

Traditions and craftsmanship kept alive through millennia



Porcelain, ink slabs and lacquerware showcase Shanxi's cultural excellence

By YUAN SHENGGAO

As a cradle of Chinese civilization, Shanxi province's brilliant culture that accumulated over millennia is a source of pride and inspiration for residents.

With this cultural heritage kept alive, locals are using these precious assets to improve their livelihoods and enhance their sense of happiness and gain.

The province's cultural assets are represented by the time-honored production techniques of *fahua* porcelainware, *chengni* ink slabs and hand-polished lacquerware. They are known as the "three treasures of Shanxi".

The county of Xinjiang, which was called Jiangzhou in ancient times, for instance, is famous for *chengni* ink slab. It is one of the top four ink slabs in China, alongside *duan* in Zhaoqing, Guangdong province; *she* in Shexian, Anhui province; and *tao-he* in Zhuoni county, Gansu province.

Unlike other ink slabs, which are made from natural stone, *chengni* ink slab is produced by firing silt-rich clay collected from local riverbeds. The product features elegant shapes and delicate engravings, which make them valuable pieces of art.

Xinjiang county is now home to the Jiangzhou Chengni Ink Slab Cultural Industry Park, which was designed to develop an industrial chain centered around the production of *chengni* ink slabs. It aims to protect the 2,000-year-old technique and make it an industrial pillar to boost the local economy and residents' incomes.

Lin Tao, who was recently granted the honor of "China's artifact master", and his father Lin Yongmao, have made a special contribution to reviving and developing this ancient technique.

The technique for making the clay-fired ink slab is said to date back to the Han Dynasty (206 BC-AD 220). The craft was lost during the Qing Dynasty (1644-1911).

The father and son decided to revive the ancient technique in 1986. They visited many libraries to read



A fashion show featuring traditional cultural elements is staged in the city of Yuncheng.

LI LIANJIUN / FOR CHINA DAILY

historical documents and museums to study exhibits.

After much trial and error, they succeeded in making three *chengni* ink slabs in 1991. In 1994, their ink slabs won a gold prize at the China Expo of Famous Ink Slabs.

"I have been in this trade for 36 years," Lin Tao said. "As I was excited to see the revival of this lost artwork decades ago, I'm now happy that we have engaged more people in the trade to pass on this valuable art to the future generations."

He said he is also glad to see *chengni* ink slab developing into a local specialty industry, bringing tangible benefits to local residents.

The county of Pingyao is a witness to the revitalization of the craft of hand-polished lacquerware.

Pingyao's lacquerware, especially the hand-polished — or *tuiguang* — variety, is a brilliant representative of the millennia-long craft in China.

Tuiguang lacquerware of Pingyao is made of a natural raw lacquer unique to China and varnished by hand using a special technique. In 2006, the technique for making Pingyao's *tuiguang* lacquerware was included in the national list of intangible cultural heritage.

Xue Xiaodong, an inheritor of the *tuiguang* lacquerware technique, highlights innovation in protecting and developing this time-honored technique, when it comes to growing it into a modern industry to benefit local economy and residents.

"Only by combining ancient aes-

thetics and the tastes of modern people, and integrating traditional skills with innovative ideas, can this precious art form sustain its vigor and vitality," Xue said.

Pingyao is now home to more than 150 businesses involved in the production of *tuiguang* lacquerware. By selling products across China and to about 30 foreign countries and regions, the industry has achieved a combined annual revenue of more than 500 million yuan (\$71.8 million) in recent years.

Shanxi has enhanced its protection of intangible cultural assets over recent years. Fourteen heritage items in Shanxi were recently included in the latest national list for intangible cultural heritage protection.

Local heritage protection researchers and workers are using the latest technologies to protect cultural assets. Their efforts include an intangible cultural heritage database in the city of Jinzhong, digital showrooms at the Shanxi Museum in the provincial capital of Taiyuan and dozens of digital experience facilities in other cities and the countryside.

As Shanxi is one of the provinces with the largest number of tangible cultural assets, the province has adopted a similar high-tech approach to protecting its historical and cultural sites and relics.

The famed Yungang Grottoes in the northern Shanxi city of Taiyuan,

for instance, has launched massive digitalization projects for relics' protection and exhibition.

