

Unveiling Nature's Wonders

Dialogue

By LONG Yun & BI Weizi

Nature is a vast and intricate masterpiece that is full of wonders to be explored. In a recent interview with *Science and Technology Daily*, American Professor of Plant Ecology Uromi Manage Goodale from Xi'an Jiaotong-Liverpool University (XJTLU), painted a vivid portrait of the nature's gifts.

Curiosity unleashed
When recalling the starting point of her academic journey, Goodale said, "It was my father who unleashed my curiosity about plants. When I was a young child, I remembered my father told me that just like children need water, plants also need water."

Throughout her career, Goodale has been propelled by pivotal moments that deepened her connection to the natural world and botanical science. She reminisced about the profound influence of her former advisor, Professor Graeme P. Berlyn, who ignited her passion for understanding the inner workings of plants.

In 2012, Goodale encountered an opportunity to conduct research in China. "When I heard about this opportunity, I was very excited," she said, adding that she had a childhood fascination with Chinese culture and history. The Chinese Academy of Sciences, which her mentors at Yale called "one of the best scientific institutions in the world," solidified her decision to embark on this new chapter.

Today, Goodale's research at XJTLU encompasses diverse topics within plant ecology, with a particular emphasis on



Professor Uromi Manage Goodale. (COURTESY PHOTO)

seed biology, ecology, and conservation. Through her work, she seeks to reveal the secrets of seeds, shedding light on their crucial role in sustaining ecosystems and safeguarding biodiversity.

Profound influence
Her studies in plant ecology and seed physiology is more than fulfilling her academic curiosity. It is also a vital endeavor with far-reaching implications for tackling pressing environmental issues. "Temperature and water essential for seeds to grow are the two main factors that are changed due to global climate change," she emphasized.

Her work illuminates the intricate relationship between climate change and plant regeneration. Through studying how plants respond to shifts in temperature and water availability, she unveils the mechanisms that drive changes in plant communities and ecosystems. From droughts to heavy rains, plants are profoundly impacted by alterations in

climatic patterns, leading to cascading effects on biodiversity and ecosystem health.

In her research group, Goodale focuses on key plant species, such as orchids, which play crucial roles in ecosystems worldwide. These species face numerous threats, including habitat loss and over-harvesting, which place them at risk of extinction. "Focusing on how they're growing and how the seeds of the species can be conserved can help us conserve some of these species," said Goodale.

Through techniques like low-temperature seed banking, Goodale aims to safeguard endangered plant species for future generations. She seeks to ensure the resilience of ecosystems in the face of environmental challenges by understanding the relationships among plants, pollinators and fungi.

A facilitator of learning
Goodale said she is committed to

science outreach activities in order to ensure scientific knowledge reaches beyond the academic community. "Such activities should be a cornerstone in any scientific researcher's career because we need to make sure not only the experts and the scientific community, but the general public at large can also have an understanding of what our findings are," she said.

Furthermore, she takes pride in her role as a "facilitator of learning," rather than merely being a teacher. "A loving learning environment where our students are comfortable to ask questions and explore, that is what I aspire to do as a facilitator of learning," she said.

She also actively engages in popularizing science to inspire young minds and foster a deeper appreciation for scientific inquiry. She believes that science is not just about doing research, but also training students to ask questions and critically evaluate situations in order to come up with innovative solutions that can make our world a better place.

At the same time, she cherishes her role of educating the next generation on tackling global environmental issues, particularly climate change.

In her free time, Goodale is adept at balancing her work and life. Her passion for languages and art has enriched her experience in China. "I find Chinese to be a very fascinating language with the four different tones," she said.

Through her linguistic pursuits, Goodale has forged connections and gained insights into Chinese life, further integrating herself into the fabric of the country. "If you can talk to people, you get to know the place better, and you learn to live a fuller life," she said.

