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Xi Calls for Int'l Scientific, Technological Cooperation

International scientific and technological cooperation is a major trend, and countries should jointly promote the cause of peace and development for humanity through scientific and technological innovation, Chinese President Xi Jinping said recently.

Xi made the remarks in reply to a letter from renowned Cuban scientist Pedro A. Valdes-Sosa.

Noting that Valdes-Sosa has long been committed to enhancing the special friendship between Cuba and China and actively promoting scientific research cooperation between China and other countries, the Chinese president congratulated Valdes-Sosa and his team on having achieved breakthroughs in multiple areas.

This year marks the tenth anniversary of the Belt and Road Initiative (BRI), Xi said, stressing that the fundamental starting point and focus of this initiative are to explore new ways of common development among different countries, and to open up a "road to happiness" that benefits all countries and the world.

Over the past decade, Xi said, China has made significant progress in accelerating scientific and technological exchanges and knowledge sharing with participating countries, continuously optimizing the innovation environment, gathering innovation resources, and pushing forward cooperation on scientific and technological innovation.

Xi pointed out that the traditional friendship established by the older generation of leaders from China and Cuba has been flourishing and continuously bearing rich fruits.

Since last year, the two sides have reached important consensus on jointly building a China-Cuba community with a shared future, said Xi, expressing sincere hope that China-Cuba cooperation in various fields including science and technology could continue to deepen in the new era, so as to better benefit the people of the two countries.

In a recent letter to Xi, Valdes-Sosa told the Chinese president about his team's achievements in promoting brain-science research and China-Cuba cooperation on neurotechnology in China.

The Cuban scientist also expressed his willingness to continue to enhance China-Cuba friendship and contribute to the implementation of the BRI on a larger scale in the world.

Source: Xinhua



Astronaut Gui Haichao is out of the return capsule of the Shenzhou-16 manned spaceship at the Dongfeng landing site in north China's Inner Mongolia autonomous region, October 31, 2023. (PHOTO: XINHUA)

Editor's Pick

China's Manned Spacecraft Blazes Innovations in Space Exploration

By LIN Yuchen & FU Yifei

China's space exploration enters a phase of new successes and experiments with the Shenzhou-17 manned spacecraft carrying three taikonauts, the youngest-ever Chinese crew, to Tiangong, the Chinese space station.

The spacecraft was launched from the Jiuquan Satellite Launch Center in the Gobi Desert in north China on October 26, the second manned spacecraft launched by China this year.

A quicker launch

It was developed by the China Academy of Launch Vehicle Technology (CALVT), a subsidiary of the China Aerospace Science and Technology Corporation (CASC). Wei Wei, director of the general design office, General Design Department

of CALVT, said the Long March-2F Y17 rocket that carried the spacecraft was refined with 25 additional changes compared to its last version.

These changes improved its design, streamlined processes, and refined contingency plans, including optimized component localization and software configuration. These improvements enhanced the rocket's reliability and safety, Wei said.

The operations at the launch site were also streamlined to improve efficiency, including improving contingency plans for rapid response to potential problems.

Wei said the overall impact of these improvements was to shorten the launch preparation process considerably. When Tiangong was constructed, the rocket

launch process used to take 49 days. But now it's been reduced to 35 days. The goal is to bring it down to 30 days.

Transformation in manufacturing process

To ensure high quality of the Shenzhou spacecraft, the CASC transformed its manufacturing process. They shifted from the traditional two-dimensional blueprint-based manufacturing model to a three-dimensional digital manufacturing model based on 3D models. This transition improved manufacturing efficiency and made the production process "visible" in real time. It also resulted in better visualization and understanding of the various stages of production, leading to increased precision and quality control.

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Mobile Clinics Bridge Healthcare Gaps in Sierra Leone

International Cooperation

By LIANG Yilian

In Bawuma Kailun village in Sierra Leone, 10-year-old Lucinda Dott Davvys is taken to a mobile health clinic by her family. Her face is clouded in anxiety and pain, as she suffers in silence. The medical team gently check her serious leg fracture which is close to necrosis. Yet despite this traumatic situation, if it weren't for the free medical treatment, her family might not have considered taking her to hospital.

In many villages across Sierra Leone, a small country on the southwest coast of West Africa, tragic scenes like

this of people enduring illness or injury are common for locals.

For many, they will never pay a visit to a hospital in their lives, not because they remain healthy or injury free, but due to an inability to afford treatment costs. Compared with many, this young girl was fortunate. She was transferred to a major hospital thanks to the staff on the mobile health clinic, which ultimately saved her leg from amputation.

In 2018, the then Minister of Science and Technology Wang Zhigang, as a special envoy of President Xi Jinping, pledged to donate four mobile health clinic buses to help enhance medical services in remote areas of Sierra Leone. Due to the COVID-19 pandemic, the buses arrived in the country in 2021. The mobile health clinic service that helped

the young girl, was one of these.

Hospital on wheels

These mobile health clinics are equipped with portable diagnostic tools, capable of testing for blood, urine, liver and kidney maladies, electrocardiograms, ENT disease diagnostics, and trauma emergency kits.

