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LIFT OFF

Shenzhou-9 embarks on a historic mission



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As Above, So Below

Chinese people were anxiously awaiting news of the country's first manual space docking when this issue of *Beijing Review* went to press on June 21. If the operation went smoothly, one of the three astronauts aboard the *Shenzhou-9* spacecraft, which took off on June 16, should have manually connected their capsule with the orbiting *Tiangong-1* space lab module on June 24. The *Shenzhou-9* crew includes the first Chinese woman to enter space.

Only with manual docking technologies, China is fully able to transfer astronauts and cargo to an orbiter in space. They are a key technical foundation for achieving the country's plan to assemble a manned space station in orbit by 2020.

As China pursues new aerospace breakthroughs, there have also been critical efforts for an achievement of equal significance in deep-sea exploration. Having repeatedly set the country's deep-sea diving record since June 15, the *Jiaolong* manned submersible is scheduled to dive 7,000 meters into the Mariana Trench before early July. If the attempt succeeds, China will have the capability to conduct scientific surveys in 99.8 percent of the Earth's seabed.

Before China, only four countries—the United States, Japan, France and Russia—had manned deep-sea submersibles. But *Jiaolong* is the first designed to reach a depth of 7,000 meters. China's ultimate objective is to build manned submersibles capable of diving 11,000 meters, the depth of the world's deepest trench.

In the past decades, China has invested heavily in science, with an emphasis on the development of proprietary technologies. Its efforts are paying off. All technologies and equipment used in China's space and deep-sea exploration programs are domestically developed.

The nation has always maintained that outer space and deep-sea discoveries belong equally to all of mankind and all research results in these fields should be shared worldwide.

Since the inception of its space program, China has aimed to make positive contributions to the peaceful use of outer space and the well being of humanity. On June 12, Foreign Ministry spokesman Liu Weimin again pledged that the nation is ready to conduct international cooperation on aerospace technologies on the basis of mutual respect, equality and mutual benefit.

The Chinese Government has also welcomed foreign scientists to conduct deep-sea scientific research aboard *Jiaolong* after it formally goes into service.

In mankind's research of the unknown, China's growing scientific and technological strength is certain to play a bigger role. ■

WRITE TO US

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Sticky and Sweet

Foreigners in Shanghai learn to make *zongzi*, a pyramid-shaped snack made of glutinous rice and wrapped in bamboo or reed leaves, on June 17, six days prior to the Dragon Boat Festival, a major traditional Chinese festival.

With a history of 2,000 years, the festival is celebrated on the fifth day of the fifth month of the lunar calendar. During the festival, Chinese people usually prepare and eat *zongzi* and hold races of dragon boats. Other customs include hanging Chinese mugwort, an aromatic plant, and drinking realgar wine.

“China’s export of rare earth minerals has kept up with world demand for a long time. But this was realized at the price of a severely damaged environment and a great decrease in the reserves of non-renewable resources.”

Gao Yunhu, an official with the Chinese Ministry of Industry and Information Technology, commenting on a white paper issued on June 20 by China about its rare earth industry

“Today the House made history when both chambers of Congress officially and formally acknowledged the ugly and un-American nature of laws that targeted Chinese immigrants.”

U.S. Congresswoman Judy Chu, commenting on a resolution unanimously passed by the U.S. House of Representatives on June 18 that formally expresses regret for the Chinese Exclusion Act of 1882 and other legislation that discriminated against people of Chinese origin in the United States

“We look forward to the ever-increasing competitive power of the mainland. However, the mainland’s main attractions for Taiwan are not only competitiveness. We hope that friends from the mainland can treat Taiwan with more understanding and consideration.”

Hung Hsiu-chu, Vice Chairwoman of Taiwan’s Kuomintang Party, calling on establishing a more positive and benign development model for cross-Straits ties at the Fourth Straits Forum in Xiamen, Fujian Province, on June 17

“There is no moral or economic justification for treating bus workers like second-class citizens. There is a clear precedent for rewarding bus workers for keeping London moving over the Olympics.”

Peter Kavanagh, an official of Britain’s largest union Unite, commenting on London bus drivers’ possible strike in a dispute over extra payments for working during the capital’s summer Olympic Games

Food Safety Plan

China has released a five-year plan to upgrade its food safety regulations as part of the country's ongoing efforts to address food safety concerns.

The government will improve national food safety standards by revamping outdated standards, reviewing and abolishing any contradicting or overlapping standards and working out new regulations, according to the plan posted on the website of the Ministry of Health on June 15.

