

The Culture of China's Space Program: A Peking Opera in Space

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Introduction

The Chinese Space Program

China has taken a great leap into space with the successful launches of Shenzhou V and VI, recent developments and applications in space technologies, and expansion of the domestic and international space industry. As China's space program evolves into a civilian endeavor, a unique Chinese space culture is emerging. This paper will apply the futures theory of Causal Layered Analysis (CLA) to the culture of China's space program.

Causal Layered Analysis

When Sohail Inayatullah created CLA as a new tool in futures studies, he created a way to conduct deep analysis of the past and present in order to lay a foundation for alternative futures. CLA looks at the way one frames an issue and how that may affect solutions at hand. This futures method distinguishes between different ways of seeing the world. It is in this regard that China's space culture can be truly understood.

CLA uses four methods, or layers,

from which to view China's space program. The first layer, litany, describes the problems and issues to be addressed. In this paper, a litany of questions and issues are presented such as why China wants to go into space and why there is an increase in fears from the United States (US) of a rising China. The second layer, social causes, begins to delve into superficial analysis of the issue. At this level, social, economic, political, and historical factors surrounding China's space program are addressed. The third layer is that of discourse. Here, deeper social, linguistic, and cultural structures are analyzed to better understand the meaning behind the space program. The last layer, that of myths and metaphors, looks even deeper into China's collective archetypes and visual images.

Litany and the Chinese Space Program

China has a unique culture in their space program. Just as the National Aeronautics and Space Administration (NASA) has its own distinct culture, so too

does the China National Space Administration (CNSA). Yet, it would be erroneous to presume Chinese space culture is remotely similar to that of the United States.¹

There is a litany of serious concerns by the United States about China's space program. Fears of a rising China (even though, in this author's opinion, China arguably has already risen), concerns of Chinese nationalism turning into militarism or even fascism, worries of China becoming a regional hegemon, and "Chinaism" threatening the regional peace and stability in East Asia all are familiar litanies.

Questions often asked by Americans are why does China want to go into space? Why is China yet to increase transparency for its space program? What experiments are being conducted on the Shenzhou VI module currently orbiting Earth? What are China's plans for lunar exploration? etc. Is their lack of forthcoming a sign that there are military goals to the civilian space missions? Since China does not clarify the above questions, the United States is left to presume the worst-case scenario. In the space arena, this would mean presuming China is exploring anti-satellite weapons (ASATs) such as ground-based lasers to target foreign space assets and/or parasite satellites.

Social Causes and the Chinese Space Program

Deeper analysis can then evolve when we move from litany to the second layer of CLA involving a more effective analysis of the social

causes influencing China's space program. Multiple variables of culture are considered in order to try and understand why the Chinese are doing what they do in space.

When looking at the culture of China's space program, a pattern appears which defines different stages of cultural influences in China's recent history. China moved from a newborn state focused on national identity and pride, to one focused on political correctness as defined by the Communist Party, then to a nation fixated on economic endeavors, and most recently, again focused on national identity and cultural heritage.

By seeing the stages of China's space culture emerge over time, it is then possible to address how much influence culture has on the space program and how much influence the space program has on Chinese culture.

Chinese Cultural Influences

With the founding of the People's Republic of China (PRC) on 1 October 1949, Chinese national identity, and with it national pride, was awakened. In Tiananmen Square, Mao Zedong declared that the Chinese people had stood up, thus paving the way for pride in Chinese national identity to emerge. As illustrated in the below poster, this was a flourishing time for China's space program.²

This famous poster, created during a thriving time in China, encompasses the culture of the early 1950s. The child, representing a vision of China's future, is wearing a red star on his hat to symbolize the

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Red Army which was the foundation for establishing the People's Republic. The clear helmet indicates China's desire to pursue space activities. And, the monkey to the left is based on a Chinese legend about the Monkey King. It is interesting to note that the Monkey King stands next to the child because only a few years later such ancient symbols of China would be banned from society during the Cultural Revolution.

