Content

Science News from Chinese Media during the Period of December 2005
Collected and Compiled by the Helmholtz Beijing Office

Helmholtz activities in China

The weather became really chilly this December in Beijing, even down to the record low for the last 50 years. Only on the New Year's Eve, the first snow arrived as a decoration for Beijing, which fulfilled the traditional expectation for a harvest coming year.

Not a single Helmholtz colleague reported their visit to Beijing in this month, but our office tried something for those colleagues who are looking for partners in China:

Dr. Ulrich Franck from UFZ, will be coming to Guangzhou in January 2006 for a BMBF workshop on the topic of "mega-city". As the coordinator in Helmholtz for the programme "Environment and Health", he wished to take the opportunity to look for partners in Shanghai, for the epidemiological research concerning the environmental impact. Through our coordination, he will be visiting the Department for Public Health in the Fudan University, the Shanghai Centre for Disease Control and a group in the Jiaotong University, accompanied by my colleague Tong Liu.

Dr. Thomas Efferth from DKFZ has been studying the artemisinin and artsunate and their effect against cancer. As China has a tradition on these nature or synthesized products, he is looking for a good match. A couple of potential partners were identified for him, and among them, someone from the Institute of Medical Medica, a CAS Institute has expressed great interest.

A short report in the September "China Highlights " edition that China has started its clinical trial for HIV vaccine has arose the interest of our GSF colleagues, as GSF is the coordinator of an EU project for HIV vaccine and prevention. Our search has shown a group in Jilin University is carrying out this project, in cooperation with the China Centre for Disease Control (China CDC). The method they have tried is to artificially synthesize the HIV segments and to try to stimulate sufficient antibodies. In this new edition of Highlights, we find more reports about the clinical trials. It is interesting to notice China has claimed its leading position also for bird flu vaccine.

Concerning our effort to invite our GKSS colleagues for participating the Chinese lithium batteries membrane research, all of a sudden, two companies affiliated to the Chinese Academy of Sciences have independently claimed of having solved this key technology. Both of them have received our fax inquiring of further cooperation, but whether there are still technical problems for mass production are unknown. We will keep an eye on the forthcoming.

A few words about this edition of China Highlights:

It is our pleasure that our China Highlights has been warmed welcome and becoming a useful tool for those people who want to know more about China. It inspires more interest about China.

In this edition of China Highlights, there are again many interesting news:

The official statistics shows, the Chinese R&D input for the year 2004 hit a record 196.63 billion Yuan (24.58 billion US dollars) in 2004, although it accounts just 1.23% of the GDP, but already an increase of 27.7% to the year 2003. We believe the increase in 2005 should be similar.

The tenth 5 years plan closes this year, therefore quite some research projects come to an end and pass various examinations or expert acceptance as reported. More interesting is still the Chinese effort in health. People are testing HIV vaccine and AIDS drugs on the trial, and even a gene therapy is applied in Shenzhen to treat cancer patient.

We wish you enjoying in the reading and hope we can assist you for further details of your interest.

Helmholtz Beijing Office

1 Science News

1.1 Energy

China begins methane resources exploitation

(China News, 2005-12-03)

A 100-million-cubic-meter coal bed methane exploitation project has been completed in north China's Shanxi Province, marking the country has finally began to make use of the gas on an unprecedented scale.

Located in the southern part of the Qinshui Basin, Jincheng City of Shanxi Province, the gas exploitation project is the largest of its kind in China, with a verified gas deposit of 40.2 billion cubic meters and an annual production of 100 million cubic meters.

At a price of 1.1 Yuan (0.136 US dollars) per cubic meter, the project's yearly output is expected to be worth 110 million Yuan (13.6 million US dollars), said Sun Maoyuan, general manager of China United Coal bed Methane Corp. Ltd, the investor of the project.

The company has pumped 360 million Yuan (44.4 million US dollars) into the project.

The first phase is capable of churning out 80,000 cubic meters natural gas daily, which will be supplied to gas companies and power grids, said Sun.

Shanxi Province boasts an abundance of coal resources. It is also China's largest reserve base of coal bed methane. The estimated methane deposit is about one trillion cubic meters, or one third of the country's total.

Experts said the methane could be burned for 6,682 years by one million households, or be turned into 22 trillion Kwh's electricity.

In 2004, China's coal mines produced 14 billion cubic meters of gas, a number experts say that it will increase to 17 billion cubic meters in 2020.

Notably, 80 percent of the casualties in coal mine accidents could be attributed to their deaths to gas explosions, which cause direct loss of 750 million Yuan (92.6 million US dollars) a year.

In recent years, the province has been vigorously bringing in foreign capital to tap the gas resources. It has kicked off an exploitation program with two billion Yuan (247 million US dollars) in foreign loans.

The Asia Development Bank has vowed to provide over 1 billion US dollars in loans under favorable conditions to assist the province's endeavor in the next 10 years.

Another massive methane exploitation project with an installed capacity of 720 million cubic meters is also under construction in Shouyang County. By 2008, the gas will be sent to Beijing, Shanghai and other major cities through the west-east gas transmission routes, said sources with the provincial government.

China is the third largest coal bed methane reserve country in the world, only next to Russia and Canada. The latest evaluation shows that China has 31.46 trillion cubic meters coal bed methane lying above a 2,000-meter depth, 60 percent of which is suitable for exploitation.

China's methane resources are distributed in 24 provinces, with Shanxi Province and Xinjiang Uygur Autonomous Region accounting for more than half of the country's total reserve.

China's first inland nuclear power plant

(China News, 2005-12-05)

Yangcheng Evening News reported that China Guangdong Nuclear Power Holding Co. Ltd (CGNPC) signed a framework agreement with Zhaoqing Municipal Government on nuclear power cooperative development yesterday, signifying that China's first inland nuclear power plant is more probable to settle in Zhaoqing.

At present, CGNPC is in the process of planning and site selection for the new nuclear power plant. After examination and appraisal, nominee sites will undergo various themed studies and demonstrations in terms of technology, economics and environment.

Zhaoqing took the lead in Guangdong Province to make first-phase preparations for inland riverside nuclear power plant site selection in the 1990s. After several rounds of investigation, experts deem that Zhaoqing has necessary resources for setting up an inland riverside nuclear power plant and is relatively competitive in terms of environment, geological factors, water intake, power grid connection and supporting facilities, which marks good investment environment. Insiders analyzed that the new nuclear power plant is most likely to settle in Zhaoqing's Deqing County, which is located in the mountainous western Guangdong Province by the torrential Xijiang River, a branch of the Pearl River.

IAEA launches first cooperation center in Eastern China city

(People's Daily, 2005-12-07)

The first cooperation center sponsored by the International Atomic Energy Agency, or IAEA, in China, has recently been established in Hangzhou, capital city of eastern Zhejiang Province.

It is also the first to start among 10 IAEA cooperation centers planned worldwide for the peaceful utilization of nuclear energy.

China's IAEA cooperation center is located at the Research Institute of Nuclear Agriculture under the Zhejiang University based in Hangzhou. It is devoted to plant breeding by induced mutation and related research and development, sources with the research institute said.

Under the partnership of IAEA and Zhejiang University, the center will also undertake the agency's training programs and collect information related to plant idioplasmic innovation.

Nuclear technology has been widely used for plant breeding by radiation-induced mutation. With the help of such technology, the nuclear agriculture institute has bred more than 20 new plant species, including rice, maize and wheat.

"Technical Study of Power Cell and Li-ion Cell" passed acceptance

(MOST, 2005-12-08)

On December 7, 2005, the two research topics of "High-power Ni-hydro Power Battery System and Applied Technology for Fuel Cell City Bus" and "Li-ion Cell and Management Module for Jiefang Brand Hybrid City Bus" passed the acceptance check organized by the Office of Energy Technology under the 863 Program.

The acceptance team believed that the topic of "Ni-hydro Power Cell and Management System" has fulfilled the research contents specified in the contract and met the requirements of the technical indicators. The topic of li-ion power cell and management system has also completed the research contents specified in the contract. Through design and optimization of the battery, the topics have achieved satisfactory comprehensive performance and have made notable progress in

terms of li-ion cell safety. By coupling the research output with enterprises, this project has already set up a production line, which lays a good foundation for future industrialization.

A project on high efficiency and energy-saving passed acceptance
(MOST, 2005-12-13)

Recently, the project of "Key Scientific Problems Relating to High Efficiency and Energy-saving" under the 973 Program passed the expert acceptance organized by MOST. Centering round the key scientific problems relating to high efficiency and energy-saving, the project has made multi-level study into intensification and control of the transfer process (unit energy-saving) and integration and optimization of energy utilization system (systematic energy-saving) and achieved significant results.

A research on low cost and long life photovoltaic cell passed acceptance
(MOST, 2005-12-13)

Recently, the project of "Basic Research on New Type of Low Cost and Long Life Photovoltaic Cell" under the 973 Program passed the expert acceptance organized by MOST. This project has made breakthrough in the study of new type of low cost and long life photovoltaic cell, obtained a number of preparation technologies with independent intellectual property rights and built the experiment platform for amorphous solar silicon cell and dye-sensitized thin film solar cell.

"Research for Accelerator-driven Clean Nuclear Energy System" passed the expert acceptance
(MOST, 2005-12-14)

Recently, the project of "Basic Research into the Physics and Technology for Accelerator-driven Clean Nuclear Energy System" under the 973 Program passed the expert acceptance organized by MOST. In the last five years, the project completed the optimized study of ADS scheme, basic research into the physics of ADS reactor, study of ADS nuclear physics and material and fuel as well as development of low-energy proton RFQ accelerator and ECR ion source.

"Scale Preparation, Storage and Transportation of Hydrogen Energy" passed the expert acceptance
(MOST, 2005-12-15)

Recently, the project of "Scale Preparation, Storage and Transportation of Hydrogen Energy and Correlated Basic Research into Fuel Cell" under the 973 Program passed the expert acceptance organized by MOST. Major progress made by this project is successful development of the catalytic agent for making hydrogen through organic fuel oxidation and reformation, design and manufacture of the micro-cat forming reactor system that integrates warm-up, vaporization, water vapor reforming reaction, catalytic combustion and waste heat recovery.

China's first coal–straw burning generator unit put into production in Shandong Province
(CAS, 2005-12-19)

China's first coal–straw burning generator unit is put into production in Shiliquan Power Plant of Huadian Power International Corporation Limited located in Zaozhuang of Shandong Province, which symbolizes China's new progress in promoting biological electricity generation.

The specific technology of the generator unit is imported from BWE Company of Denmark, and the investment for project reconstruction is 83.57 million RMB. It is introduced that the annual output of straw in China is 6.6 billion tons, 0.2 billion of which can be use for energy generation. If the unit can operate for 7236 hours per year, over 1.05 million tons of straw can burned, which means coal consumption can be decreased by 7.56 million tons and the local peasants there can increase their income by over 30 million RMB. In contrast to coal electricity generation, the unit, which makes use of straw electricity generation technology, can lower the emission of sulfur dioxide by 1500 tons annually. It can also reduce the environmental pollution caused by carbon dioxide, carbon monoxide, and suspending granules. These pollutants are normally produced when the peasants burn straw.

In addition, the straw electricity generation project located in Suzhou will also kick out with the investment of 0.5 billion RMB. All of the fuel will be straw and the planned volume is two 0.25 million kilowatt units.

It is regarded that the substitution of coal with straw as a new fuel for electricity generation is an important action for the recyclable economy development in electric power industry, and it is beneficial for the change of economic development manner.

Fuel cell bus commercialization staged in Beijing

(MOST, 2005-12-21)

On November 23, 2005, the Fuel Cell Buses Hand-over Ceremony---GEF/UNDP Demonstration Project of Fuel Cell Bus Commercialization was staged at the National Agriculture Exhibition Center in Beijing. The Ceremony was hosted by an Officer of the MOST Department of High & New Technology Development and Industrialization. MA Songde, Vice Minister of Science and Technology, and representatives of People's Government of Beijing Municipality and United Nations Development Programme (UNDP) and more than 100 representatives from the National Development & Reform Commission, the Ministry of Finance, China Certification & Accreditation Administration, State Administration of Taxation, General Administration of Customs and Daimler Chrysler AG attended the Hand-over Ceremony.

3 fuel cell buses manufactured by Daimler Chrysler AG were delivered to Beijing in October 2005. So far, the preliminary activities of the demonstration project have been completed in Beijing, including the construction of maintenance shops, temporary hydrogenation facilities, data collection system, operator training and operation organization and management. Beijing Public Transportation Holdings (Group) Ltd. will be responsible for the operation of the 3 fuel cell buses, which will be operated on Route 384 (with a total length of 8.19 km extending from Beigongmen to Renmin University via Beijing University, Tsinghua University, Renmin University, Zhongguancun, the Summer Palace and the Winter Palace).

Largest straw-powered generation projects break ground

(People's Daily, 2005-12-21)

China's two largest straw-powered generation projects with independently developed technology broke ground in Jiangsu's Jurong and Suqian, respectively on December 20 and December 18.

Both the two projects are being constructed by China Energy Conservation Investment Corporation and will be completed by December next year.

Each project will have an installed capacity of 24,000 kilowatts and will burn 200,000 tons of

straws each year. It could help a farmer make 140 Yuan more annually.

China Energy Conservation Investment Corporation is a state-owned enterprise under the direct administration and supervision of the State-owned Assets Supervision and Administration Commission of the State Council. It is a government policy-orientated investment entity established and developed according to the specified tasks assigned by the State Council.

Alien plant to generate power

(Xinhua Net, 2005-12-26)

Chinese scientists have developed a technology to generate power from English cordgrass, an alien plant that has been blamed for biological invasion.

The technology was developed by scientists from Shandong University and other institutions directed by the Scientific and Technological Development Center of the Ministry of Education.

The new technology turns carbon and hydrogen elements in the cordgrass into flammable gas. After it has been decontaminated, the gas can be used for cooking, power generation and heating.

English cordgrass was introduced into China in the 1970s as a binder for coastal soil, but it became a biological threat after rampant growth. More than 100 counties in China are currently threatened by the alien plant.

Experiments show that one kilogram of English cordgrass can produce two cubic meters of flammable gas, which can generate one kilowatt-hour of electricity. If all of its 3.3 million hectares of English cordgrass were processed, China would be able to harvest 50 billion to 75 billion kilowatt-hours of electricity.

China develops permanent magnet levitation wind-energy generators

(People's Daily, 2005-12-27)

A permanent-magnet levitation based wind-energy generating unit, passed the technical appraisal organized by the Guangzhou Department of Science and Technology on Monday.

It has been jointly developed and produced by the Guangzhou Institute of Energy Conversion under the Chinese Academy of Sciences and the Guangzhou Zhongke Hengyuan energy Technology Co Ltd. The institute is the only research institution in the areas of comprehensive research and development of new and renewable energy resources in China.

The generator operates without any control systems. Made independently by China, the successful development of the generator will enable China, or even the world, to make a key breakthrough in the technology of wind-energy generation.

Its comparability testing shows that installed with the permanent magnet levitation bearing, the generator will increase its dynamo output by more than 20 per cent, that is to say, at the same wind speed, the generator will increase generating capacity by 20 per cent.

World's 1st int'l solar center settled in China

(China News, 2005-12-27)

United Nations Industrial Development Organization (UNIDO) officially approved recently to build an international solar technology promotion and transfer center in Lanzhou. The first phase project will cost US$300,000. The Chinese government will invest a total of 150 million Yuan (US$18.5 million) and the project will commence construction next spring.

Xi Wenhua, head of Gansu Natural Energy Research Institute, said that the planned office building

of the UN solar center will cover an area of 30 Mu (4.95 acres). The solar center will include an international convention center, a research and development center and a training center. It is scheduled to be put into use in two years. At present, related departments have submitted two construction plans and the better one will be chosen after appraisal.

Related UN organizations and the Chinese government jointly convened the International Symposium on Solar Energy Applications in Developing Countries in Lanzhou this October. At the symposium, representatives from 23 countries in Asia and Africa drafted and published a "Lanzhou Declaration" on international solar technology cooperation, which flavors the establishment of an international solar center in Lanzhou.

Xi Wenhua said that the establishment of the center will offer substantial support to international solar technology cooperation and further promote development and utilization of solar technology in China. It will facilitate China's solar technology and products to go international, and rural communities in developing countries will be the ultimate beneficiary.

China's installed power generation capacity maintains world's No. 2

(China News, 2005-12-30)

As Zhejiang Guohua No. 2 generating set formally started operation, China's installed capacity of electric power has reached 500 million kilowatts, setting up another landmark in the development of China's power industry.

At today's ceremony to celebrate that China's installed capacity broke the 500-million-kilowatt mark, China Electricity Council (CEC) President Zhao Xizheng indicated that since the infant days of the PRC, its installed capacity has risen more than 60 million kilowatts, and its annual power generation is expected to hit 2.4 trillion KWH this year. The nation's installed capacity and power generation both rank No. 2 in the world.

While striving to promote its power industry, China attaches much importance to high efficiency, environmental protection, security, and energy saving, and struggles to develop toward coal and water conservation, low exhaust, high efficiency and environmental protection. With upgrading industrial technology, China's mainstream single unit thermal power installed capacity has risen from 100 megawatts and 200 megawatts a decade ago to 300 megawatts and 600 megawatts currently. The 300 megawatts and above power generating sets constitute 42% of thermal power installed capacity by the end of 2005.

In the meantime, consumption of hydropower, a clean and renewable energy, also witnessed rapid growth in China. At present hydropower installed capacity has broken the 100 million kilowatt mark and accounts for 25% of the country's total installed capacity, taking the lead in the world. Thermal power, hydropower, nuclear power and wind power make up 73.7%, 24.5%, 1.6% and 0.2% respectively of the country's total installed capacity. During the 11th Five-Year Plan period (2006-2010), the proportions of big power generating sets, nuclear power and wind power in China are expected to increase notably.

1.2 Earth and Environment

CAS, Yunnan jointly to set up a biodiversity lab
(CAS, 2005-12-07)

On Dec. 3, CAS Vice President CHEN Zhu and Vice Governor of southwest China's Yunnan Province LIU Ping held talks on jointly establishing a State Laboratory for Biodiversity in Kunming.

The two leaders listened to a proposal on the initiative by Prof. ZHANG Yaping, a CAS fellow from the CAS Kunming Institute of Zoology (KIZ). According to the blueprint, the future KIZ-based lab will be established in collaboration with Yunnan University, and with the support from such institutions as the Lab of Cell and Molecular Evolution at the CAS Institute of Zoology, State Key Lab of Phytochemistry and Plant Resources in West China at the CAS Kunming Institute of Botany, Yunnan University of Agriculture and the CAS Xishuangbanna Tropical Botanical Garden. It will carry out comprehensive studies into biodiversity protection and sustainable utilization.

The two sides agreed that such a lab will be of significance for upgrading China's biodiversity research, attracting talent in the field and developing local bio-industries. Greater efforts will be made to speed up its development.

Ferny plant helps clean up polluted soil
(China Daily, 2005-12-07)

(Pteris vittata was identified three years ago as a hyper-accumulator of arsenic. The plants may hold as much as 22 grams of arsenic per kilogram of plant matter, and are hardy and fast growing.)

Scientists are looking to the ground in their efforts to fight deadly soil pollution in China.

For more than a decade the phytoremediation system which uses plants to help absorb pollutants has become a major part of clean-up programs across the world.

By 1998, some 400 natural plants able to absorb materials, such as heavy metals, arsenic or fluoride, had been identified worldwide.

But none were indigenous to China.

Experts, however, now believe there are several native species that can be used to remove pollutants.