China has more than 2,000 national food regulations and more than 2,900 industry-based regulations.

Many of the regulations are overlapping or contradict each other, since multiple government agencies were given the responsibility of compiling their own standards years ago.

According to the plan, 14 government departments, including the Ministry of Health, the Ministry of Science and Technology and the Ministry of Agriculture, will work together to finish revamping the existing standards by 2015.

The government will prioritize safety standards for dairy products, infant food, meat, alcohol, vegetable oil, seasoning, health products and food additives so as to specify limits for dangerous ingredients in these foods, says the plan.

Moreover, the government will make special efforts to set standards for testing various contaminants, food additives, microorganisms, pesticides and animal drug residue in food production by 2015.

Cross-Taiwan Straits Ties

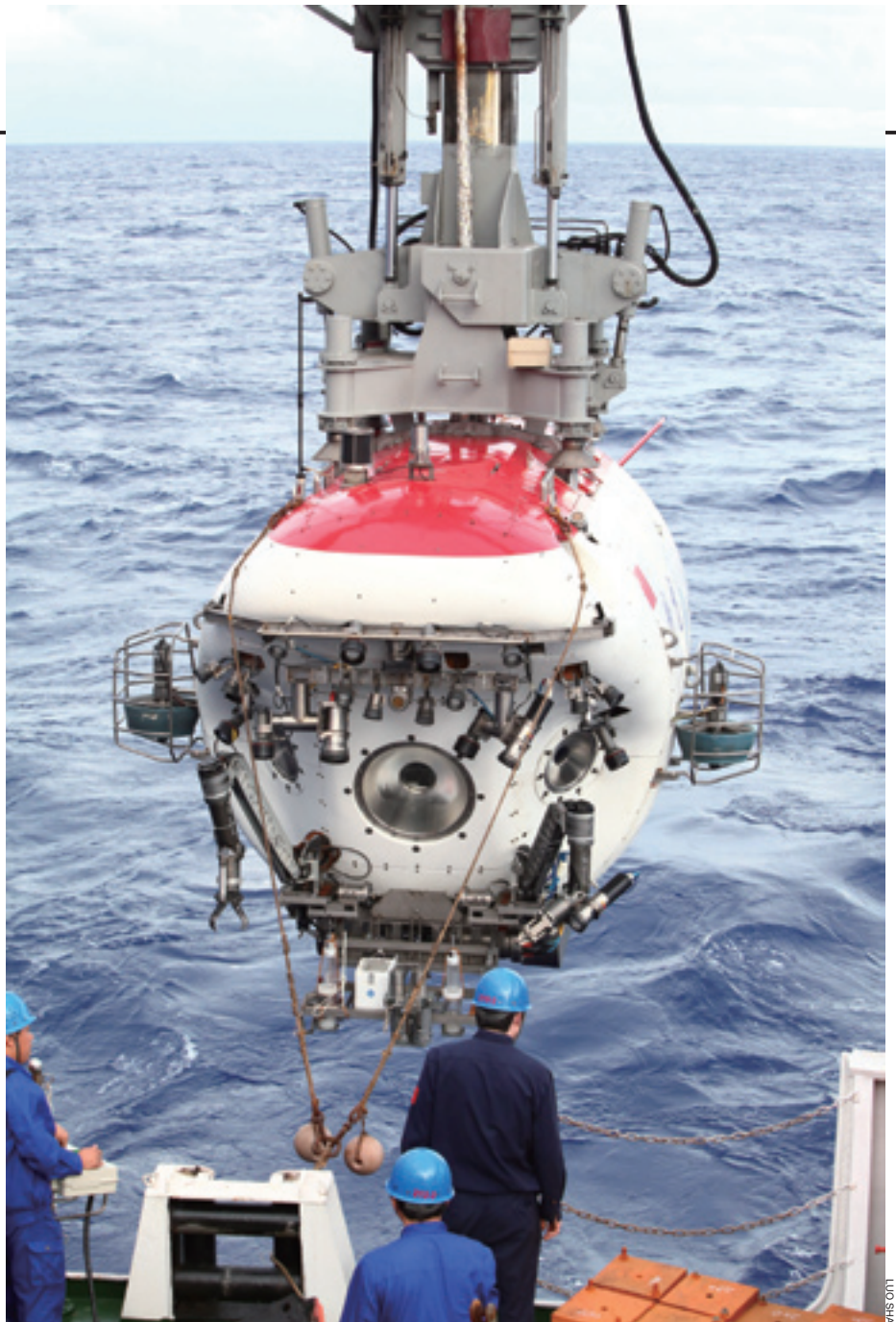
The Chinese mainland introduced a package of preferential policies on June 17 in the areas of the economy, science, culture and education to strengthen ties with Taiwan.

