

Shamelessness Shouldn't Be Anyone's Nature

—An Open Letter to *Nature* (Part XXXII)

Xin Ge, Ph. D.

Columbia, SC, USA

The Fangansters (II): He Zuoxiu, a Shameless Party Man (I)

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Among the Yuists, He Zuoxiu is the most "outstanding" person: he is Yu's first hand-picked protégé; he is the only Yuist who has become not only a scientist, but also an academician. Consequently, Mr. He is The most notorious scientist in China, being scolded and cursed by millions of Chinese people constantly in the last dozen years. Of course, He has been Fang's strongest and most active and vocal backer, proclaiming explicitly and publicly that he "always supports Fang Zhouzi." Fang Zhouzi, on the other hand, has been He's most loyal and courageous defender, and in 2005 alone, Fang published 3 articles in a newspaper to defend him, specifically. In January 2013, just a couple of months after receiving his John Maddox Prize for "standing up for science," Fang Zhouzi awarded He Zuoxiu the inaugural New Threads Scientific Spirit Prize, valued at 10,000 Swiss Franc, five times more than what Fang received from the British^[1].



Currency exchange

On January 13, 2013, Fang Zhouzi awarded He Zuoxiu the New Threads Scientific Spirit Prize. Although the prize had a relatively high monetary value, it was ignored by almost all Chinese news media, until Kaifeng.com, an anti-evil cult website controlled by Chinese national security agency, and to which both Fang and He have secret ties, reported the news. (Source of the photo: [吴兴川, 2013年1月13日14:25.](#))



The award Schemes

Two months after receiving the British inaugural John Maddox Prize (top left), Fang awarded his mentor/boss He Zuoxiu the inaugural New Threads Scientific Spirit Prize (top right). In 2013, Fang bought himself two more “Pheasant Awards,” one was “The Cliff Robertson Sentinel Award” (lower left) by a commercial organization based in a residential building at [716 West Ave. Austin, TX 78701](#), named Association of Certified Fraud Examiners^[2]; and the other was “The Lattitude Integrity Award” (lower right),

from a pharmaceutical company located at 6364 Ferris Square, San Diego, CA 92121, called Latitude Pharmaceuticals Inc., which is founded and operated by Fang's followers^[3].

So, why would He, a Marxist physicist, "always support" Fang? And why would Fang, a GMO promoter hired by a U. S. biotech firm, always defend He? Who is He? In the following few parts of this serial Open Letter to Nature, I will answer these questions.

An Underground Communist from a Dilapidated Family

1. Deep Background

According to his own words, He was born in 1927 in Shanghai to a big family:

"My great-great-grandfather He Jun was a member of Imperial Academy, and his highest position was the head of the logistics department in Li Hongzhang's Huai Army. Because of his excellent performance in quelling the Taiping Rebellion, he asked for an official job for his child during the reward process. With his blessing, my great grandfather He Zhidao became an official at an early age of 20 years old, and he had held the positions of salt commissioner, attorney general, intendant, and additional position of supervisor of Hankow Custom, all of them were the so called lucrative jobs."^[4]

Apparently, He Zhidao had accumulated enough wealth during his bureaucrat career that he retired at the age of 49, and built his residence called He's Garden (何园), which is still one of the major tourist attractions in Yangzhou, Jiangsu Province. So, why did He Zhidao retire so young? Here is He Zuoxiu's explanation:

"My great grandfather tried his best to uphold the sovereignty and dignity of the state when he was dealing with foreign affairs as the supervisor of Hankow Custom, and he treated the foreigners with a tough and stern attitude, while his bosses were scared of the foreigners. He had a heart to serve the country but in vain, and facing the corruption and the incompetency of the Qing government, he angrily retired from his official life."^[5]

Please note that there is absolutely no evidence, direct or indirect, to substantiate He's story, which was originally told by one of He Zuoxiu's uncles in his deathbed^[6]. We do know, however, that based on He Zhidao's salary from the Qing Government, he could absolutely not afford the cost of building He's Garden^[7].

He's Garden occupies an area of more than 3 acres, the gross floor area is about 80 thousand square feet, and the corridor under the roof is about 1 mile long. However, He Zuoxiu has never had the chance to spend a night in the garden. In early 1900s, He Zhidao moved his family to Shanghai:

"My great grandfather lived in He's Garden for 18 years. He could have enjoyed his whole life there with wine and poetry. However, in 1900, the Eight-Nation Alliance invaded China; the Qing government was defeated, signed the Boxer Protocol, and paid an indemnity of 450 million taels of silver, equivalent to one tael per Chinese. He felt that China was going to be subjugated, and he was not going to disregard the fate of the country and the nation. Deeply influenced by the Westernization Group, my great grandfather, at the age of nearly 70 years old, made a gutsy decision: retirement no more! He gave up his garden, led his descendants with a huge fund to Shanghai to engage in industrial undertaking in 1901, determined to revitalize the national economy, and save China by industrialization."^[8]

Unfortunately, He Zhidao's plan didn't work out as he wished; instead, his wealth disappeared almost completely due to "the ignorance of western laws and was cheated by Jewish businessman Silas Aaron Hardoon."^[9]

After the business failure, He Zhidao made another decision: sent his grandsons to the West to study: three of his grandsons received advanced degrees from the universities in the United States: He Shizhen (何世楨) and He Shimei (何世枚) received their law degrees from the University of Michigan, and He Shijie (何世傑), He Zuoxiu's father, received his doctorate in engineering from Cornell University. However, He Zuoxiu's father died of typhoid shortly after his returning to China, so He Zuoxiu's mother had to work as a clerk to support her family.



A feudal bureaucrat and his revolutionary descendant

Left: He Zuoxiu's great grandfather He Zhidao (1835-1909); Right: He Zuoxiu at the He's Garden in 1999^[10].



Old brothers and old garden

In April 2013, He's Garden celebrated its 130th birthday. Nearly one hundred members of He's family participated in the celebration. The picture on the left shows He Zuoxiu (left) and his elder brother He Zuerong, a respected and retired social scientist; the picture on the right shows the entrance of the Garden, the five Chinese characters on the wall read: The First Garden in Late Qing Dynasty^[11].

2. Red Underground

In 1945, He Zuoxiu enrolled in Shanghai Jiaotong University, majoring in chemistry. However, He soon determined to major in physics to save the country:

“In August 1945, American dropped two atomic bombs in Japan, which shocked He Zuoxiu tremendously: ‘After reading the list [of the Smyth Report], they were all world-famous physicists. Physics is too important! I must do this one!’”^[12]

Also during the Jiaotong era, He read L. A. Leontev’s *Political Economics*, which made him realized that “Only Marxism can save China.”^[13]

In 1947, He Zuoxiu transferred to Tsinghua University in Beijing because he was afraid that China would be separated into two parts, with the southern part where Shanghai is located, controlled by the Nationalist, and the northern part, where Beijing is located, controlled by the Communist. At Tsinghua, He changed his major to physics, and joined in CCP in about two months. In early 1948, He was sent to a “liberated area,” an areas controlled by CCP, to study and “summarize the experience of the student movement.” Such an experience, termed “CCP elementary schooling,” was invaluable to He’s Party Man career, because it basically offset his “reactionary” family background, and made him an “old revolutionary.” What impressed He the most in the “elementary school” was his reading Chairman Mao’s *The Present Situation and Our Tasks*. More than half a century later, He would repeatedly tell China’s college students:

“How to be a man? I think the most important thing is to recognize the times, recognize the trend of social development, and be the active promoter of the times.”^[14]

By that, He means following the leadership of CCP unconditionally. Back to Tsinghua, He Zuoxiu organized at least three student movements against the nationalist government, and before Beijing being taken over by CCP, He had become the secretary of the underground student CCP branch at Tsinghua University’s Science College^[15].

An Ardent Stalinist in the Central Propaganda Department

1. A Redhot Cadre

The turning point in He’s life occurred in 1950, one year before his graduation from Tsinghua. The following story has been told by He Zuoxiu for multiple times:

“In 1950, Stalin published his *Marxism and Problems of Linguistics*, proposing for the first time that language does not have class character. In November 1950, Comrade Yu Guangyuan who was working in the Propaganda Department of the CCP Central Committee came to Tsinghua University to host a theory symposium, and he picked a few young students to discuss Marxism. In the symposium, I asked Comrade Guangyuan: ‘In his *Marxism and Problems of Linguistics*, Stalin said that language has no class character, then, following Stalin’s opinion, whether we can say that natural science doesn’t have class character either?’

“Probably because I asked Comrade Guangyuan such a theoretical question, in 1951, after graduating from Tsinghua University’s physics department, I was assigned to the Theoretical Education Division of the Central Propaganda Department, working under Comrade Guangyuan. The mission of the Central Propaganda Department is to propagandize Marxism-Leninism, and the precondition to do the job is learning, thus I began the transition from studying physics to studying Marxism-Leninism systematically and seriously. In 1952, the Central Propaganda Department established the Science Division,

and I worked there for 5years.”^[16]

The 5-year experience in the Propaganda Department established He’s Party Man foundation. According to himself, He had taught quantum physics to Lu Dingyi, the director of the Propaganda Department, for nine months^[17]; he had gotten acquainted with Hu Qiaomu, Chairman Mao’s secretary and the actual boss of the Propaganda Department^[18]; and he had talked to, as the representative of the Propaganda Department, more than one hundred top scientists in China^[19]. More than a half century later, He would still proudly claim:

“I was a popular cadre in the Propaganda Department, able to see the director directly. Lu Dingyi liked me, Hu Qiaomu liked me also.”^[20]

“There were few Party members in the physics circle [at that time], some important scientists were all recruited into the Party by me, even Qian Sanqiang was recruited by me. Qian Sanqiang said himself: ‘Little He is my leader, the person who enlightened me.’”^[21]

Also according to He, he was the person who made the salvage of Kunqu Opera (昆曲) possible^[22], and it was he, along with Gong Yuzhi and another person, who suggested to the Chinese leaders to build atomic bomb in 1954^[23]. He even claimed that he played a fundamental role in the establishment of the Kunming Institute of Botany:

“Academician Qin Renchang talked to me for one hour, presenting the fact that Yunnan has a complex climate, abundant species, which was about 60-70% of the total species in the world, so it should have a botany research institute, and it was the wish of the botanical community. I thought it was reasonable, so I wrote a big report to Lu Dingyi. Lu Dingyi transferred it to CAS, which established the Kunming Institute of Botany immediately.”^[24]

It is certain that these stories have been mixed with He’s habitual exaggerations, more or less. For example, the truth behind the atomic bomb story is this: it was Qian Sanqiang (Tsien San-tsiang, 钱三强, 1913-1992), China’s Oppenheimer, who talked about the project to He and his colleagues in the Propaganda Department, and He and his colleagues wrote the report to relay Qian’s idea to the Party leaders^[25]. Also, according to the official website of Kunming Institute of Botany, it was originated in 1938 as the Yunnan Provincial Institute of Agricultural and Forestry Botany, turned into a CAS work station in 1950, and rose to the current status, the Kunming Institute of Botany, in 1959^[26]. By that time, He had left the Propaganda Department to become a physicist for about 3 years, therefore, He’s story must have been contaminated with some fabrications.

However, the core of He’s stories is true: the Propaganda Department was in charge of CAS, and the leaders of CAS were scared to death of the Department, nicknamed The Palace of Hell by Chairman Mao in the 1960s mainly because of its mightiness. Understandably, He could be as powerful as he claimed simply because of his affiliation. However, He was more than that.

2. A Backstage Manipulator Who Shook CAS

The first half of the 1950s in China was characterized by mimicking the Soviet Union in every aspect, and in the science community, mimicking the Soviet Union meant to criticize the “bourgeois sciences.”

According to Yu Guangyuan, CCP decided to take control over natural sciences in early 1950s, and the responsibility was initially fallen on the shoulders of the Propaganda Department’s Theoretical

Education Division, where Yu Guangyuan was its deputy director^[27]. In 1952, the Propaganda Department formed the Science Division in charge of science affairs, He Zuoxiu became one of the first members of the division, and Yu Guangyuan would be soon transferred to that division to be He's direct boss^[28]. And it was under that background the following story, told by Gong Yuzhi in 2005 and published after his death in 2007^[29], occurred.

In early 1952, Gong Yuzhi was taking a sick leave from his chemistry study at Tsinghua University and preparing to follow He Zuoxiu's footsteps to become a communist propagandist. Having heard that the resonance theory was being criticized in the Soviet Union, Gong tried to teach himself quantum chemistry and quantum mechanics. Then he found some obvious errors in a couple of articles published in *Chinese Science Bulletin*, a publication of Chinese Academy of Sciences. One of these articles was intended to introduce an article published in the Soviet Union's *Pravda*, however, the writer didn't realize that the original article was distributed in several pages of the newspaper, so he or she stopped after translating only the first page, making the introduction incomplete. The other article introduced the Soviet Union's protein chemistry; however, the writer translated microscope into kaleidoscope. So Gong Yuzhi decided to write an article to criticize *Chinese Science Bulletin*.

Gong told his plan to his Tsinghua buddy He Zuoxiu, who was already a government official. He Zuoxiu agreed with Gong that the *Bulletin* should be criticized, however, He thought it was not enough just criticize the low level errors without bringing the matters to the height of politics. He told Gong that the *Bulletin* only published a brief note about the publication of the *Selected Works of Mao Tse-tung*, without any follow-ups, which meant that they had been neglecting politics. Also, the *Bulletin* didn't promote a new invention called "nodular cast iron" or "spheroidal cast iron," which indicated their contempt for New China's own achievements. Gong wrote the article according to He's idea, and the article was published in *People's Daily* under the title of "*Correct the Tendency of Detachment from Politics and Practice in Scientific Publications: Comment on the Second Volume of Chinese Science Bulletin.*"^[30]

The article made the CAS leaders, including its President Guo Moruo (郭沫若, 1892-1978) and Vice President Zhu Kezhen (Chu Kochen, 竺可桢, 1890-1974), extremely nervous, they apparently thought that the article was a strong warning signal sent to them from the top authority, so they tried desperately to correct their wrongs: Dr. Zhu Kezhen paid a personal visit to Gong's home and offered Gong a job at the *Bulletin*; the *Bulletin* published a self-criticism, re-published Gong's article, and Gong's other articles, including those criticizing the resonance theory; CAS even reorganized the *Bulletin*'s editorial office so that such political mistakes won't happen again. Of course, Gong Yuzhi, who had already been assigned to work in the Propaganda Department, didn't accept the offer to work for the lowly CAS *Bulletin*. To guarantee the political correctness of its publications, Zhu Kezhen relocated his hometown fellow Xu Liangying (许良英, 1920-2013), a graduate of Zhejiang University and a CCP member, to CAS.



反對化學中的唯心論和機械論

——蘇聯科學界討論有機化學中化學構造理論問題的情況和意義

龔育之

Being watched closely by watching dogs

Clockwise from upper left: Guo Moruo, the President of CAS from 1949 to 1978; Zhu Kezhen, the Vice President of CAS from 1949 to 1966; He Zuoxiu (1927-), and Gong Yuzhi (1929-2007), the life-long communist propagandists. The background is an article published by Gong Yuzhi in *People's Daily* on March 29, 1952, entitled "Against Idealism and Mechanicism in Organic Chemistry."^[31]

None of the above episodes would have happened without He Zuoxiu's manipulation. No wonder He was redhot in the Propaganda Department, and was ranked three grades higher in the bureaucratic ladder than every other entry level college graduate, including Gong Yuzhi^[32]. The funny thing is, Mr. Xu Liangying, who came in Beijing because of the shakeup in CAS caused by He Zuoxiu, would become He's deadliest foe in 1980s.

In defending He, Fang Zhouzi said in an article published in 2005 that He told him that he had never written any articles criticizing gene and resonance theories^[33]. And based on what He told him, Fang accused those who were criticizing He of spreading rumors. The truth is, although no articles criticizing the resonance theory under He's name could be found, many such articles under Gong Yuzhi's name were published in 1952. As mentioned above, Gong published an article in *People's Daily* on March 29, 1952 to criticize the "idealism and mechanicism in organic chemistry"^[31]. Also, the third issue of *Chinese Science Bulletin* in 1952 was devoted almost entirely to criticize the resonance theory, and a total of seven such articles were authored or co-authored by Gong Yuzhi. The criticism against the resonance theory in China lasted nearly 30 years, until a colloquium was

convened by the Education Ministry in 1981, and only after that the theory could be formally taught in classrooms^[34]. The question is: without He's backstage manipulation, how could Gong, a college student on sick leave, be so powerful? It is said that Adolf Hitler never personally killed a person^[35]. However, even if it is true, such a fact doesn't exonerate him from a murderer charge. By the same token, even if He Zuoxiu indeed never wrote a single article criticizing the resonance theory, he was still responsible for the senseless murdering of science in China, simply because of his role in plotting and organizing these activities. And his shameless denial of the "scientific crime" he committed more than a half century ago makes the case even worse.

3. A (Fake) Expert in Quantum Mechanics

The fact is, even though He could deny his involvement in the criticism against the resonance theory, he couldn't do the same to the criticism against quantum mechanics, because he couldn't destroy the evidence.

On May 21, 1952, He published in *People's Daily* an article entitled *The Science Community in the Soviet Union Criticizes the Idealist Viewpoints in Quantum Mechanics*. Although the article was to introduce what was happening in the Soviet Union, He nonetheless spent the last one fifth of the article to urge Chinese scientists to do the same:

"What does the criticism against the idealism in quantum mechanics, conducted by the scientists in the Soviet Union, mean to our country's scientists? What lessons should be learned from it? First of all, it demonstrates again the guidance role of dialectical materialism. [It] strongly criticizes again the contempt, shown by some scientific workers, with philosophy, with the guidance role of Marxism and Leninism in scientific work, and the harmful thought that Marxism and Leninism are only useful to biological sciences and social sciences, but useless to other sciences such as physics. It demonstrates again how essential it is to keep a close tie between scientists and philosophers; how necessary it is for scientists to learn Marxism and Leninism!"^[36]

He would keep his belief till today: He has been one of the most active promoters and participants of the notorious "Two-Science Alliance" which is nothing but an institutional implementation of the "the guidance role of dialectical materialism." As a matter of fact, He is so proud of his expertise in both Marxist philosophy and modern science, that he claims that he or his work is irreplaceable because only a few Chinese people who know both^[37]. So, who else is among the endangered species? So far, He has only identified Fang Zhouzi as one of them^[38]. He has also been holding a professorship at Peking University in philosophy since last century, and he has advised more than a dozen Ph. D. students in the area (more on this later).

The second lesson Chinese scientists should learn from the criticism against the idealism in quantum mechanics in the Soviet Union is, according to He Zuoxiu:

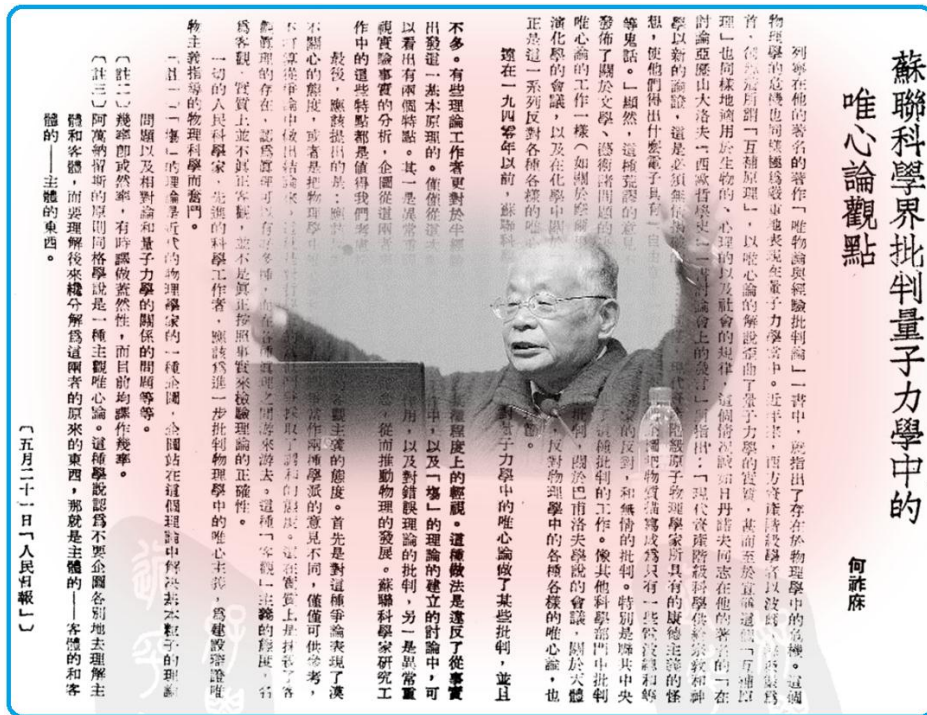
"[We] should draw lessons from the criticism against idealism in quantum mechanics, and further develop the criticism against idealism in physics. We know that idealism has infiltrated into physics in all kinds of forms, and Machism even has direct relationship and connections with physics. Lenin used to point out explicitly the reasons for the infiltration of physics by idealism, the first one is the mathematization of theoretical physics (He's note: which means the mathematization of physics, doesn't mean that physics should not use mathematics), therefore resulting in the oblivion of matter by mathematicians, and drawing the conclusion that 'matter is eliminated,' what left are equations only. Another reason is

relativism, i. e. the theory about the relativity of human knowledge. Under the condition of not understanding the dialectics, the Theory of Relativity will inevitably lead to idealism.”^[39]

Again, He has been following the above doctrines almost faithfully in most of his life time, unless the CCP leadership forces him to give up his belief. There is no doubt that when He mentioned the influence of Machism in physics, he was referring Einstein and his Theory of Relativity, which would be criticized by him during the Cultural Revolution. It is noteworthy that He wasn't able to differentiate relativism from the Theory of Relativity when he was attempting to criticize the latter. As a matter of fact, He admitted in 1990 that he didn't know quantum mechanics at the time when he was criticizing the idealism in quantum mechanics^[40].

The concluding paragraph of He's article was in typical He's style - exaggeration and hysteria:

“All of the people's scientists and progressive scientific workers should fight for further criticizing the idealism in physics, and building the physics which is under the guidance of dialectical materialism.”^[41]



A life-long Stalinist

He Zuoxiu has been keeping criticizing the idealism in physics since early 1950s, and he is probably the only Stalinist left in China, or in the world. The background of the above image is portions of He's article published in *People's Daily* in 1952: *The Science Community in the Soviet Union Criticizes the Idealist Viewpoints in Quantum Mechanics*.

4. A Real Lysenkoist

The most dramatic event in the science community in the Soviet Union after WWII was the rise of Lysenkoism, and Yu Guangyuan, who hosted the legendary Qingdao Genetics Symposium in 1956, was very proud of the role he played in stopping the overflow of that pseudoscience in China^[42]. He Zuoxiu, on the other hand, has tried desperately to separate himself from the events.

As mentioned above, He told Fang Zhouzi in 2005 that he had never written an article criticizing [Morgan's] gene theory^[33]. The event leading to He's denial was, in August 2005, an editor with *Epoch Times*, a website connected to Falun Gong, assimilated several internet posts into a cohesive article, entitled *He Zuoxiu, the Man and His Deeds*. In the article, He's misdeeds were listed extensively and specifically. About He's involvement in the Lysenkoism in China, the article says:

"In former Soviet Union there was a Lysenko incident. Lysenko believed that new species are generated by accumulating quantitative variations, which will lead to qualitative changes. In the areas of genetics and breeding, Lysenko had opposed Morgan's genetics since 1930s, and he tagged Morgan genetics with a 'bourgeois science' label. Because Stalin trusted him, Lysenko advanced rapidly. Many talented biologists in Soviet Union were affected and brutally persecuted. At that time, China also had a national campaign against gene theory, strongly promoting Lysenko's Michurinist biology, and scientific truth become a victim of political interference. Under the banner of 'learning from the big brother Soviet Union,' He Zuoxiu et al. chanted that 'Michurinist biology is the great achievement obtained by applying Marxism-Leninism consciously and thoroughly in biological sciences' (see reference 3), and launched group attack on our country's renowned biologist Tan Jiazhen (Morgan's student), who was forced to admit wrongdoing for his adhering to the Morgan theory, so our biologists suffered a fatal blow, and never recovered (see references 4 and 5). At the same time, there was rapid development in biological sciences abroad."^[43]

The third reference mentioned in the above paragraph was an anonymous article published in *People's Daily* on June 29, 1952, entitled *Struggle for the Persistence of Michurinism in Biological Sciences*^[44]. The article was divided into five sections, and 3 of the sectional titles were:

"1. Michurinist biology is the great achievement obtained by applying Marx-Leninism consciously and thoroughly in biological sciences;"

"2. Michurinist biology is not a 'branch' in biological sciences; rather, it is the fundamental revolution of biological sciences;"

"5. Learning Michurinist biology in practical work, using Michurinist biology to transform every branch of biological sciences thoroughly, and struggling for the persistence of Michurinism in biological sciences."^[45]

It is generally acknowledged that the article played a pivotal role in the Lysenkonization in China's biological sciences^[46], the dispute, however, was about He Zuoxiu's role in writing the article. In *Behind the Demonization of Academician He Zuoxiu* published in 2005, Fang refuted the accusations against He's active role by saying that the *People's Daily* article was a report after a symposium; He did participated in the symposium, however, as a young cadre just graduated from a college, he was probably the most junior participant, so he was not responsible for the article^[47]. The question is: was He Zuoxiu as innocent as Fang said? The answer is: No!

On July 12, 2007, exactly one month after Gong Yuzhi's death, Huang Qinghe and Huang Shun'e, a couple who had worked with Yu Guangyuan and He Zuoxiu in the Science Division in the 1950s, were interviewed by two journalists. And here is Huang Qinghe's comment on He Zuoxiu:

"He Zuoxiu did some good things in the Science Division, he also did something which is hard to comment on. He was in the Science Division quite long, and I also felt strange that he

majored in physics, [however], he was involved in everything, participating in criticisms everywhere, criticizing Liang Sicheng's architecture, criticizing the *Research of A Dream of Red Mansions*, criticizing *The Life of Wu Xun*, he participated in everything, he was also bold to write articles, bold to criticize. His position and way of thinking, including on the issue of Michurinism, were all mainstream, in agreement with the higher level. He used to say that he was a small potato at the time, doing things by following the orders, whatever the Party let him do, he would do, you should not blame me personally.”^[48]

So, did or did not He Zuoxiu write the article? According to Huang Qinghe, the *People's Daily* article was written by six people, He Zuoxiu was one of them. In addition, He took part in the Qingdao Symposium, but he didn't say anything during the meeting and after the meeting, and till today. “He Zuoxiu has been avoiding this issue all along,He wrote the article, therefore he has better say something about it,” said Huang Qinghe^[49].

In other words, even though we don't know the exact content and extent of He's contribution to the article, we do know He did make his contribution, and more importantly, we do know that He not only has been keeping avoiding the issue, he also has been keeping lying about his involvement. And Fang, intentionally or not, lied for He.

批判我對米丘林生物科學的錯誤看法

談家楨

二個月以前，我在浙江大學全體師生員工大會上，作思想檢討報告時，曾經初步批判了我過去對米丘林生物科學的錯誤看法。接着讀了6月29日人民日報登載“為堅持生物科學的米丘林方向而鬥爭”一文以後，我有了更進一步的體會和認識。

1946年我在美國讀了李森科院士“遺傳與變異”的英譯本以後，我才第一次接觸到米丘林生物科學和辯證唯物論這兩個名詞。由於對唯物論的愚昧無知，更因為我對米丘林遺傳學的謬害，我只覺得李森科對米丘林遺傳學說，是硬湊辯證唯物論。英美反動遺傳學界譏諷他為科學界的“狂士”一樣，我認為李森科是英美資本的“一知半解”的生物學家。我自目的地崇拜英美式的假的“學術自由”和“科學超政治”的理論。因此我覺得李森科把政治與科學結合起來，是非常可貴的一件事情。回國後，我大膽宣佈蘇聯沒有

蘇聯破壞合作。會長穆勒在會中不顧不顧新民主主義國家代表的抗議，大肆惡罵蘇聯，歪曲事實，造成國際間學術上極嚴重的分裂。其實他們所講若干反動遺傳學家受到“刺處”的事，根本不是事實，僅因學術意見不同，在人民自己的國家裏絕不會被“刺處”。（這只有在反動階級統治的國家裏才如此！）看吧！現在莫斯科大學的遺傳學家司馬哈津，現在蘇聯科學院工作的遺傳學家杜比寧等，不是仍舊安心在工作嗎！我第二次回祖國後，不是很自由在學習和工作嗎！回想起解放前，我在講授反動遺傳學課程，竟沒有一人選課。這充分說明人民羣衆的思想提高了，不適合人民要求的東西，就自然地被人唾棄了。因此，這不是甚麼學術自由不自由的問題，而是人民需要不需要的問題。美帝國主義宣傳的“學術自由”，正如它在美國邀請我在新中國已失去了“自由”一樣地可笑！

Public humiliation by political gangsters

In late 1952, Dr. Tan Jiazhen (C. C. Tan, 談家楨, 1909-2008, lower left), arguably the most accomplished and recognized geneticist in China, published a self-criticism article in both *Chinese Science Bulletin* (upper left) and *Bulletin of Biology* (upper right). The title of the article was: *Criticize My Erroneous Opinions about Michurinist Biological Sciences*. The first paragraph reads: “Two months ago, when I gave a self-criticism report in front of the entire body of students, faculty members, staffs, and workers of Zhejiang University, I criticized preliminarily my old erroneous opinions about Michurinist biological sciences. Then, I read the

article *Struggle for the Persistence of Michurinism in Biological Sciences*, published in *People's Daily* on June 29, I have further understandings.”^[50]

The background of the above image is the first page of Tan's self-mutilation article published in *Chinese Science Bulletin*.