"As one of the three most famous Buddhist cave art sites in China, Yungang Grottoes is now gaining worldwide attention thanks to the use of digital technologies," said Cui Xiaoxia, an official at the Yungang Grottoes Academy, an institution in charge of the site's protection and promotion.

The academy has launched an online platform for the display of relics, giving audiences at home and abroad an opportunity to see these cultural wonders up close.

Another effort of the academy is duplicating relics with 3D technology.

"The full-sized replicas, with a high level of resemblance, have been exhibited in a number of cities and regions in China," Cui said, adding that it is possible for the exhibits to be shown overseas in the future.

Based on traditional culture, Shanxi has developed modern forms of art. On stage, there are fashion shows incorporating traditional cultural elements, drama shows featuring modern themes and art festivals reaching the grassroots.

A testimony to Shanxi's flourishing modern culture is that local writers garnered more than 100 awards at home and abroad for their literature in 2021.

Sun Rui contributed to this story.

Green technology used to build roads linking province's tourist sites

By YUAN SHENGGAO

As the weather became cooler in early September, construction workers stepped up the pace in the construction of an expressway that was designed to connect the county of Licheng and the city of Huozhou in Shanxi province.

The expressway, scheduled to be operational in 2024, reached the halfway point of its planned length this month.

"The expressway will link two major tourist attractions — the Taihang Mountains and the Yellow River — in Shanxi province," said Wang Lijie, chairman of Lihuo Expressway Corp, the investor of the expressway.

The executive said the expressway will become another major transport channel to link North China and Northwest China, as it is scheduled to extend to Handan city in Hebei province and Xi'an city in Shaanxi province some two years later.

The expressway is one of the latest steps in the development of Shanxi's booming road network.

According to the Shanxi Department of Transport, a total of 2,000 kilometers of expressways have been added to the province over the past 10 years, bringing its total length to 5,763 km. Construction of highways has also accelerated, with roads now connecting virtually every village in the province.

To boost the local tourism industry, three highways — Taihang No 1, Yellow River No 1 and Great Wall No 1 — have been built to connect destinations along the three landmark attractions of the Taihang Mountains, the Yellow River and the Great Wall.

In recent years, Shanxi has increased the use of high and environmentally friendly technologies in the construction of

transport projects.

The expressway connecting Licheng and Huozhou, for example, is using assembled structures for building large-span bridges for the first time in Shanxi.

For this innovative construction method, building components have been manufactured in nearby plants and delivered to construction sites for assembly. The construction process can be several times faster than conventional practices featuring casting concrete on the site, according to executives of Lihuo Expressway.

Smart technologies have also been applied in road and railway construction throughout Shanxi. The use of welding robots and automatic tunneling machines is popular on many construction sites, which has substantially improved efficiency and safety, according to the provincial transport department.

Operations of traffic facilities are becoming increasingly intelligent too. For instance, the department has promoted the use of a monitoring and alarming system for vehicles transporting hazardous chemicals throughout the province. Officials said the system can substantially improve safety for drivers by making timely detections of risks and rescuing possible.

To reduce their footprint on the environment, many construction projects have used a variety of environmentally friendly technologies, which include solid waste recycling and reuse; greening construction sites for ecological repair; reducing emissions; and disposing of wastewater on the sites, according to officials at the transport department.

Leng Xue contributed to this story.



An expressway bridge across the Yellow River links Shanxi with neighboring Henan province. SUN RONGXIANG / FOR CHINA DAILY

Initiatives on poverty transform Lyuliang

By YUAN SHENGGAO

The Shanxi city of Lyuliang recently reported an excellent economic operation performance for the first half of this year, as its GDP grew 7.4 percent year-on-year to 108.4 billion yuan (\$15.57 billion).

The growth rate presented a sharp contrast with the national average of 2.5 percent and ranked it first among all the cities in Shanxi province. This also shows that Lyuliang is on track for rapid and high-quality development, local officials said.

Over the past 10 years, Lyuliang has made great strides in industrial transformation, rural vitalization, environmental protection and the improvement of livelihoods, making it a suitable place for living and doing business, according to officials.

Its GDP surpassed 200 billion yuan in 2021, about 1.7 times more than that of 2012. Per capita income of urban and rural residents reached 32,551 yuan and 11,754 yuan respectively, up 1.6 times and 2.2 times from 2012.