Four banking institutions from the mainland, including the Industrial and Commercial Bank of China, Bank of China, China Construction Bank and China Development Bank, will offer credit of 600 billion yuan (\$94.41 billion) to Taiwanese-invested businesses in the mainland, said Wang Yi, Minister of the State Council Taiwan Affairs Office, at the Fourth Straits Forum in the southeastern coastal city of Xiamen, Fujian Province.

The mainland will also open the market to rice imports from Taiwan, Wang said.

The new policies also include further easing employment restrictions for Taiwanese students and residents on the mainland. Taiwanese residents will be allowed to apply for a teacher's certificate at mainland colleges and universities.

The mainland will increase the number of Taiwanese tour operators on the mainland and



UNDERWATER EXPLORER Manned deep-sea submersible *Jiaolong* is put into water on June 19. The *Jiaolong* set a new diving record of China in the attempt by reaching a depth of 6,908 meters below sea level in the Mariana Trench, moving closer to the goal of challenging 7,000-meter depth between mid-June and early July

Scientist Honored

Pan Jiazheng, a prestigious hydrologist, was conferred with the Achievement Award at the Ninth Guanghua Engineering Science and Technology Awards on June 13. The prize was given by the Chinese Academy of Engineering for honoring top experts in engineering science and technology.



Pan, 85, is one of the pioneers of China's water conservancy and hydropower science and technology. He has been responsible for the construction of several hydropower stations around the country. He is one of the major supporters of the Three Gorges Dam project and was the leader of the project's quality control panel.

He became an academician for the Chinese Academy of Sciences in 1980 and an academician as well as vice president of Chinese Academy of Engineering in 1994.

expand the range of personal travel.

To deepen scientific cooperation, the National Natural Science Foundation of China will launch a "union fund of promoting scientific cooperation across the straits" with Fujian, according to Wang.

All natural science research programs across the Taiwan Straits can apply for money from the fund, which will have an annual investment of 30 million yuan (\$4.72 million), he said.

Fraudulent Sites Closed

Chinese authorities have closed 89 websites for fraudulent activities in the name of government organs or charity groups, according to a statement released on June 19 by the State Internet Information Office.

Many of the websites, tackled in a spate of closures beginning in March, claimed to serve anti-corruption and law enforcement agencies. Their operators would fabricate negative news stories and threaten to post them online if the organizations or individuals targeted didn't pay hush money, said the statement.

In other cases, counterfeit media licenses and journalist certificates were on sale for thousands of yuan each in the name of administrative organs.

Healthcare Reform

County-level hospitals are to lead China's reform of public healthcare facilities, under a program announced on June 15 on the Central Government's website.

It introduces a pilot program covering 300 county-level hospitals, which are expected to



ALONG THE BEACH
The Third Asian Beach Games kicks off in Haiyang, east China's Shandong Province, on June 16, with the participation of more than 1,600 athletes from the 45 member countries and regions under the Olympic Council of Asia

undergo reforms in finance, management and human resources by 2015 to enhance their capacity.

The program plans to wipe out the existing financing mechanism of hospitals that relies heavily on medicine sales while their services are undervalued.

County hospitals are known as the backbone of China's healthcare network in rural areas, and directly serve more than 900 million residents. Rural patients, however, tend to flood into major hospitals in cities to seek better quality services.

The program has set a goal of restoring people's trust in county-level medical facilities and serving 90 percent of all the patients within each county.

Heritage Status Bidding

The Great Hall of the People and other modern buildings in Beijing that form the city's central axis will be recommended to the UN Educational, Scientific and Cultural Organization (UNESCO) for inclusion in the list of World Cultural Heritage sites, *The Beijing News* reported on June 19.

Lu Zhou, Director of the National Heritage Center at Tsinghua University, said that such modern buildings represent national dignity and reflect respect for and reinforcement of Beijing's central axis, which has a far-reaching influence on construction in the city.

The application of the buildings along Beijing's central axis will be put in a preliminary national list, which will later be delivered to UNESCO.

Cultural Relics Protection

China will build an offshore supervision platform to help protect cultural relics around the Xisha Islands in the South China Sea, said a cultural relics official in south China's Hainan Province on June 25.

The platform will consist of a geographic information system, remote sensing satellite and video surveillance system to supervise the waters, said Wang Yiping, Director of the Hainan Provincial Cultural Relic Bureau.