5. A Maoist Architect

In China, He Zuoxiu is best known as an “omnipotent academician” simply because he dares to open his mouth on everything, literally. The fact is, He has been omnipotent ever since he “mastered Marxism” when he was in the Propaganda Department, because he believes that Marxism is the ultimate truth and should play the guidance role in everything.

(1) A Proud Confession

In the early 1950s, the Chinese authority decided to tear down the old Beijing constructions, especially the big wall surrounding the city. The decision met fierce opposition from Mr. Liang Sicheng (梁思成, 1901-1972), the top architect in China at the time^[51]. The following story was told by He Zuoxiu, proudly, in 1990:

“During 1954-1955, a revivalist aesthetic ideology emerged in our country's architectural work, that is, they put undue emphasis on the inheritance of national style, requiring that every new building to add a 'big roof,' thus resulting in waste in economic development. Chairman Mao said several times: 'big roof' is not pretty either. Therefore, the task of criticizing the wrong ideological trend in architecture, i. e. criticizing Professor Liang Sicheng's architectural thought, was handed to the Propaganda Department. In 1955, in a Politburo meeting, Director Lu Dingyi wrote a note to Comrade Peng Zhen [Beijing's CCP chief and mayor at the time], asking him to lead the criticism work, and Comrade Peng Zhen agreed. Then Comrade Yu Guangyuan took me to see Comrade Peng Zhen. Besides convening related comrades to have a mobilization meeting and giving a speech, Comrade Peng Zhen's most important decision was to organize a group in the Summer Palace, and the group wrote about a dozen of critical articles. Among the articles, the most persuasive one was written by Comrade Zha Ruqiang, *Comment on A Few Problems in Liang Sicheng's Architectural Theory*. I wrote one also, *On Some of Liang Sicheng's Erroneous Opinions about Architecture*. It was decided that my article should be published first, so it was published in *Learning* magazine. After reading the article, Professor Liang Sicheng immediately conducted a relatively serious self-criticism in the Chinese People's Political Consultative Conference, and the self-criticism was published in the *People's Daily* the next day. After reading the self-criticism, Comrade Peng Zhen convened the authors of the critical articles, saying to them: 'he has already admitted his mistakes, made self-criticism, how could we continue criticizing him?' Therefore, he ordered that all of the articles be handed to Professor Liang Sicheng for his reference; however, no newspapers or magazines were allowed to publish articles critical of Liang. Therefore, the movement criticizing Liang was interrupted, and the best article written by Comrade Zha Ruqiang did not get published. Only recently it was collected in the booklet *Science and Philosophy Forum* as a historical witness to the 'criticism' work.”^[52]

The other side of the story, told by Yu Guangyuan, who was in charge of the writing group, is like this: after finishing writing the critical articles, Peng Zhen handed them to Liang Sicheng and told him that if he doesn't stop opposing to the teardown, these articles will be published one by one. Liang immediately surrendered, and the articles were not allowed to be published. However, He

Zuoxiu secretly submitted his article to the *Learning* magazine, and it became the only one getting its way to publication^[53]. Yu said later that it was Chairman Mao who stopped the criticism campaign against Liang, and those one or two persons who published their articles without permission were “disobey organization and violate discipline.”^[54] In other words, He’s criticism of Liang Sicheng was eager, voluntary, and sincere.

(2) Evildoing

So, exactly what did He write in his article against the wrong ideological trend in architecture? He put five big hats on Liang’s head: revivalism, aestheticism, subjectivism, formalism, and the most frightening one, bourgeois idealism^[55]. One might wonder how idealism could have played a role in architecture, here is He’s reasoning:

“From above we can see that Liang Sicheng has a series of serious mistakes in the basic issues in architectural theory. We can also see that the root of his mistakes is bourgeois idealism. All idealists assert that mind precedes matter, and consciousness precedes being. Reflected in the epistemology, these basic idealist viewpoints mean not starting from reality, not considering things historically and comprehensively, instead, they draw various mistake conclusions based solely on their personal preferences and imaginations.”^[56]

As mentioned above, Liang Sicheng was completely destroyed, both physically and mentally, by these political gangsters. In the summer of 1955, he made a humiliating self-criticism on a national stage, the title of his speech was *Why Do I Love Our Party So Much*, in which he said: “I trust the Party just like I trusted my mother when I was little.”^[57] About a half year later, he made another speech to criticize himself and to express his loyalty to the Party, and the bombs Liang used in his self-bombardment were exactly the same as those leveled on him by He Zuoxiu (see image below).

永远一步也不再离开我们的党^①

在过去几个月历史性转变的日子里，看着祖国在社会主义建设中所取得的伟大胜利，作为一个知识分子，一个技术人员，我已感到无比兴奋，感到我们任务的伟大和光荣，也感到它的无比艰巨。在参加了讨论农业合作化章程草案后，我又参加了讨论农业发展纲要，并列席了1月25日的最高国务会议，我就更体会到我们知识分子在祖国一切建筑中所负的重大责任。在这次会议上，听了周恩来主席的政治报告，同时又谈了他在中共中央会议上关于知识分子问题的报告，和听了四位副主席的报告后，除了完全同意和拥护外，更感到说不出的鼓舞、勇气、力量和信心。党对我们知识分子提出了巨大光荣的任务，同时对我们又关怀到无微不至。对于党，我惟有衷心的感谢。

我是一个在工作中犯了严重错误的技术科学工作者，在这里，我愿意谈谈我对于党的“团结、教育、改造”政策的切身的体会，谈谈我在学术思想上和工作中怎样犯了严重错误，党怎样帮助我认识了自己的错误。这是我的检讨，也是对党的感谢词，也是我的决心书。

过去20余年中我写了许多关于中国建筑的调查报告、整理古籍、中国建筑历史、城市规划的创作理论的文章和专著。这些文章和理论的一贯特征就是主观唯心主义、形而上学；我所提出的创作理论是形式主义、复古主义的。北京一解放，党就给了我最大的信任，在1949年5月就让我参加了首都的规划工作。7年以来，我对于党的一切政治、经济、文化的政策莫不衷心拥护，对于祖国在社会主义改造和建设上的每一伟大成就莫不为之三呼万岁。但在都市规划和建筑设计上，我却一贯地与党对抗，积极传播我的错误理论，并把它们贯彻到北京市的都市规划、建筑审查和教学中去，由首都影响到全国，使得建筑界中泛起了一阵乌烟瘴气的形式主义、复古主义的恶风，浪费了大量工人农民以血汗积累起来的建设资金，阻碍了祖国的社会主义建设。同时还毒化了数以百计的青年——新中国的建筑师队伍的后备军。

我对自己的错误是长期没有认识的。这是由于我的思想感情中留着浓厚的封建统治阶级的“唯心”和“思古幽情”，想把人民的首都建设成一件崭新的“假古董”，想强迫广大工人农民群众接受这种“趣味”，让他们住在一个“保持着北京原有的‘城市风格’”的城市里。我对于建筑的认识又极端缺乏经济观点、群众观点、革命观点。又由于解放以来，我兼职多，社会活动多，没有很系统地、好好地学习，所以我的马克思列宁主义水平不得提高，思想方法错误，片面地强调了建筑的艺术性。我以为自己是正确的，党是不懂建筑的，因而脱离了党，脱离了群众，走上错误的道路。

远在1951年，党就洞悉了我的偏向，五年来不断地启发我，教育我，开导我，反

复为我阐述社会主义建设的基本方针，在可能条件下注意美观”的正确方针。但由于上述原因，我始终未能与党对抗。直至去年年初，建筑工程部召开了全国设计工作会议，批判了建筑设计中形式主义、复古主义的偏向，并举出了许多反党反社会主义的实例，使我心中惊醒。不幸，去年整年我都在医院和休养所中度过，并脱离了单位和学校的建筑思想斗争，也是在党的关怀下——怀复了以后，又大力帮助我，使我认识到我的建筑理论为什么是错误的，并挖出我之所以走上错误的道路是因为我脱离了党的领导，脱离了群众，走了错误的道路，使我体会到技术是绝对不能脱离党的领导的。因为我们的党是工人阶级的先锋队，它是掌握着辩证唯物论、历史唯物主义的思想方法，为全体人民服务的。党领导了社会主义建设而奋斗的党，所以党领导六亿人民解放了自己，也领导了经济和文化建设的战线上赢得了一个个的胜利。没有党的领导，这一切辉煌成就是不可思议的。“党领导政治、专家领导技术”的思想是完全错误的。党对技术的领导是丝毫无容置疑的。

脱离了党的领导，就必须犯错误，为人民带来损失，我自己就是一个活生生的证明；对于我自己，则是一次沉痛的教训。

在这次会议中，我又得到一次深刻的教育，一次莫大的鼓舞。党心地感戴党，党给我医治了身体的重病之后，又为我医治思想上的严重病症。党心地感戴党，我相信我已得救，至少可以说“病情”是肯定地好转了。党心地感戴党，我从途中引到光明的康庄大路上来了。我要像一个初进学校大门的学生一样，努力学习，学习马克思列宁主义，进行自我教育，提高自己的水平，重新认识建筑，重新认识遗产，重新开始我的工作，贡献自己的力量，并通过教学工作，扩大我们的队伍。我要团结所有的建筑师、工程师、艺术家和从事建筑工作的同志们，我要和那个资产阶级唯心主义的故我进行坚决无情的斗争。我一定要把自己改造成为一个红色专家，红色教师。

我的身体虽然不好，但我有信心，在党的关怀和鼓舞下，我至少还可以工作25年，争取至少工作到我80岁的那天。在这不算很短的期间，我要把我的一切献给党的事业——伟大的共产主义事业。我永远一步也不再离开我们的党！

Humiliated by a political rogue

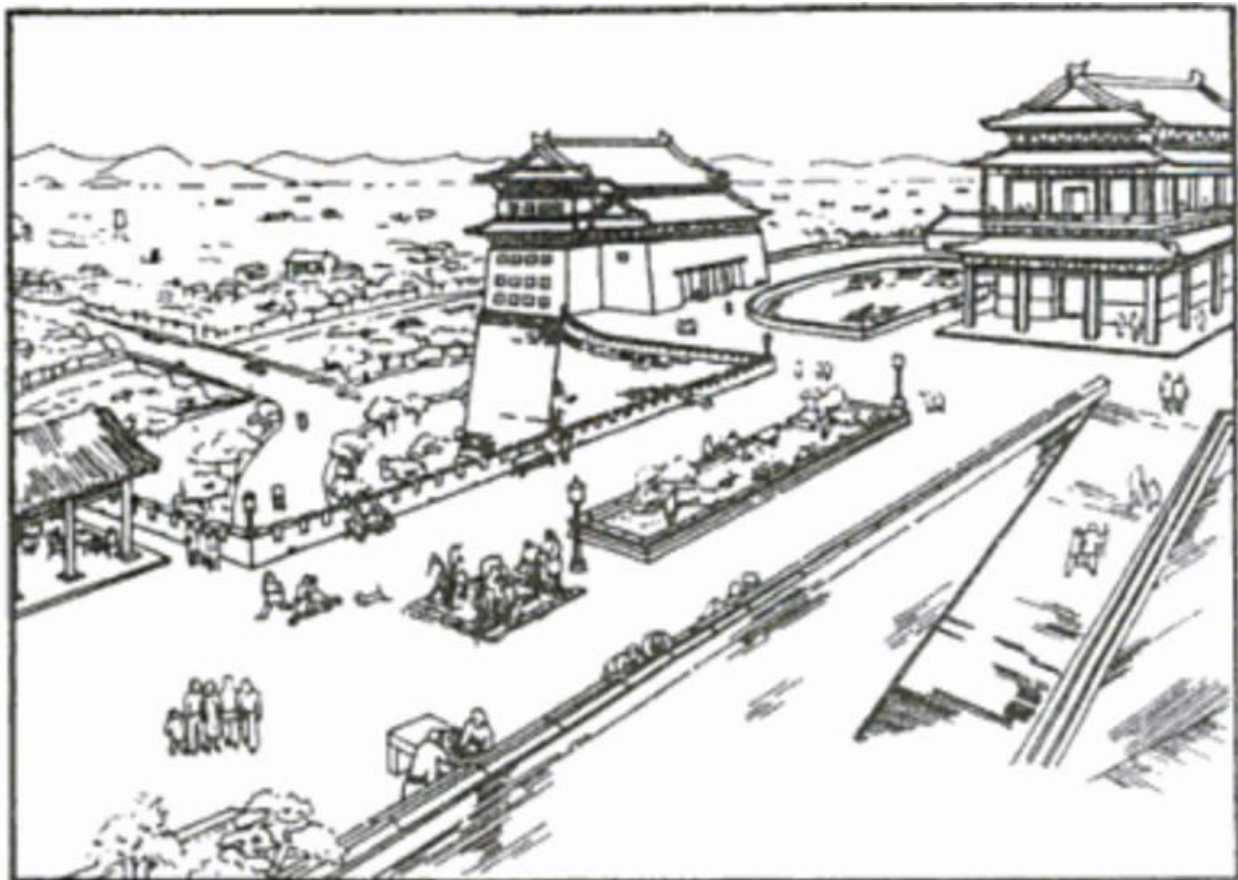
In February 1956, Liang Sicheng made yet another self-criticism in a CPPCC meeting, entitled *Never Depart from Our Party*. The words underlined read: “In the past 20 years or so, I have written many survey reports about China’s architecture, papers and monographs on ancient literature, Chinese architectural history, urban planning, and design theories. The consistent characteristics of these articles and theories are subjective idealist and metaphysical. The design theories I have proposed are formalist and revivalist.....which have caused an unhealthy trend of formalism and revivalism in the architecture community, wasted a large amount of construction funds which had been hard-earned by so many workers and peasants with their blood and sweat, obstructed the socialist construction of the motherland, and at the same time, poisoned hundreds of youth, the reserve force of new China’s architect army.”^[58]

The background of the above image is the article published in *The Complete Works of Liang Sicheng*, and the two insets are Liang Sicheng’s bronze statue photo (upper) and He Zuoxiu (lower), respectively.

Of course Liang didn’t mean what he was saying. Two years later, when the demolition of the old Beijing city was over, thus the criticism against him was no longer needed, Liang told his students at Tsinghua:

“Whenever a gate tower was destroyed, it was like that a piece of my flesh was cut off; whenever a segment of city wall was leveled, it was like that one layer of my skin was peeled off.”^[59]

The heartbreaking outcry voiced more than a half century ago still makes people weeping today, except for He Zuoxiu, as well as Fang Zhouzi, and the gangsters associated with them.



A paradise lost forever

The garden on the top of Beijing city wall, imagined and designed by Professor Liang Sicheng^[60].

(3) Fang Zhouzi Came to He's Defense, by Lying

He's reputation among Chinese began to fall, consistently and sharply, right after his involvement in the crackdown of Falun Gong in 1999, and he was so notorious that even Fang's followers could not help but criticize him, and they were extremely dissatisfied with Fang's close association with this disgusting old man. On Feb. 22, 2005, Fang posted his first of 3 pro-He serial articles on his New Threads, *He Zuoxiu and the Rumor about Maon*. In the article, Fang mainly defended He's major "scientific achievement," the straton model of elementary particles, which I'll discuss later; but at the end of the article, Fang made a comment on the completely unrelated story about Liang Sicheng:

"There are other rumors about Academician He on the internet. For example, many people curse him for his suggestion of demolishing Beijing city wall, and the evil cult website even made a rumor saying He caused the death of architects Liang Sicheng and his wife. The fact is, in 1955, Academician He who just recently graduated from college, wrote an article *On Some of Liang Sicheng's Erroneous Opinions about Architecture*, which was to criticize the revivalism in Liang Sicheng's architectural designs, especially his promotion of very expensive 'big roof' at any cost. This story was noticed by other people only after it was told by Academician He voluntarily in his recent memoir. Whether his criticisms of Liang Sicheng, which were made when he was young, are justified, they had nothing to do with the demolition of Beijing city wall, and it was even more unrelated to Liang Sicheng's death in 1972. Wang Jun's book *Beijing Record* detailed the dismantlement of Beijing city wall, mentioned many people who suggested or supported [the dismantlement], but He Zuoxiu was not mentioned."^[61]

Of course Fang's words were soaked in intentional lies. First of all, in 1955, He had graduated from Tsinghua for 4 years, had worked in the Propaganda Department as a 18th grade cadre, three grades higher than the entry level cadres with a college degree, for 4 years, and had participated in and organized countless criticism campaigns against so many things for 4 years. He was a veteran gunman for the communist government, instead of an innocent boy just out of college, as Fang implied.

Secondly, He didn't just criticize Liang's "big roof" idea, instead, he tried to fix him as a bourgeois expert, an idealist, and even an anti-Maoist^[62]. The fact is, probably because Liang Sicheng's father was Liang Qichao (梁启超, 1873-1929), arguably the most prominent Chinese figure in the early years of 20th century, Chairman Mao was pretty benign to Liang, and the assignment to these gunmen/writers was to criticize Liang only academically or economically, rather than politically^[63]. It was He who tried his butt off to put political labels on Liang's head. Therefore, He was not just to "criticize the revivalism in Liang Sicheng's architectural designs," as Fang wrote. The very fact that He would rather "disobey organization and violate discipline" to have his article published reveals unequivocally He's malicious intention. In short, He tried to destroy Liang, most likely for the purpose of seeking for his own political gain.

Thirdly, any people with basic Chinese proficiency would realize that when He told his story in 1990 (the memoir was written in 1990, but the book containing the memoir was published in 1999), he was presenting it as one of his achievements, he was proud of what he did, and he showed no sign of remorse. Also, He showed sincere regret that his buddy Zha Ruqiang's "most persuasive" article wasn't published at the time. Therefore, He's revelation of the story was not a repentant confession, as Fang implied; rather, it was a political demonstration.

Fourthly, although Liang Sicheng's death was not caused by He's article directly, He's article nonetheless contributed to Liang's death indirectly. Not to mention Liang's "cut off flesh" and "peel off skin" metaphors, just think about his reaction after reading the critical articles which had even not been published yet: the pressure was so huge that caused his mental collapse immediately. Therefore, He's published article was nothing less than a fatal blow to Liang. The fact is, when He and Yu's gangsters were swarming upon Liang, trying to beat him up, Liang was suffering from a sequela from an auto accident occurred in 1920s, and newly acquired tuberculosis, and his beloved wife Lin Huiyin (林徽因, 1904-1955) was dying in a hospital^[64]. He's article was definitely a mental torment to Liang, and it could only aggravate Liang's physical suffering. As a matter of fact, even though Liang's body was still warm in 1972, 17 years after He's criticism, his heart was deadly cold long before his physical death:

"It was in 1972 when Mr. Liang passed away in loneliness. However, as a scholar, a social activist, he had not spoken long before his death: the last article in the last volume of *Liang Sicheng's Works* was written in July 1964."^[65]

Therefore, Fang needs to explain how He's evildoing could be more related to Liang's death, does he believe that as long as He didn't use a knife to cut a person's throat, he would never be responsible for that person's death?



A golden couple

Liang Sicheng and his wife Lin Huiyin in 1931. Ms. Lin was the designer of PRC's national emblem.

Finally, it was a shameless lie when Fang said that Wang Jun didn't mention He Zuoxiu in his highly acclaimed book, *Beijing Record*. The fact is, on pages 261-262 of his book, Wang clearly cited two sentences from He's noxious article as an example of the absurd criticisms against Liang at the time (see images below).

何祚庥1955年在批判梁思成的文章中说：“旧北京城的都市建设亦何至于连一点缺点也没有呢？……北京市当中放上一个大故宫，以致行人都要绕道而行，交通十分不便。”●

● 何祚庥.《论梁思成对建筑问题的若干错误见解》. 载于《学习》杂志, 1955年10月2日.



In an article criticizing Liang Sicheng in 1955, He Zuoxiu said: “Is it possible that planning for ancient Beijing is totally perfect? No... Huge as it is, the Forbidden City sits right in the heart of the city, forcing people to walk round it, thus aggravating the traffic problem.”⁴⁶

46 He Zuoxiu. My Views on Certain Mistaken Ideas in Liang Sicheng's Architectural Thinking. Study, October 2, 1955.

Condemned explicitly

Upper: In his book *Beijing Record*, published in 2003, pages 261-262, Mr. Wang Jun cited He's article as an example of criticisms against Liang Sicheng in 1950s.

Lower: The English translation of Wang's book was published in 2011, and the Chinese portion showed in the upper panel was faithfully translated on page 361^[66].

To slap Fang's face further, Mr. Wang cited He's article again in an article published in 2006^[67].

The fact is, as early as in 1999, 4 years before the publication of Mr. Wang's book, and in the same year when He's memoir made public, He's anti-Liang article was cited in a book as the representative of political persecution and public lynching of Liang Sicheng^[68]. Fang was either completely blind or a liar when he implied that He's article was neither well-known nor important.

(4) Fang Zhouzi Came to He's Defense, by Fighting

The fact is, Fang's sophistry even couldn't fool his own followers. As soon as Fang published his defense statement on behalf of He on his New Threads, someone posted He's *On Some of Liang Sicheng's Erroneous Opinions about Architecture* on the forum of the website, with the following comment:

“The following is a few excerpts [of He's article]. Now let's take a look at Academician He Zuoxiu's 'big character poster,' see how many sentences in it are defensible? The paragraph about Beijing city wall had nothing to do with the demolition of the city wall? According to He Zuoxiu's opinion, even the entire Forbidden City should be demolished: it affects traffic!”^[69]

Fang responded almost immediately:

“[He] said that ancient city wall and the Forbidden City have shortcomings, and obstructing traffic now, and you think he was suggesting demolishing city wall and the Forbidden City entirely? And you want He to take responsibility? Is this your level of logical reasoning? In fact even Liang Sicheng admitted that Beijing city wall obstructing traffic, do you think he was also suggesting demolishing city wall entirely? If you have time, why don't you read some histories about the controversy over the demolition of the city wall? Not to mention

that the article was written in 1955, even if it were written today, it is not completely nonsense, for example, his opposition to big roof. Didn't Chen Xitong in the past make people grumbling when he built big roof extensively in the name of national style?"^[70]

Someone replied:

"It could be seen from He's article that he agreed with the demolition of the city wall. The negative terms [he used] such as stubborn, mistake proposition, and bankruptcy are more than enough to show the author's position. Liang was not happy with demolition of the gate towers, He refuted vigorously. If the opposition to the opinions against the demolition of the old city wall doesn't constitute the advocacy for the demolition of the old city wall, then there must be something wrong with the language and logic I have learned. It has always been our Party's way of doing things by organizing criticism teams, criticizing somebody orally and literarily from a political perspective, based on the tone set by the upper level, and launching group attacks. It has absolutely nothing in common with normal academic criticism, because the two parties are not on an equal footing. He was a member of the criticism team, and he worked really hard. Maybe He's subjective wish was for the public, and probably his rank was not high enough to take responsibility, however, I don't believe it is honorable to participate in the great criticisms organized by your superiors."^[71]

Obviously Fang knew he was on the evil's side, and he knew his hidden evilness was being seen through, so he softened his tone:

"Agreeing with demolition of the gate towers doesn't mean agreeing with demolition of the city wall; agreeing with demolition of the city wall is not villainy. Maybe the majority of Beijingers agreed with demolition of the city wall. Everything was in full swing during the Great Leap Forward era. Shouldn't the people who were physically involved in removing the bricks of the wall deserve more blames? He was a young cadre in the Propaganda Department, and it was his job to write critical articles when ordered to do so. If it was not honorable, then how many Chinese were honorable at that time? Isn't it absurd that it made Cadre He looked like the chief culprit of the city wall's demolition, and even responsible for Liang Sicheng's death? It is very easy to say who was right and who was wrong 50 years after the thing occurred."^[72]

Another person commented:

"Old He has always been following [the leaders] closely in political perspective. The issue was not so much an academic dispute, rather, it was a political showdown. The decision had already been made by the leaders before the 'dispute,' so Liang was destined to lose. Obviously, the most intelligent choice at the time was to build a 'new Beijing' in a different location."^[73]

Fang's response:

"When He opposed pseudoscience in the 1980s against the pressure of the upper level, you tell me whose politics he was following?"^[74]

The fact is, He's anti-pseudoscience career started in 1995, right after CCP Central Committee and the State Council issued the *Several Opinions on Strengthening the Work of Science and Technology Popularization* in December 1994. There is absolutely no evidence showing that He had opposed

pseudoscience in 1980s. Therefore Fang resort to lying, again, after he failed to fight off those who criticized He.

On that day, Feb. 23, 2005, in a time span of 15 hours, including a 6-hour break, Fang posted 33 messages on his forum, and all the messages had only one theme: defending He^[75]. It probably was the most clustered and focused posting in Fang's entire life.

Doesn't it make people wonder why Fang would want to defend such a public enemy?

“A (Fake) Pioneer of Hydrogen Bomb Theory in China”

1. Back to Science, Politically

In 1955, China launched its atomic bomb project, with the promised help from the Soviet Union, and Mr. He was transferred to Chinese Academy of Sciences in late 1956 to supposedly participate in the project. About He's transfer from the Propaganda Department to the nuclear weapons program, the following story was recently told:

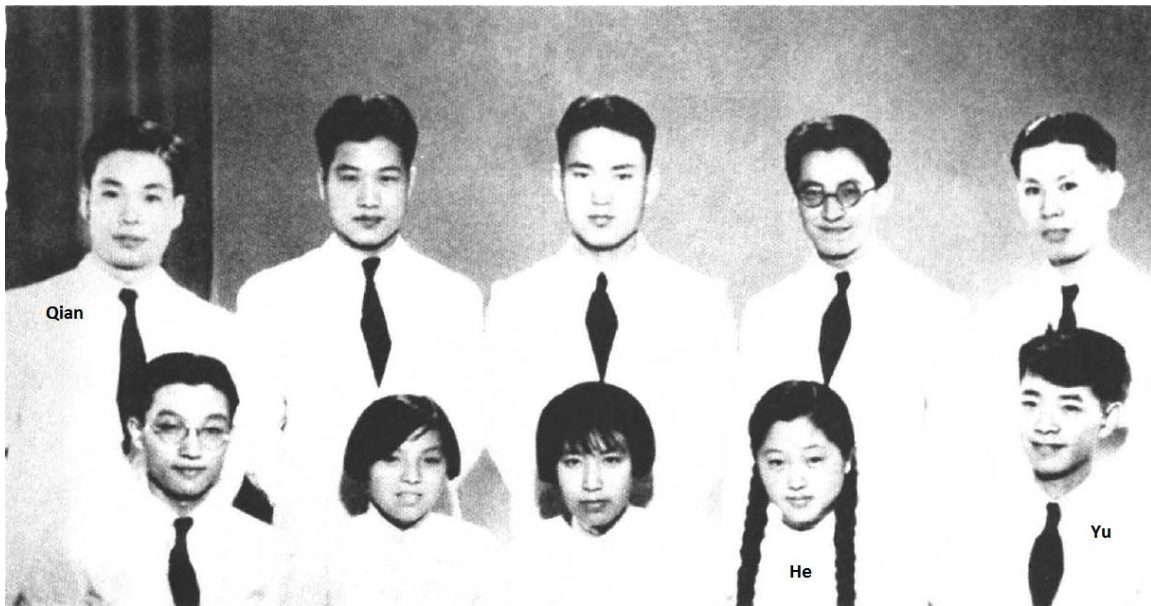
“In 1955, the central authority decided to make atomic bomb, Professor Qian Sanqiang was ordered to organize the Atomic Energy Institute. It was a highly secret and advanced defense project, the scientists involved should be qualified both technically and politically. Qian Sanqiang thought of his student He Zuoxiu, and he asked Hu Qiaomu for He's transfer. At that time, He Zuoxiu had already worked in the Science Division of the Propaganda Department for 5 and half years on Party affairs. To him, going back to scientific research was extremely difficult. ‘Fortunately, my scientific and technological foundation was not bad. The most important thing was that I had worked in the Propaganda Department, having very good relationship with the top scientists. Therefore, whenever I had some questions to ask, the seniors like Peng Huanwu, Yu Min, and Deng Jiaxian would be willing to teach me unreservedly. I wasn't too stupid to learn either.’”^[76]

There is another side of story about He's moving back to science. According to Gong Yuzhi, He's classmate at Tsinghua and comrade in the Propaganda Department, the first two directors of the Science Division in the Propaganda Department was Zhao Feng (赵汾) and Qin Chuan (秦川), respectively. Zhao was a musician, and Qin was interested in being a writer, therefore neither one of them was interested in the job very much. He Zuoxiu was not very happy with Qin either. It seemed that He had a remote chance to be promoted to the division head, but after Yu's appointment as the third director, He's chance disappeared completely^[77]. In 1956, the CCP Central Committee issued a call for "Marching to Science," and He responded the call by requesting the transfer^[78].