As China progressed at lightening speed, so too did the political currents rapidly shift. The period of 1960-1965 was marked by extreme political power held by Mao Zedong. The fledgling space program flourished, with guidance from the Soviets, and great strides were made in developing the Long March (Chang Zheng 长征) rocket.

The rocket is named after a very famous event in China's politico-military history. In 1934, the Red Army, consisting of Mao Zedong, Zhou Enlai, Deng Xiaoping, Zhu De, Peng Dehuai, and 86,000 followers, was being pursued by over 300,000 Guomindang military forces. Forced to flee on 16 October 1934, the army left Jiangxi Province and endured terrible hardships including multiple battles with the Guomindang, freezing weather during the mountain crossings, and exhaustion. Just over one year later, on 20 October 1935, the Red Army arrived in Shaanxi Province. Only 4,000 men survived. However, the Red Army had accomplished the great feat of covering 6,000 miles to arrive to safety. Because the Chinese people hold such solemnity and remembrance for the people who endured

the Long March, it is with great pride that the space program named their first rocket after the event. The Long March rocket embodies the culture of politics of this time.

Unfortunately, the Chinese sense of national identity and pride evolved into a sense of fanaticism as Maoism reached its peak. The period from 1965-1975, known as the Great Proletariat Cultural Revolution (Wenhua Da Geming 文化大革命), was a very dark period in the PRC's short history. The space program chugged on despite the chaotic political times when intellectuals, scientists, and engineers were persecuted, the country's educational system was shut down, and anything foreign was considered evil. Interestingly enough, most of the space program personnel avoided persecution, at least for a while. In 1969, work on the first heavy lift rocket began and culminated in the first launch in 1972. The heavy lift rocket was named the Storm (Feng Bao 风暴) most likely by the Gang of Four who not only controlled the space program at that time, but also controlled the political system of China.³ The name signifies a political storm which was representative of the culture during this period in China's history.

Another great feat in China's space program occurred on 24 April 1970 when the first satellite was launched into orbit. The satellite platform was named the East is Red (Dong Fang Hong 东方红). The name has its roots with a very popular song of the Cultural Revolution. The lyrics demonstrate how central Mao Zedong and the Communist

Party were to common people's daily lives during this time.

*"The East is red, the sun has risen, China has made a Mao Zedong. He creates fortune for the people, Hu er hai yue, he's the savior of them all! Chairman Mao loves the people, He is our guiding leader, For developing a New China, Hu er hai yue, leading towards progress! The Communist Party is like the sun, It brightens up everything it shines. Where there is the Communist Party, Hu er hai yue, people are liberated!"*⁴

This song exemplifies how the culture of politics permeated everything during the Cultural Revolution.

ShuGuang-1(曙光-1) Manned Space Program

The culture of politics in the space program is best illustrated by China's first manned space program. As early as 1966, plans were discussed to establish a manned space program. A trial flight was scheduled for the same year with a monkey onboard.⁵

With Mao's approval, the first astronauts were selected and a training facility was built. The man in charge of selecting the astronauts, Guo Rumao, reviewed Soviet and American methodologies and chose to select fighter pilots for the pool. He also added political correctness as a qualifying requirement. Here is a good example of how the Chinese incorporated Soviet and American selection requirements yet added the cultural characteristic of political correctness. From 1,000 candidates, 19

were selected to be trained. Although the manned space program, called ShuGuang-1, had Mao Zedong's approval, the project faced several problems. The main problem was that the Red Guard persecuted and killed several scientists and engineers in the program. The second problem was that the project ran out of funds. Therefore, due to the tumultuous times of the Cultural Revolution and the lack of money, in December 1980, the manned space program officially was cancelled.⁶

Fortunately, the Cultural Revolution ended and China took on a more pragmatic approach to politics. Under the new leadership of Deng Xiaoping, the Four Modernizations was launched which stressed modernizing agriculture, industry, science and technology, and the military. Commerce began to take off, and crash, and take off again. Businesses were newly created and China opened up to the world. In the 1980s, Chinese culture was greatly influenced by a new economy-based society. People in the space community began to see space as an opportunity for exploiting resources and gaining economic advantages.

