CHINA

‘Dragon man’ sheds light on evolution

Skull found in Harbin belongs to newly discovered species with same ancestor

By HOU LIQIANG in Beijing and **ZHANG YU** in Shijiazhuang

The world has taken a critical step toward figuring out the origin and evolution of *Homo sapiens*, the species all living humans belong to, with Chinese researchers announcing the discovery of a new species of ancient human they have dubbed “dragon man”.

More closely related to modern humans than Neanderthals, the species researchers officially named *Homo longi sp nov* may lead to a rethinking of human evolution.

The announcement was made based on the results of research on a skull that is at least 138,000 years old. It was reportedly unearthed in 1933 when a bridge was built over the Songhua River in Harbin, Heilongjiang province. The city was under Japanese occupation at the time, and the man who found the skull concealed it at the bottom of an abandoned well for safekeeping.

The fossil was not recovered until the third generation of the anonymous man’s family learned of the secret before his death, according to studies the researchers published in the journal The Innovation on Friday.

The fossil was then donated in 2018 to the Geoscience Museum of Hebei GEO University in Shijiazhuang, capital of Hebei province.

The research team used sophisticated geochemical analysis, including rare earth elements, strontium isotopic ratios and X-ray fluorescence, and direct uranium series dating on the skull, according to a media release issued by the university on Saturday.

Because of its unsystematic recovery and long intervening time period, information about the exact fossil site and the fossil-bearing layer was lost.

“Although it is impossible to pin the skull to an exact location with currently available technology, all the evidence suggests that it was from a bed of lacustrine sediments aged between 138,000 and 309,000 years ago in the Harbin region,” said Ge Junyi, one of the members of the research team and a geochemist from the Chinese Academy of Sciences.

Shao Qingfeng, another team member and a geochemist from Nanjing Normal University, said the team was very confident that the skull is more than 146,000 years old.

“The Harbin cranium is huge, showing either the largest or second-largest values for many measurements in our comparative fossil database, and its brain size, at 1,420 milliliters, matches that of modern humans,” Chris Stringer, a paleoanthropologist from the Natural History Museum in London who was also a member of the team, said in the media release.

“It also shows other features resembling our species. It has flat and low cheekbones with a shallow canine fossa, and the face looks reduced and tucked under the braincase.”

Comprehensive phylogenetic analysis by the team revealed that the Harbin skull and some other East Asian archaic human fossils belong to an evolutionary clade with the same last ancestor as *Homo sapiens*.

Stringer said it is widely believed that the Neanderthals formed a sister group of the *Homo sapiens* lineage. “But our analysis suggests that the Harbin cranium and some other Middle Pleistocene human fossils from China form a third East Asian lineage, which is actually closer to *H. sapiens* than the Neanderthals are,” he said.

The excellent preservation of the Harbin skull throws new light on the evolution of the genus *Homo*, he added.

According to studies published by the team, the Harbin skull is undistorted and almost intact, with the main losses being all but one tooth, and slight damage to the left zygomatic arch.

Professor Ji Qiang, the team’s lead researcher from Hebei GEO University, said the evolutionary model of humans is obviously different from that of other organisms. The number of human species became fewer and fewer, but the populations became larger and larger. As a result, only one human species lives on Earth today.

“The discovery of *Homo longi sp nov* has made a good start for us,” Ji said. “I am looking forward to hunting for new human fossils, especially the common ancestor of *Homo longi* and *Homo sapiens* in East Asia, and even more in China, so as to promote international research on the origin of *Homo sapiens*.”

If the common ancestor is found, it will raise the possibility that Asia is the origin of *Homo sapiens,* although further research would be needed to draw that conclusion.

“We have yet to find the common ancestor, so it’s still too early to talk about it,” Ji said.