Genealogically speaking, He did have a relationship with Qian Sanqing, He's nominal boss in the Atomic Energy Institute. Qian and Yu Guangyuan were classmates at Tsinghua University in 1930s. In 1937, Frédéric Joliot-Curie was planning to admit a graduate student from China through the fund provided by Commission Mixte des Oeuvres Franco-Chinoises. Both Yu and Qian were very hopeful, but since Yu had determined to devote his life to revolution, so he gave up the chance. Qian received the scholarship eventually. Before leaving China for France, Qian asked Yu to write something in his souvenir album, and the following is what Yu wrote, according Yu's recollection made about 70 years later:

“I am now participating in the fight against imperialism and feudalism to build a democratic

country in which the working people are the masters. After the success of the revolution, there will be need for construction. You are going to study abroad, after you finishing your study, you will be able to serve such a country, and we will collaborate at that time.”^[79]



Classmates

The graduating class of physics at Tsinghua University in 1936. Qian Sanqiang (first left in back) would become China’s Oppenheimer; He Zehui (second right in front) would become Qian’s wife in 1946 and an academician of CAS in 1980. Yu Guangyuan (first right, front), of course, would become the ideological Czar in China’s science community. (Source: Yu Guangyuan. *My Chronicle Stories: 1935-1939*.)

Qian received his doctorate in 1940, and won French Academy’s Henry de Parville Award for Physics in 1946^[80]. He returned to China in 1948, taught at Tsinghua University briefly, and soon involved himself in the building of Chinese Academy of Sciences (CAS), starting in 1949. In 1953, Qian led a CAS delegation with 26 members, many of them were top scientists and scholars in China at the time, to visit the Soviet Union, and He Zuoxiu, as a representative from the Propaganda Department, was a member of the delegation, and apparently a member of the delegation’s Party Branch. After the visit, the branch issued an evaluation of Qian:

“Going abroad this time, [Qian’s] performance was generally very good, having passion for work, working hard at learning the Soviet Union’s experience. [He] treated his delegation leader’s duty also seriously, accepting and respecting the suggestions and the leadership of the Party.”^[81]

It is very likely that because of this, as well as many other things, Qian had said that He Zuoxiu was his boss^[21]. In 1954, Qian became a CCP member, “introduced” by Yu Guangyuan and Zhang Jiafu (张稼夫, 1903-1991), the Party chief at CAS^[82], but He claimed that it was he who “developed” Qian into the Party^[21].

According to He, before the transfer, he had tried to learn modern physics from Dr. Peng Huanwu (彭桓武, 1915-2007), the founding father of quantum physics in China. However, it seemed that Dr. Peng was not interested in teaching him very much: he first arranged He to learn calculus from Deng Jiaxian (邓稼先, 1924-1986), which resulted in a publication in March 1956 in *Acta Physica*

Sinica^[83]. He was very humble about the publication: “I was only learning, really had no contribution!”^[84]

After being transferred to CAS, He learned from Dr. Peng directly for about a half year. The learning was conducted this way: Peng asked He to read scientific literatures, and report his findings, opinions, comments to him weekly. According to He, Peng stopped his many attempts to conduct original research^[85]. Later, Peng was more involved in the research on the atomic bomb, so he arranged Dr. Zhu Hongyuan (Tzu Hung-yuan, 朱洪元, 1917-1992) to direct He’s study. Zhu received his Ph. D. from the University of Manchester in 1948, and he would become the principle investigator in building the straton model of hadrons in mid 1960s.

Apparently based on the mathematical skills he just acquired from these scientists, He made his first original academic achievement after the transfer to CAS by publishing a series of 3 papers in *Acta Mechanica Sinica*. The general title of the 3 papers was *The Mathematical Analyses of Marxist Reproduction Theory*^[86]. They were the only papers about Marxism in the first two volumes of the journal.

In late 1958 or early 1959, He was sent to the Joint Institute for Nuclear Research (JINR) at Dubna in the Soviet Union to study nuclear physics. JINR was built in 1956 by the joint efforts from the socialist countries. China was responsible for one fifth, or one third, of its operating budget^[87]. More than one thousand Chinese scientists and technicians were trained there in a period of ten years. One of the biggest discoveries in JINR history, antisigma-minus hyperon, was made by a team led by Dr. Wang Ganchang (王淦昌, 1907-1998) in 1959. It was said that Dr. Wang worked extremely hard: his Chinese assistants dared not to take a break even during the weekends, and they could only go to Moscow, which is less than 100 miles away from Dubna, on special occasions, such as the World Festival of Youth and Students in 1957^[88].

He Zuoxiu, on the other hand, went to Moscow every weekend to visit his girlfriend Qing Chengrui (庆承瑞), who was studying at Moscow University^[89]. As a matter of fact, He had tried at least once to use a fake ID to get into Qing’s dormitory^[90]. Therefore, even though He claimed that he “generated 10 high quality papers” during the two-year period in Dubna^[91], I could not find in which journals these papers were published, or even what they were about.



He Zuoxiu’s family in 1968

(Source: <http://www.chinatoday.com.cn/china/z200311/38.htm>)

2. A Renowned Hydrogen Bomb Expert?

Nonetheless, He did do a remarkable thing while in the Soviet Union. Starting from late 1950s, the relationship between China and the Soviet Union began deteriorating. In June 1959, the atomic energy assistance agreement between the two countries was suspended by the Soviet Union

unilaterally, and Chinese leaders soon decided to build the atomic bomb independently. In early 1960, He Zuoxiu, Zhou Guangzhao (周光召, 1929-), and Lü Min, three members of the CCP Branch in Dubna, wrote a letter to Chinese government, saying that they were willing to go back to China to participate in “practical work,” meaning the atomic bomb project. According to He, the letter was drafted by him^[92], which was actually handed to Qian Sanqiang while he was in Moscow in March 1960^[93].

He’s loyalty paid off handsomely: he became a team member for the exploratory research on hydrogen bomb theory, coded Project B, after he returned to China in late 1960, in charge of the team’s Party affair. One of He’s major academic capitals was earned from this project, and He has been called by Chinese media “one of the pioneers in hydrogen bomb theory [in China],” as well as many other things. Here are some examples:

“He Zuoxiu also engaged in the theoretical studies on atomic and hydrogen bombs, he is one of the pioneers in hydrogen bomb theory.”^[94]

“He Zuoxiu, who has made contribution to hydrogen bomb theory studies,.....”^[95]

“He used to collaborate with other scientists, rendered indelible meritorious services for the successes of new China’s first atomic and hydrogen bombs.”^[96]

“Many people know him for his anti-pseudoscience [activities], however, very few people know that he is one of our country’s pioneers in hydrogen bomb theory.....He Zuoxiu deservedly became one of the founders of hydrogen bomb theory in China.”^[97]

And there are a lot more such laudatory words^[98].

More importantly, He Zuoxiu himself claimed the same thing on the official website of the Institute of Theoretical Physics at CAS, of which he was one of the founders and had been in charge during its initial years:

“Zuo-Xiu He, Research Professor, was born on July 27, 1927. He graduated from Tsinghua University in 1951. He is also the Professor and Doctorial Tutor in Department of Philosophy, Peking University. He was the vice-director of ITP-CAS during 1978-1984, and elected to be Member of the Chinese Academy of Sciences in 1980. He has been mainly engaged in scientific research in theoretical physics for many years, and at the same time his interest has covered many different fields such as history of sciences, natural dialectics, philosophy and political economy and has made important contributions as well. In his study of physics, he carried out deep-going investigations on the weak interactions. He was one of the main authors of series of papers on the straton model which was formulated in the middle of sixties. Later on he was working on the quantum field theory of composite particles, the dark matter problem in the cosmology, especially the neutrino-mass problem. During this period he published more than 150 papers in physics, and as one of the main contributors he was awarded the National Natural Sciences Prize, second class. **Prof. He is also one of the pioneers in studying the theory of H-bomb.** His activities in social sciences has resulted in more than 200 published papers, many of them has had important impact on practice. In the last decade he has played a leading role in the fight against the pseudo-sciences by revealing its fallacy and rearing the scientific spirits. ”^[99]



- People
- ▶ CAS Members
- ▶ Faculty

Location: Home > People

Details of the Faculty or Staff			
Name	Zuo-Xiu He	Title	N/A
Highest Education	N/A	Office	N/A
Phone	8610-62569352	Zip Code	100190
Fax	N/A	Email	N/A
Homepage			



Education and Appointments:

Zuo-Xiu He, Research Professor, was born on July 27, 1927. He graduated from Tsinghua University in 1951. He is also the Professor and Doctorial Tutor in Department of Philosophy, Peking University. He was the vice-director of ITP-CAS during 1978-1984, and elected to be Member of the Chinese Academy of Sciences in 1980. He has been mainly engaged in scientific research in theoretical physics for many years, and at the same time his interest has covered many different fields such as history of sciences, natural dialectics, philosophy and political economy and has made important contributions as well. In his study of physics, he carried out deep-going investigations on the weak interactions. He was one of the main authors of series of papers on the straton model which was formulated in the middle of sixties. Later on he was working on the quantum field theory of composite particles, the dark matter problem in the cosmology, especially the neutrino-mass problem. During this period he published more than 150 papers in physics, and as one of the main contributors he was awarded the National Natural Sciences Prize, second class. Prof. He is also one of the pioneers in studying the theory of H-bomb. His activities in social sciences has resulted in more than 200 published papers, many of them has had important impact on practice. In the last decade he has played a leading role in the fight against the pseudo-sciences by revealing its fallacy and rearing the scientific spirits.

Recently Prof. He has been mainly interested in energy problem in China, and in close collaboration with Prof. Y.T. Chen from USTC, he is developing some new approaches to harness the solar energy.

Research Interests:

Public Services:

Honors:

Seleted Publication:

Supported Projects:

Address: Zhong Guan Cun East Street 55 #, P. O. Box 2735, Beijing 100190, P. R. China
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Self-claimed pioneer in H-bomb theory

However, just like many stories told by He himself, it seems no one knows the exact contribution He made to the hydrogen bomb theory, despite tremendous public curiosity^[100]. When being asked face to face, He refused to answer the question, citing secrecy as the reason^[101]. It was obviously a stupid excuse for unable to give any specifics, because the contributions to China's nuclear weapons program by many other scientists have already been made public, long time ago.



Failed to give detail

In 2008, a reporter with *Nanjing Daily* asked He Zuoxiu: "What kind of work did you do in the "Two-Bomb Project?" He: "This is confidential."^[101]

3. History Doesn't Lie

The thing is, even though He Zuoxiu keeps his secret contribution to the hydrogen bomb development as tightly as Fang Zhouzi keeps his secret employment with the American bio-firm, mounting evidences suggest that He's real contribution was mainly political rather than scientific or technical.

(1) Missing in Record

First of all, in a book published in 1985 introducing Chinese academicians, He's "achievements" in many areas, including physics, natural dialectics, political economics, history of science, and scientific methodology, were mentioned. And in the area of physics, He's contributions to universal weak interaction theory, dispersion relation theory, straton model, composite particle quantum field theory, high energy nuclear collision theory, neutrino, and cosmology were listed. However, there was not a single word about He's contribution to hydrogen bomb theory in the article^[102].

Secondly, in 1987, an authoritative book, *China Today: Nuclear Industry* was published^[103]. The book revealed so much inside information about China's nuclear weapons development for the first time that some important sections were immediately translated into English by the [Joint Publications Research Service](#) in the United States^[104]. In the book, He's name was not mentioned at all in the sections related to the nuclear weapons program, and was mentioned only once in the section about the development of the scandalous straton model (more on this below.)

Thirdly, in 1988, the first detailed recount, or according to the publisher, "the complete story," of Chinese nuclear weapons program was published in the United States^[105]. In the book, many people to whom He had been associated closely with during that period, such as Yu Min (于敏, 1926-), Huang Zuqia (黄祖洽, 1924-), Zhou Guangzhao, Zhu Hongyuan, and, of course, Qian Sanqiang, were mentioned, repeatedly, but He's name couldn't be found anywhere.

Fourthly, in May 1999, Mr. Zhang Jinfu (张劲夫, 1914-), the Party Chief and Vice President of CAS during 1956-1967, published a lengthy and influential reminiscence of the development of China's nuclear weapons and aerospace technology in *People's Daily*, entitled *Let the History Remember Them*^[106]. In the article, Mr. Zhang mentioned nearly one hundred names, but pioneer He Zuoxiu's name was not mentioned a single time.

Fifthly, in September 1999, Chinese government awarded "'Two Bombs and One Satellite' Meritorious Service Medal" to 23 scientists involved in the nuclear bomb, missile, and artificial satellite programs^[107], and most of these scientists were, and still are, less well-known to the public than He Zuoxiu is, but He, again, was not on the list.

Finally, in the official database of CAS academicians, He's many "achievements," such as "the relationship between particle physics research and Marxist – Leninist philosophy," "the divisibility of field," "whether the universe had a beginning," "education budget," "science and technology policy," "social economy," and "peace and disarmament," were mentioned, but his most important "achievement," his involvement in the nuclear weapons research, was completely left out^[108].

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中国两院院士资料库

何祚庥



粒子物理、理论物理学家。上海人。1951年毕业于清华大学。中国科学院理论物理研究所研究员。主要从事理论物理学、科学史、自然辩证法、哲学、政治经济学等方面的科学研究并取得多项重要成果。在物理学方面，对弱相互作用特别是 μ 俘获问题作了深入研究，发现了一系列新的选择法则；首次提出Chew-Mandelstam推导的方程有严重错误；对层子模型进行了合作研究，并建立了一个复合粒子量子场论的新体系。在科学史、自然辩证法、哲学、政治经济学等方面，着重探讨了粒子物理研究中有关马列主义哲学问题。近年来，又转向宇宙论、暗物质问题的研究，先后探讨了中微子质量问题、粒子的可分性、场的可分性、真空的物质性、宇宙有无开端、宇宙大爆炸从何而来、量子力学的测量过程是否必须有主观介入等问题，澄清了对这些问题认识上的一些模糊观念。在教育经费、科技政策、社会经济、和平与裁军等问题的研究方面取得重要成果。

1980年当选为中国科学院院士（学部委员）。（来源：中科院网站）

人民网资料 2003年9月18日

何祚庥



粒子物理、理论物理学家 1927年8月24日生于上海，籍贯安徽望江。1951年毕业于清华大学。1980年当选为中国科学院学部委员（院士）。中国科学院理论物理研究所研究员，曾任该所副所长。

主要从事粒子物理及各种应用性问题研究并取得多项重要成果。对弱相互作用特别是 μ 俘获问题作了深入研究，发现了一系列新的选择法则首次提出Chew-Mandelstam推导的方程有严重错误对层子模型进行了合作研究，并建立了一个复合粒子量子场论的新体系。在科学史、自然辩证法、哲学、政治经济学等方面，着重探讨了粒子物理研究中有关马列主义哲学问题。近年来，转向宇宙论、暗物质问题的研究，探讨了中微子质量问题、粒子的可分性、场的可分性、真空的物质性、宇宙有无开端、宇宙大爆炸从何而来、量子力学的测量过程是否必须有主观介入等问题，澄清了对这些问题认识上的一些模糊观念。1982年获国家自然科学奖二等奖。

Unrecognized

Neither [the older version](#) (September 18, 2003) nor [the current version](#) (as of November 14, 2013) of CAS academician database recognizes He Zuoxiu's contribution to the development of the hydrogen bomb theory, or anything related to the development of nuclear weapons in China.

No wonder that He has repeatedly told the public that he was merely a fly attached to the tails of steeds, it was the steeds who galloped fast, so he was able to keep up with the times as well^[109]. Considering He's cocky personality, what he said is more likely to be the truth than just hypocritical humbleness.

(2) Missing in Action

Indeed, He's "fly story" is supported by historical data. The so called Project B, for exploration into hydrogen bomb theory, was started in late 1960 and headed by Huang Zuqia, who was also involved in the atomic bomb project. In January 1961, Qian Sanqiang accepted the suggestion from Huang and He, appointed Yu Min the deputy leader of the project^[110]. However, at that time Yu Min was not permitted to participate in the atomic bomb project at all, on the contrary, he was a key target of criticism for his "white expert" tendency^[111]. Huang, on the other hand, was involved in the atomic bomb, and he was not allowed to inform the progress made in the atomic bomb project to the hydrogen bomb project, although he was allowed to transmit the information the other way, thus he got a nickname of "semiconductor."^[112] These facts, taken together, indicate that the Project B was treated like a stepson by a stepmother, and its importance was much less than the atomic bomb project, at least it was so at the beginning.

The fact is, Yu Min was born in 1926, only one year older than He; and he graduated from Peking University in 1949, only two years earlier than He did from Tsinghua. Yu has never received any training abroad: his first visit to a foreign country was in 1988^[113]. He Zuoxiu, on the other hand, had been trained in the Propaganda Department for more than 5 years; and in the Soviet Union for two years, so he was, and still is, a prototype of "red expert." The question is: why wasn't he appointed the leader of the H-bomb theory exploration? Why did He want to recommend Yu Min for the job? The only plausible answer to the questions is his incompetence.

The exploration of hydrogen bomb theory by Chinese scientists could be divided roughly into three stages: the initial stage, from late 1960 to September 1963, during which only people in the Atomic Energy Institute at CAS who were not involved in the atomic bomb project were doing the research;

the interim stage, starting from September 1963 when part of the main force from the atomic bomb project, including the eminent Dr. Peng Huanwu, joined the project, to January 1965; and the final stage, starting from January 1965 when the Project B was completely integrated into proper nuclear weapons program, to June 17, 1967 when the actual H-bomb was detonated^[114].

He Zuoxiu admitted later that what they did in the initial stage was nothing but guessing how the hydrogen bomb works^[115]. And according to General Liu Xiyao (刘西尧, 1916-2013), the Vice Minister of the Second Ministry of Machine Building Industry, which was the governmental agency overseeing the nuclear weapons program, what Chinese scientists knew about hydrogen bomb theory by the time China detonated the A-bomb in October 1964 was merely some “numbers”:

“After the successful detonation of the first atomic bomb, Premier Zhou immediately ordered to speed up the development of hydrogen bomb. About hydrogen bomb,we also knew that we need atomic bomb to detonate hydrogen bomb, the Atomic Energy Institute at Fangshan started theoretical research on thermonuclear fusion as early as 1960, accumulated some data, however, it was unknown and without any information about how to detonate hydrogen bomb with atomic bomb, i. e. how to trigger nuclear fusion with nuclear fission.”^[116]

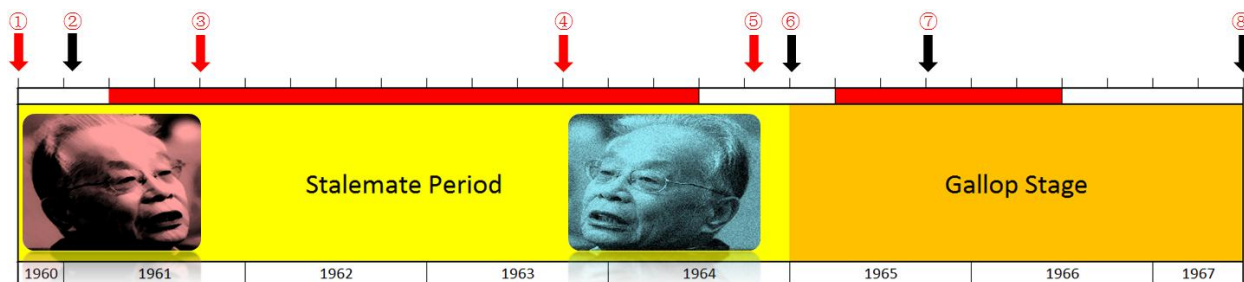
And according to Song Binghuan, who had participated in the nuclear weapons program in the administrative capacity, on November 2, 1964, Premier Zhou Enlai asked Mr. Liu Jie, the Minister of the Second Ministry of Machine Building Industry, when they plan to make the hydrogen bomb. Liu’s answer: the preparatory investigation of hydrogen bomb theory was being conducted, however, there were still many questions unanswered. They would need 3-5 years to finish the job^[117].

In January 1965, Chairman Mao expressed his desire for a hydrogen bomb explicitly for the first time, and only after that, the research and development of H-bomb started running at full speed. In February, under the guidance of Drs. Zhu Guangya and Peng Huanwu, Dr. Zhou Guangzhao took direct charge of making the H-bomb Research Outline. According to the outline, the first step was to understand the principle of hydrogen bomb^[118]. In other words, before that time, Chinese scientists essentially had no idea how hydrogen bomb works.

It is universally acknowledged that the major breakthrough in China’s H-bomb development was made after September 1965, by Yu Min^[119]. And by that time, He Zuoxiu had left the project for more than a year: According to He himself, he was sent to Xinyang, Henan Province, about one thousand kilometers away from Beijing, to participate in the “Four Cleanups” movement from October 1964 to September 1965^[120], and after his returning to Beijing, he was separated from the nuclear weapons program forever^[121]. Therefore, He missed the key developmental stage of the hydrogen bomb project entirely.

The fact is, He was not involved in the initial stage very much either: according to Mr. Song Binghuan, He left the Project B in the 4th quarter of 1961, and didn’t come back until 1963^[122].

That’s why He’s name was rarely mentioned when the development of the hydrogen bomb in China is discussed.



The truth about the pioneer He Zuoxiu

He Zuoxiu, the so called “one of the pioneers of hydrogen bomb theory in China,” spent only two futile years on the project during the entire period of hydrogen bomb development. China’s hydrogen bomb project started in late 1960 and ended in mid-1967. He’s involvement was at most two years in the less productive period. The red horizontal bars indicate the periods during which He was heavily involved in Marxism philosophical studies.

Timeline:

- ① In late 1960, Project B was established to explore the theory of hydrogen bomb. He Zuoxiu joined in the project shortly;
- ② In January 1961, Yu Min joined in the project;
- ③ In the 4th quarter of 1961, He Zuoxiu left Project B;
- ④ In Sept. 1963, some key figures in the Atomic Bomb Project joined in Project B. He Zuoxiu probably returned to the project at this time;
- ⑤ On Oct. 16, 1964, China detonated its first atomic bomb. He Zuoxiu left the nuclear bombs program forever;
- ⑥ In January 1965, Project B was completely merged with the Atomic Bomb Project;
- ⑦ In September 1965, Yu Min made a major breakthrough in hydrogen bomb principle;
- ⑧ On June 17, 1967, China detonated its first hydrogen bomb.

4. A Fly and Three Steeds, a True Story

So, exactly what did the “pioneer” He Zuoxiu do for the Chinese hydrogen bomb theory? First of all, as usual, He’s job in the Project B was to take care of the Party affairs: He was a member of the General Party Branch of the Atomic Energy Institute, and the secretary of the Party Branch in the Theory Division. Secondly, He’s biggest contribution, according to himself, was his recommendation and political guarantee of Zhou Guangzhao and Yu Min for their participation in the nuclear weapons program. As He put it:

“The few key figures in atomic and hydrogen bombs were all recommended by me.”^[123]

And also according to He:

“The biggest contribution Qian Sanqiang made to China’s Two-Bomb was his consent to allowing Zhou Guangzhao and Yu Min to participate in the research on atomic and hydrogen bombs.”^[124]

In other words, it was He Zuoxiu who made Qian Sanqiang - China’s Oppenheimer - to make his biggest contribution to the program he oversaw.

So, how did He recommend these two people? Here are the stories: When He and Zhou delivered their letter to Qian Sanqiang in Moscow in March 1960, expressing their willingness to return to China to participate in the atomic bomb research, Qian was worried about Zhou’s political background (two of Zhou’s sisters were special agents working for the nationalist government.) In

the evening, Qian talked to the Minister Liu Jie about the matter over a telephone, and He, who was with Qian at the time, tried his best to guarantee that Zhou's political performance was extremely good, and his professional ability was extremely strong^[125]. Although he didn't say it explicitly, He's implication was clear enough: it was he who made it possible for Zhou Guangzhao to be included in the program.

The fact is, by March 1960, Zhou had passed at least two political hurdles: the first one was in 1952 when he joined in the CCP while he was a graduate student at Peking University, and the second one was in 1957 when he was sent to Dubna to study high energy physics. Both hurdles were supposedly very high: it was rare for a college student to be enlisted in the Party, and it was even rarer for a person to go to the Soviet Union, the only destination to study aboard for Chinese scholars at that time. Furthermore, Zhou was the secretary of CCP branch at Dubna, he received two prizes from JINR, and published more than 30 influential papers during the 4 years he stayed there (1957-1961)^[126]. Therefore, it is almost certain that the guarantee from He, a subordinate of Zhou in the Party line, could have a fundamental effect on Zhou's participation in the nuclear bombs program, unless He was on a secret mission of monitoring Chinese scientists at JINR, like a China's FBI or KGB agent, which is of course very likely. Indeed, it was He who made up the story that Zhou had absolutely no chance to join in the program according to the standard prevalent at that time^[127]. However, according to Qian's biography, Zhou's political background was never an issue^[128].

The story about He's "protection" of Yu Min was even more bizarre. According to He, the General Party Branch at the Atomic Energy Institute had decided to criticize Yu Min for his political apathy. As the branch secretary of the Theory Division, He had to implement the decision, but he was afraid of hurting Yu, so he protected Yu by setting a relaxed tone in the criticizing meeting in his opening address:

"He talked about the importance of intellectuals' learning and reforming generally, which included everyone. When he talked about Yu Min, his wording was measured, saying that to other people's criticisms, if they were right, then you should correct your mistakes accordingly; if they were wrong, you should use the criticisms to urge yourself on. He also said that it was important to serve the people voluntarily; one should not wait for repeated invitations before coming out. Because He used a literary allusion, which had a tone of semi-joking, therefore the atmosphere was much relaxed."^[129]

And this must be He's biggest contribution to the hydrogen bomb theory in China.

As a matter of fact, Yu Min had received that kind of protection from Qian Sanqiang several times before, and it seems that with or without He's recommendation, Qian would use Yu Min in the Project B, sooner or later^[130].

In other words, it was not He Zuoxiu who made Yu Min or Zhou Guang Zhao or Qian Sanqiang who they were; on the contrary, it was these three people who made He Zuoxiu who he is: He attached to them like a fly attached to the tail of a steed! No wonder He keeps complaining that people thought China spent the shortest time on developing H-bomb after A-bomb, and keeps telling people the "truth" that long before the A-bomb, China had begun its research on H-bomb, and keeps telling people that the four year "exploratory investigation on H-bomb theory" was necessary and essential for its eventual success^[131].

Well, either way, a fly is a fly. What made He unique is that he has a unique way to attach himself to the tails of steeds.



Three steeds and a fly

From left: Qian Sanqiang, Zhou Guangzhao, Yu Min, and He Zuoxiu.

“A (Fake) Inventor of Falsifiability Theory”

He Zuoxiu, like his old boss Yu Guangyuan, is known in China as an “amphibian,” meaning that he is a master in both natural science (physics) and social science (Marxism/natural dialectics). As a matter of fact, He has Ph. D. students in both areas (more on this later.) Therefore, during his tenure in the Project B, He spent more time on Marxist philosophy than on physics.

1. A Redhot Philosopher of Science

The following story has been told by He many times: he used to ask Yu Min: How did you acquire your scientific research skill? Yu’s answer: “I often watch senior scientists’ way of thinking.” According to He, what Yu Min said was the most important words he has ever heard, because it taught him live scientific methodology^[132]. It is unknown whether He was telling the truth or just trying to attach himself to Yu Min’s tail, because what Yu told him, if the story is real, was basically a different version of an old Chinese saying, learning skill is less efficient than stealing skill [by watching] (“学艺不如偷艺”).

