

# Barry Marshall, Who Busted the Ulcer Myth

## Dialogue

By XU Qingqun

Australian physician Barry Marshall won the Nobel Prize in physiology or medicine with Dr. Robin Warren in 2005 for their discovery that stomach ulcers are caused by the *Helicobacter pylori* (H. pylori) bacterium. Their discovery challenged decades of medical belief that ulcers were primarily caused by stress, spicy food and too much acid and provided a breakthrough in understanding the causal link between the bacterial infection and stomach cancer.

**When Marshall was his own guinea pig**

"In 1979, the pathologist Robin Warren observed a curved bacterium on the gastric antral mucosal tissue sections of patients with chronic gastritis and found that the gastric mucosa adjacent to this bacterium always had inflammation, thus realizing that this bacterium might be closely related to chronic gastritis," Dr. Marshall, who is also professor of clinical microbiology at the University of Western Australia, told reporters.

Since 1981, he has worked with Dr. Warren, studying patients with gastric diseases who underwent gastroscopy and biopsy and proved that the bacterium is related to gastritis. They also found that the bacterium was present in the gastric mucosa of all patients with duodenal ulcers, most patients with gastric ulcers, and a significant number of patients with gastric cancer.

Initially, however, though Dr. Mar-



Professor Barry Marshall. (COURTESY PHOTO)

shall experimented with different ways, animals and vaccines, he still could not develop an animal model for the bacterium. "To prove that H. pylori was the 'real culprit' in gastritis, I drank the culture fluid containing the bacterium and ended up getting seriously ill," he said, "Afterwards, Dr. Robin Warren and I jointly proposed that H. pylori was involved in the etiology of gastritis and peptic ulcer."

After their research results were published in *The Lancet* in April 1984, it triggered a wave of research on the bacterium. There were countless research papers, a journal devoted to the bacterium, the *Helicobacter Magazine*, was founded, a World Helicobacter Conference was started and began to be held regularly, and major pharmaceutical companies around the world invested

heavily in the development of drugs.

Through human trials, antibiotic treatment and epidemiological studies, medical researchers have continued to deepen their research on the pathogenic mechanism of the bacterium. Millions of patients have benefited from the results.

On October 3, 2005, more than 20 years after the discovery of H. pylori and its pathogenic mechanism causing gastritis, peptic ulcers and duodenal ulcers, Dr. Marshall and Dr. Warren were awarded the Nobel Prize.

Dr. Marshall remains dedicated to the eradication of H. pylori and the prevention and treatment of gastric cancer. He invented the "Marshall HP Personalized Precision Medicine", which eradicated cases of the bacterial infection by almost 95 percent.

### A long association with China

Dr. Marshall was elected a foreign academician of the Chinese Academy of Engineering, worked as the director of the Marshall Medical Research Center of Zhengzhou University in 2016, and established the Marshall Biomedical Engineering Laboratory at Shenzhen University in 2019.

However, his association with China began decades ago.

"In 1993, when I was working in the United States, I met a very good Chinese scientist who suggested that I try to develop medical business in China. At that time, we traveled around China and visited many of China's top elite universities," Dr. Marshall said. He was impressed with the infrastructure and scientific research facilities in China. His cooperation with China goes very deep. He collaborated with the Fifth Affiliated Hospital of Zhengzhou University to jointly train graduate students and established the Marshall Hospital. He also established the Marshall Medical Research Center at Zhengzhou University and the Marshall Biomedical Engineering Laboratory at Shenzhen University.

This year, Dr. Marshall signed a cooperation agreement with the Second Hospital of Ningbo for basic, clinical and translational cooperation in several fields, including training and research. Dr. Marshall has high expectations for future work in China. He hopes the cooperation in research will be deepened and benefit more people.

*This article was edited and translated by BI Weizi based on the Chinese version.*

## China Impression

# Beijing's Timeless Axis Becomes World Heritage

By Staff Reporters

In 1951, Liang Sicheng, a renowned architect and scholar, applauded the Beijing Central Axis for its crucial role in defining the city's distinctive and grand order. In his article, "Beijing — the Incomparable Masterpiece of Urban Planning," Liang highlighted how the city's symmetrical layout and spatial organization were centered around this axis, significantly influencing the capital's architectural and urban design.