Letter to the Editor

Exploring Xi'an Through Belgian Eyes

By Cleo Zoe Lauwers

Three months ago, my boyfriend and I arrived in Xi'an, each with a 21 kg suitcase. I had found it difficult to pack my entire life in a medium-sized suitcase, but one thing I was sure of, the suitcase should contain chocolate. As a true Belgian, I need my daily fix of chocolate, and I am afraid of having to go even one day without it. That brings me to a fun fact about Belgium, famous for its high-quality chocolates.

Cities in China are huge. In Belgium, we lived in Ghent, the third largest city there. That sounds impressive, but Ghent has only 265,000 inhabitants. It is so small compared to Xi'an! As many other inhabitants of Ghent, I was used to doing everything by bike or on foot. Here, however, the distances are much longer. Biking or going on foot is less of an option, unless you're in excellent shape. I had to get used to taking the metro, the bus or a taxi.

That being said, I'm absolutely amazed by the different means of transportation in Xi'an. There's easy access to bikes, the metro, buses, taxis and so on. In Belgium, public transportation is not available everywhere, even if it is, it is rarely on time.

Meeting up with a friend in Belgium should be planned in advance, two weeks beforehand preferably, and the exact time has to be specified. I've noticed people in Xi'an just say, "Want to hang out tonight? See you then!" I've learned to be more relaxed with these things, and to my surprise, the best moments are often those unplanned.

"Food is life" here, so my students told me. Lunch time in Belgium is one hour if you are lucky, 30 minutes for most people. We gulp down our food in order to get back to the business of our day as soon as possible. So coming to Xi'an and seeing people enjoy food so much, taking the time to sit down and have a hot meal, is like a breath of fresh air.

On top of that, food in Belgium is not prepared with many spices. We use salt and pepper, that's about it. Here, food is so rich in flavor. For me, someone who likes well-seasoned food, it is heaven on earth. I do miss French fries though, which are, another fun fact, actually Belgian.

I love my home country, but I must say, China is starting to grow on me.

The author is a Belgian teacher at the Xi'an International Studies University.

Optimizing Services for Foreigners

Service Info

By Staff Reporters

China will further facilitate the work, study, and investment activities of foreign nationals in the country, as well as visa facilitation for foreign business personnel and their families, said the National Immigration Administration (NIA) during a recent press conference.

The NIA has been providing services from various aspects including policies, mechanisms and procedures.

According to Jia Tongbin, an NIA official, foreign nationals who have continuously held work-type residence permits for more than one year and those working in well-known enterprises or research institutions may now apply for

residence permits valid for up to five years. Additionally, those meeting specific conditions may be granted permanent residency in China.

Moreover, the NIA is promoting additional measures. For instance, foreign nationals applying for residence documents for investment, entrepreneurship, work, or study in China are now exempt from having to leave their passports for verification. Instead, they can present their passports at the issuance window at the agreed-upon time to collect their residence permit, leaving them time for dealing with passport-related work during this period.

Jia also stated that the NIA will collaborate with relevant departments to introduce more proactive, open and effective immigration policies and measures, contributing to China's high-level openness.

Joint Efforts to Build World's Largest Radio Telescope

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According to Wu Xuefeng, deputy director of the Purple Mountain Observatory, the Chinese Academy of Sciences, China's commitment to the SKAO is systematic and comprehensive.

The Chinese industry and academia have participated in the design and development work of several international SKA design consortia, including the SKA mid-frequency array SKA-Mid. China is also deeply involved in the development of the SKA's core equipment, such as the central signal processing system, the time signal transmission system.

In addition, the Chinese scientific research community attaches great importance to the cultivation of SKAO-related talents. Several graduate students and postdoctoral fellows have been selected to work at the SKA's world-class academic institutions for future SKAO project construction and scientific operation.

International collaboration key for astronomy

Science is fundamentally collaborative on an international scale, especially astronomy, said Diamond.

The SKA is being built by scientists and engineers from 20 countries, and

will eventually include some 200 parabolic dishes in South Africa and more than 131,000 tree-like antennas in Australia. Eight other African countries, including Ghana and Kenya, are also hosting some of the system's components.

Launched in Rome in March 2019, with 14 consortium members, the SKAO will be a global observatory, operating two telescopes on three continents on behalf of its member states and partners.