According to Wang, special underwater preservation zones will also be designated in areas where cultural relics are vulnerable to theft.

A total of 124 historic underwater sites have been found in the South China Sea. An examination of some of the sites in 2011 showed that 26 of 48 examined sites had been damaged by thieves.

PRETTY DELICIOUS Mutton dishes displayed at the Second Northeast Chinese Cuisine Fair, which kicked off in Shenyang, Liaoning Province, on June 16





LOCALLY PRODUCED An exhibitor in the costume of a minority group presented handmade artware at the International China Harbin Fair for Trade and Economic Cooperation held in Harbin, capital of northeast China's Heilongjiang Province, on June 16

Home Prices Drop

New home prices in major cities fell again in May as the country continues its campaign to regulate the real estate market.

In May, 43 cities out of a statistical pool of 70 major cities saw drops in new home prices from April, while new home prices in 21 cities remained the same, the National Bureau of Statistics said.

Six cities saw slight increases of less than 0.2 percent in new home prices in May.

New home prices in 55 cities out of 70 saw year-on-year decline in May, expanding from 46 in April. Prices in 15 cities saw year-on-year increases by less than 1.4 percent in May, compared with 23 cities in April.

Merger Approved

Yanzhou Coal Mining Co. based in east China's Shandong Province said on June 19 that an Australian court had approved Yancoal

Australia Ltd.'s merger with Australia's Gloucester Coal Ltd.

In a statement filed to the Shanghai Stock Exchange, Yanzhou Coal Mining said the Victorian Supreme Court had approved the proposed merger.

The approval came after Chinese authorities, Australia's Finance Ministry, Australian Securities Exchange and Gloucester shareholders all gave the go-ahead to the deal.

Shares of the merged company will be traded on the Australian Securities Exchange at the end of June.

Under the terms of the merger, Yanzhou Coal Mining will hold 78 percent of the new company, while Gloucester Coal's shareholders are set to receive 639 million Australian dollars (\$637.4 million) in cash and a 22-percent stake in the new entity.

Rare Earth Stance

China on June 20 issued a white paper on

its rare earth industry, the first of its kind in the country, as the world's largest rare earth producer strives to better protect the valuable resources.

The white paper, titled Situation and Policies of China's Rare Earth Industry, was released by the Information Office of the State Council.

The publication of the white paper was aimed at giving the international community a better understanding of China's rare earth industry and policies.

China will implement stricter environmental standards for rare earth exploitation while continuing to regulate the mining, production and export of the valuable resources, according to the document.

Entering Power Sector

China on June 19 issued a guideline to green light the entry of private capital into the country's state-dominated power sector, marking the latest move to increase the economy's efficiency and bolster growth.

The guideline, issued by the State Electricity Regulatory Commission, gave specific policies regarding the sector's market access, supervision of fair power coordination, renewable energy network access and price reforms.

The move came after a number of state-run sectors, including the railway, transport and finance sectors, published similar guidelines to



STAR COOKER Huang Guosheng (third from left), 58, shakes hands with Jia Guohui, Vice President of the Beijing Xibei Catering Management Co. Ltd., after a ceremony in Beijing on June 20. Famous for hand-made corn buns typical to northwest China's Shaanxi Province, Huang and his wife were hired by the company to promote the local snack nationwide

Numbers

372 million

The Ministry of Railways predicted that the country's railways will transport 372 million passengers during the summer travel season this year.

\$9.23 billion

Foreign direct investment in China hit \$9.23 billion in May, said the Ministry of Commerce on June 15.

IN FULL BLOOM Farmers reap lavender in the Ili Kazak Autonomous Prefecture, Xinjiang Uygur Autonomous Region, on June 19. Ili is home to the country's largest lavender plantations



JIANG WENYAO

encourage the participation of private capital.

Fair treatment will be given to all enterprises, according to the guideline, stating that power infrastructure companies owned by private investors will be granted operation certificates.

Private investment currently accounts for less than 3 percent of the power sector's total investment, said Lin Boqiang, head of the Energy Economic Research Center of Xiamen University.

Anti-Dumping Probe

The Ministry of Commerce said that it has started reviewing anti-dumping measures on sulfamethoxazole (SMZ), an antibiotic imported from India. The review will evaluate the possibilities for dumping and damages if the tariffs are lifted.

The review started on June 15 at the request of applications submitted by domestic industry players on March 30 and will be finished within 12 months.