In 1988, China and Brazil agreed to form the China-Brazil Earth Resources Satellite project (CBERS). CBERS is a good example of the cultural acceptance of China toward foreign business ventures. The CBERS project is called "Resources" in Chinese (Ziyuan 资源). The lack of creativity in the name exemplifies China's cultural personality during this timeframe. During the 1980s, China was absorbed with making

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money, creating businesses, and overall growth of the national economy. Economic influences made a great impression on Chinese culture.

China rode an economic wave throughout the 1980s. And, it was not until the 1990s that Chinese culture began to once again shift as reflected in the space program. For example, in April 1992, China's second manned space program was launched. In March 1995, China and Russia signed an agreement for technological assistance which included the training of Chinese taikonauts. The first launch was scheduled for 1 October 1999 on the anniversary of the founding of the People's Republic. On that day, President Jiang Zemin named the spacecraft Shenzhou-1 (神舟-1), although the launch was postponed until 19 November.

Shenzhou has two meanings. The first is "Divine Boat" or "Spiritual Boat." The second meaning comes from an ancient name for China, and has the same phonetic sound, although the Chinese character for "zhou" is different.

The Long March rocket that carried the Shenzhou capsule into space was renamed Shenjian (神箭), or "Miracle Arrow."⁷ Jiang Zemin handwrote the characters which were transposed onto the side of the rocket body.⁸ The Shenjian name has origins from "huojian" (火箭), the name of an ancient rocket from China, which was made of a long arrow with a small container of gunpowder attached to the back of the arrow and lit for launch.

The naming of the capsule and rocket for China's manned space program indicates a cultural sensitivity to China's ancient history which was banned during the Cultural Revolution. Also, it indicates a reemergence of Chinese national pride which was once so prevalent in the early 1950s shortly after the founding of the People's Republic. However, this reemergence of national pride seems to have taken on a different form than what was prevailing in the early 1950s, i.e. from nationalistic pride to historical pride.

Another example of this reemergence of cultural identity linked with China's ancient history can be seen with the naming of the Beidou (北斗) Navigation Satellite named after the Big Dipper. The three satellite constellation works off of the US Global Positioning System. The Chinese astronomical constellations system varies widely from that of the western world. Here, the Chinese chose to use a name of a constellation which loosely translates as "North Container."⁹ Thus, national heritage is preserved and the term Big Dipper is only used in English.

Another example is the naming of a mock-up satellite which was used in place of the Dong Fang Hong-3 on a Long March-3A. The mock-up satellite is called "Kua Fu Chases the Sun" (夸父追日). In ancient times, a man named Kua Fu chased the Sun across the world until he finally died of exhaustion. Where he lay, his body became a mountain, his blood became a river, and his hair became a forest. Oftentimes, Kua Fu is used

as a reference to somebody who cannot obtain his goal. Currently, the mock-up satellite is orbiting the Earth with no purpose.¹⁰

A final example, and perhaps the most telling, is the Chinese name for their lunar program. The Chang'e (嫦娥) Program was revealed in March 2003. The name Chang'e comes from an ancient legend which tells the tale of a beautiful woman. This woman, Chang'e, was married to Houyi who had stolen an immortality elixir. Chang'e secretly drank the potion and began to float up toward the sky. She eventually floated up to the Moon and has resided there ever since forever separated from her husband. This legend is a central story in Chinese culture. Every year, the Chinese celebrate the Moon Festival which is a time when families reunite and the story of Chang'e is remembered.

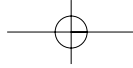
Culture as a Tool of Space or Space as a Tool of Culture?