Xia Yinyin, a Chinese diplomat in Sierra Leone in charge of health and technology affairs told *Science and Technology Daily*, "The ICU, trauma treatment room, ENT department examination room, cold storage for vaccine agents, and data recording room are all integrated within the vehicle."

Sierra Leone, one of the world's least developed countries, suffers from a severe lack of healthcare resources.

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Revitalization of Northeast China for New Opportunities

By LANG Yilian

A meeting of the Political Bureau of the Communist Party of China (CPC) Central Committee on October 27, presided over by Chinese President Xi Jinping, also general secretary of the CPC Central Committee and chairman of the Central Military Commission, reviewed "The Guideline on Policies and Measures to Further Promote a New Breakthrough in the Full Revitalization of Northeast China in the New Era."

In the past six months, the provinces of Heilongjiang, Jilin, Liaoning as well as the Inner Mongolia autonomous region have been supporting scientific and technological development and made achievements with regional characteristics.

Liaoning is pooling resources to build an international-level scientific research zone - Dalian Yinggongshi Science City. To support its development, Dalian City has arranged special financial support, to set up a specialized fund, build a full lifecycle fund system, and promote social capital to support R&D and transformation.

At present, Jilin is building an industrial cluster around the Jilin Chang Guang Satellite Technology Co., Ltd, improving the industrial ecology, opening up the industrial chain, supply chain, talent chain and value chain, and embracing the new blue ocean of the optoelectronic information industry.

Heilongjiang has built a Shenzhen (Harbin) Industrial Park in Harbin. In terms of science and technology, talent, finance, industry, urban construction and business environment, the park has successively promoted 126 mature policies and advanced practices from Shenzhen to Harbin. It has attracted a large number of sci-tech innovation enterprises, and formed an industrial cluster dominated by digital economy, high-end equipment manufacturing, and biomedicine.

The Department of Science and Technology of Inner Mongolia autonomous region invested 400 million RMB in special funds to promote key projects of the National Center of Technology Innovation for Dairy, including supporting the construction of a service platform, operation management and innovation capacity building of the headquarters, and comprehensively enhancing its innovation capacity.

The full revitalization of the region involves various factors, including advancing modern large-scale agriculture and building infrastructure. Regional self-sufficiency will lead to increased connectivity and economic dynamism. The transformation will mean a promising era of collaboration at home and abroad, drawing enterprises and partners to contribute to the resurgence of this pivotal economic zone.

New Graphic



WECHAT ACCOUNT



E-PAPER



CIIE's Circle of Friends Expanding

By LI Linxu

As an important platform to advance high-level opening up, the sixth edition of China International Import Expo (CIIE) will be held in Shanghai from November 5 to 10.

Participants from 154 countries, regions and international organizations are expected to join this year's CIIE, said Sheng Qiuping, vice minister of commerce, at a recent media briefing.

More than 3,400 exhibitors and 394,000 professional visitors have registered to attend the event, said Sheng, noting that CIIE is welcomed around the world, with an increasingly larger circle of friends.

Sixty-nine countries and three international organization have confirmed to be this year's country exhibitors, of which 11 attend CIIE for the first time.

Honduras, Kazakhstan, Serbia, South Africa and Vietnam will serve as this year's guest countries of honor.

Of particular note is that this year's China Pavilion will cover 2,500 square meters, the largest ever in the history of the CIIE.

The exhibition area of the business exhibition will be around 367,000 square meters, and 289 Global Fortune 500 companies and industry-leading enterprises will attend this year's CIIE, both exceeding the previous levels.

The industry heavy-weights to at-



The National Exhibition and Convention Center (Shanghai) is decorated to welcome the upcoming sixth CIIE. (PHOTO: XINHUA)

tend the expo include the world's top 15 vehicle brands, top 10 industrial electrical companies, and top 10 medical equipment companies.

The world's top three miners, top four grain traders, and top five shipping

companies will also be on the stage of this year's expo.

A batch of new products in the fields of high-end equipment manufacturing, green and environmental protection, and biotechnologies will be un-

veiled at this year's expo.

The Hongqiao International Economic Forum, an important part of the CIIE, will host a series of forums, and release the World Openness Report 2023, according to Sheng.

Exchange & Cooperation

Talented Young Scientist Program Celebrates 10th Anniversary

By ZHONG Jianli

Scientific and people-to-people exchanges serve as a bridge for enhancing mutual knowledge, trust and affinity in the science and technology community.

The Talented Young Scientist Program (TYSP) launched by China's Ministry of Science and Technology (MOST) in 2013 offers young scientists from other countries a good opportunity to get acquainted with the latest sci-tech developments in China and promote international sci-tech cooperation, Zhang Guangjun, vice minister of China's Ministry of Science and Technology, said during a symposium marking the 10th anniversary of the program on October 31.

The TYSP has been welcomed by

sci-tech institutions and young experts in the Belt and Road Initiative (BRI) partner countries, attracting more than 700 young scientists from about 40 countries to work and study in more than 200 institutions in China.

At the third Belt and Road Forum for International Cooperation in Beijing earlier in October, China announced eight steps to support high-quality BRI cooperation, including advancing innovation in science and technology and supporting people-to-people exchanges.