The ministry slapped five-year anti-dumping duties ranging from 10.1 percent to

37.7 percent on SMZ imports from India on June 15, 2007, after finding that the imports hurt the interests of domestic producers.

During the review period, China will continue to impose anti-dumping duties on SMZ imports from India.

R&D Center

Deutsche Telekom, the largest telecommunications company in Europe, announced the establishment of its first China-based global development center on June 16.

The development center, located in Wuhan, capital of central China's Hubei Province, will focus on the development of core technology, including vehicle telematics, cloud computing and air traffic tech.

The center, costing an investment of 40 million euros (\$52 million), is expected to employ 1,000 workers by 2014, according to a spokesman of the center.

Deutsche Telekom, the fourth largest telecom operator in the world, has also established development centers in Brazil and Mexico.

Actor Awarded

Hong Kong actor **Chow Yun-fat** was granted the Outstanding Contribution Award at the 15th Shanghai International Film Festival on June 16. Chow was honored for his contribution to the Chinese film industry.

Chow, 57, is best known in Asia for his collaboration with filmmaker John Woo in heroic bloodshed genre films *A Better Tomorrow*, *The Killer*, and *Hard Boiled*. In 1995, Chow first appeared in Hollywood films and his popularity has since grown in the West. His international breakthrough came after starring in Ang Lee's

Kungfu movie *Crouching Tiger, Hidden Dragon* (2000).

Chow has won three Hong Kong Film Awards for Best Actor and two Golden Horse Awards for Best Actor in Taiwan.



30,000

A total of 30,000 computers were sold in eight hours, or one unit per second on June 18, the 14th anniversary of 360buy.com, China's top online retailing giant.

20%

Banks are considering offering qualified clients a 20-percent discount in mortgage loan rates for house buyers in Beijing in the near future, the *Beijing Youth Daily* reported.



AP/WIDEWORLD

Greek President Karolos Papoulias (right) shakes hands with leader of the conservative New Democracy Party Antonis Samaras in Athens on June 18. Samaras, who won Greece's cliffhanger election that day, is expected to form a new government of pro-euro parties

GREECE



AP/WIDEWORLD

BELGIUM

People re-enact the Battle of Waterloo on June 17 in Waterloo, 20 km south of Brussels. On June 18, 1815, the French Army led by Emperor Napoleon was routed at the hands of the Duke of Wellington of Britain and Persian Field Marshal Blucher



XINHUA/AF

U.S. President Barack Obama presents Israeli President Shimon Peres with the Presidential Medal of Freedom at the White House on June 13. The medal is the highest civilian honor in the United States

THE UNITED STATES



XINHUA/AF

HUNGARY

A competing dog catches a frisbee during the Dogs Frisbee European Championships in Budapest on June 16



XINHUA/AF

An indigenous Kayapo Brazilian holds the Holy Fire during a fire lighting ceremony for the UN Conference on Sustainable Development in Jacarepagua, 55 km from downtown Rio de Janeiro, on June 13

BRAZIL



XINHUA/AF

A worker arranges finished products composed of push-tabs from aluminum beverage cans in Manila on June 13. These handcrafts are sold as top-end fashion items in the Philippines and several other countries

THE PHILIPPINES



COVER STORY

A FURTHER



FULLY PREPARED: Astronauts Jing Haipeng (center), Liu Wang (right) and Liu Yang attend the sending-off ceremony at the taikonauts' apartment compound of the Jiuquan Satellite Launch Center in northwest China's Gansu Province on June 16

STEP INTO SPACE

The manned *Shenzhou-9* takes the first Chinese woman into space and showcases space-docking technologies By Yin Pumin

At 2:15 p.m. on June 18, China's *Shenzhou-9* spacecraft completed its automated rendezvous and docking with the orbiting *Tiangong-1* module, a prototype space lab launched in September last year. The live-televised docking procedure took eight minutes and is seen as a key step toward building a permanent space station.

After the docking, the three astronauts aboard the *Shenzhou-9* entered the *Tiangong-1*, becoming the first Chinese to enter an orbiter in space. "They will carry out scientific experiments, technical tests and physical exercises in the *Tiangong-1* for about 10 days," said Wu Ping, a spokeswoman for China's manned space program.

After completing the country's first two robotic space dockings with the *Shenzhou-8* spacecraft, the *Tiangong-1* went into long-term operation in orbit 343 km above the Earth on November 17 last year.

"It has since completed tasks such as orbit maintenance, equipment inspection and toxic gas detection, and carried out related scientific experiments," Wu said. "With this manned docking mission, China is expected to fully test its space rendezvous and docking technologies and check the space lab module's ability to accommodate astronauts."