One particular ferny plant caught the attention of Chen Tongbin eight years ago. Chen, a senior researcher at Beijing-based Institute of Geographical Sciences and Natural Resources Research of CAS, believes that the big-leaf wugongcao (pteris vittata) represents the future of environmental remedy in China.

Tests have already showed it can soak up high levels of cancer-causing arsenic materials in soil.

"The plant could even create a whole industry to come to the aid of fighting soil pollutions in China," Chen told China Daily.

His work is part of intensified efforts to use natural plants to fight pollutions, for which Chen is one of the coordinators.

Experts had tried fruitlessly for several years to find native plants that could help solve oil pollution problems in China.

"As a plant remediation researcher, I felt embarrassed," Chen recalled.

China has an urgent need to discover plants that can be used for the phytoremediation system.

With a sharp increase in industrialization, mining, and the overuse of chemical fertilizers, land pollution has become a major hazard to China's environment and to people's health.

Scientists had struggled to introduce foreign species to China, but many native plants withered and died shortly after being planted.

But Chen is adamant that native plants, such as wugongcao, already exist in the vast areas of China to fight environmental pollution.

"The basic principle of Darwinism is species adapt to their environment, so my eyes fell onto those places with heavy pollution," Chen said.

His belief was corroborated by initial field studies in Shimen County of Central China's Hunan Province, where the mining industry has existed for more than 1,500 years.

Chen himself noticed plants grew robustly in the area,

Chemical analysis of the soils and the plants revealed very high concentrations of arsenic, which became a serious problem in a number of areas in China and South Asia in the late 1990s.

High levels of arsenic in drinking water and food have caused bone diseases as well as cancers in people living in many rural villages.

Before Chen carried out the research, no plant in the world had been found able to hyper-accumulate arsenic to a concentration of more than 1,000 milligrams per kilogram.

(interested people could ask our office for the unmodified long text.)

Remote sensing bio-monitoring used in water diversion

(Xinhua Net, 2005-12-08)

China has recently applied remote sensing technology to biological environment monitoring in a mammoth state water diversion program.

The remote sensing biomonitoring of the middle route of the huge south-to-north water diversion program has recently passed appraisal by experts with the Ministry of Science and Technology.

The project was included in the state program of high technology research and development, dubbed Program 863.

Starting in July 2003, the project employs remote sensing systems which run rapidly and collect

vast amounts of information from large expanses, the experts said.

The systems monitor soil erosion, landsides and embankment collapses, changes in river channels, water quality and plant coverage in the water source area of the Danjiangkou reservoir, the lower- and middle-reach of Hanjiang River valley and the intake area of the water diversion program's middle route.

The biological monitoring project will provide basic facts and data for decision making on the middle-route project of the south-to-north water diversion program and help minimize environmental degradation, the experts said.

The middle route of the water diversion program is designed to traverse seven provincial-level regions, with a total length of more than 1,400 kilometers.

Research on the Molecular Basis of Tree Breeding passed expert acceptance
(MOST, 2005-12-12)

Recently, the project of "Research on the Molecular Basis of Tree Breeding" under the 973 Program passed expert acceptance organized by the Ministry of Science and Technology. In light of the demand of China for the breeding of high-quality and high-efficiency forest resources, this project has conducted research in the relationship between wood microstructure and wood property, appraisal and orientation of the molecular basis for wood formation and the related gene of wood property, separation and appraisal of resistant gene and insect-resistant gene, and preliminary orientation of woody plant.

New coastal remote sensing network to bet set up along East China Sea
(Shanghai Daily, 2005-12-13)

Shanghai Fishery University will team up with the US National Oceanic Atmospheric Administration to create a coastal remote sensor network that will monitor fishery resources and forecast natural disasters in the East China Sea. The network, China Coast Watch, is a satellite system that collects real-time basic data about the ocean environment - such as water temperatures, tide directions and wind velocity - and transfers it to a ground receiving station for analysis. Researchers say the information will help them make conclusions about ocean resources along the coast, including fish migration routes, and predict typhoons and other climate phenomena.

All of the environment monitoring conclusions will be put on the internet for free public use, but information about fish migration will be sold to fishery companies. With the new monitoring network, most of the fish movements and natural disasters, like red tides and typhoon, could be precisely forecasted. Currently, no similar remote sensing coastal system exists in the country. The program will be launched in December, and the first phase is expected to be completed next January. Besides, the State Oceanic Administration and the Chinese Academy of Sciences will also join the project by monitoring the northern Yellow Sea and South China Sea.

A new project against desertification initiated
(CAS, 2005-12-21)

As a national key project during the upcoming 11th Five-year period (2006-2010), the Research & Demonstration of the Technologies for Prevention & Harnessing of Desertification kicked off recently in Beijing.

The project was initiated by the Ministry of Science and Technology (MOST) and jointly sponsored by the National Administration of Forestry (NAF), Ministry of Education (MOE), CAS and related provinces and autonomous regions.

Of the 12 research topics in the first-stage implementation of the project, four will be conducted by CAS institutes, including two headed by JIANG Deming and ZENG Dehui from the CAS Shenyang Institute of Applied Ecology (IAE).

The two projects commissioned to the IAE are: the Technical Research & Demonstrative Tests on the Vegetation Restoration & Regulation of the Holqin Sands with an investment of 4.2 million Yuan and the Technologies for Land-use Pattern Optimization for a Desertified Area's Ecological Safety with an investment of 1.6 million Yuan.

During the period of the 9th Five-year period (1996-2000), MOST had listed anti-desertification for the first time in the national plan of S&T development. During the 10th Five-year period (2001-2005), it initiated two national R&D projects under the titles of "Research & Demonstration of the Emergence Study on Prevention & Control of the Sandstorms at Beijing's Periphery" and "Research & Demonstration of Key Technologies for Prevention & Harnessing of Desertification."

At present, the enforcement of the new research project is to be completed in two stages. The first stage with a total investment up to 20 million Yuan is composed of 12 research topics to be carried out from the August 2005 to July 2007.

On the basis of the 12 research topics, the second-phase implementation involves another batch of eight research topics with an investment of 120 million Yuan, which is expected to finish from August 2007 to July 2010.

Ocean expedition collects extreme life samples

(Xinhua Net, 2005-12-22)

On December 18, Chinese scientists for the first time successfully obtained samples of hydrothermal sulfide and life forms living near a deepwater hydrothermal vent during an expedition in the Indian Ocean.

They detected unusual salinity and turbidity at longitude 70°24' east and latitude 25°19' south, and used undersea cameras to observe many organisms including sea anemone and shrimps living along the 2,400 meters mid-ocean ridges there.

This indicated the existence of a nearby hydrothermal vent, or "black smoker." The scientists then obtained the 45-kilogram sample of hydrothermal sulfide using remote controlled equipment.

According to Guo Shiqin, chief scientist of the Ocean No.1 mission, this is the first time for them to see such good piece of hydrothermal sulfide.

One of the minerals produced through deep sea hydrothermal activity, the hydrothermal sulfide contains many non-ferrous metals including bronze and zinc and may one day provide a substitute for land mineral resources.

Research into life forms living in deep sea hydrothermal environments could also be of great scientific and economic value, due to their ability to resist extreme pressures, temperatures and viruses.

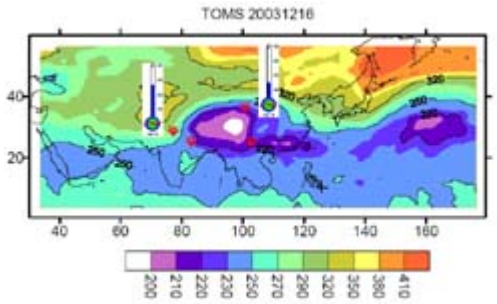
Ocean No.1 is China's top marine research ship, weighing 5,600 tons and equipped with state-of-the-art equipment.

It departed from Cape Town in South Africa at 2 PM on November 23 for China's first scientific expedition in the Indian Ocean, scheduled to last more than 40 days and travel over 6,000 sea miles.

As well as obtaining samples of hydrothermal sulfide and life forms, the expedition aims to conduct geological, geophysical and geochemical research into the Indian Ocean mid-ocean ridge and look for new hydrothermal regions.

Ocean No.1 will also travel near Indonesia's Sumatra Island where the severe earthquake-triggered tsunami took place last year and collect data on the area's terrain, active fault structure, sediment and volcano.

Ozone minihole was found over the Tibetan Plateau
(CAS, 2005-12-23)



Through a comprehensive analysis, researchers from the CAS Institute of Atmospheric Physics (IAP) discovered an ozone minihole, a large area with the lowest total ozone column (TOC, see figure), over the Qinghai-Tibet Plateau from Dec. 14 to 17, 2003. The area with TOC less than 220 DU is over 250 square kilometers with its central lowest value of 190 DU, about 25% reduction from the historical average value in this region.

Based on analysis of ground-based observation data obtained by Brewer ozone spectrophotometer at the Waliguanshan Station WANG Gengchen from IAP and QI Donglin from the Qinghai Provincial Meteorological Administration first found the record with unusually low TOC during mid-December in 2003. Based on this, BIAN Jianchun and colleagues from IAP discovered the ozone minihole event over the Qinghai-Tibet Plateau two years ago through a comprehensive analysis on the data from ground-based, satellite and meteorological observations. They also show that the major reason behind the event is a weather process.

The ozone hole over the Antarctic, stratospheric ozone depletion, and its possible impacts on climate-environment-ecosystem changes have become issues of concern in today's world. Chinese

researchers have kept tracking of ozone changes over the Plateau and carried out a series of research work. ZHOU Xiuji and ZOU Han have discovered an ozone valley (a center of ozone depletion) over the Tibetan Plateau in the summers of 1994 and 1996, respectively.

Offshore oil and gas exploitation extends to deep water
(People's Daily, 2005-12-26)

One program in the 863 Program "deep water oil and gas geophysical prospecting" has passed appraisal by expert panel, which signifies a historical breakthrough in China's oil and gas prospecting technology. China's exploitation of offshore gas and oil will hopefully extend from shallow water to deep water from now on.

In the past ten years, the offshore oil exploitation has extended from the shallow-sea to deep-sea reaching 3,000 meters globally. In light of this change, the High-tech Research and Development Program of China (863 program) initiated the "deep water oil and gas geophysical prospecting" program during the 10th Five-year Plan period.

"Roof of the World" threatened by deteriorating environment
(China News, 2005-12-26)

(The snow-capped Qinghai-Tibet Plateau is the cradle of three main Chinese rivers, the Yangtze, Yellow and Lancang Rivers.)

The Qinghai-Tibet Plateau, dubbed as the "Roof of the World" is facing the threat of deteriorating environment, according to a latest geological survey.

The China Geological Survey Bureau has recently made public of its milestone geological survey on the Qinghai-Tibet Plateau, according to which environment of the plateau is getting worse as a result of geological movement.

Geologists said drought of lakes, shrinking of glaciers and decrease of grassland are the major problems threatening the plateau.

Government statistics show that the desert area on the Qinghai-Tibet Plateau has expanded to 0.5 million square kilometers with more and more lakes dried up, making up about 19.5percent of the total area.

In addition, from the 1970s to 2002, the grassland in the area decreased by 24.3 percent, while the glacier area also shrank 147.36 square kilometers each year, said the geologists.

The Qinghai-Tibet Plateau is the cradle of three main Chinese rivers, the Yangtze, Yellow and Lancang rivers. Most of the Chinese civilization emerged along the valleys of the Yangtze and Yellow rivers.

China losses heavily in soil erosion

(China News, 2005-12-27)

The Ministry of Water Resources published a report Monday on China's soil erosion status in 2004. According to the report, China's soil erosion reached 1.622 billion tons in the year, which equals to one centimeter of soil loss covering a land of 125,000 square kilometers. The problem is most serious in the Yangtze River and the Yellow River region, with soil erosion reaching 932 million and 491 million tons respectively.

The report covered soil erosion status for eleven main river areas in China and the result showed that most of the provinces and municipalities had soil erosion problem to some extend, with the problem being most serious in the Yangtze River region, the Yellow River region, the black soil region in northeast and the Pearl River region in south China.

The report showed that the problem occurred most at the slopes of the arable lands. Meanwhile, construction activities attributed heavily to the problem. As China speeds up its process of industrialization and urbanization, many construction projects on infrastructure were undertaken and these projects damaged land surface and vegetative cover by producing a lot of waste soil.

According to the Ministry of Water Resources, soil erosion is one of the big environmental problems existing in China. China is one of the countries in the world with most serious soil erosion problem and more than two million square kilometers of lands in the country need to tackle the problem of soil erosion.

CAS sets up surveillance post to monitor river pollution

(CAS, 2005-12-28)

The CAS Research Center for Eco-Environmental Sciences has joined forces with Agilent Technologies and Heilongjiang Provincial Hydrological Authority in setting up a monitoring station at the city of Jiamusi on the lower reaches of the Songhuajiang River.

The objective of the establishment is to make comprehensive surveillance on benzene-contaminated water quality, involving various elements in the polluted section of the river, including the river water, river sediments, ice sheets and biological samples. It will provide the first-hand data for the studies of the development trends and ecological effects of the recent water pollution accident caused by a chemical plant blast by the river so as to offer countermeasures for its rehabilitation.

Technology for air-cooling wastewater reclamation in viscose fibre workshops accepted

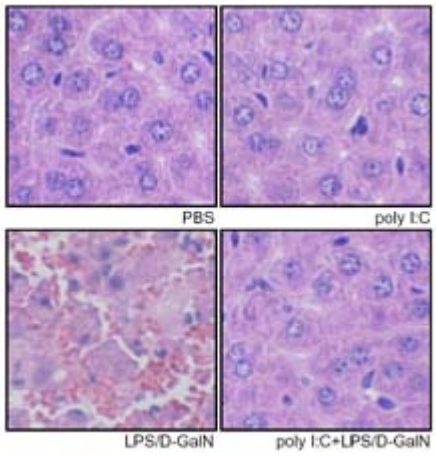
(MOST, 2005-12-29)

Recently, one of the key state S&T research topics for the Tenth Five-year Plan "Development of the Technology for Air-cooling Wastewater Reclamation in Viscose Fibre Workshops" passed appraisal and acceptance in Hangzhou. Undertaken by the Hangzhou Development Center of Water Treatment Technology, SOA with the support from Xinxiang Chemical Fiber Co., Ltd., the largest viscose fibre production enterprise in China, this research topic has set up a large wastewater treatment demonstration project with a daily processing capacity of 12,000 m^3. After having been operated steadily for nearly half a year, the project meets the design requirements in terms of various technical indicators. The actual processing cost per ton is 1.73 Yuan.

China is the biggest viscose fibre producing country in the world. Every year, 60 million ton air cooling water and 1.4 hundred million ton spray washing water is consumed for viscose fibre production. Successful development of this technology is of far reaching importance to China for saving industrial water and alleviating the serious shortage of water resources.

1.3 Health

New findings in innate immunity may lead to fresh approach to treat hepatitis
(CAS, 2005-12-01)



(Pretreatment with poly I:C-attenuated LPS-induced acute liver injury in C57BL/6 mice.)

Recent studies of a team led by Prof TIAN Zhigang from the University of Science and Technology of China (USTC), a CAS affiliate, have shed new light on the treatment and prevention of hepatitis with their discovery that the pretreatment with polyinosinic-polycytidylic acid (poly I:C), an artificial mimic of viral RNA, could significantly block the invasion of liver by pathogens.

Innate immunity is the first line of defense against infection and transformed cells (such as tumor). Its losses or damages could lead to a variety of severe diseases in human body. Lipopolysaccharide (LPS), a major bacterial component, can trigger an outbreak of induced fulminant hepatitis via its interference on the Kupffer cells, a kind of innate immune cells in the liver. Recently, a family of mammalian receptors has been identified that resemble a Drosophila receptor called Toll. Toll receptors in the fruit fly and similar molecules in plants trigger the release of antimicrobial peptides in response to infection, possibly representing a very ancient form of innate immunity. In mammals,

at least ten Toll-like receptors have been identified. The best characterized is Toll-Like Receptor 4 (TLR-4) on macrophages.

The work by CAS researchers shows that pretreatment with poly I:C can significantly decrease the mortality and liver injury caused by the injection of LPS. Further research reveals that, poly I:C can act on the toll-like receptor 3 (TLR3) by lowering the expression of TLR4 in the same cell so that LPS would lose its targets in the action.

This work was published in the Dec. 22, 2005 issue of *the Proceedings of National Academy of Sciences* (PNAS). It first depicts an interactive dialogue between the TLR3 and TLR4, which will be interesting to both hepatologists and immunologists, notes a paper reviewer of *PNAS*.

There have been many studies devoted themselves to the regulation of TLRs, mostly concentrated on the TLR analogues or some protein molecules as downstream products to the TLRs. The research by Prof. Tian and colleagues is the first revelation of the regulatory mechanism between different TLRs, which plays a guiding role for deeper exploration into the natural immune system and deepen our understanding of the formative mechanism for making clear the eruptive outbreak of hepatitis. So, new thinking approaches are to be suggested for prevention and control of the scourge.

1st China-made AIDS drug approved for human tests

(People's Daily, 2005-12-02)

The Academy of Military Medical Science has announced that it is producing China's first AIDS drug with independent intellectual property rights and that it has been approved for clinical trials.

He Fuchu, the academy's vice president said that IBE-5 marks a major breakthrough and has outperformed combination therapies in tests on monkeys.

He said that the drug has now been approved by the State Food and Drug Administration for clinical trials involving humans.

"The safety of the new drug is reliable," he said, adding that it showed remarkable performance in curbing the duplication of HIV and was effective for longer than combination therapies.

The academy began to develop IBE-5 in 1994 and applied for a national patent for it in 1996.

The Jiangzhong Pharmaceutical Group, a major domestic medicine producer, joined the program in 1996, said Zhong Hongguang, the group's board chairman.

He added that Jiangzhong has applied for patent protection for the drug and its production.

Traditional Chinese medicine applied in space flights

(CRI, 2005-12-03)

Traditional Chinese Medicine has been widely used in counteracting space motion sickness in China's space flight missions.

During space flight, there is up to a 50 percent chance for astronauts to feel space motion sickness. However, during the five-day Shenzhou-6 mission, Fei Junlong and Nie Haisheng always maintained sound physical conditions. Apart from specific exercises beforehand, traditional Chinese medicines also contributed.

Director of the China Astronaut Research and Training Center Chen Shan'guang says Traditional Chinese medicines proved to be effective when pilots carry out space missions.

"Before astronauts go to space, they take traditional Chinese medicines which enhance their ability to maintain balance and improve their immune system. According to the feedback of the two

Shenzhou-6 astronauts, these measures have had positive effects." Chen said.

In their everyday training, Chinese medicinal herbs, Chinese massage therapy and acupuncture have been used to improve astronauts' physical conditions. The China Astronaut Research and Training Centre is cooperating with the laboratory from the Chinese University of Hong Kong to better prevent the loss of calcium in bones during a zero-gravity situation.

Chen says China will continue to promote the use of traditional Chinese medicines on astronauts.

"We may continue to use Chinese medicines in China's manned-space flights and we will also promote traditional Chinese medicines in some international space missions to counteract the space motion sickness." he said.

China studies new treatments for human bird flu infection

(CRI, 2005-12-03)

China has launched a new research program to discover new clinical treatments for patients with cases of severe flu or bird flu.

The new program was launched Friday in Beijing at a seminar on the clinical treatment of human cases of bird flu.