Sun Jian, deputy director general of the Department of International Cooperation at MOST, said the TYSP has not only strengthened mutual trust for inter-governmental cooperation, but also provided convenient and efficient channels for universities, research insti-

tutions and enterprises of various countries to expand and deepen cooperation.

"It has also built an open and inclusive platform for young scientists from different countries to learn from each other," Sun added.

Addressing the event by video, Yasser Refaat, vice minister of Egypt's Ministry of Higher Education and Scientific Research, said the TYSP "with its remarkable ability to nurture young scientists' excellence but also significantly contributed to the exchange of innovative concepts and technological solutions for addressing global challenges.

Exchanges and cooperation under the TYSP have yielded results in various fields, such as agriculture, the life sciences, chemistry and chemical in-

dustry, materials, the environment and medicine.

Gao Xiang, director general of China Science and Technology Exchange Center, said TYSP participants have worked together to build an open international innovation environment, carried out joint research to enhance scientific research capacity, and gained career development.

There have been several academic achievements, including R&D papers, monographs and patents, which have contributed to global scientific and technological progress.

During the symposium, a collection of articles on the TYSP participants was released, which will provide helpful references for international sci-tech cooperation and cultivating young scientists in the future.

Participants Laud TYSP's Role in Promoting Exchanges

By CHEN Chunyou

The 10th anniversary of the Talented Young Scientist Program (TYSP) is a milestone from which it will move forward with its mission to ignite passion in young scientists and support them to come up with innovations and breakthroughs that will enrich collective knowledge.

This was the opinion of the attendees at a symposium marking the 10th anniversary of the TYSP organized in Beijing on October 31 by the Department of International Cooperation of Ministry of Science and Technology and the China Science and Technology Exchange Center.

The researchers who had participated in the program and their institutions from around the globe shared their stories with the TYSP and spoke about their expectations.

Gao Qingzhu, deputy director of

the Institute of Environment and Sustainable Development in Agriculture, Chinese Academy of Agricultural Sciences, said his organization received five scholars from Mongolia and Egypt. They applied to take part in projects with their Chinese counterparts and published high-quality papers during the period of cooperation.

Gao suggested extending the TYSP research cooperation span to more than one year since it takes time to get results from agricultural research. This can better meet researchers' needs, he said.

Farkhod Kasimov, an associate professor at the Tashkent State Technical University of Uzbekistan, joined the TYSP in 2018, when he was invited to take part in cooperative research at the Institute of Automation, Shandong Academy of Sciences in east China. It was his first visit to China. During his stay at the institute, he met researchers

from different backgrounds, and had the opportunity to implement his research ideas.

Kasimov and his team made significant progress in improving the automatic control system of agricultural machinery.

Kasimov, who is currently studying intelligent agricultural machinery in automation, hoped that the scope of scientific and practical cooperation under the TYSP would expand in the future.

In the era of globalization, people are faced with common challenges, such as poverty, epidemics, natural disasters and climate change.

The TYSP has created a platform where scientists across the world can work together to promote exchanges and share knowledge, improving humanity's living environment, said Naser Golsanami, an Iranian researcher at the Shandong University of Sci-

ence and Technology who had taken part in the TYSP. He also said the program can play a key role in sustainable development, high-quality industrial growth and talent cultivation.

"The TYSP not only contributes to the advancement of science, but also plays a significant role in fostering understanding and collaboration among people and nations," said Ferenc Hegyi, a research fellow at the Hungarian University of Agriculture and Life Sciences.

Hegyi, who joined the TYSP in 2019, regards it as a life-changing experience. He said it enabled him to learn about new research practices, experience a new culture, and build cross-cultural understanding.

More young researchers across the globe should participate in the program if they have the opportunity, he added.

Policy

Action Plan to Stimulate Patent Application

By ZHONG Jianli

To promote the industrialization of patents and accelerate the transformation of innovation achievements into real productivity, the General Office of the State Council recently issued the Special Action Plan for Patent Transformation and Application (2023-2025).

The plan proposes that a number of high-value patents should be industrialized by 2025, while the rate of patent industrialization in universities and R&D institutions will have increased significantly. The turnover of technology contracts involving patents nationwide is expected to reach 800 billion RMB, and the output value of certified patent-intensive products should exceed one trillion RMB.

"Through the implementation of a three-year special action, we aim to solve problems in patent transformation through improving patent quality and strengthening policy incentives, so as to enhance the efficient use of patents and better help high-quality economic development," said Shen Changyu, commissioner of China National Intellectual Property Administration during a recent press briefing in Beijing.

Data shows that a total of 1.6 million invention patents had been granted in core industries of China's digital economy by 2022, accounting for 38 percent of the total amount of invention patents, which provided strong support for the digital transformation and upgrading of

industries.

According to the plan, it is necessary to sort out and revitalize the stock of patents in universities and scientific research institutions, advance the growth of small- and medium-sized enterprises through patent industrialization, strengthen the efficiency of intellectual property (IP) application in key industries, and cultivate and promote patent-intensive products.

It also calls for the building of a high-standard IP market system and a unified and standardized IP trading system, as well as promoting diversified financial support for IP development.

Du Mo, head of regulations at China National Financial Supervision and Administration, said the Administration will continue to improve the IP pledge financing policy system, support banks to provide loans for the R&D of intangible assets such as patents, and expand the paperless processing of pledge registration.

