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China's Balloon Program Combines Commercial and Military Capabilities

Work of a single balloon expert underscores Beijing's objectives



The balloon incident has complicated efforts by the U.S. and China to reset relations.

PHOTO: CHAD FISH/ASSOCIATED PRESS

By *James T. Areddy* [Follow](#) and *Brian Spegele* [Follow](#)

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BEIJING—The recent appearance over the U.S. of a Chinese high-altitude balloon is shedding light on the interplay between China's entrepreneurs, universities and the People's Liberation Army, a fusion of strengths that Washington said is the basis of a spy-balloon program.

The U.S. government alleged this month that a fleet of Chinese surveillance balloons has flown over dozens of countries and several continents. On Feb. 4, a U.S. military jet shot down a Chinese balloon off the South Carolina coast, and Navy divers in the Atlantic have salvaged some of the apparatus that had been sailing over America's midsection.

The incident has complicated efforts by the U.S. and China to reset poor relations.

Last week the U.S. Commerce Department appeared to point to China's bid to more closely bind civilian business activities with the military by blacklisting six companies it accused of contributing to a balloon and airship spying program managed by the People's Liberation Army, which would prevent them from buying certain American technology.

Xi Jinping stressed the fusing of civilian and military endeavors when he described party policy last October.

PHOTO: ANDY WONG/ASSOCIATED PRESS

China's surveillance of U.S. interests takes many forms, including the pilfering of corporate data over the internet and relying on people sympathetic to Beijing in business and academia to use their access in the U.S. to glean intelligence it seeks, according to U.S. authorities and convictions in federal courts of people involved in such activities.

Now attention has shifted to Chinese high-altitude balloons in the midst of U.S. allegations that they have been developed to conduct surveillance from the edge of space. Like other such programs, including the development of a homegrown airliner and its version of a GPS-like satellite-based navigation system, China's balloon endeavors blur the lines between civilian research, profit-oriented businesses and Beijing's military objectives.

“Civil-military fusion,” as China’s government calls it, isn’t wholly new, but it has come into sharper focus for the U.S. during the decadelong leadership of Xi Jinping.

Previously, China relied mostly on often-lumbering state-owned enterprises to supply and equip its military. But under Mr. Xi, the government has increasingly sought to break down barriers between private businesses and the military’s needs. It has provided fresh incentives for more-nimble companies to align themselves with political priorities and to cash in on fat state handouts for businesses focused on national-security priorities.

How China’s civilian and military endeavors have fused over balloons is evident in the work of a Beijing academic named Wu Zhe. The 66-year old Communist Party member has held a senior role at an aeronautical institute, founded several private companies to develop balloons and military-grade apparatuses and is listed as an inventor on a range of patents for balloon-related technologies, including some with dual civilian and military applications.

At least four of the six Chinese companies blacklisted by the Commerce Department on Feb. 10 trace management or financial ties to Mr. Wu, according to publicly available business records. Beihang University, an aerospace institute where Mr. Wu has taught and held a senior role, has been sanctioned by the U.S. for more than two decades because of its close ties to the People’s Liberation Army.

To limit chances that American technology could aid the People’s Liberation Army, U.S. sanctions effectively bar American companies from selling certain advanced software and components to China.

In announcing its latest measures, the Commerce Department’s Bureau of Industry and Security alleged that each of the six entities supports the modernization of the PLA’s aerospace programs, including airships and balloons and related materials and components. None of the companies has been publicly accused by the U.S. of participating in the production of the suspected Chinese surveillance balloon.

All but one are private companies, based on publicly available corporate records.

None of the companies has made a comment about the sanctions or responded to efforts to reach them. Mr. Wu didn't respond to requests for comment submitted through one of the newly blacklisted firms, Eagles Men Aviation Science & Technology Group Co., which he founded.

