote with brushes and lampblack ink on wooden tablets or slips of bamboo, and also on silk. Tens of thousands of these documents have survived, delivering to scholars a portrait of life two millennia ago.

Liu Bang had been a minor official in the previous dynasty, the Qin (or Chin, from which "China" derives). The Qin was the first dynasty to weld China's oft-warring kingdoms into a single state. It was also cruel and soon collapsed. With the throne up for grabs, Liu Bang raised an army. His most formidable opponent, a general named Xiang Yu, captured Liu Bang's father and sent Liu Bang an ultimatum: "Surrender or I will boil your venerable sire alive!"

Liu Bang replied merely: "Send me a cup of the soup."

Bravado won out; Dad wasn't stewed, and Liu Bang finally crushed Xiang Yu, who then, to deal with the humiliation, committed suicide with his one remaining concubine.

The victor put his capital in the city of Changan ("eternal peace"), whose ruins lie today in the suburbs of its bustling, tourist-packed successor, Xian ("western peace"). In those ruins on a June afternoon, I stood atop a mound 50 feet high - the site of Liu Bang's palace. Portions of Changan's city wall, which encompassed 13 square miles, poked from fields where peasants were reaping wheat, some with scythes, some at the wheels of combines. Liu Bang, also known as Gaozu, "high ancestor", (symbolic names were often posthumously conferred on emperors) called his palace Lasting Joy.

Wu Di ("martial emperor") was a lad of 15 in 141 B.C. when he began a reign that lasted 54 years, one of the longest in Chinese history. His inaugural was a yang time; the empire was stable, granaries and the treasury were overflowing, and, as Sima Qian wrote, "every family had enough to get along on." On the south side of Changan, Wu Di built an academy devoted to the works of Kongfuzi, Master Kong, as Chinese call Confucius. The sage had long been dead, but disciplines - those erudite men scorned by Liu Bang - had preserved his teachings. The academy trained administrators for Wu Di's government, paving the way for Confucianism to become the court's dominant ideology.

Confucians believed an emperor ruled by a mandate from heaven and that his virtue should inspire good behaviour in his subjects. They prized honor, learning, and order, and sought to uphold authority. In the course of Han reign, thousands of academy alumni spread Confucian ethics across the empire, from whence the philosophy travelled to most of East Asia.

Emperor Wu flung armies in all directions, expanding the empire into much of the territory that is today China, such as Yunnan Province in the southwest, and even occupying what is now northern Vietnam and Korea. But his fiercest campaigns took place in the northwest, where the Han frontiers had long suffered raids by the Xiongnu, a nomadic people.

The patchwork of fortifications that one day would become known as the Great Wall was a sieve. Emperors had bribed Xiongnu chieftains, even presenting Han princesses as wives, but still the raiders came. Finally, in 133 B.C., Wu Di declared war on the Xiongnu. In a single campaign "the men and horses killed on the Han side amounted to over a hundred thousand," Sima Qian wrote. But gradually Han rule was extended westward across what is today the Xinjiang Uygur

Autonomous Region to the Pamir mountain range, 2,000 miles west of Changan. Expeditions even pushed beyond the mountains into Uzbekistan.

Wu Di's marathon reign ended with his death in 87 B.C. His military campaigns had taken the dynasty to its peak of dominion and prestige. But the cycle of yang was sliding into yin. War expenses had drained the treasury. Profiteers "were busy accumulating wealth and forcing the poor into their hire," Sima Qian chronicled. Other peasants were being squeezed onto smaller plots of land while the estates of well-connected landlords grew larger. The widening gap between rich and poor would become the dynasty's most explosive problem.

At court, powerful families were jockeying to control the throne and share its riches. When Wu Di's first empress faced demotion - she had failed to bear him an heir - a daughter intervened, attempting to rescue the situation by witchcraft, a serious crime. Her scheming led to the slaughter of hundreds of implicated people.

Nor should we overlook the manipulations of a beautiful commoner named Flying Swallow, who flew high indeed, becoming empress in 16 B.C. A favorite of Emperor Cheng, she managed to depose his chosen empress by accusing her of the same evil, witchcraft. Jealousies and scheming spawned years of feuds, executions, and even pitched battles, weakening the Liu clan's grip.

And finally, a coup. In A.D. 9 Wang Mang, member of a powerful family, was emboldened to shove aside the wobbling Liu regime and usurp the throne. After 215 years, Han rule was ended, he proclaimed, and a new dynasty was beginning, called just that: Xin, "new."

China's mother river, as it's called, the Yellow River was the lifeline of many dynasties, providing a 3,000-mile-long route for trade, transportation, and irrigation. But she was a violent matriarch. In Wang Mang's reign the river went on a terrible rampage. Fleeing peasants became mobs of hungry looters, triggering a full-scale rebellion. Red paint smeared on their foreheads, an identity badge, inspired the name by which the rebels were known, Red Eyebrows. Wang Mang tried to restore order, but the Red Eyebrows were invincible. In A.D. 23 they entered Changan and lopped off Wang Mang's head.

Once more the throne was up for grabs, and in the chaos the Liu clan saw its opportunity. Liu Xiu, a ninth-generation descendant of the dynasty's founder, proclaimed himself emperor. While the Red Eyebrows sacked Changan, he led his followers to Luoyang and inaugurated Han Chapter II. The rebellion died out and the Lius were back in business for another 195 years. Historians often refer to the Han reign in Changan as Former Han or Western Han, while the Luoyang era is Later Han or Eastern Han.

The Liu scion who reestablished Han rule, known today as Guangwu Di, was a strongman who reigned at Luoyang for 32 years, until A.D. 57. His capital was one of the world's most populous cities, with perhaps half a million inhabitants and palaces that rose several stories.

Toward the end of the first century A.D. the house of Liu stumbled into a long streak of bad luck in which one emperor after another died young, without a chosen heir, or without sons at all. The new emperor might be a child (perhaps a cousin of the deceased ruler) or even an infant. Real power usually resided in a regent from the family of an empress (even child rulers were provided with empresses). Court scheming intensified.

Indeed, everything was spinning out of control. Thousands from Luoyang's Confucian academy protested corruption - China's first student demonstrations. At court, eunuchs, once merely servants and harem guards, became a potent force in the often bloody scheming, enriching themselves as they supplanted purged officials. Massive peasant uprisings roiled the provinces "like a billowing sea", as one historian wrote, even threatening the capital in A.D. 184.

Six years later a general named Dong Zhuo seized power and placed a child, Liu Xie, on the throne. Last of the 27 Lius to be called emperor, the puppet was powerless to rescue the empire of his forefathers. Dong murdered the eunuchs and burned Luoyang to the ground. Warlords battled each other. Liu Xie finally abdicated in 220, and China broke into warring states, not to be unified again for three and a half centuries.