True or not, by the first half of 1960s, He looked like the number one philosopher of science in China: from 1961 to 1964, He published at least 8 papers on scientific methodology and criterion of truth, six of them were in the authoritative and prestigious *Red Flag*^[133], more than the number of *Red Flag* publications (4) Yu Guangyuan had had in his entire career in the Propaganda Department. Here is the story told by He, proudly, about 30 years later:

“In 1961, the Party Central Committee formulated the ‘14 items’ [policy] in scientific work, summarized the deviations appeared and lessons learned in scientific work since 1958. To correct the misunderstanding about scientific methods such as experiment, abstraction, and hypothesis, which appeared during the period, *Red Flag* magazine invited me to write a series of articles about scientific methods, and they were published in the *Red Flag* between 1961 and 1963. Because they were the first articles in China trying to systematically explore scientific methodology from a Marxist perspective, and they discussed the methodological questions frequently experienced in scientific research, so they were rather popular with the readers.”^[134]

Since its start in 1958, and till 1976 when the Culture Revolution was officially ended, the *Red Flag* had been the most authoritative political magazine in China, the very first article published in the magazine was authored by Chairman Mao. Therefore, it is really unusual that He Zuoxiu, instead of Yu Guangyuan, or anyone else, was invited by the magazine to write articles on scientific methods.

So, what did He write?

In the first of his serial articles, *The Roles of Experiment, Abstraction, and Hypothesis in Scientific Research*, He cited a total of six references for a total of 12 times, and five of the references were so called Marxism – Leninism – Mao Tse-tung Thought: Karl Marx’s *Capital* was cited twice; Friedrich Engels’ *Dialectics of Nature* was cited 3 times, and his *Anti-Dühring* was cited once; Vladimir Ilyich Lenin’s *Philosophical Notebooks* was cited 2 times; and Chairman Mao’s *On Practice* was cited 3 times. The only scientific literature He cited was the *Thermodynamics* written by his professor at Tsinghua University, Dr. Wang Zhuxi (王竹溪, 1911-1983). As a matter of fact, in all six articles published in the *Red Flag*, He gave a total of 64 citations, and 93.75% of them were the communist classics written by the five “revolutionary leaders,” Marx, Engels, Lenin, Stalin, and Mao (see the table below.)

A complete list of He Zuoxiu’s references in his 6 <i>Red Flag</i> articles							
Author	Title	Times cited					
		A*	B	C	D	E	F
Mao Tse-tung	<i>On Practice</i>	3	5	1	1		1
Mao Tse-tung	Other 2 articles			1	1		
Friedrich Engels	<i>Dialectics of Nature</i>	3	2	1	10	1	1
Friedrich Engels	<i>Anti-Dühring</i>	1	1		1	1	2
Friedrich Engels	Other 2 articles		1	1			1
Karl Marx	<i>Capital</i>	2			1		
Vladimir Ilyich Lenin	<i>Philosophical Notebooks</i>	2	3				1
Vladimir Ilyich Lenin	<i>Materialism and Empiric-Criticism</i>		2				7
Joseph Stalin	<i>Marxism and Problems of Linguistics</i>				2		
Immanuel Kant	<i>The Critique of Pure Reason</i>		1				
Galileo Galilei	<i>Dialogues Concerning Two New Sciences</i>					1	
A Russian	<i>History of Physics</i> (published in 1956)		1				
Wang Zhuxi	<i>Thermodynamics</i>	1					
<i>Total</i>		12	16	4	16	3	13

* The titles of He's articles (also see ^[133]):

- A. *The Roles of Experiment, Abstraction, and Hypothesis in Scientific Research. Red Flag* 1961(11):12-22.
- B. *On Some Issues Concerning the Practice Criterion in Natural Scientific Research. Red Flag* 1962(2):13-24.
- C. *Natural Science and Practical Application. Red Flag* 1962(7):24-28.
- D. *The Role of Mathematical Methods in Understanding the Objective World. Red Flag* 1962(10):22-30.
- E. *Theories and Experiments in Physics Research. Red Flag* 1963(10/11):29-36. (Co-authored with Zhou Guangzhao)
- F. *On Some Issues Concerning the Practice Criterion in Natural Science Research (II). Red Flag* 1964(10):55-65.

In the first article, He described “the general process of scientific theory formation,” which was similar to the so called “hypothetico-deductive” method, however, He substituted the deductive logical thinking with so called “abstraction.” As a matter of fact, He’s abstraction has no relation with logic at all, so it seems that he got the idea basically from his personal experience in theoretical physics research, and he was not aware of its limited application in other sciences such as biology, geology, or even experimental and applied physics. So much for the abstraction!

The funny part of his article is about hypothesis:

“The formulation of a hypothesis is linked to a person’s worldview. A successful hypothesis is generally the result of using some principles of the dialectical materialist methodology and worldview to a certain extent, consciously or unconsciously. However, if one lacks scientific attitude, and starts from a wrong worldview and methodology, he cannot help but get the wrong hypothesis. Such hypothesis usually won’t promote the development of science; instead, it leads people astray. For example, some scientists in astronomy who advocate a limited universe have made some hypotheses about the formation of the universe, such as the expansion of the universe, for the only purpose of proving the myth that God created the world. Such hypotheses are philosophically wrong of course, scientifically, they are unfounded either. Such hypotheses are what we oppose.”^[135]

He Zuoxiu never provided his readers with any evidence supporting his assertions that those astronomers who advocated a limited universe were all believers in God, and that they proposed the universe expansion hypothesis purely based on their religious believing, rather than scientific evidence. The fact is, it was He who made these assertions completely based on his Marxist worldview, because according to Marxism, the universe is unlimited. A few years later, during the Cultural Revolution, He would suggest the Red Guards to criticize Einstein’s view of a finite universe, and in 1980s, he would engage in fierce fights against Professor Fang Lizhi on the same issue, among others. (More on this later.)

2. A False Forerunner of the Falsifiability Theory

The funnier thing is, in 1990s, He claimed, based on his writings in the 1960s, that he was the one who “invented” the falsifiability theory:

“In my article *On Some Issues Concerning the Practice Criterion in Natural Scientific Research*, I wrote: ‘The knowledge of formal logic tells us, to prove a categorical affirmative proposition, one needs to take into account all of the actual situations; however, to overturn a categorical affirmative proposition, all one needs is a simple example.’ In another article, *The Practice Standard Shouldn’t Be Understood Apart from Historical Perspective*, I wrote again: ‘When practice examines the basic contents of science, it is individual which examines general, inferring infinity from finitude. However, the contradictions between individual and general, and finitude and infinity, could not be resolved completely by one or two practices.’ In *On Some Issues Concerning the Practice Criterion in Natural Science Research (II)*, I wrote: ‘Logically speaking, it is relatively easy to comply with the conditions

of the logical completeness to correct the theoretical errors by practice. Syllogistic knowledge tells us that we only need one special example to overturn a categorical affirmative proposition. However, it is a little complicated to prove a general proposition by practice, because a practice under a certain condition is always a specific practice, but theory is always something of generality, universality, and infinity.’ —These statements were really a replica of Popper’s theory that scientific theory ‘can only be falsified, but cannot be verified.’ However, I proposed these viewpoints much earlier than Popper did. If there are ‘invention rights’ in the area of philosophy of science, then I am one of the ‘inventors’ earlier than Popper.”^[136]

Obviously, He Zuoxiu didn’t know that the [problem of induction](#) had been noticed thousand years ago, and had been discussed extensively by David Hume in the 18th century. On the other hand, Sir Karl Popper formulated his influential falsifiability theory in 1930s, when He Zuoxiu was an elementary school boy in Shanghai.

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标准的绝对性,也探讨了实践标准的相对性。然而此文叙述上的不确切之处,或观点模糊之处,激发起一场论战。现在时间已过去了25年,我们应怎样看待这场论战呢?

1966年2月4日的《光明日报》刊登的,由朱波同志所撰写的《逻辑证明和实践验证》一文,曾对这一论战做了评述,我认为这是一个较好的总结。我在《论自然科学研究中有实践标准的若干问题》一文中说:“形式逻辑的知识告诉我们,证明一个全称肯定的命题要考虑到所有的实际情况,而推翻一个全称肯定的命题却只要一个简单的例外就行了。”而在《不能离开历史观点理解实践标准》一文中又说:“实践检验科学的基本内容,是由个别来检验一般,由有限推出无限,而个别和一般、有限和无限之间矛盾的解决,却决不是一两次的实践就能穷尽的。”又在《再谈自然科学研究中的实践标准问题》一文中写道:“从逻辑上说,由实践来纠正理论上的错误,是比较容易符合逻辑上完备性的条件的,三段论知识告诉我们,要推翻一个全称肯定的命题,只要有一个特殊的例外就行了,但是由实践来证明一个普遍命题,却要复杂一些。因为在一定具体条件下的实践,总是具体的实践,而理论却是某种一般性、普遍性、无限的东西。”——这实在是波普所提出的科学理论“只能证伪,不能证实”的学说的翻版。然而我在提出这些论点时,却比波普早得多。如果说在科学的哲学领域内有什么“发明权”的话,我便是比波普更早的“发明人”之一。然而我的这些意见却是错误的。正如朱波同志所指出:“列宁在论述认识与实践的关系时曾经指出:‘实践高于(理论的)认识,因为实践不仅有普遍性的优点,而且有直接的现实性的优点’。(《列宁全集》,第38卷,第230页)这就是说,经

Logik der Forschung first published 1935 by Verlag von Julius Springer, Vienna, Austria
First English edition published 1959 by Hutchinson & Co.

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False claim for priority

In an article written in 1990 and published in 1999, He Zuoxiu claimed that he was the one who first proposed the falsifiability theory in 1960s, before Sir Karl Popper did it (left, the words in the red boxes read: “If there are invention rights in the area of philosophy of science, then I am one of the inventors earlier than Popper.”) The fact is, Sir Karl Popper advanced the theory in his *The Logic of Scientific Discovery* (middle), which was first published in German (*Logik der Forschung*) in 1935, and in English 1959 (right).

3. A Marxist Master Who Doesn't Know Marxism

The funniest thing is, right after having claimed the title of the father of the falsifiability theory, He immediately slapped his own face:

“Unfortunately, my opinions were wrong. Just like what Comrade Zhu Bo pointed out, ‘Lenin, when discussing the relationship between knowledge and practice, pointed out: “Practice is higher than (theoretical) knowledge, for it has not only the dignity of universality, but also of immediate actuality.”’ (*Complete Works of Lenin*, Volume 38, p.230) In other words, the knowledge verified by practice is not only applicable to a certain matter, but also applicable to all the matters under the same condition and with the same nature, thus it has general significance and function.....Sure, practice is always specific, and people’s practice is always

targeted at a particular type of matters. In this sense, people's practice under a certain condition is always individual. However, it is not enough and comprehensive just to say that. Practice is individual, [but] individuality contains generality. It is not all-sided just to recognize the former, but not the latter, and it is a one-sided and metaphysical understanding of practice.' I Think Comrade Zhu Bo's criticism is correct and to the point."^[137]

Yes, after "reading and understanding Marxism in the Propaganda Department for 5 years,"^[138] He was still able to miss one of the most important Marxist doctrines and, instead, "invented" the falsifiability theory. And once his ignorance in Marxism was pointed out by a person named Zhu Bo, he would immediately discard everything he had just said, without any experiments, abstractions, and hypotheses. To him, what had been said by Marx, Engels, Lenin, Stalin, and Mao is The Absolute Truth, no need to subject them to falsifiability test.



The five "great proletarian revolutionary leaders"

A typical poster during 1960s in China showing Marx, Engels, Lenin, Stalin, and Mao, dubbed MaEnLieSiMao. The Chinese slogan in the poster reads: "Long live the invincible Marxism-Leninism-Mao Tse-tung Thought!"

The fact is, what Lenin said, which Mao quoted in his *On Practice*, is nothing but a brief note when he read Hegel's *Science of Logic*. And what Hegel wrote was:

"This determinateness, which is contained in the Notion, and is equal to it, and includes within itself the demand of the individual external actuality, is the Good. It appears with the dignity of absoluteness, because it is the totality of the Notion within itself the objective in the form simultaneously of free unity and subjectivity. This Idea is higher than the Idea of Cognition which has already been considered, for it has not only the dignity of the universal but also of the simply actual."^[139]

Of course, what Lenin did was just paraphrasing what Hegel wrote. What even more ironic is, what Hegel wrote was a development of the ideas in Immanuel Kant's *Critique of Pure Reason*, in which he tried exhaustively to differentiate the speculative reason from practical reason. Therefore, both Lenin and Mao had their roots in the "German Idealists." Indeed, when He Zuoxiu cited Kant for the only time in his articles, He criticized Kant's idealism, and cited more than a book-page from Engels' *Anti-Dühring* to refute it^[140].

In short, the philosopher He Zuoxiu only knew, or believed, two things: the dialectical materialist doctrines are the absolute truth; and any heterodoxies could be defeated by citing Marx, Engels,

Lenin, Stalin, and Mao. It is extremely not understandable why he wanted to waste his time to discuss the issues of “scientific method” and “criterion of truth,” since he had already known, or supposed to know, that the only orthodox method and absolute truth is Marxism – Leninism – Mao Tse-tung Thought, or, dialectical materialism.

Hegel's Science of Logic	Lenin's comment
<p>and subjectivity. This Idea is <i>higher than the Idea of Cognition which has already been considered</i>, for it has not only the dignity of the universal but also of the <i>simply actual...</i>” (320-321)</p>	<p><i>Practice is higher than (theoretical) knowledge</i>, for it has not only the dignity of universality, but also of immediate actuality.</p>
<p>这种观念高于前面所考察的认识观念，因为这种观念不仅具有普遍东西的品格，而且具有单纯现实东西的品格……”（第320—321页）</p>	<p>实践高于（理论的）认识，因为它不仅具有普遍性的品格，而且还具有直接现实性的品格。</p>

Picking and choosing what is useful

Lenin's annotation to a sentence in Hegel's *Science of Logic*. (in: Vladimir Ilyich Lenin's *Conspectus of Hegel's Science of Logic — Book III (Subjective Logic or the Doctrine of the Notion)*. The upper part (English) is a screenshot from <http://www.marxists.org>, and the lower part (Chinese) is a page-shot from the Chinese version of the *Complete Works of Lenin*, Vol. 50, People's Publishing House, 1990. p.183.

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he must bring his ideas into correspondence with the laws of the objective external world; if they do not correspond, he will fail in his practice. After he fails, he draws his lessons, corrects his ideas to make them correspond to the laws of the external world, and can thus turn failure into success; this is what is meant by “failure is the mother of success” and “a fall into the pit, a gain in your wit”. The dialectical-materialist theory of knowledge places practice in the primary position, holding that human knowledge can in no way be separated from practice and repudiating all the erroneous theories which deny the importance of practice or separate knowledge from practice. Thus Lenin said, “Practice is higher than (theoretical) knowledge, for it has not only the dignity of universality, but also of immediate actuality.”¹ The Marxist philosophy of dialectical materialism has two outstanding characteristics. One is its class nature: it openly avows that dialectical materialism is in the service of the proletariat. The other is its practicality: it emphasizes the dependence of theory on practice, emphasizes that theory is based on practice and in turn serves practice. The truth of any knowledge or theory is determined not by subjective feelings, but by objective results in social practice. Only social practice can be the criterion of truth. The standpoint of practice is the primary and basic standpoint in the dialectical-materialist theory of knowledge.²

Quoted and being quoted

Lenin's one-sentence assertion was quoted by Mao in his *On Practice*, and Mao's quotation has been widely quoted as the absolute truth by Chinese Marxist philosophers such as Zhu Bo and He Zuoxiu. (Page-shot of *Selected Works of Mao Tse-tung*, Volume I. Foreign Languages Press, 1965. p.297.)

A Prize-winning Maoist Particle Physicist: The Scandalous Straton Model

He Zuoxiu didn't have a specialty in physics before 1958, and he was trained in Dubna as a particle physicist. After returning to China, He spent about 5 years on everything else other than particle physics, such as speculating the principle of hydrogen bomb, and in 1965, his special training finally found its use, supposedly.

1. Chairman Mao's Obsession

For some philosophical and political reasons, Chairman Mao paid more than adequate attention to the problems of elementary particles^[141]. According to historical records, Mao talked about the divisibility of atom, electron, neutron, and proton as early as 1953^[142]. In January 1955, Mao discussed the same issue with Qian Sanqiang in an enlarged meeting of CCP Central Committee Secretariat:

“At a meeting in early January of 1955, Chairman Mao Tse-tung asked Tsien San-tsiang: ‘Atomic nuclei are composed of proton and neutron. What are then the proton and the neutron composed of?’ Tsien San-tsiang answered: ‘Judging from our present knowledge, the proton and the neutron are elementary particles.’ Smiling, Chairman Mao said: ‘It seems unlikely to me. The proton, the neutron and the electron are still divisible. Though there is no experimental proof now, conditions in experiments will continue to develop. Future experiments are going to prove that they are divisible. Do you believe it? I believe it anyway, even if you scientists don't believe it.’”^[143]

In 1957, while in Moscow attending the Congress of Representatives of the Communist and Workers' Parties, Mao talked about atomic structure again:

“Any kind of world, and of course class society in particular, teems with contradictions. Some say that there are contradictions to be ‘found’ in socialist society, but I think this is a wrong way of putting it. The point is not that there are contradictions to be found, but that it teems with contradictions. There is no place where contradictions do not exist, nor is there any person who cannot be analysed. To think that he cannot is being metaphysical. You see, an atom is a complex of unities of opposites. There is a unity of the two opposites, the nucleus and the electrons. In a nucleus there is again a unity of opposites, the protons and the neutrons. Speaking of the proton, there are protons and antiprotons, and as for the neutron, there are neutrons and antineutrons. In short, the unity of opposites is present everywhere. The concept of the unity of opposites, dialectics, must be widely propagated. I say dialectics should move from the small circle of philosophers to the broad masses of the people.”^[144]

In 1963, the *Journal of Dialectics of Nature* resumed its publication after a two-year suspension. The first issue of the resumed Journal, which was passed to Chairman Mao by his son-in-law Kong Linghua^[145], published Japanese physicist Shoichi Sakata's *A New View of Elementary Particles*, with a commentary written by He Zuoxiu^[146]. The Chinese version of Sakata's article was translated from a Russian version, which, according to Sakata, was a bad translation, as he told Yu Guangyuan in 1964^[147]. In the article, Sakata expressed his belief, initiated from his study of Engels' *Dialectics of Nature* and Lenin's *Materialism and Empirio-Criticism*, that elementary particles are divisible infinitely:

“When looking back at the remarkable progress of atomic physics achieved in this century,

we see quite clearly that atoms have never represented the limit of divisibility of matter, but should have been understood as one of an infinite number of strata which, as a whole, constitute nature and each of which is qualitatively different from the others. Similarly for elementary particles: Although it presently looks as if they were the ultimate elements of matter, one should similarly regard them as forming one of the strata of matter.”^[148]

It is most likely that Sakata was the first scientist who supported Mao’s philosophical speculation on elementary particles, so he attracted Mao’s attention. In November of that year, Chairman Mao suddenly asked Yu Guangyuan about the Journal, and Yu figured that Mao’s interest in the journal must be seduced by Sakata’s article^[149]. In August 1964, Chairman Mao first talked to some Chinese philosophers, including Gong Yuzhi, about the infinite divisibility of elementary particles; then he praised Sakata to his face in the Beijing Science Symposium, and on the next day, Mao summoned Yu Guangyuan and Zhou Peiyuan to his residence to talk about Sakata’s article in particular and natural dialectics in general^[150].



Special treatment

Top: On August 23, 1964, Chairman Mao received the scientists participating in the Peking Science Symposium. (Source: *Peking Review*, August 28, 1964).

Bottom: During the above event, Mao shook hands with Sakata and praised his elementary particle article. The person in the middle was Dr. Zhou Peiyuan, Mao’s most favorite scientist in China. (Source: *Caikao Xiaoxi* [Reference News], November 5, 1966.)

2. The Great Proletarian Scientific Revolution

To the Party men in the Propaganda Department, Mao's serial actions sent a signal which was so strong and so obvious that even an idiot couldn't miss. So, Yu arranged the re-translation of Sakata's article from Japanese, and its publication in *Red Flag* in June 1965, with a lengthy editorial written by Gong Yuzhi, and revised by Yu Guangyuan, and an annotation written by He's wife Qing Chengrui and another person^[151]. The tone of the *Red Flag* editorial was so imposing, commanding, and assertive that it reminded Qian Sanqiang, who was in Xinyang, Henan Province at the time, immediately the talk he had with Chairman Mao 10 years ago^[152].

According to a report published in the *Journal of Dialectics of Nature*, on May 12 and June 17, 1965, *Red Flag* editorial board and the Institute of Philosophy at CAS hosted two symposiums to discuss how to apply materialist dialectics consciously in physics research. Also, many CAS institutes and universities held their own symposiums. On July 3, a seminar sponsored by Beijing Natural Dialectics Society and Beijing Science Hall was held in Beijing, more than 600 scientists and philosophers attended. On July 17 and 21, China Association for Science and Technology, the Institute of Philosophy, and Beijing Natural Dialectics Society organized a two-day symposium, attended by more than 700 people, to "exchange ideas about how to consciously use Mao Tse-tung Thought to guide scientific and technological work." Yu Guangyuan gave the theme report at the event^[153]. In Shanghai, Wen Wei Po published multiple articles written by leading scholars under the headline of *Natural Science Workers Should Consciously Learn How to Use Materialist Dialectics* in June and July, the *Red Flag* devoted more than a half issue in August on the subject of natural science and materialist dialectics, with articles such as *On the Infinite Divisibility of Matter* and *Study Mao Tse-tung's Philosophical Thought, Improve Methods in Scientific Research*, written by Gong Yuzhi and Yu Guangyuan, respectively^[154]. It seemed that the "Scientific Revolution" in 1965 was the foreplay of the "Cultural Revolution" which started one year later^[155], and Yu Guangyuan and Gong Yuzhi were the key personnel Mao tried to rely upon.

It is very likely that He Zuoxiu had known Chairman Mao's interest in particle physics since 1955, either through Qian Sanqiang, to whom he has maintained a very close relationship, or through his old boss Yu Guangyuan. Or he should be able to do so through Shoichi Sakata directly, who was personally invited by Mr. Guo Moruo, the President of CAS, apparently with the permission or instruction from Chairman Mao, to visit China in 1955, and he visited China in 1956. During that trip, Sakata met China's top nuclear physicists such as Zhou Peiyuan and Zhu Hongyuan, and gave talks at universities and CAS^[156]. Also, in August 1959, D.I. Blokhintsev (Д. И. Блохинцев), the director of JINR, and one of the top Zhdanovshchina physicists in the Soviet Union, and according He Zuoxiu, a representative of materialist quantum theorist^[36], came to Beijing to participate in the celebration of the tenth anniversary of the People's Republic of China. During his staying in China, Blokhintsev gave a seminar on the elementary particles, in which he emphasized that the new development in high energy physics demonstrated Lenin's assertion made 50 years ago that electron is inexhaustible^[157]. Then He Zuoxiu wrote an article entitled *The New Developments and Some Philosophical Issues in the Modern Theory of Elementary Particles*, which was published in 1960 in Yu Guangyuan's *Journal of Dialectics of Nature*, trying to "properly evaluate and summarize philosophically the important findings [in elementary particle theories], under the guidance of Marxist philosophy."^[158]

As mentioned above, He Zuoxiu was in Xinyang, Henan Province, between October 1964 and September 1965, to participate in the Four Cleanups movement. So he basically missed the entire event surrounding Sakata's article. However, He's wife was not only in Beijing, she was also in the center of the whirlwind: Sakata's article was annotated by her. Obviously knowing her husband's strong interest in politics, or "philosophy of science," she wrote a letter to tell He the news. He, who was supposed to take part in the manual work to reform his bourgeois nature, then hid himself in a

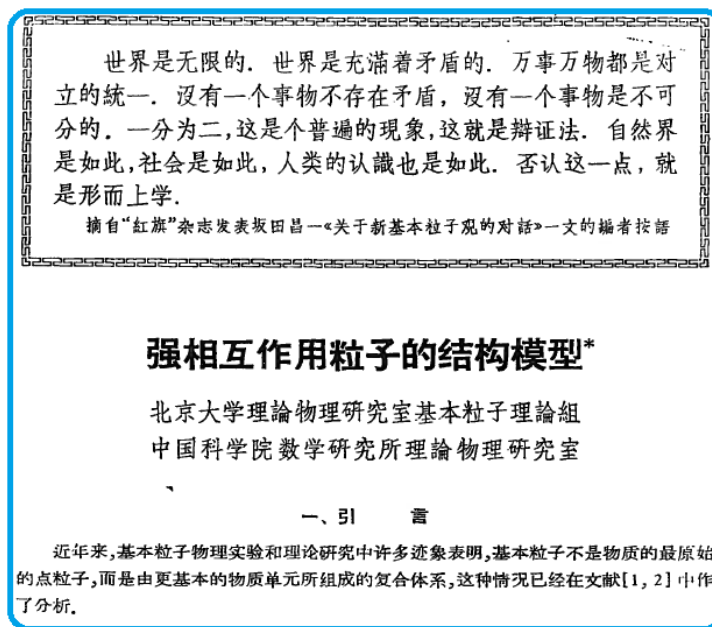
room to write an article, coauthored with his wife, about Sakata's article, entitled: *A Dialog About the Dialog about the New Views of Elementary Particles*, which was published in *Guangming Daily* in August 1965, and then in the *Journal of Dialectics of Nature*^[159].

Meanwhile, Qian Sanqiang was asked by Chinese Academy of Sciences, Ministry of Education, the Department of Propaganda, and Foreign Cultural Liaison Committee to organize Chinese physicists to study Chairman Mao's philosophical thought of infinite divisibility of matter, and explore the structure of elementary particles^[160]. In other words, Chinese authority wanted the scientists to demonstrate that Chairman Mao's assertion/speculation is scientifically correct.

3. Under the Brilliant Illumination of Mao Tse-tung's Thought

Under Qian's leadership, a so called Peking Research Group on the Theory of Elementary Particles was formed in September 1965, and He Zuoxiu returned to Beijing from Xinyang, and joined in the group at about the same time. Obviously, He's article in *Guangming Daily*, as well as his personal relationship with Qian Sanqiang, played a critical role in his comeback.

The Peking Research Group had a total of 39 physicists from four institutions: 16 people from the Institute of Atomic Energy at CAS, 9 from the Institute of Mathematics at CAS, 11 from Peking University, and 3 from the University of Science and Technology of China^[143]. By the early 1966, they worked out a model which fits Chairman Mao's imagination. The model and its construction were described in 42 papers published in two less prestigious academic journals, *Atomic Energy* and *Acta Scientiarum Naturalium Universitatis Pekinensis*, just before the start of the Cultural Revolution. The funny thing is, in the leading paper, *A Relativistic Model of the Structure of Particles with Strong Interaction*, the authors put the first paragraph of the *Red Flag* editorial above its title (see image below). Obviously, everyone in China at that time believed, Like Qian Sanqiang did, that the editorial was written by Chairman Mao.



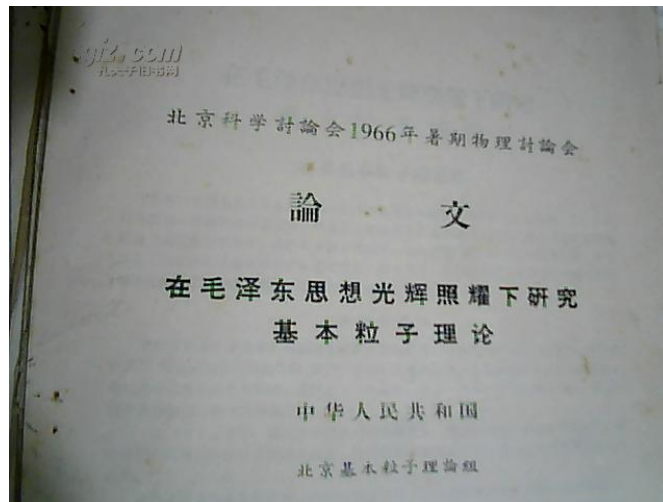
The supreme directive

On June 1, 1965, the *Red Flag* published the new version of Chinese translation of Shoichi Sakata's *Dialogues Concerning a New View of Elementary Particles*. Mr. Gong Yuzhi drafted an editorial on the article, and its first paragraph reads:

“The world is limitless, and the world is filled with contradictions. Everything is the unity of opposites, there is not a single thing which has no contradictions, and there is not a single thing which is indivisible. One divides into two, this is a general phenomenon, and this is the dialectics. Natural world is like that, society is like that, and human’s knowledge is like that also. It is metaphysics to deny it.”

