

Expert's Map of Chinese Vaccine History

Dialogue

By GAO Shudi

Dr. Lance Everett Rodewald is an internationally recognized expert in immunization programs. Before becoming a long-term immunization program supporter in China on June 2012, he had a career leading immunization services at the US-CDC. After finishing his work at WHO and retiring in May 2018, the Chinese Center for Disease Control and Prevention (China CDC) appointed him as a senior advisor on the national immunization program.

"I love China, and I love my mission, [and] my work. It's nice to be in a team at the China CDC where people value each other and work together," he said.

An Asset for the country and its people

China's immunization program has come a long way, evolving and advancing over the years. "China's immunization program is an asset to the country and an even greater asset to the people," said Rodewald. As a leading expert in the field of public health and vaccination, he has been particularly impressed by the national roll-out of the hepatitis B and measles vaccines in China, commending the country's achievements in disease prevention and control.

One of the most significant achievements of China's immunization program is to reduce hepatitis B virus infection in children. This accomplishment can be attributed to the national immunization program's childhood hepatitis B vaccination, which has been instrumental in addressing the incremental problem. Rodewald emphasizes the importance of administering the hepatitis B vaccine to infants on the first day of life, which as a strategy has been diligently implemented in China. As a result, this generation has experienced a significant decline in hepatitis B infections, effectively conferring almost lifelong immunity against the disease.



Dr. Lance Everett Rodewald speaks on 2023 ZGC Forum.

(PHOTO: International Talent Magazine)

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Measles, another major concern for China's immunization program, witnessed a remarkable transformation after the introduction of the measles vaccine. Prior to the vaccine's implementation, measles was widespread among children in China. However, with the advent of the Live attenuated Vaccine of Measles in 1965, the nation saw a significant decline in measles cases. This success can be attributed to the high coverage and vaccination rates achieved through China's immunization program, ensuring that every child has access to necessary vaccines.

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Rodewald praises China's immunization program for its ability to achieve high coverage and vaccination rates, a feat that many countries struggle to accomplish. This widespread accessibility to vaccines has contributed to the program's effectiveness in improving the quality of life for the population.

An Unbreakable Connection

In 2012, Rodewald embarked on a life-changing journey as he set foot in China for the first time. His mission was to work hand in hand with Chinese experts and scholars to promote China's

immunization program. Little did he know that this journey would become an inseparable part of his life. His wife, Patricia, shared the same passion for China and decided to accompany him on this adventure.

She has volunteered for years to provide expert consulting services and technical support at the National Museum and the Palace Museum and has been teaching at the Central Academy of Fine Arts since 2022.

Rodewald's love for China is not just a matter of professional obligations, and it extends far beyond that. He carries a "map of China's vaccine history" in his mind, a testament to his extensive travel and work in various regions of China. Every place he visited, every endeavor he undertook, and every interaction he had with the locals contributed to the creation of a profound connection with the land.

Beyond his work-related activities, Rodewald embraced the Chinese lifestyle, taking time to explore the natural beauty of the country. Riding around Qinghai Lake with friends became one of his favorite pastimes, allowing him to immerse himself in China's stunning landscapes. Additionally, he witnessed the remarkable results of poverty alleviation efforts in Ruyang County, a poverty-stricken county.

When the world faced an unprecedented challenge with the onset of the COVID-19 pandemic, he never hesitated to help out his Chinese colleagues. Regardless of weather conditions, he rode 28 kilometers to and from work every day, working tirelessly to prevent and control the spread of the virus.

This article is in cooperation with International Talent Magazine.

My China Story

A City Suitable for Research: Ningbo

By Staff Reporters

There is a group of renowned researchers gathering at Ningbo Institute of Materials Technology & Engineering, CAS (CNITECH), providing vital support for the development of material technology in Ningbo city and Zhejiang province as a whole. Among this strong scientific research team, there are also foreign experts who moved to Ningbo with an enthusiasm for science and a hope to pursue their dream careers.

Ethiopian Neway Belachew Tadesse is one of them. Last August, Tadesse successfully applied for a fellowship at CNITECH, and started a new life journey in Ningbo.

For Tadesse, science is a way of understanding nature, which has provided powerful evidence and solutions to all the problems that he has encountered. He has been interested in science since childhood. When talking about dreams with other children, he was already fascinated by the portraits of great scientists on the wall in the classroom. The seeds of a science career seem to have already taken root in his heart in those young years.

Tadesse's research field focuses on chemistry. In his point of view, chemistry connects the biological world and the physical world, and serves as the central discipline of science. Perhaps in the view of the public, chemistry is an extremely complex and difficult discipline, but not to him. "Chemistry is experimental science and interesting," he said, adding that he and his colleagues are currently researching the manufacture of hydrogen energy using a green and renewable approach. Tadesse thinks chemistry has a wide range of application scenarios with infinite possibilities.

At CNITECH, every student or researcher is responsible for their own work. Tadesse believes that the attitude towards academics should be rigorous and respectful. During his study, he carefully listens to the professor's feedback, so as to improve and enhance his work.

He leads a simple life, and while scientific research occupies a lot of his time, he tries to keep a balance between his work and family, by having fun too.

An ideal research environment is vital for scientists. In Tadesse's opinion, Ningbo is the ideal place for the realization of innovation. He learned about the beautiful city for the first time from one of his friends, a student from Ningbo University. When he first arrived in Ningbo, the city was beyond his imagination. He marveled at the convenient infrastructure, with its safe and livable environment.

