Fireworks and Firecrackers

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Fireworks have been used in China, the producer of 90 percent of the world’s fireworks, in various forms for at least two thousand years. In ancient times people would frighten away creatures (real or imaginary) by throwing bamboo on fires. Some historians say fireworks as we know them originated in 1723 with an edict by the new Yongzheng emperor demanding entertainment to celebrate the first year of his reign.

The general Chinese term for firecrackers and fireworks is huapao, which is a portmanteau of the words yanhua and paozhu. Yanhua (smoke and flowers) or yanhuo (smoke and fire or colorful fire when yan is pronounced in a different tone) refers to fireworks. Paozhu (cannon bamboo) or paozhang (cannon stick) refers to firecrackers, which once were called baozhu (exploding bamboo).

Origin

Wang Anshi (1021–1086), a great thinker and man of letters of the Song dynasty (960–1279), wrote in a poem that "baozhu sheng zhong yi sui chu; chunfeng song nuan ru tusu":

Amidst the crackling of exploding bamboo a year is gone;
In the warmth of a spring breeze we drink the wine of tusu (Wang, 1999)

This couplet vividly describes how people of his time celebrated the Spring Festival or Chinese New Year by drinking tusu wine (made with medicinal herbs) and burning bamboo to create loud noises; both customs go far back in history. According to a legend, on every Chinese New Year’s Eve, a nian (a man-eating monster) would come out of the mountains to prey on humans. A god in the guise of a beggar scared the monster away with the crackling of burning bamboo. Humans then followed his example. Shen yi jing (Book of Gods and Spirits), a classic of the Han dynasty (206 BCE–220 CE), shows how the custom could have grown from everyday practice: In ancient times, when camping deep in the mountains, people built bonfires to cook and to keep themselves warm. A strange human-shaped mountain goblin called shanxiao (von Glahn, 2004), however, often harassed them despite the fire, carrying a disease that could cause chills and fever. The campers then used bamboo as firewood. As it crackled while burning, it frightened the animal and kept it away from them.

History

Although burning bamboo to celebrate the Chinese New Year was still prevalent during the Southern Song dynasty (1127–1279), people had already begun to stuff saltpeter (potassium nitrate) into bamboo sticks to get more exciting effects as the sticks burned. The discovery of saltpeter was attributed to alchemists in the sixth or seventh century who used it along with sulfur and charcoal to produce dan (medicinal pills believed to make humans live forever). But by combining the right ratio of the three
components, they formed gunpowder. The inventor who chanced upon the correct combination was said to have been Sun Simiao, who lived sometime between 541 and 682. An alchemist as well as a pharmacist, he is regarded as the father of gunpowder in China.

When paper became more prevalent in the Song dynasty (960–1279), people rolled sheets of paper into small tubes in place of bamboo tubes, stuffed gunpowder into them, and fixed a fuse into each; the first modern-day baozhu (firecrackers) thus came into existence. People then strung and fused smaller baozhu together so they could be set off one by one in close sequence to create continuous explosions. People called this type of cluster bian (whip) or bianpao (whip cannon). By that time the military had already used rockets in battles, and the technology led to the invention of erjiao (kicking twice) or liangxiang (sound twice), both referring to cannon crackers. A cannon cracker could be set on the ground or held gingerly in the hand; with the ignition of the fuse its lower section exploded and produced from its bottom a powerful jet that catapulted the top part into the sky, where it exploded again with a loud report that could be heard far and wide.

Yanhua (fireworks) did not become popular until the Qing dynasty (1644–1912), although some historians claims that it had been invented a few hundred years earlier. Some historians ascribe the birth of modern fireworks to the Yongzheng emperor (1678–1735). It was said that in the first year of his reign (1723), he ordered that novelty huapao be made for the coming Lantern Festival, which was characterized by the display of various kinds of lanterns to mark the end of the Chinese New Year season on the fifteenth day of the first lunar month. The burden fell to Li Tai, a huapao specialist. When he chanced to see colorful sparks shot out of iron being hammered in a blacksmith shop, Li Tai got the idea of mixing different sizes of iron particles with gunpowder to create the fireworks and propelling them into the sky with saltpeter.

Types

By the 1930s and 1940s a variety of fancy fireworks existed, such as those called “ground mouse,” “swan with eggs,” “drops of gold,” “turnip flower,” “big-leaf orchid,” “big-leaf chrysanthemum,” “big-leaf plum blossoms,” “three layers in a row,” and “double dragons playing with a pearl.”

Production

Fireworks consist of combustibles (powders of aluminum and iron), flash and sound compositions, and glue (usually natural resin and dextrin). The compositions are
rich in potassium chlorate, antimony sulfide, potassium perchlorate, and potassium benzoate. The production of fireworks involves a complex process of composition grinding, sifting, drying, purifying, mixing, granulating, and pressing.

Early in the mid-eighteenth century Liuyang County of Hunan Province had become a center of huapao (fireworks) production, producing 140,000 cartons a year. Today more than seven thousand factories employ about 1 million people. The factories are mostly in the provinces of Hunan and Jiangxi.

**Market**

Not only is China the birthplace of huapao, but also it has been the largest producer and exporter since the 1860s. In 2005 China sold 13 billion yuan ($1.8 billion) in fireworks, one-third of which was exported to more than one hundred countries. That amounts to 90 percent of world production and 80 percent of world trade in fireworks.

For safety reasons most Chinese cities banned fireworks in the 1990s. But with the rise of national pride amid economic success, the mounting cry to respect traditions lifted or partly lifted the ban in nearly all cities, thereby reopening a large domestic market. New products like the gigantic foot prints and smiling faces fired during the massive and magnificent display of fireworks at the opening and closing ceremonies of the Beijing 2008 Olympic Games demonstrate the ingenuity and creativity of the Chinese firework producers. This impressive display surely helps to increase the share of Chinese fireworks on the world market even further. To promote international trade, Liuyang, a stronghold of China's huapao industry, has held the Liuyang International Huapao Festival every other year since 1990.
Challenges and Possible Solutions

The Chinese huapao industry still faces a number of challenges, such as poor management, small-scale production, substandard technology, deficient training mechanisms, and little pollution control. As a result, fatal accidents occur frequently. From October to November 2007 eighty-six people died in twelve accidents. The fire that destroyed a huge storage hub in Foshan City, Guangdong Province, on 14 February 2008 proved devastating to the industry throughout the country.

China is trying to build better storage facilities and to produce smokeless, nontoxic, pollution-free fireworks that create the same excitement. It is also experimenting with noncombustible products that can mimic the effect of firecrackers but with reduced noise.

Haiwang YUAN

Further Reading


Thunder is louder than the little rain warrants.

雷声大，雨点小

Léi shēng dà, yǔ diǎn xiǎo