Diamond believes that the power of collaboration made the SKA possible. "I don't think any single country would have succeeded in building the SKA," he said.

After the 11th SKAO Council meeting in Nanjing, there's another international SKA meeting in Shanghai, where experts will look at how scientists and astronomers can use SKA data. "China could not be more welcoming to the radio astronomy community," Diamond said.

According to him, the SKA will be the world's largest radio telescope when it is completed in 2028. It will be 50 times more sensitive than any other existing radio instrument, enabling scientists to study the universe in much greater detail through the dust and gas that block optical observations.

Dried Fruit: Good or Bad?

Science Outreach

By Staff Reporters



PHOTO: VCG

People's opinions diverge greatly when it comes to dried fruit — some believe that it is unhealthy and contains too much sugar, while others think that it's a reliable source of micro-nutrients.

According to Fan Zhihong, director of the Chinese Nutrition Society, dried fruit can boost fiber and nutrient intake and contain large amounts of antioxidants. But dried fruit is also a high-carb food, containing sugar and many calories that can cause problems if eaten too much.

Fruits are eaten not only to get vitamin C, but also to get minerals such as potassium and magnesium, as well as various phytonutrients such as carotenoids, anthocyanins, flavonoids, and phenolic acids. Many of these nutrients can still be preserved in dried fruits.

Different ways of food preserva-

tion have been practiced since ancient times in one way or another according to local and cultural traditions. Due to the absence of refrigerators, dehydration methods that reduce the amount of water in fruits to prevent bacteria, yeast or fungi from growing on them are used to prevent food from spoilage. Sun drying, tray (air) drying, freeze drying, and vacuum microwave drying are commonly used with their unique benefits and disadvantages.

Freeze drying is a unique method of drying that eliminates all moisture and affects food flavor less than traditional dehydration, such as sun drying and air drying. This process works by freezing the material in a vacuum chamber at a low temperature, then reducing the pressure and adding heat to neutralize the frozen water in the material, said Fan. In contrast to alterna-

tive drying techniques, this procedure, although more expensive, retains the shape and color of fruit and provides a great rehydration property.

More importantly, with freeze drying, water-soluble vitamins, such as vitamin B and vitamin C, anthocyanins, flavonoids, chlorogenic acid and other water-soluble healthful compounds can be preserved; since no frying is involved, there is no loss of carotenoids and vitamin K. In addition, no artificial preservative is added because harmful microorganisms have a difficult time growing in such a dry environment.

However, it should be remembered that dried fruit is more concentrated in sugar than whole fruit, said Fan. For people with diabetes, it is best to consult a dietitian to find out how to include dried fruit in their meal plan, she added.

White Tea: Taste of Nature and Health

Traditional Eastern Wisdom

By ZONG Shihan

White tea is one of the healthiest types of tea in China. It is sourced from the tender buds of tea leaves, which are covered with a layer of white fluff after drying, thus giving the tea its name.

Compared with other types of tea, the processing technique of white tea is relatively simple. Freshly picked tea leaf buds are exposed to weak sunlight or placed inside a well-lit and ventilated room to wither naturally. When the tea leaves are 70-80 percent naturally dried, they are then dried slowly over a gentle heat.

Its simple manufacturing process makes its benefits stand out. Because it doesn't go through excessive processing, white tea retains many natural ingredients such as tea polyphenols, amino acids, vitamins and minerals, all of which have health benefits such as being antioxidant, antibacterial, and immune-boosting.

White tea has an exceptional storage value. The taste of white tea in the first year of production is close to that of green tea. After two or three years, the chemical structure of the tea slowly changes, bringing a more mellow aroma. The tea can also help with anti-inflammation, heat relief and liver nourishment.

Upon reaching five to six years of

age, white tea is considered vintage. Over time, its aroma matures and the color of the tea turns amber, becoming

almost transparent. In addition, the health benefits are becoming increasingly prominent.



A tea farmer dries white tea leaves at a tea factory in Fujian province. (PHOTO: XINHUA)