The *Shenzhou-9* spacecraft blasted off at 6:37 p.m. on June 16, from the Jiuquan Satellite Launch Center in northwest China's Gansu Province, atop an upgraded Long March-2F carrier rocket.

"The launch of the *Shenzhou-9* is a highly influential event that marks an important milestone for the development of China's space technology," said Cui Jijun, Director of the Jiuquan Satellite Launch Center.

This year marks the 20th anniversary of the creation of China's manned space

program, which was officially initiated on September 21, 1992. The launch of the *Shenzhou-9* is the program's 10th launch and the country's fourth manned spaceflight.

The spacecraft is scheduled to spend 13 days in outer space. It is the first time China's astronauts will stay in orbit for more than 10 days. The previous record was five days, set by the *Shenzhou-6* crew in October 2005.

China aims to build a space station around 2020 based on the space rendezvous and docking technologies that are being tested. Several components will be sent into space separately before being assembled into a space station through a variety of docking procedures.

Besides the automated docking on June 18, the *Shenzhou-9* and the *Tiangong-1* will also carry out the country's first manual space

docking on June 24.

"In terms of their roles, astronauts are turning into 'drivers' rather than 'passengers,'" said He Yu, chief commander of the *Shenzhou-9* mission. "Should any emergency occur, the human brain is more reliable than the computer."

Holding up half the sky

The *Shenzhou-9* crew includes the 45-year-old commanding officer Jing Haipeng, China's first two-time astronaut who entered space aboard the *Shenzhou-7* spacecraft in September 2008, Liu Wang, a 43-year-old former air force pilot who has been an astronaut trainee since January 1998, and Liu Yang, 33, China's first female astronaut.

China is the third country in the world to use its own technologies to send a woman into space, after the former Soviet Union and the United States.

"The participation of the first woman astronaut will help test the products and equipment that China develops for women in space, and evaluate its selection standards and training tactics for women astronauts," Wu Said.

Born in central China's Henan Province, Liu Yang is a People's Liberation Army (PLA) major. She was once a PLA Air Force pilot with 1,680 hours of flying experience and deputy head of a military flight unit before being recruited as an astronaut trainee in May 2010.



TAKING OFF: *Shenzhou-9* spacecraft, atop an upgraded Long March-2F carrier rocket, blasts off from the Jiuquan Satellite Launch Center at 6:37 p.m. on June 16

After two years of training to shore up her astronautic skills and adaptability to the harsh environment of space, Liu excelled in testing and was selected in March this year as a candidate for the *Shenzhou-9* manned space mission.

"I feel honored to fly into space on behalf of hundreds of millions of Chinese women," Liu told the press on June 15. She is mandated to conduct medical experiments and other space tests during the mission.

Liu has been described by her two crewmates as "outgoing, sincere, well-versed and sensitive."

Like most Chinese of her generation, Liu is the only child of her family. In her colleagues' eyes, she is diligent and hardworking. She spent about two years on a space flight training program that usually takes three to five years to complete.

"Despite a late start for training as an astronaut, she is on the same page with us, which exceeds our expectations," Jing said.

Jing was also impressed by the swiftness and decisiveness Liu displayed during training sessions, citing her calm manner in responding to simulated emergencies.

"Space exploration activities would be incomplete without the participation of female astronauts," said Chen Shanguang, Director of the Astronaut Research and Training Center of China.

To date, more than 50 female astronauts from seven countries have gone into space. The first woman in space was former Soviet astronaut Valentina Tereshkova, who entered space on June 16, 1963. Women from the United States, the United Kingdom, France, Canada, Japan and South Korea have also

been to space. The longest space flight by a female astronaut in history lasted 188 days.

According to Wu, female astronauts have advantages of being thoughtful, meticulous and tolerant, which will help improve the crew's working efficiency. "Female astronauts generally have better durability, psychological stability and ability to deal with loneliness," she said.

Liu's presence did bring a set of adjustments to the country's space program.

"We developed a new series of spacesuits for female astronauts," Li Tanqiu, Deputy Chief Designer for the Astronaut System Department of China's Manned Space Program, told Xinhua News Agency.

Li said that the new suit fits well and will enable swift movements, especially of the fingers. Besides spacesuits, astronauts brought special underwear and sports suits.

In addition, two sets of physical exercise training suits had already been placed in the *Tiangong-1*. There is also a curtain installed in the *Tiangong-1* to protect astronauts' privacy when they are changing clothes, Li said.