The case of Yang Liwei (杨利伟) is a good example of space as a tool of culture. Immediately after the Shenzhou V landed on 15 October 2003, Yang Liwei became an instant Chinese hero and symbol of China's future in space. In the three to four months following the successful flight, Yang Liwei was seen everywhere and all the time on the television and on the cover of magazines and newspapers. However, only a short time later, it became very difficult to find a picture of Yang Liwei. Why did he suddenly vanish from the spotlight?

During the Cultural Revolution, Mao Zedong's picture was posted

everywhere such as on walls, money, and buttons. His poetry was read every night and became a mandatory part of the educational curriculum. Anything Mao came to do or say was taken as mandated from heaven. The deification of Mao continued throughout the Cultural Revolution and did not end until his death in 1976. Once the Cultural Revolution ended and the Chinese people began to see the insanity of the time, the deification of Mao faded away. So culturally deep is this fear of another deification of a national hero that Yang Liwei's image was not carried on the news, magazines, posters, or newspapers after the first four months.^{11, 12}

Another example of culture influencing the Chinese space program is China's endeavors in remote sensing for Earth observation. The Chinese government is very concerned with preventing natural disasters. In China's history, when a natural disaster occurs, such as floods or drought, and millions of people die, the population has viewed such a natural act as a sign from the heavens that the emperor's reign has come to an end and that the people have a duty to revolt and overthrow the government. The history is viewed as cyclical so that when one dynasty ends, another one rises to power until the next sign indicates the end to that dynasty. This belief is so ingrained in Chinese culture that when Mao Zedong died in September 1976, people noted that the Tangshan earthquake two months earlier, which resulted in almost 250,000 deaths, had been a sign of a change



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in regime. Therefore, in addition to the government's strong desire to prevent natural catastrophes from occurring, the Chinese government's strong support of Earth observation using remote sensing also may have cultural significance.

On the flip side of the coin, the space program has very effectively used Chinese culture as a tool to educate people about space, to give the people a "space identity," and to help legitimize the government's space endeavors.

China's space program uses educational methods similar to those used by NASA. Such outreach programs include visits to elementary schools, the parading of Chinese taikonauts Yang Liwei, Fei Junlong, and Nie Haisheng, and positive-spin media attention. Chinese culture has allowed the people to identify with the space program which otherwise is far removed from their daily lives. Through the exploitation of China's national identity and pride as a space-faring nation, the Chinese can now put themselves in the same special category as the United States and Russia. Even though China has had space capabilities for decades, the people did not feel equal to America or Russia. The launching of Yang Liwei into orbit proved to be a main event which paved the way for Chinese people to think of themselves as a true space-faring nation. The divide between the rich and the poor is culturally minimized because all Chinese people can share in the success of the manned space flights.

The government also has successfully convinced the Chinese

people of the great economic advantages of having a space program. "Social and economic benefits" is an often used phrase within China's space white paper. Direct economic benefits are not as far-reaching to the public as is the hype. Therefore, the space program has very successfully used national identity and pride as a cultural tool to gain popular support.

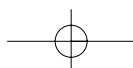
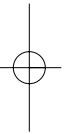
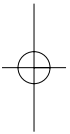
Therefore, an amalgamation of China's culture influencing its space program and vice-versa appears to be taking shape. From the Shenzhou being placed in a museum to Yang Liwei's space suit on display, Chinese people are identifying with the space program on a cultural level and, at the same time, Chinese culture is helping shape the growing space program.

Discourse and the Chinese Space Program

Sohail Inayatullah's third layer, discourse, aids in understanding China's space program by discovering the cultural structure that supports it. By looking at how deep cultural structures exist within the space program, one can explore how these structures cause, influence, and even constitute the space program. Here, we will look at a unique blend of Chinese and Western cultures within the Chinese space program.