The paper describing the straton model, *A Relativistic Model of the Structure of Particles with Strong Interaction*, published in 1966 in *Acta Scientiarum Naturalium Universitatis Pekinensis*, authored by the Peking University and USTC groups, used the above quoted *Red Flag* editorial on the top of the title (framed portion), suggesting that the paper was following the supreme directive. A similar or same paper was also published in *Atomic Energy* magazine, probably authored by the two groups at CAS^[161].

In July 1966, China hosted The Second Peking Science Symposium’s Summer Physics Colloquium. To facilitate communication, Qian Sanqiang suggested the hadron model to be named “straton model” so it “could more accurately reflect the idea that stratum is only a milestone in human knowledge”^[162], and it was presented in the colloquium under the title “*Research on the Theory of Elementary Particles Carried Out Under the Brilliant Illumination of Mao Tse-tung’s Thought.*”



For sale

A reprint of the straton model paper presented at the Peking Physics Colloquium in 1966 is for sale on the internet, the asking price: 30 Yuan RMB (~\$5).

On July 26, 1966, Xinhua News Agency released an article, and the following is its first two paragraphs:

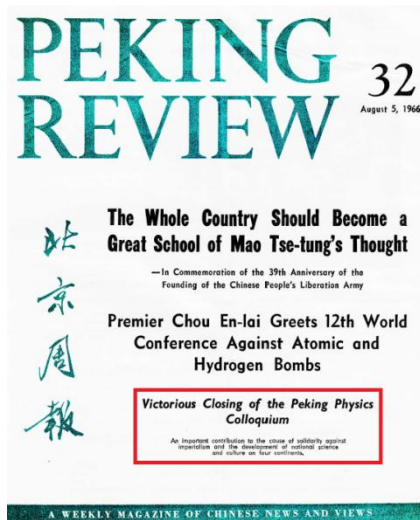
“In the Peking Physics Colloquium in this morning, Chinese physics worker Wang Rong, on behalf of the Peking Research Group on the Theory of Elementary Particles, gave an academic report, which demonstrates with eloquent facts again that Mao Tse-tung Thought is an invincible powerful weapon in the three great revolutionary movements: class struggle, the struggle for production, and scientific experiment. As long as being able to master and use the weapon well in scientific experiment, people will certainly exert their full subjective initiative, and transform their mental power into tremendous material strength.

“The report, entitled *Research on the Theory of Elementary Particles Carried Out Under the Brilliant Illumination of Mao Tse-tung’s Thought*, showed that Chinese physics workers in the Peking Research Group on the Theory of Elementary Particles used Mao Tse-tung

Thought as their weapon, were fearless to practice and good at practicing; they went in depth into the matter and revealed the contradictions, and finally put forward creatively a 'straton model' theory which reflects the internal structure of elementary particles, pushing a big step forward in the research on the internal structure of elementary particle theory."^[163]

Apparently based on this news release, *Peking Review*, the only official English publication in China at the time, described the straton model as the following:

"'Stratons' were postulated by Chinese physicists against the erroneous theory of Western scholars that the elementary particles were indivisible. 'Straton' means one of the infinite number of strata in the structure of matter, and is not the 'ultimate constituent of matter.' The 'theory of the straton model' shows that the elementary particles are composed of still more elementary things - stratons and antistratons. According to this theory, it is possible to explain and describe in a unified way many phenomena in the field of elementary particles which hitherto the existing theories have failed to do. This is of considerable value to further research into the internal structure of elementary particles in the future."^[164]



Chairman Mao Receives Foreign Friends Attending Peking Physics Colloquium

CHAIRMAN Mao Tse-tung on the evening of July 31 received the scientists' delegations and scientists from 33 countries and a regional academic organization attending the 1966 Summer Physics Colloquium of the Peking Symposium and other foreign friends.

When Chairman Mao met the scientists, they gave him a long, standing ovation and cheered him with deep feeling: "Long live Chairman Mao! Long live Chairman Mao!"

Chairman Mao cordially shook hands with the scientists amid warm applause and posed for a photograph with them.

Then, as Chairman Mao left the hall, the scientists crowded around him and repeatedly cheered: "Long live Chairman Mao! Long live Chairman Mao!"



Chairman Mao receives foreign scientists and friends

A glorious and victorious colloquium

The cover (left) and a portion of the third page of *Peking Review*, published on August 5, 1966. *People's Daily* issued two editorials on the opening and the closing days of the colloquium, respectively.

4. Praised and Cursed

Although not being introduced in detail in English until 1980, the straton model was known, and talked about, by all three Nobel Physics Prize winners of 1979 before they received their Prizes. Dr. Abdus Salam praised the model at the Beijing meeting, and/or to Premier Zhou Enlai^[165]. Dr. Steven Weinberg mentioned the model briefly in his 1977 classic, *The First Three Minutes*:

"The small group of theoretical physicists in Peking has long favoured a version of the quark theory, but they call them 'stratons' instead of quarks because these particles represent a deeper stratum of reality than the ordinary hadrons."^[166]

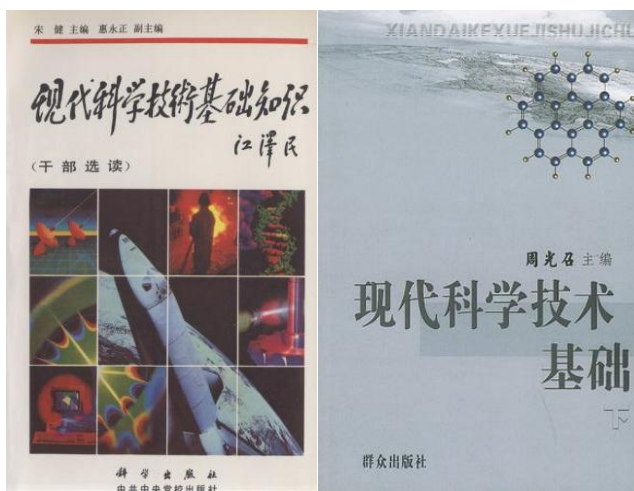
In the Seventh Hawaii Topical Conference in Particle Physics, held in 1977, Dr. Sheldon Lee Glashow raised the following questions: "Is there another layer of the onion? Is there a common fundamental

constituent of both quarks and leptons?” Obviously, Glashow inclined to affirmative answers to these questions, so he proposed that the “hypothetical building blocks of all matter be called ‘MAONS’, to honor the late Chairman Mao who insisted upon the underlying unity of Nature.”^[167]

In 1978, the straton model received China’s National Science Conference Award and the CAS Significant Achievement Award. In 1982, the model received one of the 40 Second Class National Natural Science Awards^[168]. He Zuoxiu was in the second place among the 5 recipients of the awards issued in 1978, and the third among the 4 recipients of the 1982 award.

However, besides the praises from the pro-Mao physicists at home or abroad, and the self-congratulatory awards, the reputation of the straton model has not been very good. On one hand, both Dr. Chen-Ning Yang (Yang Zhenning, 杨振宁) and Dr. Tsung-dao Lee (Li Zhengdao, 李政道), who received the Nobel Prize in Physics in 1957, thus becoming the first ever Chinese Nobel Laureates, and who have been having intimate ties to Chinese government and physicist community since the early 1970s, have been relatively reserved on the model^[169]. In 1971, Yang mentioned the straton model to *Physics Today*^[170], but apparently with very limited knowledge about it^[171], and since then, he has rarely mentioned it^[172]. The fact is, Yang has recommended China’s synthetic insulin project for the Nobel Prize three times^[173], but he has never recommended the straton model for anything yet. And it seems that Dr. T. D. Lee has never mentioned the straton model in public^[174].

On the other hand, many China’s leading physicists, including Wang Ganchang, Zhou Peiyuan, Zhou Guangzhao, Peng Huanwu, kept themselves an arm’s length from the model: they didn’t participate in the construction, and they rarely made any comments in public on the model. Meanwhile, criticisms against the research have been getting stronger and stronger: since 1990s, it has been widely regarded as a prototype of pseudoscience in Red China. In 1994, under CCP General Secretary Jiang Zemin’s instruction, a book entitled *Essential Knowledge of Modern Science and Technology* was published^[175]. The book’s editor-in-chief was Mr. Song Jian, the director of the State Science and Technology Commission, and published jointly by the Science Press and CCP Central Party School Press, the target readers were the middle or higher ranked CCP cadres. In the book, the standard quark model, instead of the straton model, was introduced as the basic elementary particle theory. In 1999, a book entitled *Introduction to Modern Science and Technology*, edited by Zhou Guangzhao, the President of CAS from 1987 to 1997, was published. Again, the quark model was introduced as the standard theory, and the straton model was only mentioned in a sentence mentioning Chinese physicists’ work in the area of fundamental physics^[176].



Kicked out from the CCP official science books

The covers of *Essential Knowledge of Modern Science and Technology* and *Introduction to Modern Science and Technology*, published in 1994 and 1999, respectively. Both books have very strong governmental background, and they both omitted the straton model or straton theory altogether when introducing elementary particle physics.

As of today, no original physics research papers published outside China have ever cited the straton model^[177].

5. A Pseudoscientist Trying to Share Nobel Prize

Just like his ambiguous career in hydrogen bomb research, the exact role He Zuoxiu played in building the straton model is unclear, even though he was listed as one of the major contributors to the research. For example, in an authoritative history book of physics in China, published in 1993, Drs. Zhu Hongyuan, Hu Ning (胡宁, 1916-1997), and Zhang Zongsui (张宗燧, 1915-1969) were listed as the major contributors to the straton model, but He's name was never mentioned^[178]. In addition, many members of the Peking Research Group omitted He's name in their memoirs when recounting the history of straton model^[179]. Even in his own memoirs, He was unable to list the specifics of his contribution, except for saying that he had numerous discussions with Zhu Hongyuan, the generally acknowledged leader of the Group^[180]. It can be safely concluded that He's role in the construction of the straton model must be very similar to his role in the exploration of the hydrogen bomb theory in the early 1960s, which was more political than scientific.

Despite all these facts, He is the one, and the only one among the 39 members of the Peking Research Group, who has been working his butt off to promote the model. For example, in 1987, He published in the *Red Flag* an article, entitled *Some Issues Concerning the Guidance Role of Marxist Philosophy in Natural Scientific Research*, in which He picked the straton model as a successful example^[181]. In 1990, He wrote an article entitled *The Complete Story about the Construction of the Straton Model*, apparently as a refutation to the opinions against the guidance role of Marxism in scientific research, and the article was published repeatedly^[182].

In October 2004, American physicists David J. Gross, H. David Politzer and Frank Wilczek were awarded the Nobel Physics Prize "for the discovery of asymptotic freedom in the theory of the strong interaction." Here is He's reaction to the news:

"He Zuoxiu, the academican of CAS, the research fellow and doctoral advisor in the Institute of Theoretical Physics at CAS, spoke out that he felt 'very regrettable' after learning yesterday that the American scientists have received this year's Nobel Physics Prize for their 'asymptotic freedom' of quantum chromodynamics, because 'in the area, our research [was done] earlier than the Americans, and [our] achievement was very close to the last results [obtained by the Americans.]'

"As one of the major researchers in our country's quark model group, He Zuoxiu said, in the area, we used to work at the international forefront as the Americans, obtaining very significant achievements, with very good developmental momentum. In 1965, our country first proposed the quark model (also called 'straton model' in our country), the key theory of QCD. Also, the color conception proposed at the time was already very close to the last result. 'Such an achievement, even if was not necessarily the most original and most fundamental, was already the second to the most original one.' He Zuoxiu said, in 1966, in an international conference held in Beijing, the achievement received the acknowledgement from domestic and foreign experts."^[183]



Very regrettable

In October 2004, He Zuoxiu told a Chinese reporter that his research results obtained in 1960s were very similar to those obtained by that year's Nobel Laureates in Physics.

He's comment provoked strong criticisms in China. Even Dr. Eddie Cheng, who received his Ph.D. in physics from the Pennsylvania State University in 1990, who has been one of Fang's most loyal followers since the mid-1990s, and who would defend Fang's plagiarism 7 years later^[184], could not help but write a short note to slap He's face:

"First of all, quark model was first proposed by Gell-Mann et al, and the model is not the major work of this year's prize winners. It is impossible that Chinese scientists 'first' proposed the quark model.' In fact, the introduction of the straton model on the website of the Institute of High Energy Physics [at CAS] has already stated explicitly that the straton model was proposed after the quark model.

"The article also shows that like the majority of scientists in the world at the time, Chinese scientists didn't completely accept the quark model, believing that the straton model was independent of quark model, or could replace quark model. That was the right attitude for scientific research. However, today, after the dust has settled, it is not very honorable [for He] to take it for granted to call the straton model directly a quark model.

"The above IHEP article didn't mention any interactions and dynamic relationships among stratoms (i. e. quarks), therefore it seems that [the straton model] was still far away from 'asymptotic freedom.' The concept that quarks are free at close range was proposed by Feynman et al. in 1969 after summarizing the experimental data. If Chinese scientists already had such a concept in 1966, it would be indeed the real 'original' result."^[185]

Of course academician He Zuoxiu was not so stupid and ignorant that he didn't know all the above. As the historical background of the straton model, presented above, shows, the very reason for Chinese scientists to build the model was "against the erroneous theory of Western scholars." And unlike the indivisible quarks, the stratoms are supposed to be infinitely divisible. As a matter of fact,

about two years before He's shameless attempt to "share" the Nobel glory, someone had already pointed out the historical fact in Chinese print media:

"The guiding thought of the straton model was against Gell-Mann's quark model which was based on the idea that matter is not infinitely divisible. However, we [Chinese] have concealed the boundary, and let stratoms pose as quarks."^[186]

The fact is, not only does He's onion-like straton differ from quark fundamentally, his straton model also lacks the basic characteristics presented in the quark model. In 2006, Professor Li Huazhong of Sun Yat-sen University in Guangzhou published a paper emphasizing "the essential differences between quark QCD and the straton model." His conclusion:

"[T]he straton model was a semi-phenomenological model of low energy bound states which did not take into account the dynamical interaction. It has no relation with asymptotic freedom and QCD."^[187]

Of course, He knew the difference, because in 1990, he said that the straton model "provided the material premise for the establishment of QCD," rather than being "the key theory of QCD."^[188]

He Zuoxiu told multiple lies when he tried to steal the thunder from the Nobel laureates in 2004. According to his story told in 1990, the straton model was praised by Dr. Abdus Salam, and Dr. Abdus Salam only^[165]. However, in 2004, that one-person show became "the acknowledgement from domestic and foreign experts." The fact is, even Salam's praise is questionable: he arrived in Beijing on July 29, 1966, the last day of the academic activities at the Peking Physics Colloquium, and three days after the presentation of the straton model in the meeting^[164], therefore, what he said was more like a few perfunctory kind words to the host from whom he had just received a ceremonious reception, rather than a serious and honest scientific comment.

However, He's comments were not all lies. Indeed, one person in the Peking Research Group did make a remarkable contribution to the development of QCD. In 1966, Mr. Liu Yaoyang of the University of Science and Technology of China, published a paper in the *Atomic Energy* entitled *A Possible Model of the Elementary Particles*, in which, for the first time in the world, he postulated that quarks have colors, six years earlier than Murray Gell-Mann did^[189].

So, why wasn't Mr. Liu's work presented at the Peking Physics Colloquium? Why wasn't Mr. Liu awarded by Chinese government? Of course the reason was this:

"The academic leaders at that time believed that the most important thing was to determine whether the elementary particles have internal structure, whether [the structure of the elementary particles] complies with the idea of 'one divides into two,' so [they] put their focus on determining the wave functions of the hadrons."^[190]

In other words, it was the "Brilliant Illumination of Mao Tse-tung's Thought" which blocked the progress of science in China.

6. Fang Zhouzi Came to He's Defense, Again

So, how did Fang defend He's practice of pseudoscience in China? In August 2004, there was another wave of criticisms against He Zuoxiu on Fang's website New Threads. One person wrote:

“Someone said that his infinitely divisible straton theory is pseudoscience.”^[191]

Fang fought back:

“Straton theory is actually quark theory, [I have] heard only one person who practices pseudoscience says it is pseudoscience. Did you hear from that person?”^[192]

Fang also cited Steven Weinberg’s one-sentence comment on the straton model as evidence for that “there are many western physicists believing that straton is quark.”^[193]

Another person said Mao’s infinite divisibility assertion was baseless, and He’s fault was using science as a tool to demonstrate that a layman’s baseless assertion correct^[194]. Fang said:

“The theory of infinite divisibility of matter originated from ancient Greek Anaxagoras’ seed theory, which was [proposed to] counter atomic theory.”^[195]

In the 1980s, there was a great debate about the divisibility of matter in China. Some people criticized Mao’s infinite divisibility, saying that its mechanistic view was derived from Anaxagoras’ spermata theory. He Zuoxiu, in an article published in 1987, refuted the criticism, saying Marxist or Mao’s divisibility is different from Anaxagoras’ theory^[196]. Fang must have gotten his knowledge about Anaxagoras from He’s article. However, Fang, who is like He, was preoccupied with Maoist “one divides into two” and “unity of opposites,” assumed that Anaxagoras’ theory was to counter the atomic theory. The fact is, Anaxagoras was about a half century earlier than Democritus, so it was essentially impossible for Anaxagoras to counter Democritus’ atomic theory. On the contrary, it is generally believed that it was Anaxagoras who “paved the way for the atomic theory.”^[197] In other words, Fang would rather take the risk of exposing his own ignorance and stupidity than giving up the opportunity to defend He.

On the other hand, ever since his stealing Dr. Root-Bernstein’s paper in 1995, Fang has been using falsifiability theory as the golden standard for separating science from pseudoscience, and using it to accuse TCM of pseudoscience^[198]. The thing is, the theory of infinite divisibility of matter is a typical pseudoscientific theory, because there is no way to either verify or falsify it. However, to defend He Zuoxiu, Fang tossed the golden standard into the garbage can. That’s how important He Zuoxiu, and how unimportant science, are to Fang Zhouzi.

A Gangster of the Gang of Four

When Chinese scientists presented their straton model at the Peking Physics Colloquium in late July 1966, the Cultural Revolution had already started. Although not much is known about He’s activities during the “Ten-Year Calamity,” the limited information indicates that he did nothing different during that period from what he had been doing before, or would be doing after, which is to be a Party Man.

1. Scifooling

According to He himself, he was in a freedom state in 1967 because the two factions at CAS were fiercely fighting against each other, so they had no time to bother the bystanders like him. During that year, and the year after, he, together with Huang Tao, developed a “composite particle quantized field theory” or “quantized theory of composite particles.”^[199] The funny thing is, after being severely criticized by his colleagues, He decided to build his system axiomatically, which,

according to himself again, had been intensely criticized by him for its idealistic characteristics when he was young^[200]. Anyway, although He claims that his theory was completed, and he even presented it to Chen-Ning Yang in 1971, it has been recognized by almost no physicists outside He's inner circle^[201].

In 1969, He, along with his colleagues in the Institute of High Energy Physics, proposed to the Chinese government to build a particle accelerator for the purpose of isolating nuclear fuel. Of course they knew it was impossible, but they also knew that without scifooling, they would have no chance to have it approved. And it was not approved even with scifooling^[202].

In 1972, these physicists tried again, and the proposal was written by He Zuoxiu for the reason that "he had worked in the Propaganda Department, in charge of science and technology propaganda, and [he is] good at writing."^[203] According to He, one of the major reasons he listed for building the accelerator was "to implement Chairman Mao's directive," "to defend Chairman Mao's great assertion that matter is infinitely divisible."^[204] No wonder even though He has been despised by most Chinese people, very few physicists, especially those who work in the same area as He, despise him publicly, mainly because he has the ability to get money from Chinese government. And that might be the reason he showed no repentance and shame when he made the above confession in 2012, instead, he seemed rather proud of his craftiness. The proposal was handed to CAS President Guo Moruo by his son Guo Hanying, a junior physicist at CAS, and was relayed to Premier Zhou Enlai. Although Premier Zhou approved the proposal, it would have to wait for another six years before the project was actually launched^[205].

2. Anti-Einstein

The above secrets about He were revealed by He himself, apparently because he was proud of these things. The following story, however, was never told by He, and it was only exposed by other people recently.

Between 1968 and 1970, there was a criticism campaign against Albert Einstein in Beijing, led by the left extremists such as Kong Linghua, Chairman Mao's son-in-law, and Chen Boda, the head of the Central Cultural Revolution Group, the most powerful organ in the early period of the Cultural Revolution^[206]. At CAS, a group of junior scientists, called "CAS Mao Tse-tung Thought study class for criticizing the reactionary bourgeois ideas in natural sciences," was formed in March 1968^[207]. Whether He Zuoxiu was in the group or not is unknown to the public, but He's buddy Guo Hanying, the son of the CAS President Guo Moruo, was a member of that group. Mr. Guo's most famous argument against Einstein and his relativity theory was this: if Einstein's theory that simultaneity is relative is valid, then there would be no way to tell who was responsible for firing the first gunshot in the border clash between China and Soviet Union in March 1969^[208].

So, exactly what did He do in the anti-Einstein campaign? In 2005, [Dr. Hu Danian's](#) *China and Albert Einstein* was published, and the following episode was revealed to the public for the first time:

"Under Chen Boda's instruction, the CRSC [Criticizing Relativity Study Class]'s paper 'Relativity Criticism' was scheduled to be published in two of the most prominent magazines in China, *Hongqi* [Red Flag] and *Zhongguo kexue* [Scientia Sinica], in January 1970. However, Liu Xiyao, who was in charge of the CAS at the time, seemed to be more cautious in dealing with this matter. Liu decided to invite some renowned scientists to examine the paper, and a special meeting attended by a group of famous Chinese scientists and members of the CRSC was called at the CAS on October 23, 1969.....He Zuoxiu, a quantum field

theorist, spoke first. He supported the criticism of Einstein, which, in his opinion, should include not only the theory of relativity, but also his unified field theory, views of a finite universe, and opposition against quantum mechanics. Nevertheless, He disagreed with members of the CRSC on many arguments in their paper.”^[209]

Although we don't know exactly how much of Einstein's theory of relativity He understood, there is no doubt at all that his ideas about the reactionary, antiscientific, and pseudoscientific Einsteinism were derived from his 5-year education in the Propaganda Department, and 2-year training in the Soviet Union under the leadership of D.I. Blokhintsev, both were essentially based on the so called Zhdanovshchina in Stalin era^[210].

In a few years, after the Cultural Revolution was over, Mr. He Zuoxiu and Mr. Guo Hanying would join hands again to criticize the [Gang of Four](#), a term referring the four extreme leftists who had close association with Chairman Mao during the Cultural Revolution, and to support Deng Xiaoping's economic reform policy^[211].

3. Appraise Legalism, Criticize Confucianism

(1) A Political Campaign Activist

In 1973, Chairman Mao initiated the so called “[Criticize Lin, Criticize Confucius](#)” campaign, obviously trying to rejuvenate the dying Cultural Revolution after the downfall of Marshall Lin Biao, the officially designated successor to Mao. The campaign developed into, in the second half of 1974, a nation-wide movement of studying the history of struggles between Confucianism and Legalism, termed “Appraise Legalism, Criticize Confucianism.”^[212] At that time, writing articles to criticize Confucianism, alluding to Premier Zhou Enlai, who died in January 1976, and praising Legalism, alluding to Mao and the Gang of Four, was political assignments to almost every state-run unit in China. Here is a story told by Yu Guangyuan: In 1974, Beijing Academy of Traditional Chinese Medicine and Chinese Academy of Medical Sciences were ordered by their superiors to write articles exposing how Confucianists had sabotaged TCM and western medicine in China. The leaders of the two institutions knew nothing about the struggle between the two Schools, neither did the members of their writing groups formed for the purpose. So they consulted Yu, who, as a professional politician, knew the real target of the campaign, didn't offer much help^[213].

The fact is, except for those written by a few professional philosophers and historians, who were normally pressured to use their knowledge, reputation, and position to serve the politicians personally, most “Appraise Legalism, Criticize Confucianism” articles were authored with a name like this one: “Theoretical Study Group of 1st Laboratory of Peking Institute of Botany, Academia Sinica.”^[214] In other words, anyone who wrote such a “great criticism” article voluntarily, individually, and published it under his real name was certainly an active and enthusiastic participant of the movement, and most likely for the purpose of seeking for political favor from those in power. And He Zuoxiu was exactly one of such persons.

In late 1975, He published an article entitled *The Materialistic Theory of Yuan Ch'i—One of the Brilliant Philosophical Ideas of the Legalist School* in *Scientia Sinica*, Series A. The article was also translated into English and published in the English edition of the same journal. Here are the first few sentences of the article:

“For more than 2,000 years, the two-line struggle between the Confucian and Legalist schools in China has had a profound influence on various spheres of social life as well as on

Of course, the entire thesis was a shameless lie.

(2) A History Forger

First of all, among the so called “Hundred Schools” during the Spring and Autumn and Warring States periods (770-221 BC), the Legalist School was formed the latest. As a matter of fact, the two major figures in the School, Han Fei (韩非, c. 280-233 BC) and Li Si (李斯, c. 280-208 BC) were Xun Kuang’s students. On the other hand, the *yuan qi* theory originated from *Wu Xing* (五行, commonly translated into Five Elements) theory, and according to the study by philosopher Cheng Yishan^[216], as early as in the eighth century BC, someone had already interpreted the cause of earthquakes with *qi* theory: earthquakes were caused by the disturbance of the *qi* of *yin* and *yang*. In the sixth century BC, a Chinese medical doctor named Yi He (医和) proposed for the first time that everything is derived from *qi*. It would take more than two hundred years for Xun Kuang to be born. Mr. Cheng concluded in 1986, and He Zuoxiu concurred 13 years later^[217], that the *yuan qi* theory was originated from Taoism, an idealistic School according to He’s article in 1975, instead of Legalism.

Secondly, the *qi* or *yuan qi* theory was embraced and developed by ancient Chinese philosophers across-the-board^[218], including, and especially, Confucianists. For example, in an article published in 1997, He Zuoxiu cited words from Zhu Xi (Chu Hsi, 朱熹, 1130-1200) to demonstrate that China’s *yuan qi* was the same thing as Leibniz’s ether^[219]. Of course, Zhu Xi was one of the most famous Confucianists in Chinese history, and he was attacked by He in 1975 for his involvement in “the Ch’eng-Chu School of Principles.” Therefore, a person who believed in *yuan qi* theory doesn’t make him, let alone the entire School he belonged to, a Legalist or materialist.

Thirdly, none of the so called Legalists listed in He’s article were real Legalists. The fact is, Xun Kuang has been universally and consistently considered one of the most important Confucianists for more than two thousand years^[220], - only during the brief period of “Criticize Lin, Criticize Confucius” campaign that he was identified as a Legalist, based mainly on his materialistic and anti-Mencius viewpoints^[221]. The thing is, it is generally believed now that the dichotomous classification of worldviews into materialist and idealist was imposed, forcefully, upon Chinese philosophical system by Chinese Marxists, and the ancient Chinese philosophers were actually indifferent to such issues^[222]. Further, even if they were interested in these issues, the materialistic philosophical ideas were not the property belonging exclusively to Legalists, since the theories of *yin* and *yang*, and *Wu Xing*, which has been considered materialistic by Marxist theorists, including He Zuoxiu, appeared long before the “Hundred Schools” era, and the ideas were later absorbed and adopted by many Schools, including both Confucianism and Legalism. Therefore, assigning Xun Kuang to Legalist School based on his materialistic worldview is equivalent to saying that a person is a Marxist because he is an atheist. As for classifying Xun Kuang as a Legalist rather than a Confucianist because he opposed Mencius is even more a joke, because Mencius was not considered an orthodox Confucianist until Song Dynasty, more than a thousand years after his death^[223].

Similarly, Wang Chong, who hadn’t been considered a Legalist until 1974, was identified as a Legalist by the Gang of Four based on the following facts: he had criticized Confucius and Mencius, and he held a materialistic worldview^[224]. The thing is, Wang had criticized not only Confucianists, but also Han Fei, one of the major figures in Legalist School, and Wang believed that Confucianism is better to the state than Legalism^[225]. So, if his anti-Legalism writings couldn’t make him a Confucianist, how could his anti-Confucianism writings make him a Legalist?