Meanwhile, female and male astronauts will use separate toilets and sleep in two separate cabins in the 15-square-meter lab of the *Tiangong-1*, and women are allowed to take nontoxic and contamination-free cosmetics into space.

"Astronauts rely on good food to focus on work," Chen said. For female astronauts, Chen's fellow crew have introduced low-fat food and added more vegetables to the menu, which also features desserts, chocolate and food with blood-enriching effects.

For this 13-day mission, the spaceship is stocked with over 50 kinds of food on a menu that rotates every four days, Chen said.

"The involvement of female astronauts



• Re-entry Capsule

Shenzhou-9

Tiangong-1 Lab Module

The *Tiangong-1* is the rudiment of China's space station and an experimental space laboratory. It is mainly used to carry out the rendezvous and docking test, so as to master the technologies relating to the rendezvous and docking and accumulate the experience for the construction, management and operation of the space station.

could showcase Chinese women's good image and further promote the social influence of the country's manned space program," Wu said.

Manned docking

The manual docking is considered the most significant part of the *Shenzhou-9* mission.

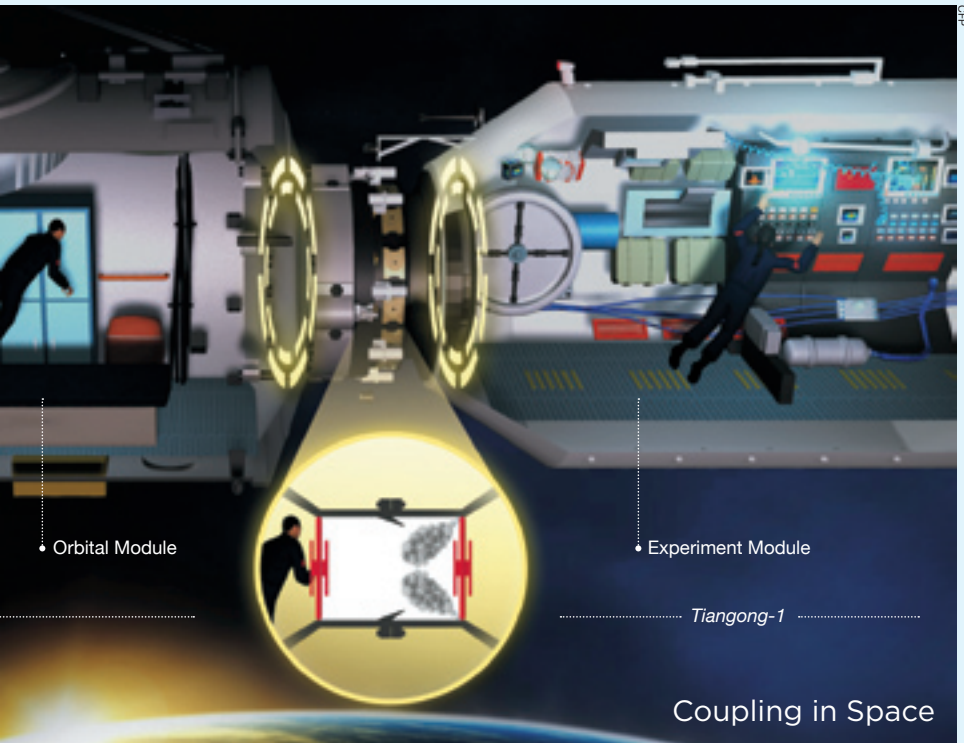
"This is a new technology providing new means for space docking to guarantee the success of future missions," said Zhou Jianping, Chief Designer of China's manned space program, before the launch of the *Shenzhou-9*.

Joan Johnson-Freese, an expert on China's space program at the U.S. Naval War College on Rhode Island, said it would be a step forward for China if the manual docking proved successful.

"China has already demonstrated docking technology robotics, so doing it manually this



HOME IN THE SKY: TV screen at the Beijing Aerospace Control Center shows astronauts Jing Haipeng (right), Liu Wang (left) and Liu Yang at the orbiting *Tiangong-1* lab module on June 18



The main body of the 8-ton *Tiangong-1* is a short and thick cylinder, with a docking port on its front and rear ends. The two modules include an experiment module and a resource module. The experiment module is composed of an enclosed front coneshaped section, a cylindrical section and a rear coneshaped section. On the front end of the experiment module there are the docking mechanism and the measuring and

communication equipment, which are used to support the rendezvous and docking with spaceships. The resource module supplies the power necessary for flight.