In deepening international cooperation on IP, the plan proposes to promote patent sharing and applications in the Belt and Road Initiative partners and BRICS countries, and encourage opening up IP rights of green technology internationally.

According to Shen, China has set up IP cooperation relations with more than 80 countries and regions and international organizations, and established the Patent Prosecution Highway (PPH) with 32 countries, which effectively promoted IP international cooperation and exchanges.



The Fuxing intelligent bullet train prepares for departure at Fuzhou South Station. It is a new generation of high-speed intelligent trains developed by China with independent intellectual property rights. (PHOTO: XINHUA)

China's Manned Spacecraft Blazes Innovations in Space Exploration

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To enhance R&D, the manufacturing team used advanced automation technologies, replacing manual labor with automation. This improved assembly guidance and contour checks, improving both efficiency and accuracy.

For the Shenzhou-17 mission, the team continued to use the relay terminal developed by the CASC. The relay terminal, along with the payload developed for the relay satellite, establishes a "space highway" that ensures uninterrupted communication between the spacecraft and the ground, so that the ground testing personnel can monitor the spacecraft's flight status in real time.

Putting people first

However, the most important feature of the Shenzhou-17 is ensuring foolproof safety of the crew, according to Chen Tongxiang, a researcher at CASC.

It goes with the Chinese governance philosophy that the people and their lives always come first.

China's manned spaceflight development has been a process of solving

problems painstakingly and innovatively.

When the manned spaceflights started, our development team faced a large number of technological challenges, said Zhang Bainan, deputy chief designer of China's manned spaceflight project. But they rose to the challenge, aiming at independent breakthrough technology.

"We mastered the core key technologies of manned spaceflight step by step," Zhang added.

According to Chen, in the past two decades, besides breakthroughs in manned spaceflight technology, China has also achieved similar success in cabin technologies, including using robotic arms to assist in cabin activities, and in on-orbit rendezvous and docking technology.

The next step is to study the living conditions of the astronauts in space, including growing plants in space to ensure fresh vegetable supply in the future.

Zhang called the manned spaceflight spirit one of improvement, unity and cooperation, and pioneering and innovation.

INSIGHTS

Thumbs-up for Green BRI

Voice of the World

By LI Linxu

Green BRI has become an important aspect for implementing the Global Development Initiative, the Global Security Initiative, and the Global Civilization Initiative, which is lauded for its success around the world.

Promoting green development

During the third Belt and Road Forum for International Cooperation (BRF), China unveiled eight major steps to support high-quality Belt and Road cooperation, including promoting green development.

BRI demonstrates that we have a historic opportunity to build modern, green cities, communities, and transportation and power systems that place resilience and sustainability at the heart, said UN Secretary-General Antonio Guterres.

He sees the BRI's potential to make valuable contributions in two key areas of action, that is, by advancing economic sustainability in developing countries and by advancing environmental sustainability.

"The Green Silk Road is an important tool that can help us all pull us out of the dead ends of the past, and set us on a new pathway that benefits people and the planet alike," added Guterres.

Over the past decade, China has always adhered to green development, strengthened international cooperation in the field of ecological and environment governance, biodiversity conservation and climate change, committing to building an ecological civilization where



The Soubre hydroelectric power station in Côte d'Ivoire. (PHOTO: XINHUA)

human and nature live in harmony.

As the BRI celebrates its 10th anniversary, we recognize not just the successes that BRI has made on numerous fronts, including renewable energy, infrastructure and commerce, but also the growing understanding of our shared responsibilities towards the planet, Jean-Paul Paddock, executive director of network development of WWF (World Wide Fund for Nature) International, told *Science and Technology Daily (S&T Daily)*.

Moving forward, it is imperative to recognize that the promise of BRI extends far beyond infrastructure and trade, said Paddock, noting that BRI represents an unparalleled opportunity to champion green and low-carbon development on a scale never seen before.

Together, BRI can contribute significantly to forging an era of sustainable development and leave a legacy of a thriving, green and harmonious world, added Paddock.

Committed to green cooperation

China has signed more than 230 documents regarding BRI cooperation with more than 150 countries and 30-plus international organizations, and the Green Silk Road cooperation is a major part of all those documents.

There has never been such an initiative as the BRI that can bring together more than 150 countries, said Dilma Rousseff, president of the New Development Bank (NDB), noting that BRI and BRF will play an important role in global sustainable development and green development.

It is necessary for all countries to

address common challenges with collective action amid the current international situation, said Rousseff, adding that BRI has become the world's largest cooperation platform among countries, and NDB is willing to actively participate in Belt and Road cooperation.

During the third BRF, China pledged to deepen cooperation in areas such as green infrastructure, green energy and green transportation, and step up support for the BRI International Green Development Coalition.

The BRI is a development initiative that aligns with Kuwait Vision 2035, Khaled A. Mahdi, secretary general of Kuwait's Supreme Council for Planning and Development, said to *S&T Daily*, adding that Kuwait is looking forward to strengthening cooperation in areas such as infrastructure and green economy under the BRI framework.