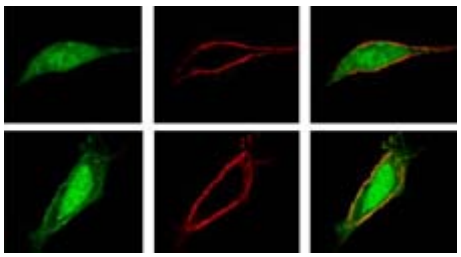
The seminar is aimed at collating and exchanging clinical experience in the medical treatment of bird flu, and discovering more reasonable and effective therapies that will relieve the current high mortality rates in human cases of bird flu.

So far, China has confirmed three human cases of bird flu, with 2 of these cases proving fatal.

Experts at the seminar call on the combined advantages of Chinese traditional medicine and western medical treatment, to design new therapies with Chinese characteristics to treat human cases of bird flu.

Cell breakthrough could lead way to new medicines

(CAS, 2005-12-05)



Scientists at the CAS Shanghai Institutes for Biological Sciences (SIBS) and Fudan University have discovered a new path for drugs to reach the nucleus of a human cell - a major breakthrough for future pharmaceutical research. The findings were published in the Dec. 2 issue of *Cell*, a top academic journal in the world.

Considered as the "nose" or "eyes" of a cell, receptors on a cell membrane are initial sensors of outside signals such as light, smell or drug stimulations. These small units then pass on the signals inside the cell which can lead to a further response.

During an experiment in 2001, researchers found that Beta-Arrestin1, a kind of cell protein, was able to take over the signal and transmit it directly to the cell's nucleus. Previously, however, it was believed Beta-Arrestin1 would deactivate receptors and repress the signal transmission.

"We were quite surprised by the findings," said MA Lan, co-author of the published paper. "It not

only updated people's knowledge of beta-inhibitors, but found a new direct path for outside signals to reach the cell nucleus."

More importantly, Ma said, the discovery will eventually lead to new medicines that directly affect the cell nucleus.

"There is still a long way to go before the achievement on fundamental cell research can have real applications for humans," Ma said.

Ma and her partner PEI Gang, director of SIBS and a CAS fellow, have applied for a patent for their research.

China leads in research of genetically modified plants

(Xinhua Net, 2005-12-05)

China has taken the lead among developing countries in the research of genetically modified (GM) plants, an expert has said.

China has been investing 100 million US dollars per year in the research of biotechnological plants since the beginning of this century, and the sum is expected to reach more than 500 million US dollars in 2005, said Shen Guifang, executive deputy director of China High-tech Industrialization Association and researcher of Chinese Academy of Agricultural Sciences.

At present, more than 60 versions of GM plants are approved for field trials and release, including China's staple crops -- rice, maize and wheat, as well as cotton, potato, tomato, soybean, peanut and rape, she said at the "Forum of Industrial Innovation and Agriculture Industrialization" held recently in Yinchuan, capital of northwest China's Ningxia Hui Autonomous Region.

More than 30 versions of GM tomato, cotton, petunia and pimiento have been approved for commercial production. The leading GM plant in China is pest-resistant cotton covering 66 percent of cotton-growing areas, Shen said.

China developed 47 GM plants in 1996, including almost all the main food and for age plants. It has examined and approved 26 GM plants in terms of safety between 1997 and 1999, including 16 of pest-resistant type, nine of antiviral type and one of quality-improved type.

China ranks the fifth -- behind the United States, Argentina, Canada, Brazil - in the amount of genetically modified crops, said a World Health Organization report in June. Last year it had 3.70 million hectares planted, 5 percent of the total transgenic crop area of the world.

Space bio-medicine achieves fruitful results

(Xinhua Net, 2005-12-05)

Shenzhou Three，China's first space medicine, has been put into industrial production recently in Xi'an, capital of northwest China’s Shaanxi province. This event ushers in a new era in space medicine research in China.

Jiang Xingcun, professor of the Institute of Genetics, Chinese Academy of Sciences (CAS), said that bacteria that Shenzhou Three oral solution contains have been carried to the outer space 4 times by spacecrafts in Shenzhou series and 4 times by satellites for scientific experiments. Under the special condition of cosmic radiations, weightlessness and other factors in the outer space, the bacteria had undergone a process of gene mutation and thereby enhanced their effects 4 to 6 fold.

China has begun her research on space life sciences since 1960s. Chinese scientists first put cucumbers, green peppers and rice on spaceships to be carried to the outer space for experiment. With the remarkable success of Shenzhou Three, China has made a great stride in the field of space

biological medicine research.

Xi'an Hengtong Guanghua Pharmaceutical Co., Ltd. is the first enterprise in the nation that applies space biotechnology in bacteria breeding. It is also the first to industrialize the production of space medicine. Hengtong's president Zhao Heng said that Shenzhou Three oral solution, with the application of advanced space biotechnology, has made possible many things that were impossible before.

Experts believed that space technology is an effective tool in breeding new biological bacteria. ShenzhouThree, as the first space medicine that enjoys independent Intellectual Property Right in China, has obtained 11 national patents by far. Clinic applications in many hospitals indicate that Shenzhou Three is effective in improving human immunity system, as well as in treating a variety of diseases such as recurrent respiratory infection, regenerative anemia and malignancy.

Space life pharmacy, still a burgeoning industry in the world, is one of the few high-tech industries China has aimed to develop. With an annual output worth of 5 billions RMB, Hengtong has now risen to be one of the top 50 enterprises in the nation's medicine industry.

HK claims breakthrough in safer stem cell transplantation

(People's Daily, 2005-12-05)

Tinny channels found in human's embryonic stem cells will make the cells safer for clinic use, mostly providing cells for transplantation, the University of Hong Kong announced Saturday.

Scientists of the university have discovered "for the first time the presence of functional ion channels in human embryonic stem cells (ESCs)," said a statement on the university's official website updated on Saturday.

ESCs is the only type of human stem cells capable of becoming all human cell types, including those highly specialized cells such as brain and heart cells that can't regenerate.

The unique character of ESCs has offered an alternative solution to limited donor availability and solved the problem of rejection in human transplantation.

One concern of the ESCs-based cell therapies, however, is the potential for engineered grafts to form tumors after transplantation, due to contamination by only a few undifferentiated human ESCs.

Despite of the genetic abnormalities carried by carcinoma cells, some of them can become differentiated into other cell types.

Discovery of the ion channels, valves in a cell's outer membrane that allow and control the passage of charged atoms, has given hope to cut down possibility of tumor formation in ESCs therapies, claimed the Hong Kong scientists.

Since electrical activity is known to regulate cell differentiation and proliferation, scientists may eliminate tumorgenic potential by selectively blocking, pharmacological or genetically, ion channels in implanted cells.

The discovery will allow scientists a better understanding of how human ESCs regulate their cell division and differentiation, which is critical for engineering healthy grafts.

Scientists also expect the discovery to lead to genetic strategies that suppress undesirable cell division after transplantation, for they found blocking potassium channels in ESCs slowed their growth.

The research results have been published on the latest issue of an international journal named Stem Cells and related information published on the university's website: www.hku.hk/facmed/press.

China successfully clones gazelles in goat's womb

(Xinhua Net, 2005-12-08)

Four cloned Mongolian gazelles, born out of goats' wombs, have survived in China, marking the world's first case of gazelle-goat cloning, Chinese scientists announced in eastern Shandong province on Thursday.

No other countries have been able to clone Mongolian gazelles within goats, said Zeng Yitao, fellow of the Chinese Academy of Engineering, and one of the seven scientists who came to Linyi City of Shandong to appraise the cloning project.

Experts said the cloning provided a way to preserve the precious breeds in the animal circle. Mongolian gazelles are an improved breed of goat living in China.

Zeng said scientists extracted the body cells of Mongolian gazelles and planted them into the follicle cells of the goats, after the goat's genes were taken away.

Six out of the 26 goats got pregnant and bore six baby gazelles,only two of which stillborn, scientists said. The baby gazelles are doing well, running and hopping a lot, they said.

China leads world in bird flu vaccine research

(People's Daily, 2005-12-08)

China's research on bird flu vaccine is now the most advanced in the world, said experts attending an ongoing conference in Kunming aimed at strengthening cooperation on controlling the highly pathogenic avian influenza (HPAI) in Asia.

The H5N1 bird flu vaccine developed by China has been proved "effective" after being used in some Southeast Asian countries, according to the experts who are here to participate in a Ministerial Conference for Asian Cooperation on HPAI Control.

The vaccine can be applied to chickens and water fowls, they said.

China's Ministry of Health on Tuesday night confirmed a new case of human infection of bird flu in Ziyuan County, south China's Guangxi Zhuang Autonomous Region.

Previously, China reported three human cases of bird flu and one suspicious case.

Top profile National Institute of Biological Research inaugurated in Beijing

(Xinhua Net, 2005-12-09)

(The Opening Ceremony of Beijing Life Science Research Institute)

The Beijing-based National Institute of Biological Sciences (NIBS) was inaugurated at Zhongguancun area, a high-tech zone in Beijing, Friday in a bid to keep with international practice in management and operation.

The NIBS invited 24 renowned biological scientists at home and abroad, including 10 Nobel

laureates, to form a scientific advisory committee.

Wang Xiaodong, who is co-director of the institute, is one of the youngest fellows of the US National Academy of Sciences. He has published 11 papers in Cell, the top biological journal.

Xu Guanhua, minister of Science and Technology, said he hopes the NIBS would be a world-level research institute in line with international practice and make outstanding research achievements.

The establishment of the institute will stimulate the innovative enthusiasm of other biological research institutes, Xu said.

In the 25 years before 2005, no Chinese scientists published any paper on Cell, whereas in 2005 Cell published five papers of Chinese researchers.

The Ministry of Science and Technology and the Beijing Municipal Government have invested roughly 500 million Yuan (62.5 million US dollars) in the institute, which has already been equipped with 12 new labs and three technological centers

China ready for face transplant operations

(China Daily, 2005-12-09)

Operations similar to the world's first partial face transplant in France last month could be set for China.

After experts from a military hospital in Nanjing announced earlier this week that they have the ability to perform such surgery, the hospital has been inundated with telephone inquiries, according to Chen Fang, a nurse with the General Hospital of Nanjing Military Commands in east China's Jiangsu Province.

"We've been preparing for such operations ever since 2003," Hong Zhijian, director of the plastic surgery section of the hospital told China Daily yesterday.

"If there is a suitable patient at the moment, we can graft a new face for him or her," he said.

Hong is the leader of a specialist team studying facial transplant in the hospital.

Hong and his colleagues have been practicing anatomization from 2003, and now they are capable of dissecting a face, including subcutaneous fat, arteries, veins and nerves, from a dead body.

"Although many people want to have facial transplants, not all of them are suitable to have the operation," explained Hong. "That is why we are still looking for the first patient."

The ability of patients to be able to adapt psychologically to their new face would also need to be considered.

Apart from suitable patients, surgeons need to find facial transplants from donors that can be compatible enough.

"When all of the conditions are right, we can carry out facial transplants at once," Hong said confidently. "While we already have five or six candidates who might be the first to have such a kind of operation, we still need time to study their conditions."

He added that the biggest risk of such operations is the rejection by the receiver's body immune system, which perceives tissue grafted from a donor as alien.

China treats 5th human bird flu successfully

(People's Daily, 2005-12-10)

China has treated the fifth person with bird flu successfully, a woman from northeast China's Liaoning Province who was declared as the fifth person to have contracted human bird flu on Thursday by the Ministry of Health.

"I was discharged from hospital nine days ago after doctors proved I'm healthy. Initial tests during my hospitalization did not suggest I got bird flu, but the latest tests did," said the woman, surnamed Liu.

The patient's individual physical condition made the case special and her blood test turned positive only 28 days after she fell sick, said Zhao Zhuo, director of the Liaoning Provincial Disease Control and Prevention Center.

The governments at various levels did not cover up this time and released the information to the public in time, Zhao said.

The woman, aged 31, was a chicken farmer in Fangshan Town in Heishan County, which was hit by bird flu on Nov. 3 and declared free from the epidemic on December 1 .

She got feverish on Oct. 30 with 38 degrees Celsius of body temperature. Then her condition worsened with more flu symptoms like coughs and shortness of breath on Nov. 3. She suffered from respiratory exhaustion on Nov. 7, about one week after falling sick.

With prompt, successful treatment, she was discharged as healthy from hospital on Nov. 29 after no flu symptoms had been detected for 14 consecutive days, said Jiang Chao, director of Liaoning Provincial Health Department.

During treatment, Liaoning Provincial Disease Prevention and Control Center tested her blood four times - in the acute period, at 14 days, at 21 days after she got sick, and 28 days after she got sick and was recovering.

The previous three tests were negative, while the last one was positive. The outcome was confirmed in further tests by the China Disease Prevention and Control Center.

The local disease control and prevention center found the blood sample on Nov. 26 positive, namely 28 days after the woman got sick. The sample was forwarded to the China National Disease Prevention and Control Center, which found it negative. But further tests on Dec. 5 with local H5N1 bird flu virus from Heishan were positive.

The information was sent to a local disease control and prevention center and publicized in the following two days.

NYNU-RRes Joint Lab of Insect Biology set up

(MOST, 2005-12-12)

Recently, NYNU-RRes Joint Lab of Insect Biology was jointly set up by Nanyang Normal University (NYNU) and Rothamsted Research (RRes).

Involving a total investment of 12 million RMB and scheduled to complete two years later in the first half of 2007, this joint laboratory will be devoted to illustrating the mechanism in the spread of human diseases via mosquitoes and massive damages to cottons brought by bollworms, search for corresponding preventive and control measures and approaches， and provide theoretical assurance for the development of approaches and medicines to control human diseases spread via mosquitoes and theoretical basis for the reduction or stoppage of the use of chemical insecticides.

TB tops deadly infectious diseases in China in November

(People's Daily, 2005-12-12)

A total of 804 people died of infectious diseases in China in November with tuberculosis (TB) being the top killer, according to the latest national epidemic report.

A total of 317,975 cases of infectious diseases were reported last month, 13,803 more than in

October, said the report released by the Ministry of Health on Monday.

About 87.8 percent of the total incidence cases were caused by TB, hepatitis B, bacterial and amebic dysenteries, gonorrhea and lues.

The top five killer diseases were tuberculosis (TB), hydrophobia, hepatitis B, AIDS and newborn tetanus, accounting for 88.31 percent of all reported deaths, the report said.

45% urban citizens suffer from sleep disorder

(China News, 2005-12-12)

At China's first training class on sleep medicine which just concluded in Guangzhou on Dec. 11th, experts on sleep medicine from various parts of China pointed out that with the increasing societal pressure nowadays, attention should be paid to the rising number of insomnia cases.

Based on statistics released by Dr. Pan Jiyang from the Sleep Center of China Medical Association, global insomnia incidence almost reached 25%. However, in China's six big cities with fierce competition in the job market such as Guangzhou, Shanghai and Beijing, the result of a random spot test targeting over 10,000 people shows that 45% of those surveyed suffered from sleep disorder of different degrees in the past year, mainly characterized by insomnia.

Most patients do not take insomnia as a type of disease and only 5% of them will consult a doctor because of insomnia. 70% of them even refused to mention their symptoms of insomnia when they fell ill and went to see the doctor. Among the patients treated by the sleep specialty clinic of Guangdong Provincial Hospital of Traditional Chinese Medicine (TCM), white collars and students account for the largest proportion, including some successful people of high social status and considerable income.

Yang Zhimin, president of the hospital's Fangcun branch in Guangzhou's Fangcun District, said that occurrence of insomnia is based on the constitution of an individual. Patients of primary insomnia (which does not arise from other diseases) belong to the type of qi stagnation (the excessive deliberation type) in terms of constitution in TCM, with the personality characteristics of blood type A such as impatience, emulousness and impulsiveness. As such type of people are active and ambitious in work and always strive to achieve perfect results, most of them have become elites in big cities.

AIDS vaccine tests going "smoothly

(Xinhua Net, 2005-12-13)

China's human trials of an AIDS vaccine were proceeding "smoothly" nine months after the program was launched.

The last batch of 15 Chinese volunteers received the vaccine over the weekend and reported no side-effects in the crucial first 24 hours, said medical officials involved in the trial.

"The first 24 hours are a vital period for observation," the deputy director of the Guangxi regional disease prevention and control centre in the nation's south, Chen Jie, said.

"So far, no volunteers have reported ill reactions. They have entered a relatively stable period for observation."

The latest inoculations bring to 49 the number of Chinese volunteers to have received the potential AIDS vaccine since the centre began trials on March 12 in Nanning, the capital of Guangxi Zhuang Autonomous Region.

"So far the tests have been going on smoothly," Chen said.

With all the 49 volunteers inoculated, the first phase of the three-phase trials has come to an end.

The initial gathering of clinical data from the volunteers will be completed in June next year, after which a decision will be made on whether the centre can go ahead with phase two, Chen said.

The second phase of the trials will test the immune nature and safety of the vaccine, according to Chen.

There have been about 35 AIDS vaccine trials on humans throughout the world, most of which are still in the first phase.

In the 24-year history of AIDS, only one vaccine has completed the full three-phase trial process -- AIDSVAX, which was found to be a disappointing failure.

In the latest trial to make headlines, Swedish researchers announced on December 1 that their trial for a so-called DNA vaccine against the AIDS virus was going better than expected.

The vaccine had successfully completed the first phase of tests among 40 Swedish HIV-negative volunteers, the Karolinska Institute in Stockholm said.

"It has been more effective than we thought it would be," the professor and head of clinical testing at the institute, Eric Sandstroem, told AFP.

"We have also failed to find any vaccine-related side effects at all."

Karolinska professor Britta Wahren, who developed the vaccine, also expressed optimism.

"There is every reason to be hopeful, even though the study is not finished," Wahren said.

Workgroup inspects HPAI (highly pathogenic avian influenza) prevention and control (MOST, 2005-12-16)

In accordance with the requirements of the "Circular of the National HPAI Prevention and Control Headquarters Regarding Inspection of HPAI Prevention and Control Work", the workgroup for Yunnan and Guangdong made up of MOST, Ministry of Agriculture, Ministry of Public Health and the General Customs Administration arrived in Kunming on the night of November 29. The workgroup promptly went into work and LIU Yanhua, head of the workgroup and Vice Minister of Science and Technology convened the first workgroup meeting, at which the plan and requirements for the work in Yunnan Province were studied and produced in light of the practical situation. From November 30 to December 1, the workgroup trekked over 1,300 kilometers to Chuxiong Prefecture and Honghe Prefecture in Yunnan Province. There they carried out intense and orderly site inspection and instruction work.

LIU Yanhua fully recognized the work done by Yunnan Province in HPAI prevention and control, indicating that their work arrangements are comprehensive, handling process is proper and the result is evident. He put forward instructive opinions and suggestions on their next-step work for HPAI prevention and control, proposing that: first they should consider the establishment of a long-term work mechanism on the basis of completing the HPAI prevention and control emergency operation; second they should seize time to resume rural economic work after HPAI prevention and control; third they should strengthen construction of grassroots infrastructure and conditions in earnest and further improve the grassroots veterinarian, sanitation and epidemic prevention system.

Official: China to provide free and easy-to-use bird flu vaccines
(People's Daily, 2005-12-15)

China has developed a new type of vaccine that can prevent Newcastle disease and aviation influenza, or bird flu, through sprinkling, a senior official said at a news conference in Beijing

Wednesday.

China has confirmed 30 outbreaks of Highly Pathogenic Avian Influenza (HPAI) with some 22.2 million poultry being culled to prevent a further spread, according to official figures.