After *Shenzhou-8* and *Shenzhou-9*, the *Tiangong-1* will also conduct with rendezvous and docking tests with the *Shenzhou-10* spacecraft within its 2-year designed life span.

(Source: *cmse.gov.cn*)

time is just another incremental step forward, with a robotic back-up for safety," she told Xinhua.

According to both Chinese and foreign space experts, a successful docking remains a difficult procedure.

Precise control is needed to ensure a safe contact between two objects running at speeds between 7.9 km per second (km/s) and 11.2 km/s.

During the manual docking process, the main risks involve challenges to the optical sensors used for the docking of the craft.

But as observed by Pat Norris, Chairman of the British Royal Aeronautical Society Space Group, China has taken a prudent course of verifying new space technology in robotic flights before applying it to human space missions.

He referred to last November's unmanned *Shenzhou-8* mission to test docking technologies, as well as four unmanned missions that took place before the launch of the manned *Shenzhou-5* spacecraft, which took the first Chinese astronaut Yang Liwei into space in October 2003.

To succeed in the manned docking mission, Chinese astronauts have been trained more than 1,000 times for every single move before they are commissioned for the program, compared with 900 to 1,000 times in Russia.

"We need to make astronauts' operational moves habitual," Chen said. "Manual control is the back-up measure for robotic control. It will be safer with human participation." ■

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Three-Step Space Plan

First: Launching an actual manned spacecraft. (The successful flight by the *Shenzhou-5* and *Shenzhou-6* spacecraft)

Second: Solving technical difficulties of docking two spaceships together. (The launch of the *Shenzhou-7* spacecraft, the *Tiangong-1* space lab module and the spacecraft *Shenzhou-8*, *Shenzhou-9* and *Shenzhou-10*)

Third: Building *Tiangong-2* and *Tiangong-3* space laboratories in 2013-16 to conduct even more advanced research.

(Source: *cntv.cn*)

Manned Space Program

September 21, 1992: China's manned spaceflight program was officially approved.

November 20, 1999: The unmanned *Shenzhou-1* spacecraft was launched for a test flight.

January 10, 2001: The unmanned *Shenzhou-2* entered space, carrying animals.

March 25, 2002: The unmanned *Shenzhou-3* spacecraft lifted off, carrying a test dummy.

December 30, 2002: The unmanned *Shenzhou-4* spacecraft was launched, carrying a test dummy and several science experiments.

October 15, 2003: The *Shenzhou-5* spacecraft blasted off into space with Yang Liwei, the first Chinese astronaut, on board.

October 12, 2005: The *Shenzhou-6* spacecraft was launched, sending two astronauts, Fei Junlong and Nie Haisheng, into space.

September 25, 2008: The *Shenzhou-7* spaceflight mission sent Zhai Zhigang, Liu Boming and Jing Haipeng into space. Zhai completed China's first space walk on September 27, 2008.

September 29, 2011: China's first unmanned space lab module, the *Tiangong-1*, or Heavenly Palace-1, was launched.

November 1, 2011: The unmanned *Shenzhou-8* spacecraft was launched. Two days later, it successfully docked with the *Tiangong-1*.

June 16, 2012: The manned *Shenzhou-9* spacecraft blasted off and made a successful automated docking with the *Tiangong-1* two days later.

(Source: *Xinhua News Agency*)

COVER STORY

PEARL IN THE GOBI DESERT

On June 12-16, in the run-up to the launch of the *Shenzhou-9* spacecraft, a *Beijing Review* reporter entered the rarely visited Jiuquan Satellite Launch Center in northwest China's Gansu Province.

Founded in 1958, the center lies to the southwest of Alxa League's Ejin Banner in north China's Inner Mongolia Autonomous Region. The dry climate guarantees that around 300 days each year are suitable for launches.

After decades of construction, the residential area of the Jiuquan Satellite Launch Center has well-equipped infrastructure, and trees and flowers can be seen everywhere. Views on the Ruoshui River, which runs alongside the community, remind visitors of the colorful scenery of south China.

Text and Photos by Wei Yao

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|---|---|---|--|
| 1 | 2 | 3 | 1. Children play in a public square |
| 4 | 5 | | 2. Pristine public facilities in the residential area of the Jiuquan Satellite Launch Center |
| 6 | | | 3. Basketball is the most popular sport among local residents |
| | | | 4. The Ruoshui River features a scenery typical to south China |
| | | | 5. Residents wear scarves to protect themselves from the harsh sunlight |
| | | | 6. Themed sculptures stand by the Dongfeng Lake |



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