Chad is interested in enhancing cooperation with China in the fields of infrastructure, energy, and renewable energy, A. Hamit E. Ali Moutaye, delegate from the office of Prime Minister of Chad, told *S&T Daily*, while speaking highly of China's newly unveiled eight major steps to support high-quality Belt and Road cooperation.

Looking into the future, China will continue to make green a defining feature of Belt and Road cooperation, said Zhou Guomei, director general of the Department of International Cooperation, Ministry of Ecology and Environment, pledging to pool resources, technologies and efforts from all sides, and integrate the concept of green, low-carbon, and sustainable development into all areas and all processes of Belt and Road cooperation.

China-Egypt Cooperation Benefits Both Peoples

Opinion

By Mohamed Salem

China and Egypt's cooperation is multifaceted, including financial support which comes in many ways: As Panda bond, that is, renminbi-denominated bonds, or as investments with Egypt's large scale national projects supported by many Chinese investors. These are in line with Egypt's sovereign sustainable financing framework and will contribute to Egypt achieving the Sustainable Development Goals.

They are also meant to build a greener economy: the proceeds will be used to finance sustainable projects in a number of sectors, including green

transport, healthcare, sustainable water use, renewable energy, affordable housing, digital infrastructure and biodiversity conservation.

Because of international fund limitations, the African Development Bank and the Asian Infrastructure Investment Bank have provided guarantees for the issuance of Panda bonds. This will pave the way for other issuers, particularly other African sovereign states, to access renminbi-denominated financing and China's interbank bond market. The importance of this support is to reduce dependence on the U.S. dollar. Bilaterally, it will lead to more investment and sustainable financing between Egypt and China.

The cooperation also extends to scientific research and vocational training. The Chinese government provides

many research and training opportunities for Egyptian graduates. There are also scientific cooperation projects between the research institutions and universities of the two countries, jointly supported by China's Ministry of Science and Technology and Egyptian Academy of Scientific Research and Technology.

Apart from the Talented Young Scientists Program that provides Egyptian PhD holders an opportunity to work in China for a year, Chinese universities also provide many postdoctoral positions for them.

The Chinese language is becoming one of the second languages offered to Egyptian students in prep schools, secondary schools and some universities.

Chinese companies have a unique and successful experience in terms of

quick payoffs, quality control and high-tech applications. In the manufacturing and energy sectors, such as green hydrogen production, electricity grids and sewage pumps and water desalination plants, and renewable energy sectors, China has given not only considerable financial support, but also technical help to Egyptian companies.

All this support has strengthened the cooperation between the two nations, making their thinking, and way of work and communication match. I believe China will be the country closest to Egypt and the African continent in the near future.

Mohamed Salem is a professor at the Housing and Building National Research Center, Cairo, Egypt, where he teaches Environmental Chemistry.

Mobile Clinics Bridge Healthcare Gaps in Sierra Leone

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"Apart from six relatively large hospitals in Sierra Leone, the country mostly has small clinics, many of which can only provide limited healthcare such as herbal treatments. When people get sick, they tend to endure the pain, as they can't afford the travel and treatment expenses to see a doctor," said Xia.

On March 7, 2022, Sierra Leonean President Julius Maada Bio officially launched the Hospital on Wheels project. Based on four mobile medical vehicles, the project encompasses infectious disease diagnosis and treatment, maternal and child healthcare, vaccinations, and other services. Its mission is to provide diagnostic and treatment services in remote areas.

During his meeting with China's then ambassador to Sierra Leone, Hu Zhangliang, President Bio hailed the project as "one of the best initiatives Si-

erra Leone [has] ever had."

Serving the people

To date, the four mobile health clinics have completed over 10 rounds of visits to remote villages and towns in different districts, attending to over 37,000 patients in total. Wherever they go, they are warmly received by local residents, with many queuing up to wait their turn deep in to the night for their encounter with modern medical facilities.

The project addresses a critical gap in reaching vulnerable populations in remote areas of the country, according to Sierra Leone's Minister of Health and Sanitation Austin Demby.

"With the support of various international partners, the project offers free treatment for infectious diseases and has also greatly promoted vaccination efforts. This achievement is particularly noteworthy as Sierra Leone is one of only four African countries to achieve 70

percent coverage of COVID-19 vaccines," said Xia.

Through mobile health services, healthcare workers have also identified previously overlooked health issues and the needs of specific groups. For example, over half of the pregnant women seeking services had never undergone prenatal examinations.

"Period poverty" is another big challenge, which affects many women across Africa who cannot afford sanitary pads, said Xia, adding that "This mobile medical service also provides free sanitary pads for women and children in remote areas, in addition to offering reproductive health consultations."

Medical help for international events

Furthermore, the mobile health clinics ensure the provision of immediate checks and basic treatment during major international and national con-

ferences in Sierra Leone. From June 3 to 9, 2022, the Commonwealth Parliamentary Association (Africa Region) Conference was held in Sierra Leone, with about 300 parliamentary representatives from 63 member countries in attendance.

Given the relatively advanced age of the representatives, mobile medical units were dispatched to provide on-the-spot checks and simple treatments where needed, to safeguard their health. Approximately 150 individuals received health check-ups, with 10 being referred to hospitals.