"The newly developed vaccine, against Newcastle disease and AI, can be easily deployed through sprinkling, drinking, eye-dropping and various other means," said Jia Youling, national chief veterinary officer.

"It can significantly reduce the labor and the risk involved," he said.

With about 14.3 billion poultry and some 690,000 villages in which most households raise only dozens of chickens, China found the overall vaccination a mission quite hard to accomplish.

China will provide the free vaccine for all domestic birds and focus on small-scaled household-raisers, Jia said.

China to begin 2nd HIV vaccine inoculation next July

(China News, 2005-12-16)

According to Guangxi Center for Disease Control and Prevention Deputy Director Chen Jie, China-developed HIV vaccine will start second-phase inoculation experiment next July after the outcome of the first phase clinical experiment is unveiled. Inoculators will be selected among high risk groups of HIV infection.

Chen indicated that at present China has finished HIV vaccine clinical experiment on 49 people in seven groups, and the result will be published in July, 2006.

TCM to cure stomach cancer

(China News, 2005-12-21)

China has moved a step closer to make anticancer drugs with its own intellectual property right. A traditional Chinese medicine (TCM) that aims to treat stomach cancer was recently developed in the Zhangjiang high-tech zone in Shanghai.

The latest statistics showed that among all cancer diseases in Shanghai, the number of people that die of stomach cancer ranks second, with about 5,000 new patients increasing every year in the city. Half of them cannot be cured with surgery.

Before the medicine is put to use, it carries a seven-year-long clinical practice. The practice covering nearly 600 samples that come from various parts of the country including Shanghai, Guangzhou, Jiangzhu, Zhejiang and Henan. Its medical effect and the function of alleviating pains have been proved to be better than normal standard and chemical treatment.

Experts from various medical fields have spent 18 years to develop the medicine, which can treat a number of cancer diseases such as stomach cancer, liver cancer, cancer of the pancreas and the intestine.

China starts human trials of bird flu vaccine

(Xinhua Net, 2005-12-22)

(A vaccine against bird flu from Beijing-based pharmaceutical company Sinovac Biotech is seen in this undated photo.)

China has begun human trials of its homegrown bird flu vaccine with six volunteers receiving shots, the Xinhua news agency said on Wednesday.

A total of 120 people, aged from 18 to 60 and all from Beijing and in good health, had volunteered to take part in the trials, Xinhua said.

"After half an hour of clinical observation, the volunteers experienced no bad reaction of either the whole or part of the body," the agency said.

Though the trials will need nine months of tests, initial results are expected within the first three, it added.

Xinhua provided no further details.

China has had more than 30 outbreaks of the deadly H5N1 strain of bird flu that scientists fear could mutate from a disease, which largely affects birds to one that can pass easily between people, leading to a human pandemic.

There have been 139 confirmed human cases of H5N1, all of them in Asia, including six in China. Two people have died from bird flu in China, out of 71 known fatalities in Asia.

The head of the company researching the vaccine, Sinovac Biotech, told Reuters last month that it was at least a year away from hitting the shelves.

Development of the vaccine -- called Panflu -- started last year after bird flu outbreaks in Thailand and Vietnam and animal trials have already been completed.

Experts say experimental vaccines for bird flu are unlikely to be a good match for an H5N1 strain that may eventually emerge in transmissible form among humans.

Using current technology it takes six months or more to make a new flu vaccine and there is no way to predict what a pandemic strain might look like.

Currently, Roche Pharmaceuticals' Tamiflu is one of four drugs known to work against influenza. It does not cure the virus but can reduce the severity of infection and in some cases prevent infection. Doctors believe it may help control a pandemic of H5N1, although evidence suggests it may be less effective than it is against seasonal influenza.

H5N1 vaccine research achieved progress

(China News, 2005-12-22)

It was learned from the Beijing office of Sanofi Aventis Group today that its subsidiary Sanofi Pasteur made initial progress in the first clinical test for the alternative avian influenza vaccine against H5N1 virus. Experiments on 300 healthy volunteers proved that this vaccine resulted in satisfactory immune response, security and tolerance.

Related experts indicated that experiments on human adopted the plan to inject 30-microgramme vaccine in two doses. It turned out that level of immune response was in line with the standard of seasonal influenza vaccine stipulated by supervisory organizations, which laid foundation for further development of pandemic influenza vaccine. Such experiments also found that immune response is also detected in volunteers injected with low dose of vaccine. Therefore, related scientists will commence experiments of various doses.

It was learned that such experiments were performed in three hospitals in Paris and the virus strain used in the vaccine was provided by the UK's National institute for Biological Standards and Control (NIBSC). NIBSC and the UK's Health Protection Agency were responsible for inspection of such experiments and related statistics of experiment will be handed over to the European Medicines Evaluation Agency.

Sanofi Pasteur has increased its investment to expand influenza vaccine production capacity in the United States and France. At the same time, the company signed an agreement with France's Ministry of Health to produce 1.4 million doses of H5N1 alternative vaccine coming out of such experiment this year.

China develops 1st live vaccine against bird flu

(Xinhua Net, 2005-12-26)

Chinese scientists have produced the world's first live vaccine against bird flu and Newcastle disease - two killer infections for poultry, the Ministry of Agriculture has announced.

The recombinant bivalent vaccine, developed by the Harbin Veterinary Research Institute, will be a great boost to prevention and control of the two epidemics in China as well as in the world, Chief Veterinary Officer Jia Youling told a press conference in Beijing on Saturday.

In addition to injection, the vaccine can be administered orally, nasally or by spraying, said Jia, also chief of the ministry's Veterinary Bureau.

The mass-application techniques can not only significantly reduce labor costs, but also increase immunity among fowls, Jia said.

The shot will also be very inexpensive, as its production cost is only one-fifth of the inactivated vaccines available on the market, he said.

While most people are familiar with bird flu, Newcastle infections are endemic to many countries. The latter is also a highly-contagious viral disease affecting both domestic poultry and wild birds, experts said, adding that chickens are the most susceptible.

In September, Newcastle outbreaks killed at least 56,700 chicken on the Chinese mainland, according to the latest veterinary bulletin published by the ministry in October.

Chinese scientists at the Harbin institute in Northeast China's Heilongjiang Province spent four years to develop the powerful antidote to both Newcastle and bird flu, according to Jia.

Employing a technique called reverse genetics, the vaccine uses an attenuated Newcastle vaccine strain LaSota as a vector, according to Bu Zhigao, a chief scientist of the project.

Bu said experiments showed the vaccine can also protect mammals, such as mice, from bird flu.

Research and production techniques will provide reference for developing new vaccines for human infections of bird flu, Jia said.

The ministry expedited the examination and approval process of the new vaccine after the efficacy and security of the vaccine were satisfactorily proved.

Mass-production of the new vaccine was approved on December 23, and by the end of this month,

1 billion shots would have been produced, he said.

The vaccine will be used from the beginning of next year alongside other vaccines, he said.

Intensive vaccination efforts have paid dividends in China's fight against the fatal H5N1 strain of the bird flu virus. By mid-December, 6.85 billion domestic birds had been vaccinated, including more than 5 billion since October, Jia said earlier.

As a result, the country has reported only one case of bird flu outbreak this month.

China reported six human cases of bird flu this year, involving two fatalities, and 31 outbreaks among poultry. By last Thursday, 30 out of 31 outbreak sites had been lifted out of epidemic isolation, according to ministry sources.

Figures on the latest Newcastle disease toll were not immediately available.

In a related development, the State Forestry Administration said on Saturday that it would examine the performance of the monitoring stations for wild-animal epidemic diseases across the country.

The checks, lasting till February 20, will ensure that the 150 national stations and 402 provincial stations have contingency plans and adequate information reporting mechanism, according to deputy director Zhao Xuemin.

Recloned calves born in Shandong

(Xinhua Net, 2005-12-27)

Five calves recloned from body cells of a cloned cattle were born recently in Liangshan County of east China's Shandong Province.

Three of the five newborns survived and the other two died after birth.

The cattle recloning project, included in China's 973 programs, a basic science development program, was jointly undertaken by a special team from the China Agriculture University based in Beijing and the Shandong Kelong Animal Husbandry Co., Ltd.

The animal mammary gland bioreactor technology has been employed for the project. Scientists said birth of the recloned calves indicated China's mammary gland bioreactor technology has been up to the world standards.

The research team, headed by Prof. Li Ning, selected four head of cattle with high mammary gland expression from 14 head for their recloning experiment.

The three survived newborn calves were all originated from ear cells of one head of cloned cattle. They were born on Dec. 20, 22 and 25, respectively, weighing 37 kg, 41 kg and 46.5 kg. Experts' exams showed that all the three calves are normal physiologically.

The project also has another 12 head of cloned cattle about to give birth and 40 others are pregnant.

Chinese scientists applied gene therapy in fight against cancer

(People's Daily, 2005-12-27)

Maria Corina Roman, a 40-year-old Danish surgeon, underwent a breast cancer operation in 2001. Two years later she suffered a serious relapse and doctors declared she had just a year to live.

But Roman chanced upon the news that China had approved gene therapy for the treatment of cancer. Without hesitation, she headed to Shenzhen in early 2004. She was willing to give gene therapy a go at least to try to prolong her life.

"I am still living and working in my job as a surgeon in the hospital," said Roman in an e-mail written this month to Peng Zhaohui, chairman and CEO of Shenzhen SiBiono GeneTech Co Ltd.

The company's Gendicine is the world's first commercially available gene therapy treatment.

Roman is one of a growing number of patients to benefit from gene therapy, which has drawn increasing attention among medical professionals and the public.

Gene therapy:

Gene therapy treatment is based on the theory that many serious diseases are caused by genetic dysfunction, either by inheritance or postnatal mutation. Cancer, diabetes and haemophilia are typical diseases caused by genetic dysfunction.

Since research on gene therapy started in the early 1980s, it has been enthusiastically embraced by scientists and doctors. So far, more than 1,100 gene therapy plans are in the process of clinical trials worldwide, mainly in the United States. More than 60 per cent of the trials target cancer treatment.

Gendicine uses an adenovirus as a vector to convey a p53 gene into tumor cells. The treatment is generally called gene addition.

Jack Roth, of Houston-based MD Anderson Cancer Centre of the University of Texas in the United States, was the first scientist to discover in rats, and then human beings, that the p53 gene is a tumor suppressor. In other words, the p53 gene normally stops the formation of tumors. More than 60 per cent of cancers are related to the dysfunction of p53 genes.

Adenoviruses are a group of viruses that cause conjunctivitis and upper respiratory tract infection.

When the adenovirus infects tumor cells, the p53 gene it carries will be added to the genome of the tumor cells. The growth of those harmful cells should therefore be suppressed.

In the 1980s, gene therapy became a hot topic for research. By the late 1990s, a group of gene therapy medicines had been approved for the third stage of clinical trials.

But in 1999, 18-year-old Jesse Gelsinger, an American high school student who had a rare genetic disease, died during clinical trials of a gene therapy four days after receiving an injection of the medicine.

His death, widely reported by the media, alerted the public to the potential risks of gene therapy. As a result, the US Food and Drug Administration (FDA) and its European and Japanese counterparts adopted a highly cautious attitude in evaluating and approving clinical trials of gene therapies.

Since then, most treatment trials have been put on hold. In this context, the approval of Gendicine in October 2003 by the State Food and Drug Administration (SFDA) in China was a stimulus to gene therapy research worldwide.

Zhang Shanwen of the Beijing Tumor Hospital has been the leading doctor overseeing clinical trials of Gendicine.

Between 2001 and 2003, 107 patients with late-stage head and neck squamous cell carcinoma tumors underwent eight weeks of a joint treatment of radiotherapy and weekly gene therapy injections. Among them, 68 patients, or 64 per cent, have experienced complete regression and 39 have experienced partial regression.

In November this year, the SFDA approved H101, the oncolytic adenovirus-based gene therapy.

The drug uses a genetically modified adenovirus that is able to dissolve cancerous cells to replicate and kill tumor cells.

"The approval of the two gene therapies in China is really an encouraging phenomenon," said Roth on the sidelines of an ISCGT conference in Shenzhen. "It makes the world's gene therapy practitioners perceive their promising future.

"I don't mind who commercializes my invention. What matters is that patients elsewhere are benefiting from the invention," he added.

Although Gendicine's commercialization is stimulating advances in gene therapy, some scientists

have asserted that a looser regulatory environment in China has led to the approval of Gendicine and H101.

A scientist at the China branch of the Danish drug giant Novo Nordisk, who refused to be identified, said: "The fact that China approves the world's only two commercialized gene therapies while no other country does so makes us question whether the country might not have done enough scientific evaluation."

But Peng refuted the allegation.

"China has long adopted a highly cautious practice that it would not approve any new drug not approved by the US FDA. The approval for Gendicine is a result of our carefully designed product, the delicate clinical trial plan, the availability of huge patient resources and the low costs of doing clinical trials," Peng said.

This position was echoed by Sang Guowei, director of the National Institute for the Control of Pharmaceutical and Biological Products, at the ISCGT conference.

Sang is a former deputy director of the SFDA and his institute is the major evaluation agency of the SFDA dealing with new drugs.

According to Sang, China has followed the practice of the United States and Europe and adopted very strict criteria for evaluating gene therapies.

To approve gene therapy in China, regulators have to evaluate the therapeutic gene, the delivery vehicle, the delivery system and method, and the in-vitro study efficacy data.

Also, pre-clinical animal studies include toxicity safety and efficacy data, and the clinical trial investigation plan includes safety and efficacy studies, an overview of the production process, an overview of quality control, the discussion of the novelty of the product, and the discussion of a product commercialization strategy.

"China's clinical trial practice and regulation are credible, and we have no reason to doubt the efficacy of the country's gene therapy research," said James Norris of the Medical University of South Carolina and the president of ISCGT.

Since Gendicine was approved, Peng and his team have launched more research, extending the medication to patients suffering from lung, liver and stomach cancers, Peng told China Daily.

Also, more patients are involved in the Phase-IV clinical trial of Gendicine.

"In accordance with the State regulation on innovative drugs, our drug does not need a clinical trial-IV, but we will try to do such trials to collect more clinical data," Peng added.

So far, more than 3,000 patients have been treated with Gendicine, including 400 cancer sufferers from outside China and 500 for clinical trials. Doctors chairing clinical trials nationwide have reported obvious progress in patients' tumor regression and survival time.

State-of-the-art Protein Chips offer a powerful tool for bio-medical research
(CAS, 2005-12-28)

A research group led by Prof. JIN Gang from the National Microgravity Laboratory at the CAS Institute of Mechanics has made major progress in the research and development of multi-optical protein chips.

The kernel technology of the new micro array, called Protein Chips, is a new protein analytic system with the advantage of integrated, parallel, fast and automatic analysis. It is a label-free technique that can be used to detect biomolecules and investigate biomolecule interaction with biological micro-sample. With the novel progress in chip surface modification and biomedical

application, it is not only a qualitative, but also a quantitative way for protein interaction determination. It is also able to obtain dynamic data of protein interaction process, such as interaction rates and conditions, with real time detection. The technology so far has filed for more than 20 patents.

One of the most important factors affecting the detection sensitivity of protein chip is the immobilization of biomolecules and the maintenance of functional configuration on the substrate surface. Protein A is used to modify silicon surface for antibody immobilization, through which the antibody molecules can be selectively immobilized on the chip. This mode of immobilization results in the uniform orientation of the antigen-binding sites, Fab variable regions, up from the surface, well accessible for interaction with the antigen, which maximizes the antigen-binding capability of the antibody and increases the detection sensitivity. Two patents have been applied about this technology.

Physical adsorption is a kind of immobilization method mainly used in Protein Chip. The biological activity of the immobilized protein is usually less than that of its soluble state and the amount of immobilized protein was unstable due to the desorption and the competitive adsorption of other proteins. In order to overcome the problem, a kind of covalent immobilization method using aldehyde has been developed. This silicon surface modification is simple and in favor of the maintenance of protein activity. The modification method has been routinely used in the protein chip preparation.

Another kind of surface modification with a mixed silanes layer to immobilize proteins has also been developed for silicon and gold surface. Using this method, not only the biomolecules can be immobilized but also the non-specific adsorption is effectively inhibited. This modification has the advantage of stability of the immobilized protein, less effect of protein conformation, and high biological activity.

The Optical Protein Chip has been successively used to detect CA153, a kind of cancer marker in blood for the early detection of the breast cancer in serum and the detection sensitivity is high enough for the clinic detection. In cooperation with the Chinese Academy of Medical Sciences, the group has detected 23 patients' serum with different CA153 concentrations. The detection result using Optical Protein Chip is highly consistent with that of the gold standard ECLIA (electrochemiluminescence immunoassay), indicating that optical Protein Chips can be used for quantitative detection with high sensitivity.

The technology is of significance for testing SARS virus, and diagnosing early breast cancers, cardiovascular diseases and the hepatitis B surface antigen.

Genetically modified mice lab to boost disease research

(Xinhua Net, 2005-12-28)

Research mice will finally receive the credit and accommodations they deserve as Shanghai plans to set up a research center that provides the equivalent of "five-star hotel service" for the rodents complete with a statue of a mouse to honor their contributions to science.

The city will build its largest-ever genetically modified mice laboratory in the Zhangjiang High-Tech Park by 2007 to help find therapies for human diseases, particular various forms of cancers.

Some 150,000 experimental mice will be stored at the laboratory, which will start construction early next year and is scheduled to be completed by March, 2007.

The city's Science and Technology Commission, together with the city's Development and Reform Commission, plans to spend nearly 200 million Yuan (US$24.7 million) on the project.

The government will also raise a special monument outside the center to show respect for mice and the role they play in medical research.

"The new laboratory will greatly advance our research on human diseases through genetic study of mice," Wang Zhugang, director of the Shanghai Research Center for Biomodel Organisms, said yesterday.

He said the new center must meet very high standards to ensure the accuracy of research. Its air quality will reach standards set by the US National Aeronautics and Space Administration, and the temperature will be kept between 20 and 25 degrees Celsius throughout the year.

"In a way, the center will provide five-star hotel service for the mice," said Wang.

Wang's current research center, which will move to the new center when it opens, has developed more than 100 kinds of genetically modified mice to study human diseases such as hepatitis, leukemia and obesity.

The new center will concentrate its research on some 300 functional human genes, about 1 percent of the total, over the next few years.

Mice make great research subjects as they share many of the same genes as humans and they reproduce quickly.

Experts said more than 99 percent of human genes have a mouse counterpart and 93 percent of the mouse genome resembles the human's.

Spending on HIV/AIDS prevention set to double

(China News, 2005-12-28)

China will spend an average of more than 1.5 billion Yuan (US$185 million) annually in the next two years for prevention and control of HIV/AIDS almost double the 800 million Yuan (US$98.7 million) earmarked for this year, Xinhua reported yesterday.

The government spent an average of 600 million (US$74 million) each year in 2003 and 2004, and only about 100 million Yuan (US$12.3 million) in 2001, according to a 1998-2004 report on Chinese youth.

The report was published by the China Youth and Children Research Centre and the Department of International Communications of the Central Committee of the China Communist Youth League.

Experts estimate that China had 840,000 HIV-infected people by the end of last year, including 80,000 AIDS patients.

Of the HIV positive, 82 per cent were between the ages of 20 and 39, and 7.4 per cent were below 19, said the report.

The government has pledged to keep the number of HIV-positive people below 1.5 million by 2010.

In addition to drafting a raft of medium- and long-term plans for HIV/AIDS prevention and control, China has stepped up efforts to spread awareness of drug abuse, puberty, sex, free blood donations, narcotics control and sexually transmitted diseases.