Admittedly, both Xun Kuang and Wang Chong were officially certified Legalists by the Gang of Four, therefore, we could attribute He's inclusion of these two people in the list of Legalists to his blind faith in those in power. However, He's inclusion of Dai Zhen in the Legalists must be his own invention: Dai was not listed as a Legalist in most Gang of Four books published in 1974 and 1975. For example, in 1975, a book was published to introduce a total of 45 representatives of Legalists or "progressive thinkers", but Dai Zhen didn't make the list^[226]. Even in a book written by the leader of the leftists, "The Writing Team of the History of the Struggles between Confucianism and Legalism" at Peking University, Dai was merely identified as a "progressive thinker"^[227], and yet, He listed him as a Legalist. His reason? Here it is:

"Down to the Ch'ing Dynasty, Tai Chen accused point blank the reactionary saying of 'maintaining heavenly principle and getting rid of human desire' of Ch'eng - Chu School of Principles as 'men are murdered in the name of Li.'"^[215]

It is so obvious that He didn't even read Dai's book, because what Dai opposed was neo-Confucianism (后儒), what he wanted was to restore the original Confucianism, and to reach that end, he equalized the Principle of the neo-Confucianism to the cruelty of the Legalism:

"The neo-Confucianists don't understand that [real] Principle is what lets desire develop fully, and their so called Principle is the same as the Law in cruel officials' hands. Cruel officials kill people in the name of law; neo-Confucianists kill people in the name of Principle. They give up law and talk about Principle."^[228]

In other words, Dai hated Legalism as much as he hated neo-Confucianism.

The weirdest thing in He's article is that even He himself admitted that Zhang Zai, arguably the most important synthesizer of *yuan qi* theory, was not a Legalist:

"Chang Tsai of the Northern Sung Dynasty can hardly be included in the list of Legalists according to his political stand. But from the view-point of world outlooks, he was a naive materialist. Particularly, he dwelt much on the materialist theory of *yuan ch'i* and helped to develop it further."^[215]

What He didn't say is that Zhang Zai was a hardcore Confucianist. As a matter of fact, he claimed that his life-long mission was to carry forward the doctrines of Confucius and Mencius^[229]. And it was Zhang Zai who developed *yuan qi* theory to its fullest. That's why He had to make this "reactionary" Confucianist a comrade of the progressive Legalists. So much for "the two-line struggle between the Confucian and Legalist schools," and so much for "the brilliant philosophical ideas of the Legalist School"!

In summary, He Zuoxiu artificially, arbitrarily, and intentionally made up a story that *yuan qi* theory was invented and developed by the Legalists to counter the idealistic ideas proposed by the Confucianists. The question is, why would He want to do that?

(3) A Plagiarist

In 1990, when the contemporary Legalists in China, Chairman Mao and the Gang of Four, had been either dead or in jail for more than a decade, He said in his memoir that the reason he wrote the article was to demonstrate that the concept of *yuan qi* or the *qi* of *yin* and *yang* in ancient Chinese philosophy was referring to continuous matter, which was very similar to the concept of quantum

field; and he had to add some content about the struggle between Confucianism and Legalism to the article, otherwise the article could not be published^[230]. Of course it was a new lie upon the old lies. The fact is, He talked in his article mostly about the political and philosophical struggles, it was only in the last one third of the article he discussed, superficially, the relationship between *yuan qi* and quantum field, which was nothing but his habitual exaggeration. On the other hand, right after He's article was published, Dong Guangbi, a professional philosopher and dialectician, published an article comparing the ancient Chinese *yuan qi* theory with the ancient Greek atomic theory^[231]. In the entire article, Mr. Dong didn't mention Confucianism or Legalism, let alone the struggles between them. Therefore, it was not necessary for He to put a Legalism label on the *yuan qi* theory to have his article published. In other words, the only reason He wrote his article and had it published as it was was to fawn on the Gang of Four.

As a matter of fact, to curry favor with the Gang of Four, He did everything he could. In 1990, He said that to write the article, he did some "textual research" and "collected historical data on the topic."^[232] Indeed, all 38 noted citations in the article were from Chinese classics, and to do so on one's own requires not only a large amount of energy, but also a profound knowledge in ancient Chinese philosophy. However, He neither had training in Chinese philosophy, nor had showed such knowledge somewhere else. So, how did he do his research and where did he get his data?

In early 1975, a "Theory Study Group" from the Physics Department at Beijing Normal University published an article entitled *The Struggle between the Confucianism and Legalism Reflected in the Understanding of Matter in Ancient China*^[233]. It was in this article that it was proposed, probably for the first time, that *qi* or *yuan qi* theory was used as a weapon by Legalists to fight against the idealistic Confucianists in China's history. It is almost certain that He stole the idea from that article.

从我国古代对物质的认识看儒法斗争

北京师范大学物理系理论学习小组

古人在进一步探索宇宙万物的构成时，又提出了“气”的概念。我国古代进步思想家认为，万物是由“气”构成的，物质世界的多样性统一于物质性的“气”。先秦杰出的法家荀况，在他的《天论》里曾表达过万物都含有“气”的思想。汉代的法家王充比较系统地提出了气一元论的物质观。他说：“天地，含气之自然也。”（《论衡·谈天篇》，以后引《论衡》，只注篇名）他认为，气就是构成万物最基本的物质，天地就是由气所组成的物质实体。唐代法家柳宗元继承了王充的观点，他在《天对》里说：“庞昧革化，惟元气存，而何为焉！”就是说，在庞大的、运动变化的宇宙间，只有元气存在，元气是没有意志的东西，哪里有什么造物者存在呢！到了宋代，唯物主义思想家张载在《正蒙·太和篇》中写道：“太虚无形，气之本体，其聚其散，变化之客形尔。”就是说，气是宇宙的本体，万物是气聚散变化的“客形”。明末清初的法家王夫之在继承了前人的气一元论物质观的基础上，在同反动理学的斗争中，更明确地提出：“太虚即气，絪縕（读因运）之本体。”“凡虚空皆气也。聚则显，显则人谓之有；散则隐，隐则人谓之无。”（《张子正蒙注·太和篇》，以后引《张子正蒙注》，只注篇名）“尽天下之间，无不是气。”（《读四书大全说》）就是说，气是一种无所不在又无所不包的物质，它构成了有形的实体，充满了无形的虚空，总之，天地之间，没有不是气的东西。而且这种物质性的气是永恒的，没有生灭的，“聚而成形，散而归于太虚，气犹是气也。”（《太和篇》）我国古代进步思想家在认识物质的过程中，“十分自然地把自然现象的无限多样性的统一看作是不言而喻的”，并且找到了物质性的气作为构成世界的总根源，进一步批判了唯心主义的“天命论”，这无疑“已经完全是一种原始的、自发的唯物主义了”。

A precursor of He Xuoxiu's idea

In February 1975, a "Theory Study Group" at Beijing Normal University published an article^[233] saying that the *qi* or *yuan qi* theory was proposed by ancient Chinese materialists to counter the idealistic idea of "heavenly mandate." The above image is a page-shot of the portion of the article elaborating the idea. He's *The Materialistic Theory of Yuan Ch'i—One of the Brilliant Philosophical Ideas of the Legalist School*, which was published 8 months later, was based almost entirely on the thesis.

Sure, He did develop the idea further and fuller. Then, where did he "collect" his data which were used to develop the stolen idea? In July 2009, Mr. Ren Jiyu (任继愈, 1916-2009), a renowned

philosopher and a close ally of Yu Guangyuan and He Zuoxiu in the front against Falun Gong in 1990s, died. In an article commemorating Ren, He wrote:

“Ren’s 4-volume *History of Chinese Philosophy* was a groundbreaking book based on Marxist stand, viewpoint and method. I have written an article, ‘*A Brilliant Thought in Chinese History of Philosophy—The Materialistic Theory of Yuan Qi*,’ which was in fact my thought after reading his brilliant book.”^[234]

Please note that He Zuoxiu changed his original title, *The Materialistic Theory of Yuan Ch’i—One of the Brilliant Philosophical Ideas of the Legalist School*, to the current politically correct one: *A Brilliant Thought in Chinese History of Philosophy—The Materialistic Theory of Yuan Qi*. In other words, He is not afraid of changing, or fabricating history.

However, the above message revealed not only He’s habitual cheating, but also his source of stealing: the majority of the “historical data” he used in his article were “collected” from Ren’s book, but he never acknowledged the fact before 2009. For example, according to Ren, Xun Kuang “inherited” the materialistic theory of *jing qi* (*ching ch’i*) theory proposed by Song Xing (Sung Hsing, 宋鉞) and Yin Wen (尹文) and believed that *qi* was the fundamental material which constitutes everything in the world^[235]. And He wrote:

“The earliest of all was the theory of *ching ch’i* (the refined *ch’i*), as put forward by Sung Hsing and Yin Wen in *Kuan Tzu: Nei Yeh* (Internal Affairs). It holds that everything is composed of material ‘refined *ch’i*. Such *ch’i* fills the universe and proves itself more fundamental than ‘heaven’. In the late Warring States Period, Hsun K’uang (c. 313- 238 B.C.) made a step forward in claiming: ‘Water and fire have *ch’i* but not life; herbs and trees have life, but not knowledge; birds and beasts have knowledge, but no sense of what are rights (*yi*). Man has *ch’i*, life, knowledge, and in addition has a sense of human rights (*yi*); hence he is the highest being on earth.’ According to this, everything in nature is composed of the material *ch’i*.”^[215]

How is this evidence for He’s stealing from Ren? First of all, the passage above is almost a complete duplication of Ren’s words, which contain some personal interpretations of *Guanzi* (Kuan Tzu, 《管子》). For example, no words could be found in *Guanzi* which state that *qi* is more fundamental than heaven, as Ren claimed^[236]. So, why did He make the same claim?

Secondly, as mentioned above, the *qi* theory was originated as early as in the 8th century BC, and both Song Xing and Yin Wen, if they were indeed the authors of the articles about *qi* in *Guanzi*, were born in the late 4th century BC, and there is absolutely no direct evidence supporting the notion that Xun Kuang’s *qi* theory was “inherited” from Song and Yin. The fact is, slightly earlier than, or roughly at the same time as, Song and Yin, but much more influential than them, Zhuangzi (庄子) elaborated *qi* theory much more extensively, a fact which was pointed out as early as 1958 by Zhang Dainian (张岱年, 1909-2004), another renowned philosopher in China^[237]. Had He read a little broader, he would have doubted the correctness of Ren’s assertion.

Thirdly, based on Xun Kuang’s words, cited by both Ren and He, no such conclusion as that Xun believed that *qi* was the “primordial matter” for everything could be drawn, because the examples he gave were all motional and organic things, far from “everything.” So, He’s “according to this, everything in nature is composed of the material *ch’i*” sounds extremely absurd, unless he admits that he “inherited” Ren’s interpretation of Xun Kuang’s words.

Finally, Xun Kuang's words cited by He was punctuated in the same way as Ren's, which differs from most other punctuations of Xun's book^[238].

(4) A Fake Marxist

He Zuoxiu not only didn't know much about Chinese history and philosophy when he jumped on the bandwagon of "Appraise Legalism, Criticize Confucianism," he also didn't know Marxism very well, even though he claims that he has mastered Marxism since the era when he worked in the Propaganda Department. For example, He cited several sentences from Engels and Lenin in the article, like in his most "philosophical" articles. However, these citations not only couldn't prove he understood Marxism, on the contrary, they actually demonstrate that he didn't really read their original works, or didn't read them well. Here is what He wrote in the article:

"So far as the development of history of knowledge is concerned, there have been two opposite outlooks on matter, i.e., of continuity and of discontinuity, and both have been contending in the realm of natural science for centuries until now. Dialectical materialism holds that the structure of matter is the unity of opposites of continuity and discontinuity. F. Engels pointed out profoundly that **'matter is both divisible and continuous, and at the same time neither of the two, which is no answer, but is now almost proved.'** (*Dialectics of Nature*) And this passage may be taken as a conclusion on the history of human knowledge of the structure of matter."^[215]

The fact is, what Engels really wrote was a brief note in his manuscript of *Dialectics of Nature*. The intact note is as following:

"*The divisibility of matter.* For science the question is in practice a matter of indifference. We know that in chemistry there is a definite limit to divisibility, beyond which bodies can no longer act chemically – the atom; and that several atoms are always in combination – the molecule. Ditto in physics we are driven to the acceptance of certain – for physical analysis – smallest particles, the arrangement of which determines the form and cohesion of bodies, their vibrations becoming evident as heat, etc. But whether the physical and chemical molecules are identical or different, we do not yet know.

"Hegel very easily gets over this question of divisibility by saying that matter is both divisible and continuous, and at the same time neither of the two, which is no answer but is now almost proved."^[239]

As a matter of fact, the note was faithfully translated into Chinese^[240]; therefore it is really incomprehensible as how He could mistake Hegel's words for Engels'. It is also puzzling that how Engels' uncertainty about and indifference to the issue of divisibility of matter could be transformed into He's affirmation of and enthusiasm for the issue. Of course it is neither the first nor the last distortion of Marxism He has made during his life time.

(5) A Supporter for Dictatorship

The movements of "Criticize Lin, Criticize Confucius" and "Appraise Legalism, Criticize Confucianism" were launched by Chairman Mao, and pushed forward by the Gang of Four for the sole purpose of keeping the so called "the dictatorship of the proletariat." And in essence, the

Legalism was originated from the desire to serve the dictators to grab as much land and power as possible at the time. Here is an excellent summary of Legalism:

“The ancient philosophy of Legalism was introduced as an antidote to Confucianism. It worked on the assumption that people were inherently selfish, and needed to be bullied into doing what was right through a system of punishments and ruthless laws. Legalism was the system that put Mao’s hero the First Emperor into power; its precepts were used by his advisers to lie and cheat their way into dominating China. Legalism could be regarded as the dark side of Chinese philosophy, twisting its emphasis on harmony and obedience into a cult of dictatorship.”^[241]

Confucianism, especially the writings by Mencius, on the other hand, contained elementary democratic ideas collectively named *minben* (民本) thought, which literally means that people are more fundamental and important to state than monarch^[242]. For example, Mencius used to tell a king face to face:

“The people are the most important element in a nation; the spirits of the land and grain are the next; the sovereign is the lightest.”^[243]

The very difference in political opinions between the two Schools determined Mao’s preference to the Legalism, which in turn determined He’s preference. He Zuoxiu is a staunch supporter and frenetic advocate of CCP’s dictatorship in China, and his indifference and ruthless to common people would become national news in the 21st Century (more on this later). In other words, He’s participation in the movement, as well as his criticism against Confucianism and his praise of Legalism in 1975 was sincere and from the bottom of his heart.

(6) A Historian of Science Who Doesn’t Know Descartes

The amazing thing is, He has the ability to turn this most shameful misdeed into one of his proudest academic achievements. In 1984, in the midst of *qigong* fever, which was based entirely on ancient Chinese *qi* theory, He republished his old article on *yuan qi* under a new title: *A New Interpretation of Yuan Qi*^[244], after deleting the content related to “Appraise Legalism, Criticize Confucianism.” According to He in 1984, the *yuan qi* theory is scientific, materialistic, and dialectical. It seems that the *yuan qi* theory is so Marxist that it should be used to guide the particle physics research – as a matter of fact, He did summarize 5 significances or impacts of *yuan qi* theory on particle physics research^[245].

A funny thing happened when the eminent historian of science He Zuoxiu, who had been a graduate student advisor in the Institute for History of Natural Sciences at CAS since 1980^[246], and a member of the inaugural editorial board of the *Studies in the History of Natural Science*^[247], tried to show his profound knowledge in this area.

In the second volume of Sir Joseph Needham’s monumental works, *Science and Civilisation in China*, there is the following paragraph:

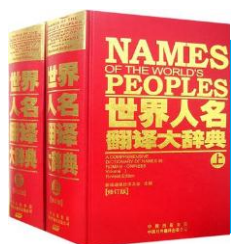
“Martin (6) long ago made the interesting suggestion that these ideas, conveyed to Europe through Jesuit channels, might have influenced Descartes’ theory of vortices (tourbillons) in the physical aether.”^[248]

Martin was [William Alexander Parsons Martin](#) (1827-1916), an American missionary to China and a scholar. The reference (6) cited by Needham was an article written by Martin, *The Cartesian Philosophy before Descartes*. In the article, Mr. Martin presented the similarities between Descartes' theory of vortices and the *qi* theory described by Zhang Zai, and speculated that Descartes might have borrowed his idea from the Chinese:

“On the other hand, is it certain that Descartes borrowed nothing from them? Is it not possible that some fragment of Chinese philosophy, translated by Jesuit missionaries, may have fallen into his hands, while a student at the College of La Flèche?”^[249]

He Zuoxiu heard of Martin's speculation from Joseph Needham's book, and he was extremely excited, because it, once verified, would “demonstrate that the *yuan qi* theory, via Descartes, has played an important role in western natural science.”^[250]

Although we cannot say that Academician He didn't know much about western natural science back in 1970s and 1980s, we can definitely say that he didn't know anything about [René Descartes](#), simply because that he even didn't know Descartes' name in Chinese. The fact is, ever since Liang Qichao (梁启超, 1873-1929), Liang Sicheng's father, translated René Descartes as 笛卡儿 in the beginning of 20th century^[251], Descartes has been known in China as such, even the quasi-official foreign name translation dictionary, compiled by Xinhua News Agency and published in 1993, had to keep it, even though they gave other Descartes a complete different Chinese translation^[252].



Descartes 德卡尔特 [法]
Descartes 德斯卡特斯 [西]
Descartes, René (1596-1650) 笛卡儿
(法)数学家、哲学家。

Privileged!

In the quasi-official *Names of the World's Peoples: a Comprehensive Dictionary of Names in Roman-Chinese*, French name Descartes is translated into 德卡尔特 (De Ka Er Te), but René Descartes keeps his conventional translation 笛卡尔 (Di Ka Er)^[252].

On the other hand, Liang's translation has been so conventional that even a substitution of the last and the least important character of Descartes' Chinese name, 儿, for a homophonic character, 尔, would be considered a mistake or a sign of ignorance^[253]. And He substituted the first and the most important character of Descartes' Chinese name 笛 for a homophone 狄^[254]. In Chinese culture, it is equivalent to changing other people's surnames. It would take He more than a dozen years to correct his wrong^[255].

Admittedly, there are a few, extremely few, less than 0.3%, to be exact^[256], Chinese authors who have translated Descartes' name like He Zuoxiu did, therefore, He couldn't claim his uniqueness on this account. However, He's translation of Cartesian would definitely make up that loss: in 1984, He translated “Cartesian” in the title of Martin's paper into “卡桑狄” (Ka Sang Di)^[254], which was apparently a typo for “卡狄桑” (Ka Di Sang), a phonetic transliteration of Cartesian, and He corrected the typo in 1999^[255]. Neither translation makes sense, in either Chinese or English: in the entire Chaoxing Digital Library, the largest online Chinese book library in the world, “卡狄桑” (Ka Di Sang) appeared only once, of course in He's book published in 1999; and “卡桑狄” (Ka Sang Di)

appeared twice, once in He's article published in 1984, and the other in the Chinese translation of Alvin Toffler's *The Third Wave*, in which the Chinese name was the translation of a French priest, Pierre Gassendi. Obviously, He Zuoxiu didn't know, and probably still doesn't know, that Cartesian is just the adjective form of Cartesius, Descartes' Latinized name: any dictionary would teach He the knowledge, but he chose to make thing up on his own. Maybe that was one of Marxist principles he learned while he was a redhot propagandist in the Propaganda Department. What a joke!

在李约瑟所撰写的《中国科学技术史》的巨著中还提到一篇很有趣味的文献，说在中国的传教士丁韪良 (Martin, W.A.P.) 曾提出一个有兴趣的猜测：中国的元气学说曾通过耶稣教士的渠道而传到欧洲，可能影响到狄卡儿提出的物理以太旋涡学说的形成。在丁韪良的狄卡儿以前的卡桑狄哲学——新儒家的旋转离心的宇宙论》的论文中 [Martin, W. A. P. 《The Cartesian Philosophy Before Descartes (Centrifugal Cosmogony in Neo-Confucianism)》, FPOS, 1888, 2, 121; 又见 Martin, W.A.P., 《Hanlin Papers》, Vol. II, Kelly and Walsh, Shanghai, 1894, p.207], 曾经将张载等人论述元气学说和狄卡儿的以太旋涡学说进行详细的比较, 指出这两者有惊人的类似! 据此, 丁韪良推测狄卡儿可能见到中国的元气学说。如果这一猜测得到证实的话, 这当然是一条重要史料, 表明元气学说通过狄卡儿对西方自然科学起了重要影响。可惜的是, 丁韪良并没有能提出狄卡儿见到元气学说的确切证据, 这一猜测是否可信值得怀疑。但是, 从丁韪良的猜测, 可看出在西方和元气学说相似的是以太, 并不是原子。

在李约瑟所撰写的《中国科学技术史》的巨著中还提到一篇很有趣味的文献，说在中国的传教士丁韪良 (Martin, W.A.P.) 曾提出一个有兴趣的猜测：中国的元气学说曾通过耶稣教士的渠道而传到欧洲，可能影响到笛卡儿提出的物理以太旋涡学说的形成。在丁韪良的《笛卡儿以前的卡狄桑哲学——新儒家的旋转离心的宇宙论》的论文中 [Martin, W.A.P., “The Cartesian Philosophy Before Descartes (Centrifugal Cosmogony in Neo-Confucianism)”, FPOS, 1888, 2, 121; 又见 Martin, W.A.P., *Hanlin Papers*, Vol. II, Kelly and Walsh, Shanghai, 1894, 207], 曾经将张载等人论述的元气学说和笛卡儿的以太旋涡学说进行详细的比较, 指出这两者有惊人的类似! 据此, 丁韪良推测笛卡儿可能见到过中国的元气学说。如果这一猜测得到证实的话, 这当然是一条重要史料, 表明元气学说通过笛卡儿对西方自然科学产生了重要影响。可惜的是, 丁韪良并没有能提出笛卡儿见到过元气学说的确切证据, 这一猜测是否可信值得怀疑。但是, 从丁韪良的猜测, 可看出在西方和元气学说相似的是以太, 并不是原子。

Who the hell is Ka Sang Di, or Ka Di Sang?

Upper: A page image of He Zuoxiu's article published in 1984^[254], showing that He translated Descartes into 狄卡尔 (red boxes) instead of well-established and well-recognized 笛卡儿; and Cartesian into 卡桑狄 (Ka Sang Di) (green box), which apparently was a typo for 卡狄桑 (Ka Di Sang), a phonetic transliteration of the English word;

Lower: A page image of He Zuoxiu's major book, *From Yuan Qi Theory to Particle Physics*, published in 1999^[255], showing that He basically repeated what he said 15 years ago, but he corrected his wrong translation of Descartes (red boxes), and the typo of the phonetic transliteration of Cartesian, but he still had no idea who the hell Cartesius is. The red underlines highlight the title of Martin's paper, and He's translations was probably based entirely on that title.

There are more stories about *yuan qi* theory, but I have to pause here. Stay tuned.

Notes

[1] Anonymous. *CAS Academician He Zuoxiu Received the Inugural New Threads Scientific Spirit Prize*. XYS20130113. (匿名: 《中国科学院院士何祚庥获得首届新语丝科学精神奖》, 新语丝 2013 年 1 月 13 日新到资料。) Also see: Multidisciplinary Digital Publishing Institute website: [MDPI Sponsoring the Scientific Spirit Prize in China](#). (Accessed on November 14, 2013.)

[2] See: Fang's announcement on his microblog at sohu.com: [2013-06-27 07:34](#), [2013-06-27 09:44](#), and on his New Threads: Fang Zhouzi. [Acceptance Speech of 2013 Cliff Robertson Sentinel Award](#). XYS20130702. For the background information about the awardee, See: *The Background Investigation on ACFE* by an internet user called eprom (《ACFE 背景调查》, [2013 年 6 月 27 日 17:39](#), 《ACFE 背景调查 2》, [2013 年 6 月 29 日 11:34](#)).

[3] See: Fang's announcement on his microblog at sohu.com: [2013-10-07 09:45](#), [2013-10-08 15:11](#). For the background of that pharmaceutical company and its founders' relationship with Fang, see: Yu Ren. What Kind of Relationship Does Fang Zhouzi Have with the Latitude Pharmaceuticals Inc.? Rainbow Science and Education Forum, Oct. 18, 2013. (愚人: 《方舟子到底和经纬制药公司有什么关系?》, 2013 年 10 月 8 日虹桥科技论坛。)

[4] He's original Chinese: “我的高祖父何俊是前清翰林, 最盛时做到李鸿章淮军的‘后勤部长’。因平定太平天国有军功, 等到论功行赏时便提出希望能给孩子安排一个官职。借助父辈的庇佑, 曾祖父何芷舫才 20 岁就步入了仕途, 先后任过盐法道、按察使、道台, 同时兼任江汉关监督, 都是当时所谓的肥缺。” See: Zhang Jing. *He's Family: Out of Jixiao Mountain Villa*. Xinmin Weekly 2009(32). (张静: 《何氏家族: 走出寄啸山庄》, 《新民周刊》2009 年第 32 期。)

[5] He's original Chinese: “曾祖父在江海关的任上处理洋务的过程中, 力主维护国家的主权和尊严, 对外国人采取强硬严厉的态度, 而他的上司则不敢得罪洋人。他空怀一腔报国之心, 眼见清廷腐败无能, 愤而归隐。” *ibid*.

[6] According to Mr. Du Hai, the author of *He's Garden*, the story was told by He Shizhai, one of He Zuoxiu's uncles, at the age of 92. Mr. Du Hai said, because He Shizhai held a position in the Culture and History Museum of Jiangsu Province, his story “should be believable.” (Original Chinese: “以上这段历史由何世斋先生在过世前不久讲述, 时年九十二岁。虽然何世斋是何芷舫的孙子, 但是他以江苏省文史馆馆员的身份, 吐露出这一番积愤之言应该可信。” See: Du Hai. *He's Garden*. Nanjing University Press, 2002. pp.7-8. 杜海编: 《何园》, 南京大学出版社 2002 年版 7-8 页。)

[7] He Zhidao's annual salary was at most ten thousand taels of silver, based on his rank. See: Huang Huixian. *History of the Salary System*. Wuhan University Press, 1996. p.550. (黄惠贤: 《中国俸禄制度史》, 武汉大学出版社 1996 年版 550 页。) Although the exact cost of He's Garden is unknown, it is said that the cost of a

similar Garden in Yangzhou, Ge Garden (个园), built in early 1800s by a salt merchant, was the equivalent of the entire annual revenue of Jiangsu Province at the time.

[8] He Zuoxiu's original Chinese: “曾祖父在何园度过了 18 个春秋。本可以安享富贵，终老此乡，逸民适志，诗酒养疏慵。但没想到 1900 年八国联军侵华，清廷大败，签订了《辛丑条约》，赔款 4.5 亿两，全中国每人一两。他感到中国要亡了，不能置国家民族安危于不顾。深受洋务派影响的曾祖父于是在古稀之年作出了一个惊人的决定：不养老了！弃池馆亭林于不顾，带着巨资于 1901 年率子孙浩浩荡荡南下上海搞工业，立志振兴民族经济，要以实业拯救中国。” See: [4].

[9] Original Chinese: “然而何祚麻的大伯父因为不懂得现代科技以及西洋典章制度，上了犹太商界巨子哈同的当，盲目投资把全部家产赔了个净光，整个何氏家族由此开始败落。” See: [4].

[10] The photos are adopted from pages 14 and 134 in *He's Garden* by Du Hai, Nanjing University Press, 2002. (杜海编：《何园》，南京大学出版社 2002 年版 14、134 页。)

[11] The photos are adopted from: Zhuang Guochang, Guo Li, and Chen Yong. *Yangzhou's He's Garden 130 Years Old, He Zuoxiu Back Home to Celebrate the Birthday*. Yangzhou Evening News, April 16, 2013. (庄国昌、郭莉、陈咏：《扬州何园 130 岁，何祚麻“回家”庆生》，2013 年 4 月 16 日《扬州晚报》。)

[12] Original Chinese: “后来为什么又改行念物理，据他说还是报国。1945 年 8 月，美国在日本扔了两颗原子弹，这给何祚麻带来了极大的思想震动：‘一看名单，都是全世界鼎鼎有名的物理学家。物理太重要了！我一定要干这个！’” See: [4].