The mobile health clinic assistance project for Sierra Leone is a prime example of China's "small but beautiful" projects. It not only brings high-quality diagnostic and treatment services with high-tech support to remote residents in Sierra Leone, but also plays an active role in deepening Sino-Sierr Leonean friendship.

Comment

China-U.S. Relations Need Sub-national Level Ties

By GONG Qian

"The foundation of China-U.S. relations lies among the people, the hope is in the people, the future lies in the youth, and the vitality lies in sub-national areas," said President Xi Jinping when he met with Gavin Newsom, governor of California, in Beijing on October 25.

Newsom kicked off a weeklong trip to China on October 23, visiting Hong Kong, Shenzhen, Guangzhou, Beijing and Shanghai. This made him the first U.S. governor to come to China in more than four years. The visit happened because China and California have a long history of partnership, with a strong bilateral foundation built by Newsom's predecessors.

Newsom said in a statement that as the second and fifth largest economies in the world, China and California are intertwined and have been since the earliest days of its statehood.

With its rich natural resources, advanced science and technology industry and strong cultural and creative industries, California, the most populous state in the U.S., has extensive space for cooperation with China in energy, science and technology, culture and other fields.

China is California's largest trading partner and California is the largest importer of Chinese goods in the U.S., with more than 165 billion USD in economic trade.

In terms of people-to-people exchanges, China and California, though geographically separated by the Pacific Ocean, have enjoyed close relations over a long period. "Our people-to-people ties are long-standing and enduring," said Newsom.

The first formally recognized Chinatown in the U.S. developed in San Francisco, where the first Chinese immigrants arrived in 1848. Now, 32 percent of Chinese immigrants in the U.S. live in California, making up the largest group of Chinese Americans. To honor the contributions of Asian Americans to the state, Newsom signed a bill in

September 2022, which made the Chinese Lunar New Year an official state holiday in California for the first time anywhere in the U.S.

According to Statista website, China is still the leading source of international students in the U.S. education market. The University of Southern California has one of the highest numbers of Chinese international students in the country.

As of 2019, 1.5 million Chinese tourists visited California annually. From November 1, Air China will resume its services on the Beijing-San Francisco route. It is expected that this will further expand tourism between China and California.

In regard to cooperation on climate change, an issue that Newsom highlighted on his visit, Shanghai and Los Angeles have reached agreements on building the world's first trans-Pacific green shipping corridor on one of the world's busiest container shipping routes — the Shanghai-Los Angeles shipping route. According to the implementation plan outline, by 2025, carrier partners will begin deploying reduced or zero lifecycle carbon emission capable ships in the corridor, Xinhua reported.

Reuters analyzed that the initial push for the green corridor came from the cities and ports themselves, which means that the development process has been more clear-cut. "We work at the city-to-city level, which makes things a lot more efficient than working at the state or national level. So, in the case of the U.S. and China, we were able to overcome some of the geopolitical tensions and complexities that were certainly not in our favor at that time," Alisha Kreynes, a key convenor of the LA-Shanghai route, told Reuters.

To some extent, California epitomizes China-U.S. relations at a sub-national level, and it is anticipated that following Newsom's visit, more U.S. governors will come to China to seek more opportunities for mutual benefit.

Hi! Tech

Humanoid Warehouse Robots Being Tested

By QI Liming

U.S. e-commerce giant Amazon is deploying a human-like robot, named Digit, in a warehouse to perform repetitive manual tasks, such as shifting empty tote boxes, and work collaboratively with employees.

Digit can move, grasp, and handle items in spaces and corners of warehouses in novel ways. Its size and shape are well-suited for buildings that are designed for humans.

The addition of the automated ro-

bots, which walk around on two legs, pick up large trays and move them elsewhere, is for "freeing employees up to better deliver".

However, the move is still a trial run and the robot is a prototype, as Amazon seeks to see if they can work safely alongside human employees.

In 2022, Amazon revealed its first robotic system Sparrow that was deployed in warehouses, streamlining the work fulfillment process by moving individual products before they get packaged.



A human-like robot carries an empty box in a warehouse. (PHOTO: SCREENSHOT)

Sowing Seeds of Success & Friendship

Dialogue

By LONG Yun & BI Weizi

On November 9, 2001, Chuanchai Pongsai left his hometown of Chiang Mai, Thailand, and arrived in China's Yunnan province for further studies. At that time, he envisioned more high-quality maize seeds being available in Yunnan province, in order to boost the crop yields.

Vision becomes reality
Some 22 years later, as the Senior Vice President of Yunnan Chiatai Seed Company, Chuanchai and his team have made remarkable progress in promoting the development of Yunnan's seed industry. They developed hybrid maize seeds that are well-suited to the local environment, significantly boosting maize yields.

"Yunnan used to rely on northern seeds for maize cultivation, but the mismatch with the local soil and climate led to lower-quality maize production," Chuanchai said in a recent interview with *S&T Daily*. "Yunnan boasts a complex and diverse ecosystem, which presents both opportunities and difficulties for our work," he said.

In his daily work, Chuanchai walks through the maize fields at the research base, observing the changes of each seed in the soil. Almost every day, he monitors and guides technicians in planting work, with the aim of finding the most suitable combination of maize genes. It is a laborious and repetitive task, but as he said, "This is where my passion lies."