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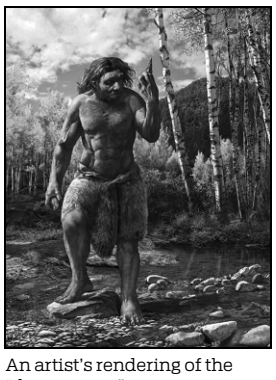

An artist’s rendering of the “dragon man”. CHUANG ZHAO / AFP

Clockwise from top: An aerial view of Chengdu Tianfu International Airport in Chengdu, Sichuan province, earlier this month before its opening; Passengers board the first departing flight, operated by Sichuan Airlines; The first inbound commercial flight at the airport, arriving from Shanghai, receives a water arch welcome on Sunday. YIN GANG, WANG HUAN AND YANG SHU / FOR CHINA DAILY

Chengdu opens its second international airport

By HUANG ZHILING in Chengdu *huangzhiling@chinadaily.com.cn*

The first plane took off from Chengdu Tianfu International Airport in Sichuan province at 11:25 am on Sunday, marking the start of its operations following five years of construction.

The opening of the airport makes Chengdu the third city in China with two international air hubs, following Shanghai and Beijing.

Chengdu Tianfu, in the town of Lujia in Jianyang — a city under the administration of Chengdu, Sichuan’s provincial capital — is 50 kilometers from both downtown Chengdu and Shuangliu International Airport in its suburban Shuangliu district.

Chengdu Tianfu was China’s largest civil transportation airport project during the 13th Five-Year Plan period (2016-20).

With investment exceeding 75 billion yuan ($11.7 billion), its first phase included the construction of three runways and two terminals covering 710,000 square meters — roughly the size of 100 soccer pitches — which can handle 60 million passengers a year.

Over 30 new technologies have been implemented to make the airport an advanced one by international standards, said Wu Ding, a leading official in charge of its construction.

With a length of 4,000 meters and a width of 75 meters, one of the airport’s runways is rated 4F, the highest level, meaning it is capable of handling large civil aircraft like the Airbus A380.

Two flights landed at the airport on Sunday, and six took off, bound for Beijing, Shanghai and Guangzhou, capital of Guangdong province.

The first plane to depart, operated by Sichuan Airlines, had many cartoon pandas on its fuselage. Bound for Beijing Capital International Airport, it carried 262 passengers.

Sichuan is home to most of the world’s giant pandas, which are unique to China.

According to long-term plans, Chengdu Tianfu’s terminals will eventually cover 1.4 million sq m and will be capable of handling 120 million passengers a year.

The opening of the airport could help Chengdu become an integrated international transportation hub linking China with Europe, the Middle East, Central Asia and Southeast Asia.

Shenzhen: City guarantees R&D funding via legislation

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Shenzhen now has 18,650 national high-tech enterprises, four times the number of five years ago, ranking second among cities nationwide. The city’s innovation capabilities in artificial intelligence, gene sequencing, new energy vehicles and drones are already at the forefront globally.

However, although Shenzhen has strong technological innovation capabilities when it comes to applied science, it remains weak when it comes to original innovative ideas, said Wang Weizhong, the city’s Party secretary.

Efforts are underway to change that. Guangming Science City, covering 99 square kilometers on the west side of the city, is expected to be a world-class science center with global influence in the coming decades, according to the Shenzhen government. Constructed in phases, the layout of the facility is expected to be completed by the end of next year.

Shenzhen Bay Laboratory, established in January 2019, has already said it will locate its operations in the science city and is committed to “full chain” research and development in the field of biomedicine — from basic scientific research to market application.

“Shenzhen’s innovative mechanism and abundant investment allow scientists to freely explore areas in basic scientific research,” said Hu Xiaojun, Party secretary of the Shenzhen Bay Laboratory.

Scientists who join the laboratory cannot only choose their own research direction, but also their own teams and equipment and enough research funds.

Huang Kai, who studied overseas, returned to China last year and joined Shenzhen Bay Laboratory. The 33-year-old is engaging in basic scientific research using software to simulate the folding of genes in three-dimensional space as part of biomedical research.

Huang said China still lacks advanced computational biochemistry software. The research and development cycle is long and costly, he said. “This kind of project can only be done in a new type of R&D institution like Shenzhen Bay Laboratory. That is why I chose Shenzhen,” said Huang.

Since 2018, Shenzhen has invested at least 30 percent of its annual scientific and technologic R&D funds in basic scientific research and applied scientific basic research. “Shenzhen now guarantees basic scientific research investment through local legislation, which is its unique advantage,” Hu said.