From Dichotomies to Dialectics

While oftentimes the United States points out ostensible contradictions and inconsistencies within the Chinese space program, to the



Chinese these are normal cultural aspects that the United States fails to understand. For example, it is hard for Americans to understand how Yang Liwei could fly the United Nations flag while orbiting the Earth and, immediately upon landing, exclaim what a proud day it was for the People's Liberation Army. Also, while the manned space missions are purported to be shrouded in secrecy, the Chinese space program used both flights for advertising opportunities, such as marketing the Dislin cup, airing commercial television advertisements, and displaying the Shanghai 2010 World Expo flag onboard.¹³

As another example, on 12 October 2005 in the United Nations General Assembly, the Chinese supported an initiative to ensure space is used solely for peaceful purposes. And, on 3 November 2005, China and Russia called upon the international community to draw up relevant international legal instruments to prevent the weaponization of outer space. However, the United States maintains suspicions of China conducting research and development in the field of ASATs.

Despite these seeming dichotomies, there exists a balance within China's actions in the space arena. The roots of this balance come from the Yi Jing (Book of Changes) and Confucianism.

The Yi Jing explains the dynamic balance of opposites. The mythical character, Fu Xi, is credited with writing the eight trigrams which constitute the heart of the Yi Jing. The book explains how all things are in constant flux and how there is a har-

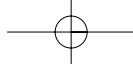
monious order in the world. There is flux and equilibrium at the same time. And, because there is equilibrium amongst things which are in constant flux, an interrelationship of events and things in the world is revealed.

This concept of interrelationship ties in with Confucianism. Through the writings of Confucius' student, Mencius, we can see the teachings of Confucius who himself did not write down any of his lessons. Confucianism complements Yi Jing principles and expands upon the place of men in the world. All people are interrelated, thus all exist within an order, or hierarchy, of relationships. So long as the hierarchy is abided, there exists harmony. However, since people exist in a state of constant flux, that hierarchy is fluid.

To illustrate, an ancient story about a man who sought to sell his sword and shield stated that the sword could penetrate anything and that the shield could prevent anything from penetrating it. The story ends with the question: "What would happen if the spear were used to pierce the shield?" This dialectic story exemplifies how the Chinese can culturally come to terms with what to Americans seems a contradiction.

The Manned Space Program

When it comes to China's manned space program, China seems to have a split personality. In some statements, Chinese officials claim that the Shenzhou V and VI are glorious successes for the Chinese people and that they should hold high the banner of national pride. In



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other statements, Chinese officials downplay the successes and respond to the flights with great humility by claiming that China's space program is 20 years behind that of the United States. It is confusing to Americans why the official mouthpieces for the manned space program would exude both pride and humility about the successes of the space program. To the Chinese, there is no dichotomy. It is culturally explained by looking at the Yi Jing and Confucian principles of dialectics, flux, and hierarchy.

Indigenous or Foreign-Built Space Program?

The ancient Chinese were the inventors of gun powder, paper, the compass, astronomy, calendars, clocks, forensic medicine, etc. The Chinese technological innovators also devised ways to disseminate inventions they discovered by writing the world's first handbooks and encyclopedias. Then, in modern Chinese history, the innovation seemed to stop.

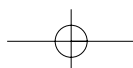
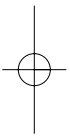
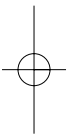
During the fall of the Qing Dynasty and occupation by foreign states, the intelligentsia of the time launched a reform, known as the Self-Strengthening Movement, by which China would adopt Western technologies in order to deal with foreign states on equal footing. However, the reform did not consider adopting foreign practices along with the technological advances. Part of the reform movement did call for corrupt Chinese officials to inwardly seek restoration of innate goodwill (Ren 仁), which was based on Confucian teachings. In seeing

how the Qing Dynasty was inept at standing up to foreign states, the intelligentsia assumed that there must be a lack of virtue within its own leadership. Thus, cultivating the mind was the solution and learning from the strengths of the foreigners was rejected. The Self-Strengthening Movement failed.

Nevertheless, the debate over whether to incorporate foreign technology continued throughout the decades. Some of the intelligentsia, led by Feng Guifeng, wanted to adopt foreign technologies while retaining Chinese Confucian values. Other members of the intelligentsia, such as Yan Fu, proposed accepting foreign technology along with their systems of management and governance, i.e. adopting both explicit technologies along with tacit technologies, since the two could not be separated.