Seventy-three years later, on July 27, the Beijing Central Axis: A Building Ensemble Exhibiting the Ideal Order of the Chinese Capital, was inscribed on UNESCO's World Heritage List, becoming China's 59th World Heritage Site.

The Central Axis is a line of historical and cultural landmarks that runs through the heart of the capital. Its origin dates back to the Yuan Dynasty (1271-1368), when Dadu, the capital, was established. The Ming (1368-1644) and Qing (1636-1912) dynasties further enhanced this axis, aligning it with traditional Chinese principles of urban planning that emphasize harmony between heaven and earth.

The axis is a marvel of urban design, reflecting the ancient Chinese philosophy of balance and symmetry. Key landmarks along it include the Forbidden City, the Temple of Heaven, Tiananmen Square, and the Drum and Bell Towers. Each site holds deep cultural and historical significance, and showcases the architectural ingenuity of ancient China. The recognition will preserve and celebrate the axis's historical and cultural value for future generations.

Efforts to have the Beijing Central Axis recognized as a UNESCO World Heritage Site gained momentum in recent years. The application

process began in 2012 with detailed documentation and conservation efforts, with the goal of meeting the criteria for World Heritage status by 2035.

The Central Axis is more than just a line of historical buildings, it is a living narrative of Beijing's evolution. It is a hub of cultural activities, historical explorations, and architectural marvels.

As history marches forward, the axis continues to embrace both its traditional heritage and modern advancements. The opening ceremony of the 2008 Beijing Olympics traced the Central Axis with 29 gigantic "footprints" of fireworks, symbolically leading to the Bird's Nest stadium. The axis, conceptually extended northward, becomes the Olympic Park Axis. This extension includes the National Stadium (Bird's Nest) on the east and the National Aquatics Center (Water Cube) on the west, further stretching through the Olympic Park to the Olympic Forest Park.

In 2022, Beijing became the first city to host both the Summer and Winter Olympics, with the Central Axis witnessing and contributing to this unprecedented honor. The newly constructed "Ice Ribbon" for the Winter Olympics, alongside the Bird's Nest and Water Cube, emerged as iconic landmarks on the Olympic Central Axis, reinforcing Beijing's symmetrical urban landscape.

In July 2022, the China National Archives of Publications and Culture situated at the northward central axis of Beijing, officially opened and became a new landmark of the line.

The Beijing Central Axis symbolizes China's enduring cultural legacy and architectural brilliance. Its recognition as a UNESCO World Heritage highlights its timeless value and the ongoing efforts to preserve its splendor for generations to come.



A view of the Beijing Central Axis from Jingshan Park. (PHOTO: SCIENCE AND TECHNOLOGY DAILY)

# How to Prevent Epidemics After Flood

## Science Outreach

By Staff Reporters

As heavy rains continue to lash parts of south China, people's safety and health are at risk. How can we prevent the outbreak of epidemics after flood disasters? Lin Jinlan, a specialist from the Office of Infection Control and Disease Prevention, Beijing Tsinghua Changgung Hospital, gave some

suggestions for clean-up and recovery.

First, do not return home until the authorities have declared it safe, and follow their instructions. Garbage in and around homes should be removed in a timely manner.

Second, maintain good hygiene during flood clean-up by minimizing contact with floodwaters or anything that may have been polluted. Wear protective clothing, including rubber boots and gloves, safety glasses, a hard hat, and a dust mask.

Third, do not use tap water if you notice a change in its color, taste, or odor; throw away any food that has

been in contact with floodwater, which is a breeding ground for bacteria and mold; and throw away soft plastic and porous items that have likely absorbed whatever the floodwaters brought in.

Fourth, heavy rains and increased humidity often cause pest activities. Large numbers of mosquitos, flies, fleas, ticks, and rats come out and multiply. Mosquito repellents and insecticides should be used to prevent contagious diseases, but be sure to keep them in a safe place out of reach of children and use them according to the instructions since most insecticides are

poisonous.

Fifth, gas appliances and pipes may break during floods, causing a gas leak. If you suspect a leak or smell of gas, leave your home immediately and call the gas company. If you have any gas appliances that have been flooded, you need to clean the sludge out of the pilot and burners. But first turn off the gas.