Of the 1.07 million registered drug addicts on the mainland by the end of last year, the number of young addicts was 755,000.

The report said the number of those taking new drugs such as "ice" is expanding.

Human bird flu vaccine can meet demands of large quantity production

(People's Daily, 2005-12-29)

A Chinese vaccine expert said Wednesday China has established a store of NIBRG-14 virus strain to vaccinate against H5N1 which can meet the demands of large quantities of vaccine production.

Yin Weidong, a leading expert for China's human bird flu vaccine project, said the research group has made preparations to produce human-use bird flu vaccine in massive quantities.

Yin's research shows that the biological properties of the virus strain remain the same as the original even after developing a tenth generation which displays a steady inheriting process, indicating that the virus strain can be used in large quantity vaccine production.

The Beijing-based Sinovac Biotech Co Ltd. led by Yin started cooperation with the Chinese Center for Disease Control and Prevention in 2004 and successfully developed a human bird flu vaccine in November 2005 which is currently under clinical tests that will last about 12 months.

Yin said the group adopted a researching concept earlier proposed by the European Union that is to research the immunity, security and effectiveness of the dangerous "prototype" H5N1, H9N2 and H7N2.

If the virus mutates, new vaccines can be easily developed on the basis of those prototypes.

"We are capable of producing vaccines against other types of influenza if the virus develops into other forms," said Yin, who is also the managing director of Sinovac. "We can modify the virus strain within 48 days and update the human bird flu vaccine in four months after the virus mutates."

The flu virus easily mutates, which can disable any powerful vaccine, said Wang Xiaofang, director of the rural and social development department under the Ministry of Science and Technology.

Therefore, Wang said, the capability to research, develop and produce vaccines is much more important than vaccines themselves.

"Such storage of virus strains resemble duplicating machines in that we can quickly copy and update any prevailing flu virus on the basis of those established arenas," said Wang.

High-risk groups, such as poultry farm workers and medical staffers in the bird flu outbreak areas will be vaccinated as long as the vaccine passes a safety test, Yin said.

Beijing invents bird flu virus killer

(People's Daily, 2005-12-31)

A Beijing-based university has invented a water generator which can kill the H5N1 strain of bird flu completely, the university reported Thursday.

The "killer", called "HTDJ-15 acid oxidizing potential water generator", was invented by Hantong Science and Technology Company of Beijing Union University.

This new sterilizer can convert water into disinfectant which, by keeping PH scale below 2.7, can kill all the animalcules.

In addition, the used disinfectant can be deoxidized into ordinary water, causing no harm to human skin and environment.

This invention has just been approved and certified by the country's Ministry of Health, the State Drug Administration and the State Intellectual Property Office respectively.

The water generator as a sterilizer is currently in extensive use abroad, such as in hospitals, restaurants and hotels.

1.4 Key Technologies

“Material Computation Design and Performance Prediction” passed expert acceptance (MOST, 2005-12-01)

Recently, the project of "Basic Study of Material Computation Design and Performance Prediction" under the 973 Program passed the expert acceptance organized by MOST. Major progress has been achieved in the implementation of this project. The method of crystal lattice inversion potential has been further developed and expanded to the atomic potential of the computation interface system. In the analog computation of homoepitaxy surface growth kinetics, the micro model and theory of new island growth phenomena has been set up, which has deepened awareness of quantum dot growth kinetics. The creep property of Ti-60 high-temperature titanium alloy has been remarkably improved through design, computation and process improvement of high-temperature Ti alloy.

During the project implementation, a number of high-quality papers with international influence have been published and the project has won two second prizes of National Natural Science Award.

First medium pressure propylene hydration unit successful at first trial operation (CAS, 2005-12-09)

China's first commercial unit for the production of isopropanol via direct hydration of propylene under medium pressure was successful at its first trial operation on Nov. 24 in Shandong Province.

With an annual capacity of 30,000 tons isopropanol, the newly built unit was designed by the East China Engineering Co. with the technology-package and the catalyst provided by the CAS Dalian Institute of Chemical Physics. Its successful operation signifies a breakthrough in the commercialization of a new generation of propylene hydration process which independent patent right, and more analogous units are expected in China over the next few years.

China developed new technology for cellulose fibers and membrane (MOST, 2005-12-20)

Supported by the State 863 Program, Wuhan University recently solved the scientific problems relating to the association of small molecule substance, formation and destruction of water molecule cluster and low temperature activation and presented a kind of new solvent system that

dissolves cellulose at room temperature. Through close cooperation with Hubei Chemical Fibre Group Co., Ltd., they adopted the new innovative solvent with independent intellectual property rights to prepare cellulose fiber and set up a new technological line to replace the traditional technology of producing regenerated cellulose membrane, viscose and non-woven fabrics through viscose processes.

The successful development of this technology is hopeful of replacing seriously contaminating viscose process and favorable to environmental protection. It possesses major economic benefit and social benefit and will facilitate the study, development and utilization of natural high molecular materials.

China develops high-performance nanomized paint for wooden products
(CAS, 2005-12-22)

Recently, breakthrough has been made in the research topic of "Nanomized Polyacrylic Acid Series High-performance Water-based Paint for Wooden Products" undertaken by Beijing University of Chemical Technology. The product developed through this study can replace the oily paint that has been extensively used for painting wooden furniture and decorating homes and hotels. Since water-based paint uses water as the thinner, there is no organic solvent volatilization and remnant in the process of painting, therefore it falls within the category of environment-protecting water-based paint for wooden products.

Through small-scale experiment, model and the pilot-scale experiment of 2000 ton/per year, the project team has already established two industrial production technologies: synthetization of nanomized polyacryl acid ester series copolymer latex and preparation of polyacrylic acid series water-based paint for wooden products with an annual production of ten thousand ton. Popularization of such technologies is hopeful of bringing the paint industry to an era of high performance and water dilution, and will generate favorable social and economic benefits.

China carries out first robot surgery via internet
(China News, 2005-12-23)

The Yan'an Auxiliary Hospital carried out a robot surgery on Thursday to a patient suffering from encephalemia. The surgery was done by experts from Beijing through a remote control system via internet. This is the first time that China successfully carries out a surgery done by robot through internet computer system.

The surgery was done through a series of procedures. The doctors first made four marks around the patient's head so that the CT/MRI device scanned the image of the head. The data scanned was then transferred and stored in a computer that drew a three dimensional image of the head.

With the assistance of the computer, doctors then identified the injured point where surgery needed to be done and made a possible plan on how the surgery could be done.

The doctors then positioned the patient's head, made a registration and guaranteed that the actual situation in the ward agreed with everything stored in computer. Then a robot would navigate in the brain and carry the operation under the guidance of the experts.

Doctor Zhao Quanjun in charge of the surgery said this was the first time in China that experts carried a neurotic surgery via internet by using the fifth generation robot. The surgery was done remotely by successfully integrating various technologies such as medicine science, computer and automatic science. It also handled problems involving in such a surgery such as how to make cyber

image agree with the actual situation, how to control the movement of robot and identify and monitor the surgery on a remote distance.

China developed new underwater robot system
(China News, 2005-12-26)

The national key technology research project of thermal energy-driven ocean monitoring platform held by Tianjin University's School of Mechanical Engineering and supported by the National Ocean Technology Center (NOTC) has passed expert appraisal recently.

The ocean monitoring platform successfully created in this project is a new model of underwater robot system which utilizes buoyant force fluctuation and replaceable wings to realize vertical section movement and underwater gliding.

Its main characteristic is to utilize energy produced from the difference in temperature of surface water and deep water in the ocean as its energy resource. Compared with electricity-driven underwater monitoring platform, this thermal energy-driven platform is advantageous in terms of low noise, long working hour and low cost.

Experts put a premium on the fruit of this research project, deeming that this platform of independent intellectual property right, with its key technological indices reaching globally advanced level, can be applied in ocean dynamic environmental monitoring, Red Tide monitoring, marine resource exploration, and construction of three-dimensional monitoring network.

National Grid Operation Center opens in Beijing
(CAS, 2005-12-27)

On Dec. 21, Chinese Minister of Science and Technology XU Guanhua, CAS Vice President SHI Erwei and Chief Scientific Advisor of the UK Government Sir David King revealed the nameplate

for the China National Grid Operation Center at the CAS Computer Network Information Center in Beijing.

The China National Grid (CNGrid) Project is supported by the "High Performance Computer and its Kernel Software" project, which is a key component in the National High-Tech Research and Development Program (dubbed 863 Program). It will serve as a test bed for the new generation of information infrastructure by integrating high performance computing and process transaction capacity, promoting the development of national information system and related industry through technology innovation.

Based at the Supercomputing Center under the CAS Computer Network Information Center, the National Grid Operation Center will take charge of the daily operation of the CNGrid. As the portal of CNGrid, it will make connections with grid infrastructures overseas for resource sharing and coordination worldwide.

Minister Xu and Prof. Shi speak highly of the progress scored by the Supercomputing Center in national grid development over the past five years, expressing hopes that it could make even more achievements in the future.

Breakthrough in the Technical Study of Nano-fiber with Special Functions
(MOST, 2005-12-27)

Recently, breakthrough has been achieved in the topic of "High Polymer Nano-fiber with Special Functions and Products" undertaken by Donghua University.

Through 3 years' concerted efforts, a manufacturing line of functional nano-composite resin with an annual production capacity of 3,000t and an R&D and production base of functional fiber with an annual processing capacity of 10,000t have been built. The PP fiber with wetness conduction function and products as well as PP and PET fiber with anti-septic function have realized industrialization successfully in enterprises such as Shanghai Infrared Industrial Co., Ltd. and Shanghai Jinxia Chemical Fiber Co., Ltd., resulting in newly added output value of 3.25 hundred million Yuan, newly increased profit and tax of 72 million Yuan. The success of this topic has also boosted the relevant upstream and downstream enterprises on the industrial chain of functional fiber, created a considerable number of job opportunities and facilitated the advancement of the technological standard of traditional chemical fiber industry and the improvement of people's life-quality.

Nano-composite diamond coating technology passed expert acceptance
(MOST, 2005-12-27)

Recently, the research topic of "Application and Industrialization of Nanocomposite Diamond Coating" under the Special Project of Nanomaterials of the 863 Program passed expert acceptance check. Undertaken by Shanghai Jiaotong University, this topic has successfully developed the technology for nano-composite diamond coating and realized product industrialization.

This topic adopted chemical vapor deposition (CVD) and applied the nano-composite diamond coating on the inner bore of hard alloy drawing die and on the surface of other wear-resisting components. The research has achieved in the mature technology for the preparation of nano diamond coating. The drawing die product with nano-composite diamond coating developed through this topic has already been put into use in about 70 production enterprises such as Jiangsu ShangShang Cable Group Co., Ltd and Shanghai Huapu Cable Co., Ltd. The research has brought

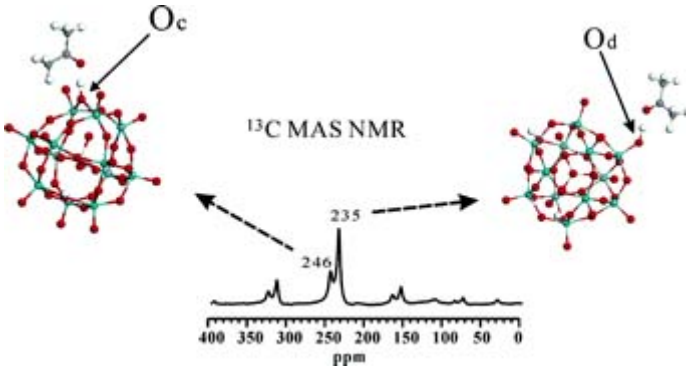
notable economic profit to these enterprises, i.e. 1.4 billion Yuan newly added output value, 45.1 million Yuan profit, 60.09 million tax revenue and 35.71 million Yuan fund-saving.

CAS researchers develop China's first Micro-PET
(CAS, 2005-12-29

Researchers at the CAS Institute of High Energy Physics have been successful in developing China's first miniature positron emission tomography (PET). Preliminary tests show that its technological indexes basically reach the design specifications.

PET is a powerful imaging technique that holds great promise in the diagnosis and treatment of many diseases. Micro-PET allows serial and longitudinal studies to be performed on the same living animal, enabling researchers to follow a single animal over time and monitor the effects of interventions on disease progression and outcome. It will be particularly valuable for studying genetically modified animals that exhibit high variability or are unique or valuable. Demand for this technology has been created by accelerated progress in decoding the human genome, development of transgenic mice, and rapid proliferation of small animal models of human disease.

Surface acidity of phosphotungstic acid revealed by solid-state NMR spectroscopy
(CAS, 2005-12-31)



Thanks to its high acid strength and environment friendliness, a heteropoly acids (HPA) are widely used as heterogeneous catalysts. Of them, Keggin 12-H3PW12O40 is the one with strongest acid strength. However, because of the lack of effective characterization technology, some fundamental issues about the acid, such as the location and acid strength of acid protons, are controversial.

Teaming up with colleagues from US University of Virginia and the CAS Dalian Institute of Chemical Physics, a research team headed by Prof. DENG Feng from the CAS Wuhan Institute of Physics and Mathematics has made progress to settle the debate, laying a solid foundation for

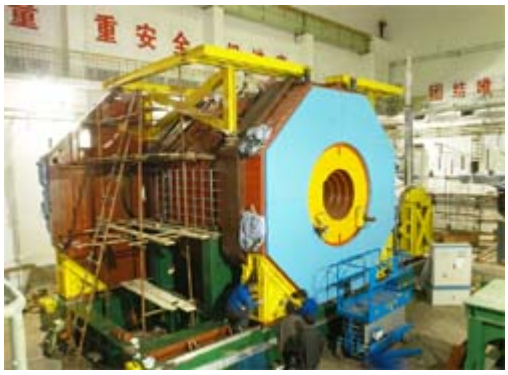
further application and modification.

Through solid-state 13C NMR experiments and quantum chemical Density Functional Theory (DFT) calculations of acetone adsorption, they carried out studies into the location of protons in anhydrous 12-tungstophosphoric acid (HPW), the mobility of the isolated and hydrated acidic protons, and the acid strength heterogeneity of the anhydrous hydroxyl groups.

As reported in a recent issue of *Journal of the American Chemical Society*, this study presents the first direct NMR experimental evidence that there are two types of isolated protons with different acid strengths in the anhydrous Keggin HPW. Rotational Echo DOuble Resonance (REDOR) NMR experiments combined with quantum chemical DFT calculations demonstrated that acidic protons in anhydrous HPW are localized on both bridging (Oc) and terminal (Od) atoms of the Keggin unit. The CP/MAS NMR experiments revealed that the isolated acidic protons are immobile, but hydrated acidic protons are highly mobile at room temperature. The isotropic chemical shift of the adsorbed acetone suggested that the acid strength of the H(H2O)n+ species in partially hydrated HPW is comparable to that of a zeolite, while the acidity of an isolated proton is much stronger than that of a zeolite. Isolated protons on the bridging oxygen atoms of anhydrous HPW are nearly superacidic.

1.5 Structure of Matter

Mechanical system of Beijing Spectrometer III successful
(CAS, 2005-12-20)



The mechanical system of the Beijing Spectrometer III (BESIII) recently passed the evaluation of a panel of experts at the CAS Institute of High Energy Physics (IHEP) in Beijing, marking a breakthrough in the renovation of the Beijing Electron Positron Collider (BEPC).

The system was designed by the Center for Experimental Physics of IHEP, and was manufactured by Citic Heavy Machinery Co. Ltd. The company was also responsible for the installment, commissioning, test and assembling of the system.

The newly-built mechanical structure of BESIII, 11 meters long, 6 meters wide with a height of 6.5 meters and a weight of 650 tons, is composed of the base, barrel yoke, end yoke and its moving structure, supporting structure for BESIII sub-detectors. The system, being the base and the main structure for BESIII, provides magnetic flux return for the 10, 000 Gauss super-conducting magnetic system and constitutes the supporting structure for the positioning, connecting and

adjusting of the sub-detectors, and at the same time being the absorber for the muon detector. The positioning precision and stability of the system will be the basis for the stable operation of the BESIII sub-detectors.

The panel concluded that the system has met with all the technical specifications after repeated tests achieved the designed value, and could satisfy the requirements of the normal operation of BESIII.

"The completion of the main structure of BES III's mechanical system is a landmark in the upgrade project," IHEP Deputy Director Wang Yifang was quoted as saying. The BESIII will perform precision measurement in tau-charm energy zone and explore more new physical phenomena. A number of new fruits are expected to be attained, making China maintain the leading position in tau-charm physic research.

To be completed in 2007, the BEPC upgrading will help the institute maintain a leading position among accelerators of the same kind and become one of the most advanced double ring colliders in the world.

Construction of the Shanghai Synchrotron Radiation Facility in sound progress
(CAS, 2005-12-22)

On Dec. 20, CAS President LU Yongxiang made an inspection tour to the construction site of the Shanghai Synchrotron Radiation Facility (dubbed Shanghai Light Source) in the southwest suburb of Shanghai. He examined the main structure and office building of the project.

President Lu was glad to see that the 1.2 billion Yuan (or $150 million) Shanghai Light Source project is under smooth construction since it kicked off one year ago. He stressed the project is the largest big-science facility ever built up so far by China for the purpose of scientific research and the largest cooperative undertaking between CAS and a local government. When completed in 2009, the third-generation synchrotron radiation light source will serve a group of various academic disciplines, providing a platform for upgrading China's capacities in original innovation and key technological development.

1.6 Transport and Space

R&D of Weichai Electronic Single-Fuel Jet CNG Bus passed acceptance
(MOST, 2005-12-01)

Recently, the topic of "Research and Development of Weichai Electronic Single-Fuel Jet CNG

Bus", a project in the Tenth Five-year Plan undertaken jointly by Weichai Peixin Gas Engine Co., Ltd. and Beijing Jiaotong University successfully passed expert acceptance.

At the acceptance conference, experts from such well-known universities as Tsinghua University, Beijing Jiaotong University and Tianjin University and China Automotive Technology & Research Center conducted a field inspection of CNG engine and bus sample, agreed unanimously to accept this topic and proposed mass production.

WANG Binggang, Head of the Expert Team of the National Office of the Coordinating and Leading Group for Clean Car Action remarked in his appraisal of this topic that development and utilization of natural gas resource is of great practical significance under the current situation of ever rising international crude oil price.

Astronomer measure distance from Sun to Milky Way spiral arm

(People's Daily, 2005-12-09)

The distance from the Sun to Milky Way's nearest spiral arm, called the Perseus Arm, has been measured for the first time, scientists from China, Germany, and the United States reported on Thursday.

The distance is about 1.95 kilo parsecs, or 58,600 trillion kilometers, the researchers reported.

This achievement, appearing in Dec. 8 online edition of the journal Science, resolves a long-standing and difficult task for astronomers. The first author of the work, Ye Du, is a doctorate researcher at the Nanjing University of China.

Massive stars and the bright regions trace the spiral arms of galaxies. However, for our galaxy, the Milky Way, our view from the interior makes it difficult to determine its spiral structure.

In principle, one can construct a simple model of the rotation speed of stars and gas as a function of distance from the center of the Milky Way.

Then, if one measures the line-of-sight component of the velocity of a star or interstellar gas, one can determine its distance by matching the observation with the model prediction. Knowing distances to star forming regions, one can then locate them in 3-dimensions and construct a view from above the plane-of the Milky Way.

But in fact, many problems could arise when astronomers on the Earth try to construct a plan view of the Milky Way, the researchers explained.