In order "to accomplish modernization of a Chinese type," on 30 June 1984, Deng Xiaoping stated that China should "welcome foreign investment and advanced techniques." China once again seemed to support a dichotomous policy toward science and technology, i.e. borrowing technology from foreign states while preserving Chinese characteristics. China continued to adopt foreign technologies while trying to avoid adopting foreign practices, management techniques, and any other foreign influences.

It is due to this struggle to find a suitable balance to adopting foreign technology that the Chinese space program can justify folding so much Russian technology into the manned space program, altering or reverse-



engineering it, and then claiming it as indigenous technology. The Chinese people subsequently are able to indulge in national pride for accomplishments in space.

Myth and the Chinese Space Program

Myths and metaphors, Sohail Inayatullah's fourth layer of analysis, consist of deep stories, collective archetypes, and emotional experiences of the world. Myths allow for reality to be negotiated and truth to become less important. Because differences in language, history, and culture abound between China and the United States, it is important to be sensitive to China's space culture in order to understand how the space program may act as a vehicle by which Chinese people view themselves. Then, the United States will be better equipped to work with China by understanding how its space culture has affected China's concept of their place in relation to the rest of the world. Although initially there seems to be little room for myth to take place within the scientific realms of the space program, myth has seeped in.

The Story of PanGu (盘古)

In the beginning, everything was in a state of chaos. Then, PanGu was born. As PanGu stretched, light rose to the sky (Yang 陽) and darkness sank to the Earth (Yin 陰). Every day, the sky rose ten feet higher, the Earth grew ten feet thicker, and PanGu grew ten feet taller. This took place over 8,000 years.

When PanGu died, his left eye

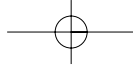
became the Moon, his right eye became the Sun, and PanGu's hair became the stars. On Earth, PanGu's breath became the wind and clouds, his voice became thunder, his arms and legs became the four poles of the Earth, and the lice and scabies on PanGu's body became men.

The PanGu myth exemplifies patience which is continuously stressed in Chinese culture as a concept the Chinese people must cultivate. PanGu took a long time to create the universe. The Chinese space program has taken a long time to get to its current advanced stage. And, the space program will continue to develop at a deliberately cautious pace.

The Myth of the Monkey King (孫悟空)

Monkey sought to discover the secret of immortality.¹⁴ He would not study or cultivate his mind as he was very anxious to become immortal. So, Monkey cleverly arranged to be invited to a banquet in the Heavenly Kingdom. As soon as he discovered that immortality came from peaches laid out at the banquet, the incorrigible Monkey stole them and began eating them as fast as he could before the others could stop him. Buddha was called to help restrain Monkey. Buddha challenged Monkey to jump to the end of the heavens. Monkey did so and wrote "Monkey was here" on a pillar. Upon jumping back, Monkey discovered that the pillar had been a finger on Buddha's hand. Monkey could not even jump out of Buddha's palm. He was imprisoned for a long time.

In contrast to the myth of PanGu,



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the story of the Monkey King is one of pride and impatience. Monkey was taught a painful lesson by Buddha in humility and patience. However, Monkey remains the most popular mythical character in China. His bad behavior is chalked up to mischievousness.

Monkey as an archetype in Chinese mythology represents a mischievous, unruly character, yet Monkey is highly revered by the Chinese people. Reflecting the culture of myth into the space program, taikonaut Yang Liwei, like the Monkey King, has been described as possessing a "cool mind" and "exhibiting acts of bravery." Yang's mother stated that her son's success largely was due to his self-confidence. Just like Monkey, Yang's self-assuredness helped him overcome many obstacles. Yang's mother attributed her son as being very creative, resourceful, and curious. When Yang was a boy, he snuck away to the railway station to settle his curiosity over the length of a train.