China's Foreign Ministry said the U.S. has overreacted to what it has described as a meteorological research craft blown off course, and that it "used the incident as an excuse to impose illegal sanctions over Chinese companies and institutions," as Foreign Ministry spokesman Wang Wenbin put it Wednesday. The ministry has claimed that debris from the downed balloon is Chinese property, but its officials haven't responded to questions about the craft's owner or mission. The ministry didn't respond to questions about Mr. Wu, nor did China's Defense Ministry.

Overlap between military and industrial pursuits is prevalent across the world, including in the U.S., where commercial weapon-systems makers supply the Pentagon. The U.S. government's military budget gives it influence over American institutions and companies that participate in military-related business, but Washington isn't generally thought to direct them to the extent that is possible in China's top-down governance system.

Beihang University has been sanctioned by the U.S. on its ties to the People's Liberation Army.

PHOTO: REN CHAO/ XINHUA/ZUMA PRESS

A characteristic of the great-power competition emerging between the U.S. and China is the deployment by each of commercial know-how, but a difference is how Beijing also uses enterprises “as a gray-zone cover for a lot of their military activity,” said Greg Levesque, chief executive of the Salt Lake City-based risk-analysis firm Strider Technologies Inc. It counts during Mr. Xi's term the formation of thousands of what Mr. Levesque calls PLA front companies.

U.S. security officials said that it can be hard to know whether Beijing holds sway over a company even when it is privately held, in turn making it more difficult to enforce sanctions and export controls that are aimed at the Chinese state.

Eagles Men Aviation Science & Technology, or Emast, has described Mr. Wu on its website as the company's founder as well as a former member of a science-and-technology committee for the General Armaments Department of the PLA.

Emast claims a specialty in producing stealth aircraft equipment and inflatable hangars to conceal jet fighters. While its website has been inaccessible in recent days, archived web pages shed some light on its activities.

Mr. Wu's work on balloons extends back years. At Beihang University in 2015, Mr. Wu celebrated the successful launch of a “new type of near-space airship,” referring to the territory above the flight corridors of airliners.

“This is the world's first successful test flight of a near-space airship with continuous power, controllable flight and reusable capabilities,” read an account of the project by the official People's Daily newspaper.

Mr. Wu led an even more ambitious effort in 2019. In an interview with Chinese media that year, Mr. Wu described the development and test of a multiton airship, known as Cloud Chaser, which measured 100 meters, the equivalent of 328 feet, and had cruised through the stratosphere over North America, Africa and Asia.

“This is the first time an aerodynamically controlled stratospheric airship has flown around the world at an altitude of 20,000 meters,” or more than 60,000 feet. Mr. Wu was quoted as saying

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Mr. Wu's name also surfaces in business filings relating to Beijing Nanjiang Aerospace Technology Co., another of the U.S.-blacklisted companies. The records show how shortly after he set up Nanjiang in 2015, with financial backing from a Shanghai-listed real-estate company, the company pursued and flew at least one test flight for a "near-space vehicle," the designation for balloons and airships that ply the stratosphere.

Later in 2019, Nanjiang announced it was discontinuing the near-space vehicle-development efforts.

Some of Mr. Wu's activities were reported earlier by the New York Times and an online publication, the Wire China.

In setting out party policy for the next five years in October, Mr. Xi stressed his fusion goals: "We will better coordinate strategies and plans, align policies and systems, and share resources and production factors between the military and civilian sectors," he told fellow party leaders.

Repeated notices from the State Department in recent years have highlighted civilian-military fusion in China, including one from 2020 that said Mr. Xi personally oversees a party strategy that "is systematically reorganizing the Chinese science and technology enterprise to ensure that new innovations simultaneously advance economic and military development." It said target sectors include dual-use technology in quantum and big-data computing, semiconductors, 5G telecommunications and artificial intelligence, plus nuclear and aerospace technologies.

Money backs up China's strategy, including "civil-military-fusion" investment funds that publicly available corporate records show have flowed into some of the companies recently sanctioned by the Commerce Department. Several such funds have taken stakes in Emast, for example, investing alongside Mr. Wu and others, the corporate records show.

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