As time passed, his team gained some success from their hard work. Over 30 maize varieties emerged in the



Chuanchai Pongsai works at the maize field. (COURTESY PHOTO)

research base and thrived in this region.

According to Chuanchai, maize seed development is a combination of science and technology, art, and luck. He further explained that technology is essential, but selecting the right combination of maize genes is an art, requiring imagination and creativity. And a bit of luck is necessary for combining these elements to develop high-quality, high-yielding maize varieties.

Quality breeding is very important

The Thai maize expert attaches great importance to high quality breeding. "High quality breeding is a key factor in achieving agricultural productivity, sustainable development of agriculture, and resilience to extreme weather," said Chuanchai.

In 2005, Chuanchai pursued a PhD at Yunnan Agricultural University, majoring in crop genetics and breeding. This

educational background laid the foundation for his subsequent work. With his Chinese colleagues, Chuanchai dedicated himself to seed development. Their "Zhengda 619", a high-quality maize variety, received the honor of "National Outstanding Contribution to Maize Inbred Lines." This achievement not only significantly increased local maize yields, but also encouraged more experts to adopt this new breeding model, furthering research and selecting new high-quality varieties, offering more possibilities for upgrading maize seeds and advancing the maize seed industry.

Chuanchai's goal is to develop new varieties continually. With the environment and climate constantly changing, maize seeds need to be upgraded to adapt to these changes. Otherwise, old varieties that are not suited to the environment will lead to decreased yields, affecting farmers' incomes and even threatening local food security.

After achieving success in low-altitude maize seed development, Chuanchai and his team continued to push the envelope. They continued to establish new research bases in areas like Xuanwei city and Huize city in Yunnan, expanding their research into mid-to-high altitude maize seed development.

Chuanchai has left his footprint across 15 different regions in Yunnan for 22 years. He often collaborates with local farmers, helping them select the right seeds for their specific soil and climate conditions. His primary concern when visiting these areas is whether the seeds he recommends lead to increased yields and higher incomes for the farmers.

A journey never ends
He feels a deep connection to Yunnan. "I love Yunnan, and I am a son-in-law of Yunnan," said Chuanchai, adding that he no longer feels like an outsider. Today, he can fluently communicate his research findings in Chinese and even have conversations with the local people in the Dai ethnic dialect.

To Chuanchai, the world's land resources are finite. He remains dedicated to improving the quality and yield of food crops on this limited land in Yunnan, providing more solutions for increased productivity and income for farmers.

The Lancang River flows through Yunnan, and it eventually becomes the Mekong River in Thailand. "China and Thailand are like one family," said Chuanchai, adding that the Belt and Road Initiative will continue to play a crucial role in promoting technological cooperation and people-to-people exchanges between the two countries.

Moreover, all Chinese universities focus on international cooperation, and you can find an international cooperation and exchange office or an overseas education school at every university. With the increasing influence of Chinese scientists and universities in the international academic community, China has become a hot spot for international students.

My China Story

Developing Your Career, Realizing Your Dream in China

By Md Altab Hossin

Safe, peaceful, and flexible with a friendly environment — these are the qualities in China that have helped convince me to advance my career and settle down to a stable life in the country. I have never seen or encountered any violence during my stay in China. The law enforcement system and police are always active and people can move about freely without any risk to our safety. For example, the surveillance systems in most public infrastructure reduce the risk and allow us to go about our daily lives peacefully.

In addition, the Chinese government always takes the initiative to monitor and control the price of goods, thus reducing the pressure on our lives. The convenient transportation systems, including highways, bullet trains, and modern airports improve our communication and traveling needs, allowing us to reach any destination within a scheduled time. All these conveniences are made possible by the dynamic policies and implementation of China's all-round socio-economic development plan. All these factors are very important for people to settle their minds, grow, and enjoy life here in China.

Research-friendly environment

With the help of state-of-the-art laboratory facilities, technological support and professional faculty members, Chinese universities always provide students with high-quality education at a very affordable price. In addition, the government, universities and other institutions offer various kinds of scholarships to support needy international students. In particular, the Belt and Road Scholarship provides a very good opportunity for international students to pursue their higher education in China.

Moreover, all Chinese universities focus on international cooperation, and you can find an international cooperation and exchange office or an overseas education school at every university. With the increasing influence of Chinese scientists and universities in the international academic community, China has become a hot spot for international students.

Having worked closely at various professional levels, including interpreter for a Chinese company, chief representative of Walton Group's China office, a postdoctoral research position, and high-end foreign expert, I have found that the systematic work environment and policies in China allow us to grow our careers with fairness.

Another advantage of China is its resource and innovation ecosystem. It is easier to research and develop a product here because of the available integrated resources. For example, during the recent 2023 Foreign Expert Symposium in Chengdu, I had a chance to feel the atmosphere of scientific and innovation-oriented development around Chengdu. In particular, the impressive ideology such as transportation-oriented development (TOD), incubators for entrepreneurs, and services and facilities for talents and enterprises is much more advanced and dynamic. This atmosphere allows enterprises to grow better and dynamically develop their products at affordable prices, upgrade faster and lead the global market while attracting and retaining their talent.