Lin also warned that the elderly, children and people with chronic diseases are more susceptible to infectious diseases after flooding. Family members and relief workers should focus on providing them with as much protection as possible.

# Mysterious Fangguo of Shang Dynasty in Northwest China

## Traditional Eastern Wisdom

By Staff Reporters

The Zhaigou site, the ruins of a vast settlement going back to the Shang Dynasty (1600 BC-1046 BC), is one of China's top 10 new archaeological discoveries of 2023. Lying on the Loess Plateau in today's Shaanxi

province, northwest China, it has an area of approximately three million square meters.

Archaeologists unearthed numerous relics with diverse functions, including a large cache of bronze artifacts, on 11 hills in the Zhaigou site. They discovered seven ruins of Fangguo, a feudal tribe and state that existed during the Shang Dynasty.

They are called so because of the oracle bone inscriptions unearthed at

the Yin Ruins of the late Shang Dynasty. In these inscriptions, these tribal states are often referred to as "X Fang," hence the term "Fangguo."

The oracle bone inscriptions document a myriad of Fangguo surrounding the late Shang Dynasty court, with nearly 70 major and minor Fangguo in the north and west alone. Some of these Fangguo were powerful, maintaining a complex relationship of both enmity and friendship with the Shang Dynasty,

engaging in close interactions. However, their historical records are fragmentary and unclear, making it difficult for later generations to accurately understand them.

The significant discovery of the Zhaigou site as a Shang Dynasty Fangguo provides crucial information for studying the relationship between the dynasty and its surrounding Fangguo, and the formation of the diverse yet unified Chinese civilization.

# Homegrown Drilling Method Sets World Records

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Accurate alignment was crucial. The team resorted to satellite positioning, marine vessel positioning, and drill head geomagnetic sensors to create a trisystem data collection framework.

Using this data, they developed an innovative drill guidance system enabling precise undersea drilling.

After extensive trials, Huayuan completed the project in 2018, marking a world-first achievement.

**"Electronic Eye" looking into deep sea**  
With the "two-way handshake" approach, Huayuan's work advanced as planned. They re-demonstrated their skills in the Mawan Power Plant upgrade project.

In July, under the clear skies of Shenzhen, a coast city in Guangdong province, south China, a horizontal directional drill started in the sea for the Mawan Power Plant gas pipeline from a small construction area.

Wei Chuanfeng, manager of the project, explained that it involved long-distance crossing and complex geological conditions, requiring simultaneous drilling from both the island where the LNG terminal is located and the power plant.

"We used the latest independently developed HYMGS geomagnetic guidance system, known as the 'electronic eye,' to ensure the drill heads met precisely in less than 120 days,"

Shi said.

The pipeline, completed in April, set three world records: it is the longest land-to-sea directional drill crossing, the longest directional drill crossing for natural gas pipelines, and the longest directional drill crossing for pipes over 600 mm in diameter.

"These records show that our 'two-way handshake' approach and the development of supporting equipment have reached maturity," Shi said.

# Foreign Travelers

## Get Improved Hotel Services

### Service Info

By Staff Reporters

Foreign travelers will see their accommodation services improve when visiting China, following the release of a document detailing new regulations, issued by the Ministry of Commerce and six other government departments on July 25.

Local authorities and online platforms should not use qualification requirements as barriers to prevent accommodation providers from hosting foreign guests, says the document.

Additionally, online platforms and accommodation providers are prohibited from illegally posting information that denies accommodation to foreign visitors. The regulations also support accommodation providers in conducting training to enhance service capabilities and strengthen industry self-regulation,

which ensures that business practices comply with laws and regulations and protect consumer rights.

Furthermore, online platforms are required to take responsibility for overseeing the information posted by their vendors, ensuring its accuracy. To streamline the process, the optimization of registration management services for foreign visitors, includes simplifying information collection procedures and adopting a tolerant and prudent approach to law enforcement.

Moreover, the regulations aim to improve communication channels for foreign guests and enhance the convenience of payment methods in the accommodation sector. The Ministry of Commerce and other relevant government departments have stepped up efforts to guide localities in implementing these measures, to provide a more foreigner-friendly accommodation environment and serve high-level opening-up and high-quality development more effectively.