These problems include difficulties in determining an accurate rotation model, which requires the distance and orbital speed of the Sun from the center of the Milky Way, the distance ambiguities in some portions of the Milky Way where an observed velocity can occur at two distances, and the departures from circular rotation as might be expected for spiral structure.

In the new study, the team tackled the difficult task using triangulation, the most direct method of calculating the length of one side of a triangle given measurements of angles and sides of the triangle formed by that point and two other reference points.

As the Earth moves around the Sun from one end of its orbit to the other, nearby stars shift slightly against the more distant background, an effect called parallax, according to the researchers.

They used a system of radio telescopes called the Very Long Baseline Array (VLBA) to determine this shift for radio sources in the W3OH cluster of the Perseus Arm, and then precisely measured the distance to this arm. The array, operated by US National Radio Astronomy Observatory, includes 10 telescopes spanning from Hawaii to the Virgin Islands.

Using a similar method, astronomers can map the entire spiral structure of the Milky Way, they

suggested.

"Based on these results, we believe that the VLBA ... can map the spiral structure and full kinematics of massive star forming regions in the Milky Way," they wrote in the paper.

Qinghai-Tibet Railway to open to traffic next July

(China News, 2005-12-12)

The world-renowned Qinghai-Tibet railway will be opened to traffic in July next year and the first batch of cities that open such traffic to Lhasa will be Beijing, Shanghai, Guangzhou, Chengdu, Xining and Lanzhou, vice minister of Railway Hu Yadong said on Sunday.

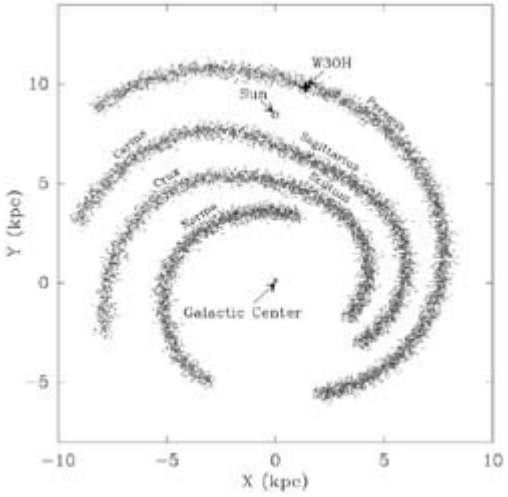
As the highest railway on world, the Qinghai-Tibet railway finished construction on October 12. The railway was built to meet the demand of increasing number of tourists to the plateau, where transportation of air and bus were already available in the region.

By the time when the railway is put to operation, trains will run on normal class and luxury class. In the luxury-class train, all carriages will be equipped with oxygen supply that is same as that provided on air. The oxygen supply will ease passengers' sickness on plateau, such as headache and palpitation. In case of emergency, the train also provides oxygen masks.

The luxury-class train from Beijing to Lhasa will take 48 hours while normal-class trains will take longer time.

Spiral arm of the Perseus is closer than thought

(CAS, 2005-12-12)



(The Milky Way is made of four main arms curving around its centre - astronomers measured the distance from Earth to a star-forming region called W3OH inside the Perseus arm)

It is easy for us to observe the magnificent spiral galaxies outside the Milky Way with a telescope. Although our own galaxy is also believed to have similar spiral arms with those observed in the universe, astronomers have difficulties to render the structure because we are living inside it.

A recent study by Dr. XU Ye from the CAS Shanghai Astronomical Observatory and his colleagues from Nanjing University, Harvard-Smithsonian Center for Astrophysics in US and Max Planck Institute for Radio-astronomy in Germany has made an important step toward mapping the shape of our galaxy by accurately measuring the distance to the star-forming region W3OH in the Perseus spiral arm, the nearest one to us. Their work was reported in the Dec 8 issue of the magazine

Science.

It is clear that the Milky Way is made up of four main arms that curve around its centre like a pinwheel. Previous measurements of the distance from the Sun to the Perseus arm were made by using two methods. The first relies on measuring the apparent luminosity of massive young stars. The other "kinematic" method involves comparing the rotation speed the Sun with that of an object inside the Perseus arm, and then combining the difference between the two values with a model for the rotation of the Milky Way itself. However, these two methods produced very different results, differing by a factor of 2--a large discrepancy even by astronomy standards.

To make the measurement, Dr. Xu and co-workers used a system of 10 radio dishes that boasts the sharpest vision of any telescope in the world. Called the Very Long Baseline Array (VLBA), the dishes - each spanning 25 meters - are scattered from Hawaii to the Caribbean Sea.

Armed with such a system, they focused on W3OH, where bright, young stars heat methanol vapour in gas clouds around them, which in turn emits radio waves in what are called "masers". The team tracked the masers at five intervals over the course of a year from July 2003 to July 2004, determining their distance by a method called triangulation. It is the simplest and most direct method in astronomy -- essentially the technique used by surveyors called triangulation, according to experts.

The method is like gauging your distance to a chair by shifting your head left and right, as a story by *Science* puts it, while noticing how the chair moves relative to an object even farther away. But instead of wagging their heads, the researcher used the motion of the Earth around the sun to give them different perspectives on W3OH.

The result is 100 times more accurate than the other two - to conclude the Perseus arm is indeed relatively close, at just 6370 light years from Earth. This long strand of stars streaks out of the Milky Way's disk in the same manner as others seen in galaxies across the universe. The observations also support the "spiral density-wave theory," which theory suggests that a combination of gravitational instabilities and shear forces -- a result of the outer edge of the galaxy moving slower than the inner--cause material to cluster and eventually shoot off in an arm. Astronomers expect such accurate measurements bring hope that a precise map of the spiral structure of the Milky Way will be plotted very soon.

Regional jet ARJ-21 to make maiden flight in 2008

(Xinhua Net, 2005-12-14)

China's regional jet ARJ-21 is expected to take to the sky in 2008 and begin commercial operation one year after that.

The remark was made by an official from the first Airplane Designing Institute with China Aviation Industry Corp. (AVIC I) who is in Shanghai attending an ongoing international aviation and space electronics and equipment fair held here.

The first Airplane Designing Institute with China Aviation Industry Corp. (AVIC I) designed the regional jet ARJ-21.

Information from the international aviation and space electronics and equipment fair said three ARJ-21 regional passenger plane models were displayed at the show, attracting hordes of visitors.

An official with AVIC I Commercial Aircraft Co. Ltd., the producer based in Xi'an, capital of northwest China's Shaanxi Province, said ARJ-21 passenger planes commanded an advantage of adaptability for air routes and airports in west China.

Manufacturing parts and components for the 78- to 90-seat aircraft began in late 2003.

The international aviation and space electronics and equipment fair, the first of the kind ever held in Shanghai, began on Tuesday, with the participation of representatives from over 60 companies.

China to finish all unmanned lunar probing around 2017

(People's Daily, 2005-12-15)

China will finish all its unmanned lunar probing activities around 2017 and will then start a program to send astronauts to the moon, Ouyang Ziyuan, chief scientist of China's lunar probe program, has said.

Ouyang, an academician of Chinese Academy of Sciences (CAS), was quoted by Wednesday's Beijing Morning Post as saying that the first lunar satellite, Chang'e-1, will be launched at the Xichang Satellite Launch Center in southwest China's Sichuan Province in 2007.

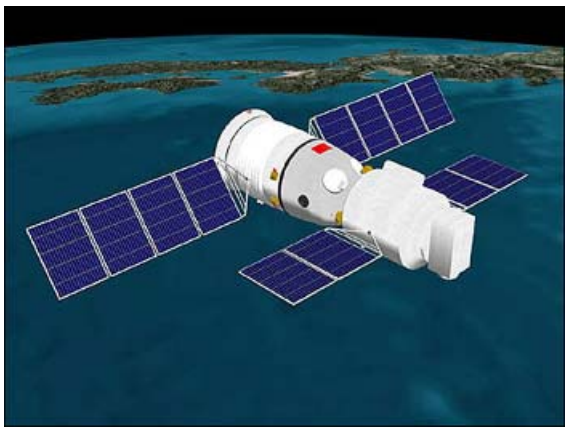
Delivering a speech at elite Beijing University on Tuesday evening, Ouyang said, "The program is now well under way as planned, and we have successfully finished prototypes for most instruments."

The lunar probe program will be accomplished in three steps, namely lunar orbiting from 2004 to 2007, lunar landing from 2007 to 2012 and return from the moon from 2012 to 2017, according to Xu Dazhe, deputy general manager of China Aerospace Science and Technology Group Ltd..

The total cost for the first stage will be 1.4 billion yuan (about 175 million US dollars).

Shenzhou-6 module operates normally

(CRI, 2005-12-19)



(Computer simulation of the Shenzhou-6 orbital module in space flight.)

China's Shenzhou-6 orbital module has been operating normally for 60 days, with scientific experiments being conducted smoothly in the spacecraft.

Liu Junze, head of the orbital craft control office under the space flight control center in Beijing, said the re-entry module left the orbital module on October 17, 2005, returning home safely.

He said that over the past 60 days, the orbital module has been orbiting the earth smoothly, with onboard equipment in good condition for all the types of designed programs and experiments.

Liu Junze added that data is being collected from the orbital craft for future space flights and docking missions.

China to build moon surface simulating test field

(China News, 200512-21)

When making introduction to experts from a reporting delegation of meritorious deeds in Shenzhou VI manned space program on the afternoon of Dec. 19, a spokesman of the No. 510 Research Institute, or the Lanzhou Institute of Physics under China Aerospace Science and Technology Corporation (CAST), revealed that they planned to build a moon surface simulating test field in Lanzhou to prepare for the moon-landing project and were proceeding with related procedures.

This spokesman informed four experts including Zhou Jianping, deputy chief designer of the manned space program, about their research and development in undertaking the task of Shenzhou VI spaceflight. The Shenzhou VI spacecraft is equipped with 15 components developed by this institute, including meters, lights, language, communication, alarm and digital display units.

Airbus hires Chinese graduates to design A350

(China News, 2005-12-21)

Airbus Engineering Center in Beijing held a special job fair in Nanjing University of Aeronautics and Astronautics recently to recruit next year's graduates of mechanical design or related majors.

This is Airbus's second open recruitment in China's universities after its first job fair in Beijing University of Aeronautics & Astronautics in October this year.

A related spokesman of Airbus China said that Airbus Engineering Center in Beijing intends to employ 40 graduates of mechanical design or related majors next year to participate in design of the latest A350 aircraft. Qualified candidates should be proficient in professional knowledge and English. In addition, they have to pass tough interviews, training and examinations before they are officially hired as designers of Airbus Engineering Center in Beijing.

Next year, Airbus Engineering Center in Beijing plans to employ 100 Chinese engineers, 40% of whom will be composed of university graduates. By the year 2008 the number of Chinese engineers recruited by this center will reach 200.

This spokesman indicated that China will undertake a 5% working share of fuselage structure components, including design and production. This year Airbus Engineering Center in Beijing has already hired 54 Chinese engineers.

China a partner in EU satellite programme

(People's Daily, 2005-12-29)

China is the first non-EU nation to have signed on to the Galileo program. With a promised investment of 200 million euros (US$244 million), Beijing inked the Galileo Project Co-operation Agreement on Civil Global Satellite Navigation with the European Commission in October 2003.

Last year, the two sides met on several occasions to discuss details of the program's implementation, including technological collaboration.

In March, China Galileo Industries Ltd was established and entrusted the task of handling the country's interests in the project. The State-owned company will help commercialize the civilian use of the Galileo system in China.

In July, seven Galileo projects were contracted to the Chinese side, including the development of a fisheries application system, special ionospheric studies and location based service standardization.

Israel and Ukraine have also signed on to the program. Discussions are under way with India, Morocco, South Korea, Norway and Argentina, the EU said.

2 News from Universities

Competitive mechanism introduced into universities through reform
(People's Daily, 2005-12-27)

Forty-five professors of northeast China's elite Jilin University who tutor doctoral students no longer hold their posts in Nov. 2005 due to their failure in teacher's performance appraisal, which experts cited as "a quake in China's higher educational reform".

According to the appraisal mapped out by the university authority, professors who tutor doctoral students have to meet the standards like being PhD themselves, conducting valuable research projects and having attained adequate research outlay.

In Chinese colleges and universities, a "tutor of doctoral students" becomes an ideal post which even enjoys higher advantages than the professorship, though no such laws in China have specify this de facto status.

Conventionally, Chinese educational circle takes for granted that "tutor of doctoral students" is a lifetime post despite the fact that the Chinese Ministry of Education (MOE) opposes that.

In China, the glory and the lifetime status of teaching doctoral students make some professors self-complacent and they do not make much progress in academic researches once they have attained the post and even abuse the post to make money.

Qiu Shilun, vice president of Jilin University, said the 45 dismissed professors in his university failed with the appraisal of academic researches this year as the research programs they conducted was insufficient and so had to resign.

Chinese applications for US student visa to grow next year
(People's Daily, 2005-12-30)

At least 80 percent of the more than 25,000 Chinese applicants have got US student visa this year, and the number of applications from Chinese students will likely rise to over 29,000, said William S. Laidlaw, deputy manager of the consular section and manager of the non-immigration unit with the US Guangzhou Consulate, on Dec. 29.

Mr. Laidlaw told the press that the US government attaches great importance to Chinese nationals' interest in traveling to the US and would like to encourage trips to the US for study, tourism, and business by Chinese students and other groups.

More than 409,000 Chinese citizens have applied for US visas this year and over three quarters of them are successful. The number of Chinese applicants may increase to 450,000 in 2006

Chinese students make up the largest number of international students in the US. More than 95,000 Chinese students, according to statistics from the Institute of International Education (IIE), are studying or making research at various institutions in the US, from secondary schools to the most prestigious research centers.

3 Innovation Management

China to send 7,000 students to study overseas in 2006
(People's Daily, 2005-12-06)

Sources from the Ministry of Education (MOE) said the China Scholarship Council (CSC) will fund 7,000 applicants to study overseas in 2006 with more Chinese graduate students to be included.

The CSC will issue an action plan in 2006 stipulating the standard and measures for funding overseas study.

The CSC will mainly sponsor the Sino-British "excellent" scholarship and the Sino-French doctorate program, aiming to increase the number of Chinese students studying abroad and make graduates and doctors a larger proportion of the population, sources from the CSC said.

The CSC will also initiate an online application and appreciation system next year to simplify the process and boost efficiency.

In 2005, the CSC funded 7,000 applicants to study overseas, increasing 75 percent over last year, ranking it the largest number of students-dispatching since China's reform and opening up in late 1970s.

Since 1996, China has sent 22,031 people to study overseas, about 97 percent of whom have come back when they completed their studies.

China ranks world fifth in number of scientific and technical papers
(People's Daily, 2005-12-07)

Number of China's scientific and technical papers published on international authoritative journals accounted for 6.3% of the world total, ranking China the world fifth since 2002, according to statistics results of China Scientific and Technical Papers and Citations Database of 2004. In terms of quality, number of times citied also increased.

Statistics show that number of dissertations included in Science Citation Index, Engineering Index and Index of Scientific Technology Proceedings totaled 111,356 in 2004, an increase of 19.3% over the previous year, next only to that of America, Japan, Britain and Germany.

The top five subjects of the papers included in international journals are chemistry, physics, electronics, telecommunication, automatic control, computer science and technology, material science technology and the five subjects cited most frequently are chemistry, physics, material science technology, biology, electronics, telecommunication and automatic control.

Prof. WANG Enge honored with TWAS prize in physics
(CAS, 2005-12-08)

At the 16th General Assembly of the Academy of Sciences for the Developing World (TWAS) held from Nov. 29 to Dec. 3 in Alexandria, Egypt, Prof. WANG Enge, director of the CAS Institute of Physics, was chosen as winner of the 2005 TWAS prize in physics for his first synthesis of tubular graphite cones and nanobells, and his innovative study of formation and decay mechanisms in surface-based nanostructure.

Prof. Wang received his PhD of physics from Peking University in 1990. He spent one year in Laboratoire d' Etude des Surface at Interfaces (CNRS, France) and four years in University of Houston (USA) as a postdoc and research staff. In 1995, he joined the Institute of Physics (CAS) as a professor and later on became the director. From 1995 to 2003, he was a visiting professor in

Univ. of Oxford (UK), Univ. of Texas (USA), Univ. of Michigan (USA), Univ. of Muenster (Germany), Technical Univ. of Denmark (Denmark), Oak Ridge National Lab. (USA), Univ. of Genova (Italy), National Univ. of Singapore, Hong Kong Univ., and Hong Kong Polytechnic Univ.. He was a JSPS Professor in the Institute for Materials Research, Tohoku University (Japan) (2001-2002).

Dr. Wang's research focuses on surface science; the approach is a combination of atomistic simulations and experiments. One of the original contributions is the development of the Reaction-Limited-Aggregation (RLA) theory. Within this model, a fractal-to-compact island shape transition can be induced by either decreasing the growth temperature or increasing the deposition flux. This counterintuitive finding is just the opposite to the prediction of the classic Diffusion-Limited-Aggregation (DLA) model, and is in excellent qualitative agreement with recent experimental observations in the presence of surfactant. He and his coworkers also predicted a three-dimensional Ehrlich-Schwoebel barrier; attracted News and Views in Nature (June 2002). Another contribution is the model proposal and experimental validation of a true upward atomic diffusion; attracted Physics News Update in June 2003. His group experimentally realized tubular graghite cone; attracted News reports of Materialstoday (June 2003) and Analytical Chemistry (July 2003), and polymerized CN nanobells. In this area, Wang has co-authored 160 papers in peer-reviewed journals (1 in Science, 11 in PRL, 28 in APL, and 7 Invited review articles) and 2 patents, and delivered more than 20 invited talks in international conference, including MRS (2000, 2002), APS (2001, 2004), ACerS (2001), and IUMRS (2000, 2002, 2003).

Senior official urges improvement in innovation capability

(People's Daily, 2005-12-09)

Deng Nan, vice-chairman of the China Association for Science and Technology (CAST), said on Thursday in Beijing that China needs to further upgrade its ability in self-innovation and becomes more creative in scientific research and development.

Addressing the country's first forum on building a well-off society, Deng said about 50 percent of technologies used in China are imported from abroad. Besides, 60 percent of key equipment were imported from abroad.

The key to building a well-off society lies in the training of talent. "We have to change our concept from concentrating on the development of natural resources to the development of human resources," Deng said.

As China is incapable of developing core technologies, 20 percent of the retail price of China-made cell phone, and 30 percent of the price of a computer, has to be paid to foreign patent holders.

In a state mid-term and long-term scientific and technological development program due to be published by CAST soon, Deng said, China aims to embark on the road of promoting economic development and social progress via development of advanced science and technology by the year 2020.

Nobel Prize winner becomes honorary professor in China's think-tank

(China Daily, 2005-12-09)

Nobel Prize winner Daniel Tsui Chee received a honorary professorship title from the Chinese Academy of Sciences (CAS), sources from the Institute of Semiconductors of the CAS announced Thursday.

Daniel Tsui Chee, Chinese-American professor of Princeton University, shared the 1998 Nobel Prize in Physics with Horst Stormer of Columbia University and Robert Laughlin of Stanford University for "discovery of a new form of quantum fluid with fractionally charged excitations," according to the Royal Swedish Academy.

Currently as a fellow of the United States National Academy of Sciences and a foreign academician of the CAS, Tsui was invited to exchange academic views with some CAS researchers, sources from the CAS said.

Tsui inspired Chinese researchers by saying that one has to prove yourself what you do is correct and repeating others will only make you unconfident.