But things were quite different a decade ago. Lyuliang used to be one of the least-developed regions in Shanxi, according to officials, who said its poverty status was the result of its harsh natural environment and an underdeveloped economy.



The cloud data center established by Chinese tech giant Huawei in the city of Lyuliang. YAN ZHONGXING / FOR CHINA DAILY

Officials said the city's transformation began from a range of attempts targeting poverty relief.

These initiatives included a massive program for training women as home service workers, which has ushered in a strong vocational training industry and a local service brand name of "Lyuliang nannies".

Another initiative was to boost rural residents' livelihood by improving their living environment through the planting of trees and grasses to curb soil erosion and improve farming conditions.

Operating plantations and growing of trees have developed into a local characteristic industry, which, while bringing tangible benefits to the farmers engaged, has made a great contribution to improvements in the local environment.

Local statistics show Lyuliang now ranks first in vegetation coverage and third in forest coverage in Shanxi province. This has also led to improvements in air and water quality.

The improving ecosystem means more possibilities for farmers. With better-than-ever soil conditions, increasing precipitation and fewer

natural disasters, local rural residents have developed various farming sectors to improve and sustain their livelihoods, including organic vegetables and grains and animal husbandry.

Lyuliang announced the elimination of absolute poverty in 2021, with all of its 590,000 residents registered as poor lifted out of this status.

As a traditional coal-mining base in Shanxi, Lyuliang has implemented an industrial transformation campaign aimed at diversification and sustainable development.

The city is now shifting its emphasis to such industries as new energy, the digital economy and cultural tourism.

Lyuliang is now a hydrogen industrial hub in Shanxi with an industrial chain from hydrogen production to the manufacturing of hydrogen-fueled vehicles.

The city is home to a digital economy industrial park, which now boasts 36 big-data enterprises, including operations established by Chinese big names like Huawei and iFlytek.

Yan Zhongxing contributed to this story.

Coking oven sets national record

By YUAN SHENGGAO

Taiyuan Heavy Machinery Group, a leading machine builder in Shanxi province, recently signed an agreement with Jianyuan Coking based in the Otago Banner in the Inner Mongolia autonomous region for the delivery of a large coking oven.

It was a landmark deal for the THMG this year, as the 7.25-meter-high stamp-charging coking oven is the tallest in China so far, breaking the record of 6.8 meters.

"The increase in height does not only mean growth in size and capacity," said Sun Naixin, one of the designers of the oven. "It also means greater efficiency and better performance in energy conservation and environmental protection."

He said the coking industry is an important link between the coal-producing and coal-consuming industries.

Coke, produced from coal, is widely used in the metallurgy and chemical sectors.

"In the context of China's carbon-neutrality strategy, our coking production is gearing up to higher efficiency and lower energy and resource consumption," Sun said. "And the latest large-capacity stamp-charging coking oven is designed to meet that trend."

He said the latest facility has a single-oven coke output of 47.6 metric tons, which is 10 percent more than the 6.8-meter one.

The increase in size and capacity requires the sustained optimiza-

tion of the oven's carbonization chamber, coal-stamping machine and the coal-conveyance and loading system, according to Ma Lihui, head of the coking research institute at the THMG.

He said the coking process involves coal pulverization, stamping the pulverized coal into blocks and then piling the blocks into coal walls inside the carbonization chamber. "Such techniques are aimed at lifting coking efficiency," Ma said.

In addition to more complicated techniques designed for improving efficiency, the new oven is a comprehensive system. It combines intelligent operations and pollution-control solutions, according to Wu Xiaoqiang, deputy chief of the coking research institute.

"There is a control station with smart connections to all kinds of

automatic devices for production," Wu said. "This has made 'push-button' operations possible."

In addition, the oven has an intelligent emission and dust-absorbing system, which can turn exhaust fumes into reusable resources.

The THMG evolved from the Taiyuan Heavy Machinery Factory, founded in 1950. It was the first self-developed heavy machinery manufacturer in the People's Republic of China.

The THMG is now a major equipment and solutions provider for enterprises across a wide range of industries including metallurgy, mining, energy, new materials, transportation, chemicals and aerospace.

Du Juan and Zhang Zhibin contributed to this story.



Executives of Taiyuan Heavy Machinery Group and Jianyuan Coking attend an agreement signing ceremony for the delivery of the stamp-charging coking oven. ZHANG YAOTIAN / FOR CHINA DAILY