Tadesse frequently expresses his love for Ningbo. In his leisure time, he likes to take public transportation to see the beautiful scenery of the city and explore the food, which is different from his hometown, with his colleagues. As a scientific researcher, he also appreciates the city's emphasis on bright prospects for the development of scientific research. He described the city as "a rising star" with development potential and hopes to settle here on a long term basis with his wife and two children.

This article is contributed by the Ningbo Municipal Department of Science and Technology.



Dr. Neway Belachew Tadesse works on his experiment. (COURTESY PHOTO)

Traditional Eastern Wisdom

Defending Territory Requires Accurate Maps

By ZONG Shihan

Back in ancient China, the Liao dynasty (907- 1125), located in northern China, sought to expand its territory through using an unknown mountain as a reference point, in order to push the boundary further south into the territory of the Song dynasty. However, both nations had previously agreed that the Baigou River would serve as the dividing line, with the land north of the river belonging to the Liao and the land south of the river to the Song.

Faced with this dilemma, Shen Kuo (1031-1095) utilized the Shouling Tu — the most accurate administrative map in that era — as evidence to demonstrate that the contested mountain was situated south of the Baigou River, firmly establishing it as part of the territory of the Song dynasty. The Shouling Tu, which was drawn by Shen in twelve

years, played an important role in defending the territory.

A millimeter error on the map could mean a thousand miles in reality. According to his book *Dream Pool Essays*, in order to overcome the challenges posed by different terrains, Shen further developed Pei Xiu's Six Basic Principles for Cartography around the 3rd century AD, when he tried to draw the Shouling Tu.

Shen made three notable advancements in his map-making endeavors. First, he employed a larger scale, enabling more detailed depictions of areas of the same size. Second, he increased the number of directional indicators from eight to 24, greatly improving measurement accuracy. Third, he replaced the traditional method of measuring distances by walking along the road with straight-line distance measurement, minimizing unnecessary errors caused by winding roads.

Dedicating his life to creating a comprehensive and accurate map, along with surveying and mapping methods,



The picture shows the Baigou River in Gaobeidian city, Hebei province, which was once the border between the Song Dynasty and the Liao Dynasty. (PHOTO: VCG)

Shen produced an overall lay out of the entire country, along with individual maps of each province and county.

Does Autumn Begin from Start of Autumn?

Photo News

By ZONG Shihan

Start of Autumn is the thirteenth solar term in the Chinese lunar calendar and the first solar term of autumn. It will arrive on August 8 this year, but in fact, it does not officially mark the beginning of autumn. In modern climatology, autumn is deemed to commence when the average daily temperature consistently falls below 22° C in the latter half of the year. During the Start of Autumn period, most regions in China still contend with elevated temperatures.

Despite this, Start of Autumn holds significance as a turning point, symbolizing the transition of seasons and changing

es in agricultural practices. It indicates that all living organisms are progressing from growth towards maturity and signals the arrival of the harvest season.

In ancient times, after the harvest during Start of Autumn, people would observe customs to express gratitude to the heavens and ancestors on an auspicious day. It is also a time to savor newly harvested crops and celebrate the fruits of their labor. Additionally, there are folk customs in China like "biting autumn" (consuming watermelons to prevent dryness during autumn), "fattening up for autumn," and "sun-drying autumn" (a traditional practice of drying crops in certain regions).

While Start of Autumn may not bring cooler weather, it gives us the hope of bidding farewell to the scorching summer and ushering in a bountiful harvest.



This is a picture of sun-drying autumn in Wuyuan county, Jiangxi province. Farmers dry crops like chili peppers, corn and chrysanthemums on racks in front of their houses. The vibrant crops and the traditional houses make for a beautiful rural scene.(PHOTO:VCG)

Why Heatwaves Make Us So Tired

Science Outreach

Edited by BI Weizi

When the summer heat makes you feel tired, it's not just a hallucination: there are real scientific reasons for the lethargy.

Temperatures have soared this summer, setting records of the hottest season in history. The high temperatures are not only taking a toll on people's physical fitness, but also making

people suffer from summer lethargy, a seasonal feeling of fatigue that includes multiple symptoms such as loss of appetite, fatigue, headaches and dizziness.

According to experts, summer fatigue is mainly caused by the long exposure to sunlight that many people experience during the summer. Due to the longer duration of sunlight, melatonin production is affected, which influences our sleep. Also, the higher temperatures make it harder for the body to maintain a balanced internal temperature. This extra effort can make you feel more tired.

In order to maintain a stable body temperature, vasodilatation is required. Vasodilation is the process by which

your blood expands, allowing more blood to flow near the surface of your skin, which releases heat.

The process not only allows you to cool down, but can also make you appear "flushed" and feeling tired.

Sweating is another process that can keep our bodies cool. Sweating allows the skin to cool down as the sweat evaporates.

On the inside, however, sweating causes both a person's heart rate and metabolic rate to increase, which can consume massive amounts of energy. Excessive sweating can make you extremely tired and sleepy.

Another reason people feel tired

on hot days is sleep deprivation. A 2022 study found that for every degree of warming, people get a little less sleep. The study's lead author, Kelton Miner, a postdoctoral research scientist at Columbia University's Data Science Institute, said that when nighttime outdoor temperatures exceeded 10° C, people lost an average of 37 seconds of sleep per night for every 1° C increase.

Whether you are at the pool, in the yard, or just relaxing in the shade, hot temperatures will eventually make you feel tired. The best way to stop or even reverse this is to stay hydrated, since hydration replaces the fluid lost through sweating.