Tsui was the sixth Chinese-born scientist who received the Nobel Prize for natural sciences after Chen Ning Yang, T.D. Lee, Samuel Chao Chung Ting, Yuan Tseh Lee and Steven Chu.

Three chemists receive CAS-Bayer Young Chinese Scientists Awards
(CAS, 2005-12-14)

Three CAS chemists received the CAS-Bayer Young Chinese Scientists Awards from Dr. Juergen Dahmer, president of the Bayer Group in Greater China, on Dec. 6 in Beijing.

The awardees were Prof. LIU Weimin from the CAS Lanzhou Institute of Chemical Physics, Dr. LI Yuesheng from the CAS Changchun Institute of Applied Chemistry and Dr. YANG Zhenzhong from the CAS Institute of Chemistry.

While Bayer conducts research at its own labs, we need exchanges and cooperation with research centers across the world, says Dr. Juergen Dahmer. "I believe our collaboration with such a renowned research institution as CAS is mutually beneficial."

CAS attaches importance to cooperation with multinationals and high-tech firms, says GUO Huadong, Deputy Secretary-General of CAS. Through the cooperation, Chinese researchers will learn a lot on advanced S&T management and technology transfer.

Under the Agreement on Scientific and Technical Cooperation between the Bayer Group and CAS, a CAS-Bayer Start-up Fund and a CAS Bayer Young Chinese Scientists Award were established in 2001 to promote cooperative research work with institutes under the CAS and to support outstanding scientists.

China's sci-tech R&D lags behind world's advanced level by 5 years
(People's Daily, 2005-12-16)

The People's Daily has learned from the National Research Centre for Science and Technology for Development (NRCSTD) that relevant departments are working on the investigation and analysis over the capability of China's sci-tech development.

The investigation which has been accomplished so far in the fields of information, bio-science, new materials, energy, resources and environment as well as advanced manufacturing shows that the overall level of sci-tech development in China is five years behind the world's advanced level. Meanwhile, China's future sci-tech development will mainly rely on independent development.

Cheng Jiayu, deputy director with the Department of Forecasting and Analysis, NRCSTD noted that Ministry of Science and Technology has made overall arrangements for technological forecasting and research in the "Tenth Five-Year" period. Forecasting and research on key techniques selection was initiated in three areas: information, bio-science and new materials in October 2002. Besides that, the forecasting and research over energy, resources environment and advanced manufacturing have been launched since last June with a time span of 10 to 15 year. All the research results have been published.

As for the total 483 techniques in six categories under the investigation, only "Chinese information processing technique" ranks among the world's most advanced, and 20 gained the equal footing with the world's leading level, accounting for 4 percent, and 423, or 88 percent of the total, are five years behind the world's level. Thirty-nine projects, which is 8 percent of the total, even fell six to ten years behind. Generally speaking, China's sci-tech development level is five years behind the world's leading level.

According to experts, 64 percent of the projects in the field of information can be industrialized and those for biological technique and new materials are 36 percent and 39 percent respectively in the five year starting from 2003.

In the next six to ten years, 36 percent of the projects in the fields of information will be industrialized and those for biological technique and new materials will be 64 percent and 61 percent respectively.

This has demonstrated that information technology was much earlier industrialized than biological technique and new materials were and the industrialization cost for new materials is relatively low, whereas that for biological technique is much higher. Furthermore, China is much stronger in terms of the new materials development and that for biological research is rather weak.

So far out of the 261 projects assessed in the fields of resources, resources and environment, and advanced manufacturing, 182 projects can be developed independently by China. Joint research is more practical than self-development for 79 projects.

It is expected that 192 projects will result to China's proprietary intellectual property rights by 2009, accounting for 73.6 percent, and 69 projects, taking up 26.4 percent, will yield the proprietary intellectual property rights for China in the next six to ten years.

Experts believe that independent research and development should play the leading role in research and development in China. Apart from that, joint development is an option.

It is reported that the technical forecasting over agricultural sector, communication as well as urban construction is still under way.

Doctoral students in Physics nominated for "Einstein Award"

(Xinhua Net, 2005-12-16)

The Swiss and German Embassies in Beijing announced here Friday a list of 33 Chinese doctoral physics students who are the "Einstein Award" nominees.

The "Einstein Award" was officially set up here Friday to encourage young Chinese physicists to participate in international physics exchanges.

The 33 doctoral students, nominated by China's Ministry of Education and the Chinese Academy of Sciences, will submit briefs on their attainments and explaining their work's value in international physics exchange.

A group of German and Swiss physicists are going to assess the students' research and select 18 students as winners of the "Einstein Award" who will travel to Germany and Switzerland for a three-week academic trip.

The "Einstein Award" is scheduled to be officially given in March 2006 by the German and Swiss ambassadors to China.

Germany and Switzerland are main forces in theoretical and applied physics research and have frequent scientific exchanges with other countries.

Germany and Switzerland also lead the world in winning Nobel prizes.

Dante Martinelli, Swiss ambassador to China, said Chinese scientific research is developing rapidly and Switzerland, Germanyand China are conducting scientific cooperation more and more frequently. The "Einstein Award" aims at strengthening cooperation among China, Switzerland and Germany.

51 scientists elected into CAS as Honorable Fellows in 2005

(CAS, 2005-12-19)

A total of 51 prominent Chinese scientists have been elected CAS Fellows in 2005. The announcement was made at a press conference held on Dec. 16 in Beijing. CAS President LU Yongxiang was present at the conference and gave a briefing on the election and new fellows.

CAS fellowship is the highest academic title and an honor of life tenure conferred by the State in science and technology circles in China. The election of CAS fellows is held biennially, and each time the total number of new fellows to be elected will not exceed 60, according to the Bylaws for CAS fellows. At present, CAS has a total of 707 fellows, with an average age of 72.

The 51 new fellows were elected by a secret ballot from 295 valid candidates, who were nominated either by CAS fellows or departments for a preliminary election in their respective administrative systems.

Among the new CAS fellows, eight are mathematicians or physicists, nine chemists, 12 life scientists, seven geologists, six information scientists and nine engineers. The oldest of the newly elected is 72 years old and the youngest 39. Forty-seven percent of the newly elected are under the age of 60.

Chinese government to increase budget for scientific research

(Xinhua Net, 2005-12-22)

China plans to increase the proportion of funds for scientific and technological research and development from 1.44 percent of its GDP in 2004 to 2.5 percent in2020, said a white paper released here on Thursday.

"China must rely on itself to solve the problems in its development," and "it is an important principle that guarantees that China will follow the road of peaceful development," said the white paper, titled "China's Peaceful Development Road" and published by the Information Office of the State Council, China's cabinet.

China keeps up its driving force to maintain sustained economic development through its huge domestic demand and domestic market, which has "determined that China should, and most likely,

rely mainly on domestic demand for its development," said the white paper.

As for strengthening the human resources, the paper said, from 2006 to 2010, the secondary vocational schools will train 25 million graduates, and the higher vocational schools, 11 million. The enrollment rate of China's institutions of higher learning will reach 40 percent by 2020.

"China is not only a big energy consuming country, but also a big energy producing one," said the paper. Since the 1990s, China has obtained 90 percent or more of its energy from domestic sources. In its environmental protection efforts, China persists in putting precautionary measures first in its development, the paper said.

Government scholarship for foreign students to be launched

(People's Daily, 2005-12-27)

The Beijing Municipal Government will set up a scholarship for foreign students and scholars in Beijing, the first of its kind in China, according to Beijing News.

The initial fund of the scholarship involves 30 million Yuan (3.75 million US dollars) from the Beijing Municipal Education Commission (BEC).

The scholarship is classified into three categories with the highest at 40,000 Yuan (5000 US dollars) for each person. Some 1,500 foreign students and scholars studying in Beijing are expected to win the scholarship, the paper said.

The scholarship is mainly provided by the government, but individuals, companies and organizations are encouraged to make donations in future.

The aim of the scholarship is to attract more foreign students and scholars to study or work in Beijing.

China spends $24.58 billion on scientific R&D

(Xinhua Net, 2005-12-28)

China's total spending on scientific research and development hit record 196.63 billion yuan (24.58 billion US dollars) in 2004, the National Bureau of Statistic (NBS) said in a report released on Wednesday.

The report said the spending in 2004, an increase of 27.7 percent from 2003, or 42.7 billion yuan (5.34 billion dollars) more than the previous year, accounted for 1.23 percent of the nation's gross domestic product (GDP), which was revised after the country's first national economic census.

The report showed the funds allocated to R&D by the central government had increased steadily over the past year.

The spending on basic R&D amounted to 11.72 billion Yuan, up 33.7 percent, and that on application R&D 40.05 billion Yuan, a rise of 28.6 percent from 2003, while the spending on experiment R&D totaled 144.87 billion Yuan, an increase of 27 percent.

In 2004, the report said, the spending on scientific R&D by Chinese enterprises came to 131.4 billion Yuan, a rise of 36.8 percent from 2003, while the R&D funds spent by state-owned scientific research institutes and colleges and universities increased 8.2 percent and 23.8 percent respectively to reach 43.17 billion Yuan and 20.09 billion Yuan.

Last year, altogether there were seven provinces and municipalities whose scientific R&D funds exceeded 10 billion Yuan, including Beijing, Shanghai, Jiangsu, Guangdong, Shandong, Zhejiang and Liaoning, the NBS report said.

Meanwhile, it said China's total expenditure on scientific and technological activities totaled 400.44

billion Yuan in 2004, representing a 28.3 percent rise, or 88.29 billion Yuan more than the previous year.

China vows to better protect intellectual property
(People's Daily, 2005-12-29)

Tian Lipu, commissioner of the State Intellectual Property Office (SIPO), said here Wednesday that China needs to make more efforts to better protect intellectual property.

In the past two decades China established an intellectual property legal system as well as a law enforcement mechanism which embodies judiciary and administrative ethics, Tian said.

In 2004, he continued, China received 588,000 trademark applications as well as 110,000 patent applications for utility model and design each.

In knowledge-oriented economy, only innovative capabilities can improve the competitiveness of Chinese enterprises, he said.

Last year China received 130,000 applications for invention patents, half of which are from multinationals headquartered in developed countries.

Statistics showed that patent applications from American enterprises in 2005 would exceed 20,000.

Companies from developed countries occupied 93 percent of patent applications in electronic transmission, 91 percent of mobile telecommunication, and 90 percent in audio and visual technologies, 85 percent in semiconductors, 69 percent in pharmaceuticals and 60 percent in computing technologies.

Tian said 18 percent of patent applications from China are for inventions while 86 percent from foreign companies are for invention patents.

He said that only 0.03 percent of Chinese enterprises own key technologies with intellectual property. 99 percent of enterprises have never applied for patents and 60 percent do not have their own trademarks.

While China is ranked third in foreign trade, patented high technologies contribute only two percent of the total foreign trade volume.

"We need to encourage more Chinese enterprises, especially key state businesses, to sharpen their competitiveness by ensuring intellectual property."

Improvement of intellectual property system stimulates innovation
(People's Daily, 2005-12-29)

Improvement of China's existing intellectual property system will stimulate innovation-based competitiveness, said Tian Lipu, commissioner of the State Intellectual Property Office (SIPO), on Wednesday.

In an interview with Xinhua, Tian said his office began drafting a national intellectual property strategy aimed at helping build an innovative nation in 2005.

The government should create a favorable environment for breeding technological innovations by working out new policies and adopting incentive measures.

The system of intellectual property right protection is also targeted at spurring innovative activities of individuals, Tian said.

As the backbone of international market competition, Tian said, enterprises should be encouraged to invest more in research and development and should have more technologies with intellectual property.

China to curb "junk patents"

(People's Daily, 2005-12-29)

China's top intellectual property watchdog said here Wednesday that the administration will curb "junk patents" that have little innovation.

Tian Lipu, commissioner of the State Intellectual Property Office (SIPO), said that most "junk patents" are within the categories of utility model and design.

According to the Patent Law, the Chinese patent system has three categories -- invention, utility model and design.

The SIPO does not carry out substantial examination on applications for utility model and design patents, which is also in line with the international practice.

"We do not substantially examine such patent applications in consideration of saving costs and other resources," Tian said, adding that new utility models and designs have much less innovative features compared with inventions.

Lack of substantial examination might lead to "junk patents," Tian said.

Many local governments provide incentives for businesses and individuals that are active in applying for patents. With their encouragement, Tian said, some applicants submitted their applications based on existing technologies or designs.

Tian's office is now preparing for the third revisions of the patent law, focusing on some pressing problems affecting effective patent protection. The revisions might include improvement of the current examination mechanism for utility model and design patent applications.

The SIPO also advised local governments to channel more incentives to invention patents, which need to have substantial examination, rather than utility models and designs.

However, Tian insisted that the current mechanism for utility model and design patents is largely appropriate for improving intellectual property awareness of Chinese enterprises, most of which do not have meaningful innovative capabilities.

In this sense, Tian said, authorization for utility model and design patents is still useful at the current stage of development.

China issues outline for sci-tech development till 2020

(People's Daily, 2005-12-31)

The State Council, or the Chinese cabinet, has recently issued the country's outline for the development of science and technology from 2006 to 2020.

The outline has highlighted the implementation of a "scientific view of development" in the field of science and technology, and has set the goal of building China into a country with a strong capability of independent innovations.

More than 2,000 experts from various fields spent two years drafting the outline.

4 China's International Science Cooperation

China, Germany to join hands in engineering education
(People's Daily, 2005-12-05)

Chinese and German engineering experts convened Monday in Beijing to discuss future cooperation in engineering education and mutual accreditation.

The Symposium on Perspectives of Sino-German Cooperation in Realm of Engineering Education and Accreditation, co-sponsored by the Chinese Association for Science and Technology (CAST) and the Association of German Engineers, is expected to shape the future accreditation of engineers between China and Germany.

Zhou Guangzhao, CAST president, said at the symposium that Germany has rich experience in training high-quality engineers while China needs a great number of outstanding engineers to help sustain its rapidly-growing economy.

Chinese colleges and universities are now enrolling about 3.7 million students for engineering diplomas. Germany boasts more than 5 million qualified engineers.

Zhao Qinping, Chinese vice Minister of Education, said China and Germany will try to cooperate in joint education programs and establish a uniform appraisal system for such joint programs.

Engineering experts from prestigious Qinghua University, Beijing University of Aeronautics and Astronautics, Shanghai Polytechnic University and German engineering associations and higher-learning institutes are attending the two-day symposium.

CAS, Belarus sign collaborative agreement
(CAS, 2005-12-06)

CAS Vice President LI Jinghai and the visiting President of National Academy of Sciences of Belarus (NASB) Mikhail V. Myasnikovich put their names on an agreement for S&T cooperation between the two academies on Dec. 5 at the Great Hall of the People in Beijing. According to the document, the two sides will take effective steps to boost the bilateral cooperation.

China, Europe to shape future patent cooperation
(People's Daily, 2005-12-06)

China's top intellectual property watchdog said Monday in Beijing that patent cooperation between China and Europe should be aimed at stimulating innovative activities and enhancing bilateral economic and trade relations.

At a symposium organized here to mark the 20th anniversary of cooperation between China's State Intellectual Property Office (SIPO) and the European Patent Office (EPO), Tian Lipu, SIPO

commissioner, said the two offices have cultivated a good, effective exchange and cooperative relationship in the past two decades.

The future cooperation between the two offices might influence the world patent mechanism, Tian said.

With an increasingly globalized economy, more and more European firms applied for patents in China. European firms were granted 9,473 patents in 2004.

The number was 865 in 1995 and only three in 1985.

Tian also inspired Chinese companies to learn more about the European patent system and apply for more European patents.

On Monday morning, the SIPO signed a cooperative agreement with the EPO, including future cooperation in personnel exchange and training, exchange of patent data, joint programs toward future cooperation with Southeast Asian nations, and intellectual property symposia geared to China-based European firms.

Sino-European ties push strategic high-tech cooperation such as Galileo project
(People's Daily, 2005-12-13)

China's booming economy has brought Europe increasing market opportunities and the bilateral technological cooperation is reciprocal.

2005 marks the 30th anniversary of the establishment of Sino-European ties and the Sino-European relationship is in its best period. As Chinese Premier Wen Jiabao said during his recent visits to several elite European high-tech enterprises, Sino-European cooperation is based on solid political ties and broad prospects.

Highlighting the 2005 Sino-European high-tech cooperation is China's active participation into the Galileo satellite navigation system, a major European project in which China is involved.

As the first country outside Europe to join the Galileo Project, China is working with its European partners to research space-based applications and unify technological standards.

In the beginning, whether to enlist China into the Galileo Project sparked a debate in Europe, but finally strong political ties prompted European leaders to OK the agreement.

Europe believes that China's prosperous economy and huge market capacity will bring the project profits.

The EU and the European Space Agency kicked off the Galileo Project in March 2002 to develop a satellite-navigation system independent of the U.S. military global positioning system (GPS) monopoly.

The project will launch 30 navigation satellites, which will provide remote sensing data with resolution of up to one meter. At present, the data resolution in the GPS civilian domain is only ten meters.

The EU plans to launch Galileo's first test satellite in late December 2005 and the full network is due to go into service in 2008.

China has agreed to invest a total of 200 million euros in the global consortium, according to a Galileo Project pact that China and EU endorsed in 2003. The two sides inked a technological cooperation contract a year later after many rounds of negotiations.

The contract, carried out in 2005, includes a fishery application system, location-based services, special ionospheric studies for the Galileo regional augmentation services, search and rescue radar transponders (SART), laser retro-reflectors and up-link stations (ULS).

The location-based services, featuring accurate navigation information, provided by Galileo are an important part of the civilian application, which the EU hopes will lead to a worldwide standard.

Special ionospheric studies can promise a normal operating condition to receivers in signal-inaccessible regions and the SART can offer prompt rescues in navigation, mountaineering or fieldwork.

"In the 1980s, most foreign partners favored China's huge market when they conducted technological cooperation with China, but in the current Sino-EU Galileo Project, the EU also takes a fancy to China's competitive aerospace industry," said Zhang Guocheng, executive director of the National Remote Sensing Center of China, the EU-designated Chinese partner on the Galileo Project and a coordination body under China's Ministry of Science and Technology.

"China's achievement in manned space mission proves that some of China's space technologies can be paralleled to those in western developed countries," said Thomas Mayer, head of business development navigation of the European Aeronautic Defence and Space Company (EADS).

Chinese Science and Technology Minister Xu Guanhua said China should actively participate in International projects of science and technology to fully tap global technological resources.

China, UK ink cooperation for carbon capture and storage

(China Daily, 2005-12-21)

China and the United Kingdom yesterday agreed upon a joint development program of carbon capture and storage technology (CCS), in an effort to combat global warming.

The program is a substantial step forward in response to the Sino-EU Declaration on Climate Change, which was published in September in Beijing. According to the declaration, EU will offer China the technology to build a clean coal-fired station.

As a new solution to reducing the amount of carbon dioxide in the air, carbon capture and storage was put forward by international scientists two or three years ago. The idea is to separate carbon dioxide from emissions of factories or power plants, and then bury it underground in deserted mines, oil wells or even oceans.

Scientists hope the technology can help mitigate the impact of greenhouse gases on global climate change. However, at the moment the technology is still in its initial stages.

Under the memorandum signed yesterday, the UK has pledged to fund Chinese scientists in several research projects for carbon capture and sequestration technology before 2008.

Lu Xuedu, a senior official with the Ministry of Science and Technology, revealed the total investment from the UK will reach 3.5 million pounds (US$6.1 million).

Besides technological development, the subsidy will also fund studies into assessment of costs and potential markets for CCS, demonstrations of zero-carbon communities and related financing plans.