[13] He Zuoxiu's original Chinese: “看完这本书，我顿感‘拨云雾而见青天’，认识到只有马克思主义才能救中国。” See: He Zuoxiu. *I Read and Understand Marxism Therefore I Oppose Pseudoscience*. In *I Am He Zuoxiu*. China Modern Economic Publishing House, 2002. pp.66-73. (何祚麻：《我读懂了马克思 因而反对伪科学》，见《我是何祚麻》，中国时代经济出版社 2002 年版 66-73 页。)

[14] He Zuoxiu's original Chinese: “怎样做人，我以为最重要的是认清时代，认清社会发展的动向，做时代的积极推进者。” See: [4]. Also: “做人、做事、作学问最根本的是做人，做人的最根本的道理是了解我们时代是什么时代，要走在时代的前面，要走时代的路。” See: China Agricultural University. *He Zuoxiu Speaks on Being a Man, Doing Things, and Conducting Scholarly Research at China Agricultural University*. Internet Release. (《[在中国农业大学讲做人、做事、作学问](#)》。)

[15] Original Chinese: “回到学校的何祚麻，率领地下进步青年组织了反对美国扶植日本的“六·九”大游行和支援“东北流亡学生遭受北平当局枪杀”“反迫害”的“七·九”大游行等学生运动。解放前夕，何祚麻已是清华大学地下党的支部书记。” Li Bin. *He Zuoxiu's Unlimited Exploration*. China Today 2003(11). (李宾：《[何祚麻的无界限探索](#)》，《今日中国》2003 年 11 期。) Also: “新中国成立前夕，何祚麻已是清华大学理学院地下党的支部书记，后任中宣部副部长的龚育之为副书记。” See: [4].

[16] He Zuoxiu's original Chinese: “1950 年，斯大林发表了《马克思主义与语言学问题》的著作，第一次提出了语言没有阶级性的观点。1950 年 11 月，在中共中央宣传部工作的于光远同志来到清华大学召开了一个理论问题讨论会，找一些青年学生座谈马克思主义的理论问题，在座谈会上，我问光远同志：‘斯大林《马克思主义与语言学问题》说语言没有阶级性，根据斯大林的意见，是不是也可以说自然科学没有阶级性？大概是因为我向光远同志提了这样一个理论问题，1951 年，我由清华大学物理系毕业，也就分到中共中央宣传部理论教育处，在光远同志领导下工作。宣传部的职责是宣传马列主义，宣传的前提是学习，因而我便由学习物理学转到系统地认真地学习马列主义。1952 年，中央宣传部成立了科学处。在该处我工作了 5 年。’” See: [13]. Also see: He Zuoxiu. *I and Natural Dialectics*. In Dong Juxiang and Dong Xiangwei (eds.) *Memoirs by Philosophers*. China Youth Press, 1999. pp.258-292. (何祚麻：《我与自然辩证法》，董驹翔、董翔薇编《哲人忆往》，中国青年出版社 1999 年版 258-292 页。) Note: He's story that he asked Yu a deep

question in Tsinghua symposium hasn't been confirmed by other people who were also present in the meeting, such as Yu Guangyuan and Gong Yuzhi.

[17] Original Chinese: “何祚庥说他还有一个特殊的任务，就是给陆定一部长当‘家教’。当时陆定一‘突然之间心血来潮，想了解一点近代物理，想学习量子力学’，何祚庥每个礼拜给他讲四个小时的物理课，何祚庥认真备课，从近代物理一直讲到量子力学，整整讲了九个月，陆定一部长一个一个实验听得非常认真。” See: Li Bin. *He Zuoxiu's Unlimited Exploration*. China Today 2003(11). (李宾: 《[何祚庥的无界限探索](#)》，《今日中国》2003年11期。)

[18] Original Chinese: “1951年，何祚庥大学毕业，分配到中宣部科技处工作，顶头上司是分管科学处的副部长胡乔木。有一天，胡乔木问何祚庥：‘你的名字“祚庥”是什么意思？’何祚庥说：‘我只知道我是“祚”字辈的。’第二天胡乔木特意告诉何祚庥，他查了字典，‘祚’是延续，‘庥’是吉祥，合在一起就是一生平安的意思。何祚庥没想到胡乔木会为自己的名字去查字典，更被胡乔木的一丝不苟的态度所折服，他说：‘共产党人最爱讲认真，乔木同志一个字不懂都要查字典，让我们年轻人深受教育。’” See: Wang Xiaofan. *The True He Zuoxiu*. Fuzhou Evening News, June 28, 2003. (王肖帆: 《[何祚庥真相](#)》，2003年6月28日《福州晚报》。)

[19] He Zuoxiu's original Chinese: “我当时虽然还年轻，但是代表中宣部去找他们谈话，他们都很愿意把自己的想法告诉给我们党的领导机关。我前后同一百多位科学家谈过话。我写了详细汇报，把科学家的想法反映上去，这样的事情我们作了好多。” See: Fu Ningjun. *He Zuoxiu: A Scientist Who Is Faithful to Science*. Biographical Literature 1999(5). (傅宁军: 《[何祚庥：一个忠实于科学的科学家](#)》，《传记文学》1999年5期。)

[20] He Zuoxiu's original Chinese: “我在中央宣传处是走红的干部，可以直接见部长。陆定一喜欢我，胡乔木也喜欢我。” See: [4].

[21] He Zuoxiu's original Chinese: “物理学界党员很少，一些重要的科学家都是我发展他们入党的，包括钱三强都是我做的工作。钱三强自己都说：‘小何是我的领导，我的启蒙人。’” See: [4].

[22] Original Chinese: “1956年，29岁的何祚庥已在中宣部工作了5年。一天，他路过北京长安大戏院，戏院里正在上演昆曲《十五贯》。……可是买了门票进了戏院，心里却阵阵发凉，偌大的剧场，怎么就稀稀拉拉地坐着十来个观众？……第二天他到中宣部上班，逢人便说自己昨晚看了一出多年少见的好戏，他觉得这么好的戏曲不应该受到如此冷遇，他找了著名文艺理论家林默涵、胡绳，绘声绘色地描述了《十五贯》的美妙所在。林、胡二人果然被何祚庥打动，亲自去戏院观赏。看了《十五贯》，林默涵、胡绳拍案叫绝，称赞何祚庥眼力不错。紧接着中宣部组织机关干部观看《十五贯》，并邀请中央领导观摩。这事惊动了毛主席和周总理。毛主席连续看了两场《十五贯》，赞不绝口。周总理看完后推崇备至，称赞道‘一个戏救活了一个剧种’。一时间，《十五贯》轰动京城，名扬全国，家喻户晓。经何祚庥力荐，后来《十五贯》被搬上银幕，翻译成6种外国语言，走向世界剧坛。” See: [18].

[23] Original Chinese: “1954年，何祚庥还曾与中共中央党校原副校长龚育之、中央政策研究室研究员罗劲柏三人做了一个多月的调查研究，写报告建议中国搞原子弹。” See: [4].

[24] Original Chinese: “那么昆明植物研究所是怎么成立的？何祚庥回忆说：‘秦仁昌院士找到我，跟我谈了一个小时，力陈云南气候复杂、品种丰富，占了世界物种的60%-70%，应该办一个植物研究所，这是植物界的愿望。我觉得很有道理，回去便写了一个大汇报给陆定一，陆定一批给科学院，马上成立了昆明植物研究所。’” See: [4].

[25] See: Ge Nengquan. *Chronicle of Qian Sanqiang*. Shandong Friendship Publishing House, 2002. p.113. (葛能全: 《钱三强年谱》，山东友谊出版社2002年版113页。)

[26] Kunming Institute of Botany website. [Brief Introduction](#), Accessed on November 14, 2013.

[27] Yu's original Chinese: “1951 年胡乔木向我提出应该管科学院的工作。那时他是中宣部副部长兼秘书长，我是理论教育处副处长。他说科学也是中宣部管的一个领域，理论教育处先管一管。” See: Li Zhenzhen. *The Science Division of the Propaganda Department and Chinese Academy of Sciences: Interview with Yu Guangyuan and Li Peishan*. Centennial Tide 1999(6):25-32. (李真真: 《[中宣部科学处与中国科学院——于光远、李佩珊访谈录](#)》，《百年潮》1999 年第 6 期第 25-32 页。)

[28] *ibid.*

[29] Gong Yuzhi. 2007. *Memoir about The Science Division of the Propaganda Department*. The Chinese Journal for the History of Science and Technology 28(3):201-206. (龚育之: 《回忆中宣部科学处》，《中国科技史杂志》2007 年第 28 卷第 3 期 201-226。)

[30] Original Chinese: 龚育之: 《纠正科学刊物中脱离政治、脱离实际的倾向——评〈科学通报〉第二卷》，1952 年 1 月 10 日《人民日报》。

[31] Original Chinese: 龚育之: 《反对有机化学中的唯心论和机械论》，1952 年 3 月 29 日《人民日报》。

[32] Gong's original Chinese: “何祚庥一九五一年到中宣部，正好赶上从供给制改为工资制。他学识比较广博，又能说会道，主意也多，并且有地下党和党支部书记的经历，所以一下子就给他定为十八级了。我和罗劲柏一九五二年到中宣部，没能进入这一门槛，而是按照大学毕业生的‘统一价格’，定为二十一级。” See: Gong Yuzhi. *The Stories in “The Palace of Hell.”* Jiangxi People's Publishing House, 2008. p.311. (龚育之: 《龚育之回忆: “阎王殿”旧事》，江西人民出版社 2008 年版 311-312 页。)

[33] Fang's original Chinese: “何院士告诉我，他从来没有写过批判基因论、共振论和控制论的文章。”Fang Zhouzi. *Behind the Demonization of Academician He Zuoxiu*. Science and Technology Weekly, Oct. 12, 2005. (方舟子: 《[妖魔化何祚庥院士的背后](#)》，2005 年 10 月 12 日《北京科技报》。)

[34] Hu Huakai. 2006. *Criticism on the Resonance Theory of Chemistry in China*. Journal of Shanghai Jiaotong University(Philosophy and Social Sciences), 14(2):42-46. (胡化凯: 《我国对化学“共振论”的批判》，《上海交通大学学报(哲学社会科学版)》2006 年第 2 期 42-46 页。)

[35] Yahoo Answer. [Did Hitler ever actually kill anyone himself?](#) (Accessed on November 14, 2013).

[36] He's original Chinese: “苏联科学家批判量子力学唯心论的工作，对于我国科学家来说，具有什么样的意义呢，应该从这里吸取什么样的教训呢？首先便在于它再一次显示了辩证唯物主义的指导作用。再一次地有力地批判了某些科学工作者轻视哲学，轻视马克思、列宁主义的对科学工作的指导作用的思想，或者是认为马克思、列宁主义只能对生物科学、社会科学有作用，而对于其他科学如物理学等则没有什么指导作用的有害思想。这就再一次地说明了，自然科学家和哲学家的密切联系是何等必要，科学家学习马克思、列宁主义，是何等必要！” He Zuoxiu. *The Science Community in the Soviet Union Criticizes the Idealist Viewpoints in Quantum Mechanics*. People's Daily, May 21, 1952. (何祚庥: 《[苏联科学界批判量子力学中的唯心主义观点](#)》，1952 年 5 月 21 日《人民日报》。)

[37] He's original Chinese: “我现在做的事情，从某些方面来讲的确是不可替代的，因为既懂马克思主义又懂当代科学的人实在不多。” See: Liu Tianshi. *A Self-defense Argument by a Critic: Dialog with He Zuoxiu*. Southern People Weekly 2005(25):25-30. (刘天时: 《[一个批判者的自我辩词——对话何祚庥](#)》，《南方人物周刊》2005 年 25 期 25-30 页。)

[38] Original Chinese: “昨天他们说何祚庥院士自称和方舟子两人是现在唯一两位既懂马克思主义又懂现代科学的人，认为只有他们两个人才可以救中国，这是自己欺骗自己，你们怎么认为？”“何祚庥: 我从来没有说我唯一懂得马克思主义又懂得现代科学的，懂的人还很多，我是自认为是当中的一个，这里面可以看出

攻击别人的办法是把人家的意见歪曲一下，是唯一或者是唯二，还有一个是方舟子，但是我从来没有听方舟子说过。” Tom Sci & Tech. *Abolition of Term Pseudoscience, He Zuoxiu, Fang Zhouzi, and Sima Nan Say No Firmly*. XYS20061206. (TOM 科技: [《废“伪科学”何祚庥司马南方舟子坚决说不》](#)，新语丝 2006 年 12 月 6 日新到资料。)

[39] He's original Chinese: “其次，应该从关于量子力学的唯心论的批判工作中吸取教训，进一步开展物理学中的唯心论的批判工作。我们知道，唯心论曾经以各种各样的形式渗透在物理学中，而马赫主义更是和物理学有着直接的渊源和联系。列宁曾极为清楚地指出，唯心论渗入物理学的原因，首先是理论物理学的数学化（这里指的是物理的数学化，不是说物理学不要用数学了——作者），因而产生了数学家对于物质的遗忘，得出了“物质消灭了”，只剩下方程式了的结论。另一原因，是相对主义，即关于人类知识的相对性的学说。相对论在不理解辩证法的情形下，是不可避免地会引导到唯心论。” See: [36].

[40] He's original Chinese: “我在清华大学曾念了四年的物理系，可并没有念过相对论，更没有念过量子力学，甚至电动力学也只是念的王竹溪先生的笔记……也反映了当时并没有读懂量子力学。” See: He Zuoxiu. *I and Natural Dialectics*. In Dong Juxiang and Dong Xiangwei (eds.) *Memoirs by Philosophers*. China Youth Press, 1999. pp.258-292. (何祚庥: [《我与自然辩证法》](#)，董驹翔、董翔薇编 [《哲人忆往》](#)，中国青年出版社 1999 年版 258-292 页。)

[41] He's original Chinese: “一切的人民科学家，先进的科学工作者，应该为进一步批判物理学中的唯心主义，为建设辩证唯物主义指导的物理科学而奋斗。” See: [36].

[42] Xin Ge. [Shamelessness Shouldn't Be Anyone's Nature —An Open Letter to Nature, Part XXXI: Fangansters \(I\): Yu Guangyuan, the God Father](#). Sent to Nature on Sept. 25, 2013.

[43] Original Chinese: “在前蘇聯有一個李森科事件。李森科認為新種總是由量變到質變，飛躍而成為與母種截然不同的種。在遺傳和育種問題上，他從 30 年代起就反對「摩根基因遺傳學說」，並將其貼上「資產階級科學」的標籤。李森科由於得到斯大林的信任而飛黃騰達。蘇聯一批有才華的生物學家因此受牽連，慘遭迫害。當時的中國也在全國範圍開展了批判基因學說的運動，大力宣揚李森科一派的「米丘林生物科學」，科學真理成為政治干預的犧牲品。何祚庥等在「學習蘇聯老大哥」的大旗下高唱「米丘林生物科學是自覺而徹底地將馬克思列寧主義應用於生物科學的偉大成就」(見 3)，對我國著名生物學家談家楨（摩根的學生）發動圍剿，談家楨不得不違心地為自己堅持摩根的學說而做了檢討，使我國的生物學家受到致命打擊，從此一蹶不振(見 4、5)，而正是在這段時間裡，國外生物學出現了突飛猛進的發展。” Anonymous. *He Zuoxiu, the Man and His Deeds*. Epoch Times, Aug. 26, 2005. (Accessed on Nov. 14, 2013.) (佚名: [《何祚庥其人其事》](#)，大纪元 2005 年 8 月 26 日。)

[44] Original Chinese: 《为坚持生物科学的米丘林方向而斗争》，1952 年 6 月 29 日《人民日报》。

[45] Original Chinese: “一、米丘林生物科学是自觉而彻底地将马克思列宁主义应用于生物科学的伟大成就。” “二、米丘林生物科学不是生物学中的‘一个部门’，而是生物科学的根本变革。” “五、在实际工作中学习米丘林生物科学，用米丘林生物科学彻底改造生物科学的各部门，为坚持生物科学的米丘林方向而斗争。” *ibid*.

[46] See: Li Peishan. 1988. *Genetics in China: The Qingdao Symposium of 1956*. *Isis* 79(2):227-236. Also see: Li Peishan. *Science Defeats Anti-science: The Lysenko Case and Lysenkoism in China*. The Contemporary World Press, 2004. p.178. (李佩珊: [《科学战胜反科学——苏联的李森科事件及李森科主义在中国》](#)，当代世界出版社 2004 年版 178 页); Gong Yuzhi. *Lu Dingyi and Le Tianyu and Hu Xiansu Incidents*. Study Times, Aug. 22, 2006. (龚育之: [《陆定一与乐天宇事件和胡先骕事件——我所知道的陆定一（之六）》](#)，2006 年 8 月 22 日《学习时报》); Fan Hongye. *The Chronicle History of Chinese Academy of Sciences: 1949-1999*. Shanghai Science and Technology Press, 1999. (樊洪业: [《中国科学院编年史\(1949-1999\)》](#)，上海科技教育出版社 1999 年版。)

[47] Fang's original Chinese: “事实是：在 1952 年 4 到 6 月间，政务院文化教育委员会计划局科学卫生处会同中国科学院计划局召集了三次生物科学工作座谈会，《人民日报》的这篇文章就是该座谈会达成的一份报告。参加该座谈会的有来自中国科学院、政务院文化教育委员会计划局、农业部、北京大学、清华大学、北京农业大学等各机构的代表 28 人。何院士当时刚从清华大学本科毕业，分配到中宣部科技处工作，做为政务院文化教育委员会计划局科学卫生处（与中宣部科技处是同一套班子）的代表参加了这次会议（当时的处长赵飒也参加了）。这次会议之后，国内开始了对摩尔根基因论的大批判，影响非常恶劣。但是，何院士当时做为一名刚刚毕业参加工作的年轻干部，可能是会议参加者中资历最浅的，仅仅因为他由于职务的缘故参加了会议，就要让他为这次大批判承担主要责任，岂不是太过荒唐了？” See: [33].

[48] Huang's original Chinese: “何祚庥在科学处做了一些好事，也做了一些不大好说的事。他在科学处的时间不短，当时我也觉得很奇怪，他是学物理的，怎么什么都管，到处参加批判，批梁思成的建筑学，批《〈红楼梦〉研究》、批《武训传》，什么事情他都参与，而且敢写文章，敢批判。当时他的一些立场、思路，包括在米丘林问题上，都是主流派的，与上层的思路是一致的。他说过自己当时是个小干部，是奉命的，党叫干什么就干什么，不能怪我个人。” See: Zhang Li and Zheng Dan. 2009. *Our Life in the Science Division of the Department of Propaganda of the Central Committee, CPC—Interview with Huang Qinghe and Huang Shun'e*. *Science and Culture Review* 6(4):65-85. (张藜、郑丹：《我们在中宣部科学处：黄青禾、黄舜娥先生访谈录》，《科学文化评论》2009 年 6 卷 4 期:65-85 页。)

[49] Original Chinese: “科学处参加执笔的两个人一直没有表态，孟庆哲到去世时没有为这件事情说过话。何祚庥也一直回避这个问题。……何祚庥是执了笔的，他最好有个说法。” *ibid*.

[50] Tan's original Chinese: “二个月以前，我在浙江大學全體師生員工大會上，作思想檢討報告時，曾經初步批判了我過去對米丘林生物科學的錯誤看法。接着讀了 6 月 29 日人民日報登載‘為堅持生物科學的米丘林方向而鬥爭’一文以後，我有了更進一步的體會和認識。” Tan Jiazhen. 1952. *Criticize My Erroneous Opinions about Michurinist Biological Sciences*. *Chinese Science Bulletin* 3(8):562-563,572; *Bulletin of Biology* 1952(2). (谈家桢：《批判我对米丘林生物科学的错误看法》，《科学通报》1952 年 3 卷 8 期 562-563,572 页；《生物学通报》，1952 年 2 期。)

[51] For detailed information about the Beijing city wall demolition campaign, see: Dong, MY. *Republican Beijing: The City and Its Histories*. University of California Press, 2003; Fairbank, W. *Liang and Lin: Partners in Exploring China's Architectural Past*. University of Pennsylvania Press, 2008; Wang, J. *Beijing Record: A Physical and Political History of Planning Modern Beijing*. World Scientific, 2011.

[52] He's original Chinese: “1954—1955 年间，在我国的工作中，曾经出现一股复古主义的美学思想，亦即片面强调在建筑里要继承民族形式，要求各个新式的建筑上都加上一个‘大屋顶’，从而造成经济建设上的一些浪费。毛主席也曾好几次说：‘大屋顶’也不好看。这样一种批评建筑学中错误思潮，亦即批评梁思成教授的建筑思想的任务，便交到了中宣部。1955 年，在某次的政治局会议上，部长陆定一同志写了一个条子给彭真同志，请彭真同志负责领导这一批判工作，彭真同志同意了。于是于光远同志便带了我去见彭真同志。彭真同志除了召集有关同志开了一次动员会并做了讲话外，最重要的一个措施便是下令在颐和园的畅观楼里组织了一个班子，大大小小共写出约十余篇的批判文章。其中写得最好，最有说服力的是查汝强同志所撰写的《评梁思成的建筑理论的若干问题》的文章。我也写了一篇《论梁思成对建筑问题的若干错误见解》。当时决定先发我写的那篇文章，便刊登在《学习》杂志上。梁思成教授见了刊在《学习》杂志上的这篇文章后，立即在人民政治协商会议上做了比较认真的自我批评，刊登在次日的《人民日报》上。彭真同志见到了这一自我批评以后，立即把我们这批文章的作者们找了去，说‘人家都承认错误，做了自我批评了，怎么还能批评人家。’于是下令把所有已写了的文章都送梁思成教授参阅，但一切报刊都不得再刊登有关批梁的文章！于是一场批梁的运动就此中断，包括查汝强同志所写的最佳论文也没有见报，只是在前一个时期才收集在《科学与哲学论丛》的小册子里，做为这一‘批判’工作的历史的见证而已！” See: [40].

[53] Yu's original Chinese: “我按彭真的意见，在颐和园的畅观堂组织人写批判文章，不久 30 多篇批判文章就写出来了。彭真拿到这批文章后，并没有让发表，而是交给梁思成看。彭真说，梁思成原来认为自己是这方面的权威，没有人能批评他。一下看到这么多篇文章批评他，觉得自己错了。彭真对他说，如果你不

放弃你的意见，我们就一篇一篇地发表这些批判文章。梁思成这时就承认自己有不对的地方。结果梁思成不阻挡天安门的改建，大批判的文章一篇也没有发表，只有何祚庠自己送到《学习》杂志的一篇漏网了，这篇文章写得早，畅观堂里的写作还没有开始。” See: [27].

[54] Yu's original Chinese: “但有一两篇漏网，见报了，属于个人行为，我们批评是无组织无纪律。” See: Chen Tushou. *Liang Sicheng in Dangerous 1955. Essays 2013(3)*. (陈徒手: 《[一九五五年险境中的梁思成](#)》，《随笔》2013年3期。)

[55] Original Chinese: “复古主义、唯美主义、主观主义、形式主义、资产阶级唯心主义。” He Zuoxiu. *On Some of Liang Sicheng's Erroneous Opinions about Architecture. Learning 1955(10)*. (何祚庠: 《[论梁思成对建筑问题的若干错误见解](#)》，《学习》1955年10期。)

[56] He's original Chinese: “从上所述，可以看出，梁思成在建筑理论的基本问题上，存在着一系列的严重错误。但还可以看出，梁思成产生这些错误的思想基础，乃是资产阶级的唯心主义。一切的唯心论者都断言精神先于物质、意识先于存在。唯心论者的这些基本观点反映在认识论上，便是不从实际出发，不看事情的历史和全貌，只是凭着个人的好恶、臆想来做出种种错误的结论。” *ibid.*

[57] Liang's original Chinese: “我信任我们的党像我小时候信任我的妈妈一样。” See: [54].

[58] See: Liang Sicheng. *Never Depart from Our Party. In The Complete Works of Liang Sicheng. Vol. 5. China Architecture & Building Press, 2001. pp.268-269*. (梁思成: 《永远一步也不离开我们的党》，《梁思成全集》第五卷，中国建筑工业出版社2001年版268-269页。)

[59] Liang's original Chinese: “拆掉北京的一座城楼，就像割掉我的一块肉；扒掉北京的一段城墙，就像剥掉我的一层皮。” See: Zeng Zhaofen. *The 12th Bronze Statue. In Tsinghua Campus Essays. Tsinghua University Press, 2004. pp.6-12*. (曾昭奋: 《第十二座雕像》，见: 曾昭奋《清华园随笔》，清华大学出版社有限公司2004年版6-12页。)

[60] *ibid.*

[61] Fang's original Chinese: “网上有关何院士的谣言还有一些。例如，许多人骂他当年建议拆除北京城墙，邪教网站甚至造谣说他因此逼死了建筑学家梁思成夫妇。事实是，1955年，何院士大学毕业后不久，曾写过一篇《论梁思成对建筑问题的若干错误见解》，那是批评梁思成在建筑设计上的复古主义，特别是不计成本提倡造价十分昂贵的大屋顶’。这事还是何院士近年来在回忆中主动提及，才引起别人的注意。不管他在年轻时候对梁思成的批评是否有理，那都与拆除北京城墙无关，更与1972年梁思成之死无关。王军《城记》一书（三联书店出版）详细介绍了北京城墙被拆除的经过，提及许多位当年的建议者、支持者，并无何祚庠。” Fang Zhouzi. *He Zuoxiu and the Rumor about Maon. Science and Technology Weekly, Feb. 23, 2005*. (方舟子: 《[何祚庠、“毛子”与谣言](#)》，2005年2月23日《北京科技报》。)

[62] He repeatedly suggested in his article that Liang's ideas were the opposite to Mao's. For example, in this paragraph: “应该指出：正是这种‘可译性’理论竟变成了梁思成的一贯主张——主要不在于学习外来建筑形式（参看《新建设》一九五四年二月号）——的藉口。因为既然所有其它民族的建筑都可以‘翻译’成中国建筑，那末当然也就不必学习其它形式了。这是和毛泽东同志的‘大量吸收外国的进步文化’③的指示相违反的，不能认为建筑上的民族形式就一定排斥其它民族的建筑形式，如象梁思成所主张的和党性、阶级性加以类比的‘民族性’那样（参看《新建设》一九五四年二月号）。” See: [55].

[63] Original Chinese: “当时市委领导说，批还是要批的，但不要马上发表，在下面批，否则会被认为是‘二胡二梁’（即指不要与批判胡适、胡风、梁漱溟混为一谈），要批浪费问题。蒋南翔也曾经指示：批梁只限于违反勤俭建国方针、违反政策问题，而学术问题还可以讨论。刘仁说梁思成政治上是爱国的。” See: Guo Daiheng. *Liang Sicheng: The Master of the Generation. China Architecture & Building Press, 2006. p.235*. (郭黛姘: 《一代宗师梁思成》，中国建筑工业出版社2006年版235页。)

[64] See: Zhang Qingping. *The Biography of Lin Huiyin*. Baihua Literature and Art Publishing House, 2007. pp.30-31, 355. (张清平:《林徽因传》,百花文艺出版社2007年版30-31、355页。) Note: The official criticism of Liang Sicheng started in February 1955, and Yu organized the writing team in March. Liang's wife Lin Huiyin died of tuberculosis on April 1, 1955, at the age of 51.

[65] Original Chinese: “梁先生是一九七二年在一片寂寞中去世的。但是,作为一个学者,一个社会活动家,他在逝世前很久就已经没有说话了——《梁思成文集》最后一卷(第四卷)的最后一篇文章,写于一九六四年七月。” See: [59].

[66] 王军:《城记》,生活·读书·新知三联书店2003年版261-262页。Wang, J. *Beijing Record: A Physical and Political History of Planning Modern Beijing*. World Scientific, 2011, p.361.

[67] Wang's original Chinese: “1955年梁思成的建筑思想遭到批判。当时在中宣部任职的何祚庥在《学习》杂志发表批判文章称:‘旧北京城的都市建设亦何至于连一点缺点也没有呢?譬如说,北京市的城墙就相当地阻碍了北京市城郊和城内的交通,以致我们不得不在城墙上打通许许多多的缺口;又如北京市当中放上一个大故宫,以致行人都要绕道而行,交通十分不便。’” See: Wang Jun. *The Complete Story about the Forbidden City Renovation Project*. Outlook Weekly 2006(1):59-62. (王军:《故宫改建计划始末》,《瞭望》2006年1期59-62页。)

[68] Original Chinese: “系统的批梁文章还是何祚庥的《论梁思成对建筑问题的若干错误见解》。该文在断定梁思成思想的‘资产阶级唯心主义根源’之外,指出其三大错误:不适当地、片面地强调建筑的艺术性,颠倒了建筑学中美观和适用、经济的正确关系;梁提倡的‘民族形式’实际上就是复古主义,不能反映社会主义的精神面貌;他总结的建筑学‘文法’、‘词汇’论乃是一种形式主义的理论。这些理论批判的说服力如何?正如当时周扬所说:中国对马列主义美学研究很少,‘你们写了这些文章连我这个外行都说不服,怎么能说服这样一个老专家呢?建筑肯定是有民族形式的问题。’周扬觉得,这类文章不要多发,只能批判建筑中的浪费问题。” See: Luo Jianqiu. *The Cultural History of Liang Qichao Family*. China Renmin University Press, 1999. p.370. (罗检秋:《新会梁氏——梁启超家族的文化史》,中国人民大学出版社1999年版370页。)

[69] Original Chinese: “下面是一些简单摘抄。现在大家可以看看何祚庥院士批判梁思成的‘大字报’有几句是站得住脚的?论北京城墙的一段和城墙被拆除就没有关系?按照何祚庥的观点,整个故宫都应该拆了了事:影响交通嘛!” (See: [2005-02-23 02:34:45](#).)