Just as Yang sometimes is described as a mischief-maker in his youth, his son too has been described as a "clever and sometimes naughty" boy. And, Shenzhou VI taikonaut Fei Junlong has been described as extroverted, prideful, daring, and cheerful. Fei strived to join the astronaut training program out of a "young guy's curiosity." Elements of the Monkey King archetype, which may be considered negative characteristics in America, are lauded in China's taikonauts.

The Myth of Chang'e

Just as Monkey stole the peaches of immortality from the banquet table, Chang'e stole an elixir of immortality from her sleeping husband, who himself had stolen the elixir. While both the Monkey King and Chang'e are perhaps the two most revered characters in Chinese mythology, both committed robbery. In the case of Chang'e, she paid dearly for her crime. The elixir made her immortal yet she was forever separated from her husband and doomed to live up in the Moon.

Today, the greatest obstacle to normal Sino-US space relations is fallout from the 1999 Cox Report. After US companies Hughes and Loral inappropriately supplied China Great Wall Industries Corporation with missile technology to improve their rocket launches, an investigation was launched. Accusations of espionage were formally presented in the Cox Report and sanctions were implemented.

While the topic of stealing is very sensitive to bilateral relations, it is an important one to discuss because it remains the number one issue China and the United States need to work through before normal space relations can commence. By understanding mythical representations of stealing in Chinese history, perhaps US negotiators will be better equipped to relate to how the Chinese side views the questionable missile technology acquisition by China. Then Americans can work with their Chinese counterparts to prevent future misunderstandings, understand the other side's perspectives, and then move forward in the

space arena. It is in this regard that China's myths create a distinction in China's space culture.

Conclusion

By applying Causal Layered Analysis to China's space culture, we can begin to see the multi-layered complexities of the Chinese space program and how culture is incorporated into it. From here, better understanding, communication, analysis, and decision-making concerning China's space plans and motivations can be made.

The Chinese space program is rapidly advancing. The Chinese professionals of the space program are reaching toward the Moon and eventually toward Mars. With them, they bring Chinese culture which will permeate all aspects of space activities as it is impossible to separate technology from culture. Therefore, it is critical that the United States recognize and identify Chinese space culture in order to be able to partner with the Chinese in space in the near future.

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Notes

1. In this paper, culture is defined in the broadest sense to include political, economic, social, historical, ethnic, and military cultures of China.
2. Picture obtained from Stephan Landsberger, "Chinese Space Program." <http://www.iisg.nl/~landsberger/csp.html>.
3. *Encyclopedia Astronautica*, s.v. "FB-1," <http://www.astronautix.com/lvs/fb1.htm>.
4. Song lyrics quoted from Famous Chinese.com, "The East is Red," http://www.famouschinese.com/virtual/The_East_Is_Red.
5. It is interesting to note that the Chinese planned to launch a monkey. In the 1950s, the Soviets had used dogs. In the early 1960s, the French had launched the first rats into space. And, during the same time, the Americans were launching monkeys into space. Could this be an example of American cultural influence in the Chinese space program? Or, is it an acknowledgement of China's own ancient culture via the story of the Monkey King?
6. *Encyclopedia Astronautica*, s.v. "Shuguang-1," <http://www.astronautix.com/craft/shuugang1.htm>.
7. Picture obtained from Progressive Exchange, "China to Launch Second Manned Space Mission in 2005: Report," <http://www.progressiveexchange.com/content/view/612>
8. Vice Director for the Systems Design Institute of the China Academy of Launch Vehicle Technology, interview by author, July 2005.
9. Microsatellite Engineer for the Dong Fang Hong Satellite Company, Ltd., interview by author, July 2005.

10. Vice Director for the Systems Design Institute of the China Academy of Launch Vehicle Technology, interview by author, July 2005.
 11. Engineer for the Institute of Space Medico-Engineering, interview by author, July 2005.
 12. Picture obtained from Xinhua Net, "Arrivée à Beijing du Heros Spatial Yang Liwei." <http://www.french.xinhuanet.com/html/10161412531.htm>
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