Once the program finishes, both sides will proceed with the collaboration in building a zero-emission coal-fired power plant, which will capture its own carbon dioxide emissions and store them safely.

The difficulties in using the technology lie in the safety of carbon storage and transportation, as well as the costs.

"If any leak happens, all efforts will be for nothing and more harm will be brought to the environment," said Li Gao, deputy director with the Administrative Centre for China's Agenda 21.

He said the future market of this technology is uncertain, as it has to compete with recycled energies. "If the latter can be acquired at lower costs than this technology, there will be only a very

small market for carbon capture and storage technology," he added.

Although Li admits the technology is not a priority area of development for China, it may play a role in the future when China, a signatory of the Kyoto Protocol, has to shoulder more responsibility for emissions reduction.

CAS, EU to further cooperation in life sciences

(CAS, 2005-12-26)

On Dec. 21, CAS Vice President CHEN Zhu held talks with Dr. Octavi Quintana-Trías, director of Health at the European Commission's Directorate General of Research in Beijing.

During the meeting, Dr. Quintana-Trías said that the past years have witnessed the active involvement of CAS scientists in the application of the European Commission (EU) Framework Programs for Research and Technological Development, and he would like to see more CAS researchers making proposals for the life science programs in the Sixth Framework Programs that will be initiated during the period from Dec. 22, 2005 to March 12, 2006. He also gave a briefing on the Seventh EU Framework Programs to be started at the end of next year.

Prof. Chen appreciated the generous support of Dr. Quintana-Trías to the Sino-European cooperation during the outbreak of the deadly disease of SARS. He assured the EU official that CAS would encourage its researchers to actively participate in Sino-European collaboration and the EU Framework Programs.

The two sides also made discussions on cooperative research in such fields as newly emerging diseases, traditional Chinese medicine and alternative medicine.

CAS institute becomes partner of EU FP6 hydrogen project

(CAS, 2005-12-26)

After several rounds of scrutiny by experts in more than one year, the research proposal by an international team on hydrogen research, dubbed HyApproval, has won the support of the Sixth European Commission Framework Program for Research and Technological Development (FP6). A research group led by Prof. LI Qing from the CAS Institute of Technical Institute of Physics and Chemistry is a partner of the research consortium.

The aim of the nearly four-million-euro project is to make a "handbook for approval of hydrogen refueling stations" to be used to certify public hydrogen filling stations in Europe. The research will be conducted on the basis of a number of hydrogen projects in EU, US and Japan, including HySafe (Safety of Hydrogen as an Energy Carrier), StorHy (Hydrogen Storage Systems for Automotive Application), ECTOS (Ecological City Transport System), CUTE (Clean Urban Transport for Europe), ZERO REGIO (Lombardia and Rhein-Main towards Zero Emission) and

CEP (Clean Energy Partnership Berlin).

The consortium has 25 partners, including many world-renowned research labs and enterprises in the field, such as National Renewable Energy Laboratory in US, Organization for Applied Scientific Research in Netherlands, Commissariat a l'Energie Atomique in France, Shell Hydrogen, Total France, Air Liquide, BP Gas Marketing in UK, Air Liquide in France.

The so-called "hydrogen economy" will never exist if the public does not accept the product researchers have developed, according to scientists. Therefore, this project is to develop a public acceptance tool, using the tools and results of the HYFLEET, CUTE, ECTOS, ZERO REGIO, CEP projects. The results of this study will be annexed to the handbook.

The CAS Institute of Technical Institute of Physics and Chemistry has carried out studies and achieved encouraging progress in large-scale hydrogen separation, storage, transportation and applied system of hydrogen energy. Its research has also won support from the National high-tech Development Program (the 863 Program).

CAS Institute to support Thai government on biomass development

(CAS, 2005-12-29)

Prof. CHEN Yong, director of the CAS Guangzhou Institute of Energy Conversion, and Dr. Adisak Sreesunpagit, Director General of Department of Agriculture under the Thai Ministry of Agriculture and Cooperation, signed a cooperative agreement on the utilization and development of biomass technology on Dec. 14 in Bangkok.

According to the agreement, the CAS institute will provide technological support to the Thai program on "one power station for every village" from 2006 to 2007 and help the Thai government with its demonstrative stations for gasification and power generation, laying a solid foundation for the wide application of biomass technology in the Thai countryside.

5 Miscellaneous

IBM's Blue Gene shown in Beijing

(People's Daily, 2005-12-02)

The world's fastest supercomputer-IBM's Blue Gene is shown at a press conference held by IBM in Beijing Thursday.

IBM has plans to promote Blue Gene in China's medical and meteorological fields, insiders revealed. Yet all-round commercial use of Blue Gene in China is not possible because of the restrictions the US government imposes. The supercomputer will stay in China for one month.

The Blue Gene ranks No. 1 on the list of Top 500 supercomputers by a speed of 280.6 teraflops It is applied in the fields of life science, weather forecast, astronomical observation, material science, and special effects of digital movies.

China able to launch 3G network

(People's Daily, 2005-12-09)

China is able to launch 3G network although China's TD-SCDMA standard development is later than that of the other two international standards, said Lou Qinjian, vice minister of Information Industry.

The Information Industry Ministry will support businesses in developing 3G by way of providing more funds, said the minister at the 2006 Information Economic Conference in December 6.

Liquid crystal monitor captures three-dimension images

(People's Daily, 2005-12-09)

Observers can see, with naked eyes and without any auxiliary tools, three-dimension images and the object demonstrated seems to be within reach.

China's first three-dimension liquid crystal monitor has made it come true. The monitor has been developed in Nanjing.

The monitor, either in 15 inches or 17 inches, presents both two-dimension and three dimensions images or enables observation of three-dimension images by more than one person at the same time. It has been developed independently by China.

The monitor can be applied to entertainment, medical care, business and military purpose.

Key words for Chinese communications industry announced

(People's Daily, 2005-12-16)

"Telecom universal service", "IPTV", "converged network", "telecom expense", "TD-SCDMA test" are among the ten key words for the China's communications industry.

The key words were announced yesterday by the Telecommunication Technology Information Research Institute of China's Ministry of Information Industry.

The year of 2005 is key to China's telecommunication industry, and telecommunication universal service has always been a priority and an important mission for the government, said Lei Zhenzhou, official with the institute at a conference on the industry in 2006.

According to Lei, in the first 10 months this year, telephone had been installed in 96.5 percent of all China's administrative villages, which makes China realize its preset goal ahead of schedule.

IPTV has become a focus in the industry in 2005.

Lei said since IPTV links TV set with the Internet, it to some extent helps the Triple Play, i.e. IP, broadband and digital TV. Three hundred million Chinese TV audiences will likely join the broadband camp. The year of 2005 is an experimental period for IPTV.

The term "converged network" came into being in the 1990s.

Lei said in the 11th Five-Year Plan (2006-2010), the Chinese government for the first time mentions the "Triple Play", vowing to strengthen the construction of the information infrastructure for Next-Generation Internet, such as digital broadband and digital TV network, and promote the Triple Play.

Over the past couple of years, the third-generation mobile communication has always remained a limelight.

China owns the world's largest potential 3G market and the granting of 3G licenses has been the biggest question mark in its telecom industry this year.

In the meantime, the test for TD-SCDMA, Chinese 3G standard, has also drawn much attention. Since the last year, departments concerned in Beijing and Shanghai conducted research on TD-SCDMA networks and terminals and test on chips. The test, which lasted over half a year, has been finished as planned.

China made aggressive efforts in the reform of telecom expense this year, replacing pricing by the government with upper limit control.

Lei said such a move is another large-scale action of relaxing the market after IP phone to build a more market-oriented playfield.

The other four key words are "WiMAX", "telecom transformation", "Internet governance" and "IPV6".

Shanghai attracted 10,000 returned talents over past 2 years

(People's Daily, 2005-12-16)

Shanghai has fulfilled its "10,000 returned overseas scholars converging program" and "plan to lure 1,000 special talents from Hong Kong" ahead of time. By the end of November this year, Shanghai has attracted 10,203 returned overseas scholars and more than 1,000 special talents from Hong Kong for the past two years, and among them, more than 30 per cent have entered into state-owned units, hitting all-time highs in history, reports the overseas edition of People's Daily on December 16.

Among the talents, 22.8 per cent have academic degrees of doctors, 69.8 percent masters, 4.9 percent bachelors and 2.5 percent the rest, according to the Shanghai Personnel Bureau. In terms of the talents distribution, 34.9 percent work in state-owned units while 65.1 percent in non-government units, including 26.6 percent in private-run units. Of the talents from Hong Kong, 7.9 percent entered state-owned units while 92.1 percent non-government units, including 26.2 per cent working in private-run units.

Overseas returned overseas scholars who have come to work and start businesses in Shanghai generally are young with high skills and rich overseas work experiences. They have mainly come from countries, including Britain, the United States, Japan, Australia and Canada, with their ages ranging from 26 to 40 (accounting for 70.7 per cent). Male makes up nearly 70 per cent of the total. Nearly half of them have entered into enterprises and the remaining into institutions of higher learning, scientific research institutes, financial institutions and various organs at municipality and

county levels.

Another major measure to build a new highland for overseas talents is that Shanghai has set a goal to introduce 100 top overseas Chinese musicians annually for holding world-class concerts in Shanghai. This year it will make an arrangement for "New Year Concert Held by Overseas Chinese Musicians". By now, 99 renowned overseas Chinese chief musicians, including Lu Jia, Yo-yo Ma and Li Chuanyun, have confirmed to attend the concert.

China remains largest IT product exporter in 2005

(China News, 2005-12-19)

Chinese Ministry of Commerce revealed that China exported US$180 billion worth of information and communication products in 2004, 12% higher than that of the US. China has become the world's largest exporter of information and communication equipment. China's export volume of the above products will still take the lead in the world in 2005, according to statistics from a report published by APEC recently.

The report points out that China's low-end electric products, such as TV and stereo system, as well as high-end IT facilities have witnessed a trend of steady growth. Lenovo's acquisition of IBM personal computer business and compulsory authentication on the national standards of Chinese technological products both demonstrated China's efforts in striving for the leading role in the international information and communication product market.

Statistics show that China became a net exporter of information and communication products in 2002 with the trade surplus totaling US$3 billion, and the figure mushroomed to US$31 billion in 2004. Chinese information and communication products have their exports grow 38% yearly on average since 1996. In addition, China has outdone Japan to become a chief exporter of the above products to the US in 2004.

The report also mentioned that the main reason for China's booming IT industry lied in that international giants such as Intel, Nokia, Motorola, Microsoft and Cisco all put emphasis on investment, research and development in China continuously.

Beijing to expand foreign students' enrollment next year

(People’s Daily, 2005-12-20)

Universities and research institutes in Beijing will continue to expand the enrollment of foreign students next year, the Beijing News reported Monday.

Universities in Beijing will focus on increasing the number of foreign enrollees to study for degrees, the newspaper said, adding that Chinese language and culture courses will be open to all foreign students.

In 2005, more than 40,000 foreign students studied in 69 Beijing universities or research institutes, 3000 more over the previous year, the Beijing Municipal Commission of Education was quoted by the newspaper as saying.

Among the foreign students, 2000 were studying for doctorates or master's degrees this year, the newspaper said.

Dust discharge remains same as in 1980

(Xinhua Net, 2005-12-22)

China's dust discharge has remained the same as in 1980 despite a big increase in installed

thermal-power capacity, said a white paper titled "China's Peaceful Development Road" issued by the Information Office of the State Council here on Thursday.

China emphasizes energy saving and has adopted various measures in this regard, said the white paper.

During the 1980-2000 period, China's GDP quadrupled, but the annual consumption of energy only doubled. Its energy consumption of per 10,000-yuan GDP in 2004 dropped 45 percent compared with 1990, it said.

China has made medium- and long-term plans for energy conservation, aiming to keep an annual energy-saving rate of 3 percent by 2020, to save 1.4 billion tons of standard coal.

"China's development is an important component of global development. China has promoted world peace with its own development and made contributions to the progress of mankind." said the white paper.

China has created a miracle by feeding nearly 22 percent of the world's population on less than 10 percent of the world's arable land. The Chinese government has lifted 220 million people out of poverty, and has provided minimum living allowances to 22.05 million urban residents and aid to 60 million disabled people, according to the paper.

In 2004, the world economy reported the swiftest growth in 30 years, while China's economy grew 9.5 percent and became a key driving force for the former, it said.

However, despite gigantic achievements, China still remains the largest developing country in the world, with a formidable task of development lying ahead, said the white paper.

It pointed out that by the end of 2004, 26.1 million rural Chinese still lived under the poverty line, more than 100 million farmers have to be provided with jobs elsewhere, and the government is obliged to create jobs for nearly 24 million urban and rural residents every year.

"China still needs to make persistent efforts to strive for a peaceful international environment for its own development, and promote world peace and development with its own growth," said the white paper. "This is particularly significant for both China and the world as a whole."

A new mobile satellite telecom system BGAN launched in China

(People's Daily, 2005-12-22)

A new mobile satellite telecom system called Broadband Global Area Network (BGAN) was launched in Beijing December 21.

Regarded as a satellite's ADSL, it supports 492K bit/sec data rates and enables users to access data applications at broadband speed and make phone calls at the same time.

Compared with other satellite terminals, BGAN terminal weights less than 1 kilogram.

It is mainly used in danger or accident occasions in the sea, emergency cases on the land and challenging environment in remote areas where communication cost is high.

BGAN is currently accessible throughout Europe, Africa, Asia and the Middle East, coverage will be extended to the whole globe by the end of 2006.

China to invest seeds funds inspire innovative enterprises

(People's Daily, 2005-12-24)

China's Ministry of Science and Technology announced Friday in Beijing that it will invest seeds funds in a bid to inspire more innovative enterprises and sharpen their competitiveness in global markets.

In a new initiative incubating innovative technologies, the ministry plans to use its seeds funds to

attract more investment from enterprises in research and development. While calling it an ambitious plan, Deputy Ministry of Science and Technology Li Xueyong did not provide the precise scale of the state's seeds funds. He promised that the state will use taxation and financing leverage as well as technological transfer policies to encourage such innovation activities.

"Capacity building for innovative competitiveness will be symbolized in intellectual properties and market response to their products," Li said. The ministry will also help forge lax industry alliances combining universities, research institutes and enterprises.

In the coming five years, Li said, the ministry will encourage more enterprises to apply for state hi-tech projects. The state and regional scientific research and technological development should be more devised for addressing urgent needs of key state enterprises.

The initiative does not rule out further borrowing of technologies from overseas. However, Li said, China could not in the long run rely on developed countries for edging innovations.

China is in urgent need to speed up innovative capabilities of enterprises against the backdrop of more interwoven global economic networking, in which profits distribution is largely decided by positions in the technological know-how hierarchy.

Statistics showed that about 90 percent of invention patents are held by multinationals headquartered in developed countries. The multinationals occupy a monopoly over markets of hi-tech products and remain at the top of the hierarchy.

Latest domestic statistics indicated that only one quarter of China's 28,000 large and medium-sized enterprises have their own research and development organs. Their research and development expenditure accounted for only 0.56 percent of their revenues. Of all invention patent applications in China, enterprises from developed nations held over a half. Some 70 percent of patent applications for computing technologies are from foreign firms, 87 percent for biotechnologies, 92 percent for information-related technologies and 90 percent for semi-conductors.

Concrete steps of the initiative will include incentives for hi-tech commercialization, encouragement for more research and development centers in enterprises and establishment of uniform technical and service platform for hi-tech startups.

Operators gear up for 3G services

(China News, 2005-12-28)

After proceeding cautiously, the Ministry of Information Industry (MII) yesterday told domestic operators to be ready for the rollout of 3G (third generation) mobile telecoms services.

China's operators and equipment makers have been anxiously awaiting the go-ahead for 3G services, which are said to provide quicker transmission and combine calling services, with extras like information downloading, e-mail and instant messaging.

"After years of efforts, it's time for China to develop 3G," MII chief Wang Xudong told the ministry's annual working conference in Beijing yesterday.

Policies related with 3G technologies, services, fees, regulations and spectrum allocation should be worked out in 2006, he said, although the ministry has not set up a clear timetable for 3G licensing.

"Operators should make full preparations for building networks, developing service offerings and nurturing the market," Wang said.

In January, Wang said the MII would join other government bodies to make suggestions to the State Council regarding 3G development "at an appropriate time" in 2005.

And in May he promised to enable operators to offer 3G services during the Beijing Olympics

2008.

Yet the government still wants to give the homegrown 3G technology standard, TD-SCDMA, more time to mature.

TD-SCDMA is competing against Europe-initiated WCDMA and US-backed CDMA 2000.

Not yet put into commercial use, TD-SCDMA has made major progress in recent months, sparking speculation that the 3G licensing process will soon be underway.

A report by Beijing-based Norson Telecom Consulting predicted 3G licences would be handed out "almost definitely" in 2006.

And many industry executives have predicated the licensing would take place in the first half of next year, possibly as early as March.

However, some say an industry-wide reshuffle may slow down the 3G licensing process.

Wang said regulators should "link the 3G (licensing) with deepening telecoms reform, optimizing the competitive landscape, improving regulations and supervisions as well as promoting (Chinese) independent intellectual property rights (IPRs)."

Regulators have been concerned that too many 3G licences will lead to "excessive investment" or so-called huge fixed-asset losses.

Insiders said the State-owned Asset Supervision and Administration Commission (SASAC), has been considering merging major telecoms operators.

Chen Jinqiao, a senior researcher with the China Academy of Telecommunications Research, a think-tank affiliated with the MII, said 3G licences are less likely to be handed out early next year, given a looming industry reshuffle.

Chen said competitive landscape of China's telecoms industry is "not rational," and regulators might inevitably resort to consolidating operators, the researcher said.

"A reshuffle of the domestic industry by mergers is still likely," he said.

Yet, mergers or swaps of State-owned assets will not be a "cure-all" as a large-scale reshuffle will be costly, Chen noted.

"The government may also designate some operators to run TD-SCDMA networks with a set of preferential policies to reshape the industry," he said.

Rumours have been swirling that fixed-line incumbent China Telecom might get the first 3G licence to build a TD-SCDMA network.

The government may also allow more foreign companies' involvement in small Chinese telecoms operators, as part of its efforts to reshape the industry, the researcher said.

Chen also urged all related government bodies to join each other to reach a common view to reshape the country's telecoms industry.

Many ministries, including the MII, SASAC, the National Development and Reform Commission and the Ministry of Science and Techology, are currently involved in the 3G licensing scheme.

Chinese chip developer obtains export credit of 85 mln euros

(People's Daily, 2005-12-30)

China's major chip developer Semiconductor Manufacturing International Corporation (SMIC) in Shanghai has obtained a credit line of 85 million euros for long-term export from two European banks, a source with the SMIC said.

SMIC will use the loan to purchase photoetching technology-related equipment to expand its output, according to the contract signed between the SMIC and the ABN AMRO Bank N.V. of the

Netherlands and the Comerz Bank (Nederland) N.V. of Germany.

Established in 2000, SMIC has launched four plants manufacturing eight-inch chips. SMIC launch a plant to produce 12-inch chips in Beijing in January this year.

The ABN AMRO Bank of the Netherlands boasts 899.3 billion euros of capital and has more than 3,000 subsidiaries in over 60 countries worldwide. The bank has 100,000 employees around the globe.

Commerz Bank of Germany was set up in 1870. It boasts 458 billion euros of capital.

Abbreviations

CAS - Chinese Academy of Sciences

MOST - Ministry of Science and Technology

CRI - China Radio International

CCTV - China Central Television