The legal guarantee for basic research funding was introduced last year, and the city spent more than 4.99 billion yuan on basic scientific research and applied scientific basic research in 2020, which accounted for 42.7 percent of its R&D expenditure.

Basic scientific research funding in China accounts for 6 percent of R&D funding on average. The average figure for developed countries is about 15 percent, Hu added.

There are six National Key Laboratories, four provincial laboratories, 12 basic research institutions and 2,700 innovative organizations in Shenzhen.

In 2020, Shenzhen had 20,200 international patent applications, 1.5 times that of 2015, ranking first among major Chinese cities for 17 consecutive years.

To promote scientific research, the city has established an innovation chain, which consists of basic scientific research, technological innovation, industrialization, and financial and talent support, said Xiao Yong, an official from the local development and reform commission.

“For the past 40 years, talented people have been the first resource to create miracles in the city. And the talent strategy is the core strategy of Shenzhen’s development,” said Wang, Party secretary of Shenzhen.

The city estimates it now has nearly 18,000 people with high-level talents, and more than 150,000 talented people from overseas.

Shenzhen has established a 10-billion-yuan fund to attract and support talented people and entrepreneurs. The city’s 14th Five-Year Plan (2021-25) projects the local economy will reach 4 trillion yuan by the end of the period, up from 2.8 trillion yuan in 2020.

What they say

Editor's Note: *China has grown into a nation with advanced agricultural technologies and a secure grain harvest thanks to generations of endeavor. The Publicity Department of the Communist Party of China Central Committee invited five representatives from the agricultural sector to share their stories on Friday.*

China has had a good grain harvest this summer. We were very excited to hear the news and feel deeply that the harvest was hard-won. Technical support contributed a lot to the harvest. Lots of agronomists and technicians went to production areas and provided technical guidance and training about seed use, soil fertilizers, plant protection and agricultural machinery. The overall wheat planting area increased by more than 200,000 hectares this year, resulting in increased grain production. At the same time, Chinese scientists are expected to apply scientific research and technological achievements to prevent and control pests in Southeast Asia and other countries, and make contributions to global plant protection and food security.

Wu Kongming, *vice-president of the Chinese Academy of Agricultural Sciences*

As a farmer, I’m happiest when seeing a good grain harvest and increased income. Due to heavy rains in Heilongjiang province this year, seedlings faced great challenges. Party members rushed to drain water, and they helped improve seeding efficiency by using large earthmoving machinery. Despite heavy rains and the short spring sowing, we did not have to delay farming operations. We used organic fertilizers rather than chemical ones, and reduced the use of pesticides. The rice is growing well at present, and I can say that this year is another good year.

Li Yucheng, *head of an agricultural machinery cooperative in Huachuan county, Heilongjiang province*

During the COVID-19 epidemic, we were not overwhelmed by marketing difficulties. Instead, the sales volume was even more impressive than previous years. We found opportunities on short-video platforms. As long as farmers have smartphones, the market is open for them. Moreover, we also benefited from the advanced logistics system in our country. Once you have an order, the products can be transported to as far as the Xinjiang Uygur and the Tibet autonomous regions. Meanwhile, agricultural products can be directly sold by farmers to consumers without intermediate processes and price differences. I can get payment within seven days.

Wu Yunbo, *head of a cattle-raising cooperative in Tongliao, Inner Mongolia autonomous region*

The appearance of the countryside has changed a lot. As a grassroots official, I think rural areas in China will be more beautiful if public services, education and medical care are further improved. The picturesque countryside in my mind is expected to be “villages are in the garden, houses hide in the scenery and people live in the picture”.

Li Yufang, *deputy head of Yongshun county, Hunan province*

In order to plant walnut trees on barren hills and turn them into walnut orchards, we named our company Lyuling (green hills) when the company was first established and vowed to turn barren hills into green hills. Later, we developed new walnut varieties with excellent traits, naming them the same. Through the promotion of new walnut varieties, walnut trees were planted on more barren hills. The growing area of walnuts in Lincheng county has reached 13,300 hectares, and the industry has lifted more than 100 villages and 10,000 farmers out of poverty.

Gao Shengfu, *chairman of Hebei Lyuling Fruit Industry in Lincheng county, Hebei province*

ZHAO YIMENG