With the all-round fast and innovative development and international cooperation, China needs a lot of international talent, scientists and professionals to work closely with Chinese partners. Whether you want to work or start a business, China is becoming the ideal place to adapt to the global market and realize your dream.

Md Altab Hossin, from Bangladesh, serves as a high-end foreign expert at the School of Innovation and Entrepreneurship, Chengdu University.

Expats Activities

BMDAC Promotes China-Canada Medical Exchanges

By ZONG Shihan

On October 26, a medical team from the Bethune Medical Development Association of Canada (BMDAC) arrived at the Meizhou People's Hospital in Guangdong province to engage in in-depth academic exchanges and signed an agreement to jointly establish a technical cooperation hospital. It was the

first time to start its China tour after a three-year hiatus.

The BMDAC was founded in Toronto in 2011 to carry forward Bethune's spirit through medical exchanges between China and Canada. It has organized 19 trips to China for medical experts from Canada to offer free medical consultations. They treated more than 1,000 patients, undertook more

than 500 surgeries, and gave more than 600 academic lectures.

Dr. Lee Errett, president and founder of the BMDAC, said the association will continue to promote medical research exchanges between China and Canada and contribute to jointly addressing global challenges.

This time, the BMDAC experts are conducting medical exchanges with more than 20 hospitals in 12 provinces. Geng Junwu, director of the Foreign Experts Working Group of the Ministry of Human Resources and Social Security, said the cooperation has promoted talent and technological exchange between the two countries, and helped more people benefit from medical innovations.

The BMDAC has deepened its cooperation with China through borderless medical technology, facilitating the construction of a community with a shared future for mankind.

Zhao Liang, deputy director of the Office of Overseas Institutions of China Association for International Talent Exchange of Personnel, said China will continue to promote better cooperation with other countries in science and technology, education and healthcare.

Lao Zhihong, director general of the Administration of Foreign Experts Affairs of Guangdong Province, said more foreign experts and international friends are welcome to participate in Chinese modernization in the province.

Zhong Weiji, secondary inspector of the Meizhou Municipal People's Government, said the cooperation with the BMDAC will promote progress of Meizhou's medical industry. Zhong Zhixiong, president of the Meizhou People's Hospital, said it will help the hospital build a higher-level medical talent training platform.

The BMDAC delegation also visited cultural landmarks, such as the Hakka Museum dedicated to the Hakka ethnic group, and the Marshal Ye Ji-aying Memorial Park in Meizhou, getting to know the Chinese culture and history.

"Through these activities, the more I learn about China, the more I appreciate it," Errett said.



The BMDAC signs a cooperation agreement with the Meizhou People's Hospital. (PHOTO: Meizhou People's Hospital)

Southward-pointing Cart Mechanics

Traditional Eastern Wisdom

By BI Weizi

The southward-pointing cart was a historic mechanical device, which was invented and used earlier than the compass. More than five thousand years ago, ancient Chinese had utilized it to indicate direction.

Originally, the southward-pointing cart was one of the ceremonial vehicles used by ancient emperors to demonstrate their superiority, and was later used to point south in the battlefield.

According to some extant ancient Chinese texts, the southward-pointing cart was a two-wheeled wagon drawn by horses, usually with a wooden figure standing on top with one arm extending forward. The rotating wheels mechanically operated a gear mechanism to keep the hand pointing south.

The cart had no magnets and did

not automatically detect which direction was south. At the beginning of a journey, the hand would point south. Then, as the chariot turned, the mechanism would rotate the hand relative to the body of the cart to counteract the turning and keep the hand pointing in a constant southerly direction. The mechanism thus performed a kind of directional dead reckoning, but which was inherently prone to cumulative error and uncertainty.

Wang Zhenduo, a famous Chinese historian of science and technology, restored and made a model of the southward-pointing chariot based on years of research and documentary records, which is now collected in the National Museum of China.

The southward-pointing cart is manufactured according to the automatic clutch gear system, which is similar to the differential gear used in modern automobiles, with the advantages of being smooth and precise. It reflects an outstanding achievement in the practical application of ancient Chinese mechanics.



A model of the southward-pointing cart is presented at the National Museum of China. (PHOTO: VCG)

Why Sky Looks Bluer in Autumn

Sunlight consists of multiple colors with different wavelengths. The red light has the longest wavelength, while purple and blue lights have the shortest wavelengths.

When sunlight passes through Earth's atmosphere, it encounters a layer of tiny molecules and dust particles which cause the component lights to scatter. Due to their short wavelengths, blue and purple lights scatter more

than the others.

We see the blue light rather than purple because of the physiology of the human eye. Our eyes are more sensitive to blue, so we see the sky as blue.

In autumn, the blue sky looks even bluer for several reasons.

It's the time when the sun moves before the Tropic of Capricorn. Therefore the sun's rays are no longer directly above us but at an angle to the sky,

which increases the volume of scattered blue light visible at the ground level.

Autumn not only lowers the temperature but also humidity. With less water vapor in the air, it is harder for clouds to form, leaving the sky blue.

Additionally, blue and orange are complementary colors. In autumn, leaves turn orange and red, providing a stark contrast to the blue sky, making it even bluer.

Science Outreach

Edited by ZONG Shihan

To understand why the sky looks bluer in autumn, we need to first comprehend why it looks blue.