[70] Fang's original Chinese: “说古代城墙、故宫有缺点,在今天阻碍交通,你就认为是在主张把城墙、故宫全拆了?就要何承担责任,这就是你的逻辑推理水平?实际上梁思成也承认北京城墙阻碍交通,你是不是认为他也主张全部拆了城墙?有时间去读点北京拆墙争论的历史好不好?且不说这是1955年的文章,即使在今天,也并非全无道理。比如说反对大建大屋顶。当年陈希同不也是以民族形式为由大建大屋顶,搞得怨声载道?” (See: [2005-02-23 03:08:06](#).)

[71] Original Chinese: “从何文中看得出他是赞同拆城墙的[]。顽固,错误主张,破产,这些贬义词足以表达作者的立场。梁对拆门楼不满,何对此大加反驳。如果对反对拆除旧城墙的意见表示反对不构成主张拆除旧城墙的涵义,那我学过的语文和逻辑倒真是出了问题。组织批判班子,由上面定调从政治的高度对某一个人进行口诛笔伐,群起而攻之,本来是我党的一贯作法,跟正常的学术批判不可同时而语,论战双方根本没有平等可言。何当年是批判班子的一员,出力也不小。何的主观愿望大概出于公心,何的地位大概不够承担责任的资格,但我不觉得参加上面组织的大批判是光彩的行为。” (See: [2005-02-23 04:31:29](#).)

[72] Fang's original Chinese: “赞同拆牌楼不等于赞同拆墙,赞成拆墙也不是什么罪恶[]。估计当时北京人大部分是赞同拆墙的。大跃进时期热火朝天[],搬墙砖的是不是更该死?何当时是中宣部的年轻干事,奉命写批判文章是职业行为,如果不光彩,当时的中国人又有几个光彩的?搞得好像何干事是拆北京城墙的罪魁祸首,连梁思成的死都要他负责,不荒唐吗?50年后议论是非,是很容易的事。” (See: [2005-02-23 05:38:43](#).)

[73] Original Chinese: “老何在政治上一直跟得挺紧[,]这个问题与其说是学术争论,不是说是一场政治秀.上头定了的东西,在‘争论’之前,就注定梁是要输掉的.显然当时如果另行择址建一个‘新北京’,是最明智的选择.” (See: [2005-02-23 08:06:32.](#))

[74] Fang's original Chinese: “何在 1980 年代顶着上层的压力反伪科学的时候, 你说他紧跟了谁的政治?” (See: [2005-02-23 11:50:04.](#))

[75] The list of Fang's posting on the forum of the New Threads on Feb. 23, 2005, to defend He Zuoxiu's misdeeds:

Time	Title	Byte
2/23/2005 0:36	有人在网上说他听到了什么, 你就信以为真?	0
2/23/2005 0:38	你连基本的阅读理解能力都不具备?	88
2/23/2005 0:44	轮子的造谣	205
2/23/2005 0:47	我不是给了个“毛子”出处的例证了吗?	50
2/23/2005 0:55	差别大着呢, 当然, 这是你这种智力的人看不出来的	0
2/23/2005 0:57	这么说的举的就是这篇文章, 在哪里有这样的说法?	52
2/23/2005 1:07	在你这种智力的人看来, 只有诺贝尔获得者才有正常智力?	17
2/23/2005 1:15	原意是什么是一回事, 该在什么场合讲是另一回事	102
2/23/2005 1:16	我批批你这种人就够了, 要比明明是弱智却偏要提什么独创性理论强得多	0
2/23/2005 1:29	你能在这里发这种感慨, 去当轮子更是小菜一碟了	0
2/23/2005 1:29	有没有证明, 是否证明得了, 是你这种智力的人能够评价的吗?	0
2/23/2005 1:57	我上面的帖子能够证明你是个弱智就够了	0
2/23/2005 2:27	你到被你认为是弱智的地盘撒野还屡赶不走一天换一件马甲不正是太弱智了?	0
2/23/2005 2:30	运用你的逻辑学着发点诛心之论而已	0
2/23/2005 3:08	说古代城墙、故宫有缺点, 在今天阻碍交通, 你就认为是在主张把城墙、故宫全拆了?	141
2/23/2005 3:41	这篇文章出台的背景	856
2/23/2005 5:38	赞同拆牌楼不等于赞同拆墙, 赞成拆墙也不是什么罪恶	135
2/23/2005 11:48	你的脑子被轮子洗坏了? 于、何明明是赞赏彭真中止批判梁的做法	88
2/23/2005 11:50	何在 1980 年代顶着上层的压力反伪科学的时候, 你说他紧跟了谁的政治?	0
2/23/2005 11:53	何说不是他提出的, 不就完了, 是谁提出的我不感兴趣	0
2/23/2005 12:07	你的极毒上帝改变了中国的反伪科学史?	0
2/23/2005 12:35	梁思成又不是神, 怎么批不得?	81
2/23/2005 12:46	职务行为是奉命行事, 不等于自己没有对错观念	39
2/23/2005 13:03	何自己认为是对是错不重要。职务行为是我说的, 不是他说的	79
2/23/2005 13:08	后来证明了北京的大厦都该像宫殿一样盖个大屋顶?	134
2/23/2005 13:12	黄万里那档子事有可比性吗?	0
2/23/2005 13:16	那篇文章的写作背景我不是已经贴了?	35
2/23/2005 13:30	镜子照得还很不够	93
2/23/2005 13:43	何批梁的复古主义和黄扯上了什么关系了?	19
2/23/2005 13:48	我的 email 首页上就有。你就车轱辘话反复说吧, 失陪了	0
2/23/2005 14:09	你喜欢住洋楼, 某建筑学家却要给你盖个土楼, 你是不是也不敢吱声?	61
2/23/2005 15:29	下面这句话一定是极毒徒照着镜子写下的:	53

[76] Original Chinese: “1955 年, 中央决定搞原子弹, 钱三强教授奉命组建原子能研究所。这一高度保密的尖端国防工程, 科学家既要技术过关, 也要政治过关。钱三强想到了他的弟子何祚庠, 找到胡乔木希望能把何祚庠调给他。此时何祚庠已经在中宣部科学处做了五年半的党务工作。对他而言, 回去重新做科研, 简直是‘要命’。‘幸亏我过去的科技基础不错。最重要的是在宣传部工作过, 跟顶尖级的科学家关系非常好。所以我有什么问题要求教, 彭桓武、于敏、邓稼先这些前辈都肯倾囊相授, 我也不是太笨学不会。” See: [74].

[77] Gong's original Chinese: “秦川随西北的抗美援朝慰问团去了很久, 回来很想写一个歌剧, 歌颂抗美援朝, 心思也不在科学工作上, 所以何祚庠还对他有意见, 说他不安心工作。” See: [29].

[78] Gong's original Chinese: “一九五六年党中央发出‘向科学进军’的号召, 于光远以及部领导终于点头, 使何祚庠如愿以偿, 年底就到中国科学院原子能研究所去从事专业研究了。” See: [32], p.311.

[79] Yu's original Chinese: “我现在参加反对帝国主义和封建势力的斗争, 目的是建立一个民主的劳动人民当家做主的国家。革命成功之后要进行建设, 你出国深造, 回来之后就可以为这样的国家服务, 到那时候我们还会合作。” See: Yu Guangyuan. *My Chronicle Stories: 1939-1945*. Elephant Press, 2005. pp.78-80. (于光远: 《我的编年故事: 1939-1945》, 大象出版社 2005 年版 78-80 页。) Note: According to Qian's Autobiography written in 1953, Yu's exact wording was: “Both science and national liberation are what we urgently need. The cause of national liberation needs the help from science, and science can only blossom in the land of freedom and independence. Let's combine science with the cause of national liberation tightly.” (Original Chinese: “科学和民族解放都是我们所迫切需要的。民族解放事业需要科学的协助, 科学也只能在自由独立的国土上开花。让我们将科学与民族解放事业紧紧地配合起来。” See: Ge Nengquan. *Qian Sanqiang*. Shandong Friendship Publishing House, 2006. pp.54-55. 葛能全: 《钱三强》, 山东友谊出版社 2006 年版 54-55 页。)

[80] See: [25], p.47.

[81] Original Chinese: “这次出国一般表现很好, 对工作有热情, 学习苏联经验很努力。担任团长的职务也认真, 对党所提出的意见, 对党的领导, 也能接受和尊重。” See: [79], p.201.

[82] *ibid*, pp.201-202.

[83] He Zuoxiu. 2007. *Deeply Mourn Teacher Peng Huanwu*. Journal of Beijing Normal University (Natural Science) 43(3):367. (何祚庠: 《深切悼念彭桓武老师》, 《北京师范大学学报(自然科学版)》2007 年 3 期 367 页。)

[84] He's original Chinese: “在跟随邓稼先做 β 衰变的工作中, 我仅仅是学习, 实在没有什么贡献! 但却对我起了重要作用。因为不久邓稼先与我联合发表了一篇文章。这篇文章给于光远造成错觉, 认为‘小何’还是有点研究才能。” *ibid*. Note: The paper was: 邓稼先、何祚庠: 《 β -中微子角关联, β - γ 角关联和 β -能谱因子》, 《物理学报》1956 年 2 期。

[85] He's original Chinese: “那时我很急于做出一些科学工作来, 老问彭先生这一想法可不可以做, 那一想法可不可以做? 几乎每次彭先生都阻拦了我, 说不值得做。” *ibid*.

[86] The titles of the 3 papers are:

何祚庠、罗劲柏: 《马克思主义再生产理论的数学分析(一)——为什么不断实现扩大再生产必须优先发展生产资料》, 《力学学报》1957 年 1 期 109-130 页、《科学通报》1957 年 4 期;

何祚庠、罗劲柏: 《马克思主义再生产理论的数学分析(二)——论生产高速上涨的条件》, 《力学学报》1957 年 2 期 184-192 页、《科学通报》1957 年 4 期;

何祚庥、罗劲柏：《马克思主义再生产理论的数学分析(三)——在实现扩大再生产时第一部类和第二部类所必需满足的上升比例关系，以及它们的经济意义的分析》，《力学学报》1958年3期 255-275页。

^[87] See: Bromley, DA. & Perrolle, PM. (eds.) *Nuclear Science in China*. National Academy Press, 1980. p.33; Li Ruizhi, et al. *Nuclear Physicist Wang Ganchang*. Atomic Energy Press, 1996. p.126. (李瑞芝等：《核物理学家王淦昌》，原子能出版社1996年版126页。)

^[88] See: Li Ruizhi, et al. *Nuclear Physicist Wang Ganchang*. Atomic Energy Press, 1996. pp.132-133. (李瑞芝等：《核物理学家王淦昌》，原子能出版社1996年版132-133页。)

^[89] Original Chinese: “1958年至1960年期间，何祚庥来到苏联莫斯科，在中苏合办的核子研究所进行粒子物理的研究。紧张的研究之余，每个星期六或星期天，何祚庥可以乘研究所的班车进城，到莫斯科大学去找在苏联留学的恋人庆承瑞。” See: ^[19] “杜布纳离莫斯科大学有100多公里，在紧张的工作之余，每个周末，何祚庥都要忙中偷闲去看看庆承瑞。” See: Zhou Jun and Pan Yingbin. *He Zuoxiu's Love Story*. Liberation Daily, May 3, 2001. (周军、潘莹斌：《[何祚庥的爱情传奇](#)》，2001年5月3日《解放日报》。)

^[90] Original Chinese: “莫斯科大学有一套严格的管理制度，轻易不让外人进学生宿舍。即使庆承瑞去接何祚庥，还是常被堵在门外。庆承瑞用一口流利的俄语说情，人家抱定死规定，绝不通融。他俩无奈想出了一招——借了同校一个中国学生的出入证，让何祚庥拿着进门。出入证照片上的那个人长得跟何祚庥不太像，看门的警卫捧着出入证，对着照片把何祚庥看来看去，磨蹭了半天，才对他说了句俄语。庆承瑞赶紧拉着何祚庥走进去，何祚庥还没反应过来。她笑道：‘人家请你进去呢。’” See: Fu Junning. *Academician He Zuoxiu's Bitter and Sweet Family Affairs*. Family, 2000(3). (傅宁军：《[何祚庥院士的苦乐家事](#)》，《家庭下半月》2000年3期。)

^[91] Original Chinese: “两年的时间里，他拿出了十篇高质量的论文。” See: ^[17] “两年的时间里，他拿出了十篇高质量的论文。” Zeng Tao. *Interview with Renowned Theoretical Physicist He Zuoxiu*. Zeng Tao's Blog on Sina.com, Sept. 20, 2007. (曾涛：《[访著名理论物理学家何祚庥](#)》，曾涛的新浪博客2007年9月20日。)

^[92] Original Chinese: “1959年6月，苏联单方面撕毁了原子能援助协定，拒绝为我国的原子能研究提供任何帮助，中国的核研究陷入了困境。当时在杜布纳联合研究所工作的周光召、吕敏、何祚庥知道消息后焦急万分，连夜召开三人临时支部会议，由何祚庥执笔写信给二机部负责人：只要国家需要，愿转行从事国家最紧迫的研究工作，克服千难万险也要把原子弹造出来。” See: ^[17].

^[93] See: Ge Nengquan. *Qian Sanqiang*. Shandong Friendship Publishing House, 2006. pp.274-275. (葛能全：《钱三强》，山东友谊出版社2006年版274-275页。)

^[94] Original Chinese: “何祚庥还曾从事原子弹和氢弹的理论研究，是氢弹理论的开创者之一。” See: *A Brief Biography of He Zuoxiu*. In *Interviews with the Oriental Sons*. Ed. By Shi Jian. Shandong People's Publishing House, 1997. (《[何祚庥小传](#)》，见时间编《东方之子访谈录》，山东人民出版社，1997年版。) Also see: XYS19990609.

^[95] Original Chinese: “在氢弹理论研究中曾经作出贡献的何祚庥，对此十分感慨地说：……” See: ^[19].

^[96] Original Chinese: “他曾经与其他科学家合作，为新中国第一颗原子弹和氢弹的试验成功，立下不可磨灭的功勋。” See: Fu Junning. *He Zuoxiu: Beyond Scientific Research*. People's Daily, Overseas Edition, March 14, 2000. (傅宁军：《[论文外的何祚庥](#)》，2000年3月14日《人民日报海外版》。)

^[97] Original Chinese: “很多人知道他反对伪科学，很少人知道他是我国氢弹理论开创者之一。” “何祚庥当之无愧成为中国氢弹理论的奠基人之一。” See: ^[18].

[98] Other news media reports or book chapters saying that He had contributed to China's H-bomb research significantly are:

“何祚庥，著名的物理学家，中科院院士，在粒子物理和宇宙论的研究中成果斐然，曾参与国防研究，为新中国第一颗原子弹和氢弹的试验成功立下了卓越功勋。”文石、木紫：《与何祚庥焦点对话》，《各界》2001年4月1日。

“何祚庥在氢弹理论研究中功绩显著”。周军潘、莹斌：《何祚庥的爱情传奇》，2001年5月3日《解放日报》。

“他在理论物理研究领域也是硕果累累，曾参与国防研究，为新中国第一颗原子弹和氢弹的试验成功立下了卓越功勋”，李宾：《何祚庥的无界限探索》，《今日中国》2003年11期。

“中国科学院院士、著名物理学家、我国氢弹理论开拓者之一，亦是著名哲学家的何祚庥先生学术水平、道德文章享誉国内外，……。”邹十践：《英语翻译人才素质感受》，见：《与国外接轨》丛书编委会编《风雨路上梦成真》，湖南科学技术出版社2002年版183-192页。

“何祚庥……参与我国原子弹和氢弹问题的研究，是我国氢弹研究的早期开拓者之一。”戴禾淑：《何祚庥》，见中国科学技术协会编《中国科学技术专家传略理学编—物理学卷3》，中国科学技术出版社2006年版142-160页。

“何祚庥（1927-）长期以来从事粒子物理及各种应用性问题的研究。其重要工作有层子模型的研究，复合粒子量子场论的研究，弱相互作用理论的研究等，先后发表约250篇科学论文。曾获国家自然科学基金二等奖及多种奖励。他还曾从事原子弹和氢弹的理论研究，是氢弹理论的开拓者之一。”何祚庥：《六亿人跳跃改变地球轨道是天方夜谭》，见：余时佑编《数字人生：100位中国名人的励志故事》，中国经济出版社2008年版170-172页。

“何祚庥，……是氢弹理论的开拓者之一，也是中国两弹研制参与者之一。”王胜、小川：《共和国发明60年—访两栖院士何祚庥》，《赤子》2009年Z1期31-32页。

[99] The official website of the Institute of Theoretical Physics at CAS. [Zuo-xiu He](#). Accessed on Nov. 14, 2013.

[100] A few examples: “50年代，何祚庥号称对原子弹和氢弹进行着理论研究，自诩是氢弹理论的开创者之一。但科学院的人说，何祚庥是伪科学的开创者和表演者。”Li Xiao. *The Funny Stories about Fake Scientist He Zuoxiu*. Renmin Bao, Issue 50. (李晓：《伪科学家何祚庥趣闻》，《人民日报》第50期)；“何祚庥号称是原子弹和氢弹的理论研究，是氢弹理论的开创者之一，那么我们关心一下何祚庥提出的是什么理论呢？”Shi Ming. *He Zuoxiu*. Epoch Times, Dec. 17, 2002(史明：《人物春秋：何祚庥》，《大纪元》2002年12月17日。)“一项重大科技事业充其量能有几个人可称得上‘理论开拓者’呢？‘两弹一星’元勋数量已多达23名，竟然还未涵盖‘理论开拓者’何祚庥同志。可见‘理论开拓者’这个模糊概念的外延之大，令人想起那个把行政领导、宣传员、描图员甚至厨师都算作科技成果功勋的年代。”See: Pu Henian. *Samuel C. C. Ting's "Ignorance" and He Zuoxiu's "Omniscience."* Yunnan BBS, Aug. 1, 2005 (蒲鹤年：《“大实若虚”与“大伪似真”——丁肇中的“无知”与何祚庥的“无所不知”》，燕南社区2005年8月1日。)

[101] Original Chinese: 记者：“您在两弹工程里做什么工作？”何祚庥：“这个保密。”See: Song Guangyu. *About Pseudo-environmental protection and other Things: Dialog to CAS Academician He Zuoxiu*. Nanjing Daily, Jan. 7, 2008. (宋广玉：《关于“伪环保”及其他——对话中国科学院院士何祚庥》，2008年1月7日《南京日报》。)

[102] See: *The Elites in China's Science Community*. Science Popularization Press, 1985. [39. (《中国科苑英华录》编写组：《中国科苑英华录（新中国之部）上册》，科学普及出版社1985年版39页。)]

[103] *China Today* is a series of 210 books published between 1983 and 1999. The editors-in-chief were the Director of the Propaganda Department, Mr. Deng Liqun; the President of the Chinese Academy of Social Sciences, Mr. Ma Hong; and the Deputy Director of the State Science and Technology Commission, Mr. Wu Heng. *China Today: Nuclear Industry* (《当代中国的核工业》) was published by China Social Sciences Press in 1987, containing more than 600 pages.

[104] The Joint Publications Research Service published at least two reports of *China Today: Nuclear Industry*: [JPRS-CST-88-002](#) released on Jan. 15, 1988, and [JPRS-CST-88-008](#) on Apr. 26, 1988.

[105] Lewis, JW. and Xue, L. *China Builds the Bomb*. Stanford University Press, 1988.

[106] 张劲夫：《[请历史记住他们——关于中国科学院与“两弹一星”的回忆](#)》，1999年5月6日《人民日报》。

[107] Qian Jiang. *Approaching the Founding Fathers of the Republic's Two Bombs and One Satellite*. General Review of the Communist Party of China 2003(5):30-32. (钱江：《[走近共和国“两弹一星”元勋们](#)》，《党史博览》2003年5期30-32页。) The 23 scientists are: Chen Fangyun (陈芳允, 1916-2000), Chen Nengkuan (陈能宽, 1923-), Cheng Kaijia (程开甲, 1918-), Deng Jiaxian (邓稼先, 1924-1986), Guo Yonghuai (郭永怀, 1909-1968), Huang Weilu (黄纬禄, 1916-2011), Peng Huanwu (彭桓武, 1915-2007), Qian Ji (钱骥, 1917-1983), Qian Sanqiang (钱三强, 1913-1992), Qian Xuesen (钱学森, 1911-2009), Ren Xinmin (任新民, 1915-), Sun Jiadong (孙家栋, 1929-), Tu Shoue (屠守锷, 1917-2012), Wang Dahang (王大珩, 1915-2011), Wang Ganchang (王淦昌, 1907-1998), Wang Xiji (王希季, 1921-), Wu Ziliang (吴自良, 1917-2008), Yang Jiachi (杨嘉墀, 1919-2006), Yao Tongbin (姚桐斌, 1922-1968), Yu Min (于敏, 1926-), Zhou Guangzhao (周光召, 1929-), Zhu Guangya (朱光亚, 1924-2011), Zhao Jiuzhang (赵九章, 1907-1968),

[108] See: 人民网中国两院院士资料库：《[何祚庥](#)》，2003年9月18日。Please note that the information was modified later at the [CAS website](#), but He's involvement in the nuclear bomb programs was still not mentioned.

[109] Original Chinese: “何祚庥没有他们那么优秀，但是有一批马在那儿爬的时候有个苍蝇叮在马尾巴上面也跟着跑，就是跟在马尾巴上面，就是跟上了。” Zeng Tao. *Interview with Renowned Theoretical Physicist He Zuoxiu*. Zeng Tao's Blog on Sina.com, Sept. 20, 2007. (曾涛：《[访著名理论物理学家何祚庥](#)》，曾涛的新浪博客2007年9月20日)；“在原子弹、氢弹的理论物理学家中，有些是贡献较大的人士，如周光召院士、于敏院士等。至于何祚庥却只做了小小的工作，但是，由于我是追随着骏马向前飞跑的一只马尾巴上的‘苍蝇’，也就跟上了时代。’1980年，何祚庥当选为中国科学院学部委员(院士)时如此自嘲。” See: [19].

[110] He claims that he was the one who recommended Yu Min for the position (“由于于敏埋头读书，于敏在历届政治运动中，成了运动对象，是老运动员。他被指责走粉红色道路。于敏能否做氢弹研究？何祚庥跑到钱三强那里极力推荐。” See: Li Xiguang. Zhou Guangzhao: *The Key Person Who Made the Breakthrough in China's Nuclear Weapons Program*. Li Xiguang's Blog on Sina.com, Feb. 6, 2011. (李希光：《[周光召：突破中国核武器技术的关键人物](#)》，李希光的新浪博客，2011年2月6日。) However, other sources indicate that it was Huang Zuqia, together with He Zuoxiu, who recommended Yu Min. See: Bai Wanliang. *The People Who Created Wonders*. Hubei Education Press, 2005. p.4. (柏万良：《创造奇迹的人们》，湖北教育出版社2005年版4页。) Also see: Song Binghuan. *Past Events about China's First Hydrogen Bomb*. NAAS Inertial Technology, 2009(8):33-58. (宋炳寰：《往事不尽如风：绝密的中国1100目标亲历(上)》，《海陆空天惯性世界》2009年8期33-58页。) Yu Min's appointment by Qian Sanqiang has been well documented. For example, see: [93], pp.307-313; Zhang Jifu. *Qian Sanqiang and China's H-bomb*. Modern Science 1995(1):12-15. ([张纪夫](#)：《钱三强与中国氢弹》，《[金秋科苑](#)》1995年1期12-15页。)

[111] Zhang Jifu. *Qian Sanqiang and China's H-bomb*. Modern Science 1995(1):12-15. ([张纪夫](#)：《钱三强与中国氢弹》，《[金秋科苑](#)》1995年1期12-15页。)

[112] *ibid.* Also see: Hao Jun. *Huang Zuqia: Tranquil and Far-reaching*. Chinese Science News, July 6, 2013. (郝俊: 《宁静致远黄祖洽》, 2013年7月6日《中国科学报》。)

[113] Bai Guang. *Hydrogen Bomb Expert Yu Min*. in *The Elites of the Times*. Military Science Press, 1990. pp.134-152. (白光: 《氢弹科学家于敏》, 见许智敏编《时代精英录》, 军事科学出版社1990年版134-152页。)

[114] Although the 3-stage scheme was not officially proposed, to the best of my knowledge, it is evident from the numerous narratives on the history of China's nuclear weapons development. See: *China Today: Nuclear Industry*. China Social Sciences Press, 1987 (《当代中国的核工业》, 中国社会科学出版社1987年版); Zhang Jifu. *Qian Sanqiang and China's H-bomb*. Modern Science 1995(1):12-15. (张纪夫: 《钱三强与中国氢弹》, [《金秋科苑》1995年1期12-15页](#)); Song Binghuan. *Past Events about China's First Hydrogen Bomb*. NAAS Inertial Technology, 2009(8):33-58. (宋炳寰: 《往事不尽如风: 绝密的中国1100目标亲历(上)》, 《海陆空天惯性世界》2009年8期33-58页。)

[115] Original Chinese: “据中国科学院院士何祚庥回忆, 当时实际是猜, 因为氢弹的秘密那时候根本就没公布过, 谁也不知道氢弹怎么做。” See: Zhou Kai. *The Historical Scenes of China's Nuclear Industry Development: Top-secret meetings in the Decision Making Process*. China Youth Daily, Jan. 15, 2005. (周凯: [《中国核工业发展历史镜头: 决策过程的绝密会议》](#), 2005年1月15日《中国青年报》。)

[116] Original Chinese: “第一颗原子弹试验成功后, 周总理立即指示要加快氢弹的研制。有关氢弹, 从美国财政年报上列举的他们生产核材料和热核材料的计划中, 可以判断出制造氢弹时他们用了什么热核材料; 我们从科学理论上也知道要用什么热核材料, 并且早已经建厂投产。我们也知道要用原子弹引爆氢弹, 房山的原子能研究所1960年就开始了热核聚变的理论研究, 积累了一些数据, 但是究竟如何用原子弹去引爆氢弹, 即如何用核裂变去引发核聚变, 不清楚, 也没有资料。” Liu Xiyao. *Climbing the Peak and Crossing the Fog: Liu Xiyao's Memoir*. Wuhan University Press, 2007. pp.135-136. (刘西尧: 《攀峰与穿雾: 刘西尧回忆记录》, 武汉大学出版社2007年版135-136。) Note: The Chinese word 数据 is normally translated into “data” in English. However, it literally means “numbers.” Lewis and Xue translated it into “parameters.” (See: Lewis and Xue. *China Builds the Bomb*. Stanford University Press, 1991. p.196.)

[117] Original Chinese: “1964年10月16日, 我国第一颗原子弹爆炸试验成功。11月2日在研究今后的核试验时, 周总理问刘杰什么时候研制成氢弹。刘杰回答: 氢弹理论的预先研究已经在探索, 现在还有许多问题吃不透。大概还得需要三五年时间。” Song Binghuan. *Past Events about China's First Hydrogen Bomb*. NAAS Inertial Technology, 2009(8):33-58. (宋炳寰: 《往事不尽如风: 绝密的中国1100目标亲历(上)》, 《海陆空天惯性世界》2009年8期33-58页。)

[118] Original Chinese: “1965年2月, 核武器研究所副所长朱光亚、彭桓武指导制定探索氢弹的理论研究计划。研究人员总结了前一段的研究工作, 分析了国外发展氢弹的情况。经过充分论证, 确定第一步突破氢弹原理, 第二步力争在1968年以前实现首次氢弹试验。” See: Peng Jichao. *Two-Bomb Hero Zhou Guangzhao*. Popular Science News, Oct. 14, 2004. (彭继超: [《“两弹”功勋周光召》](#), 2004年10月14日《大众科技报》。) “中央专委会议以后, 2-3月, 九院根据二机部党委的要求, 在副院长彭桓武、朱光亚的指导下, 由理论部主任邓稼先、副主任周光召主持, 组织理论部有关方面的专家和研究人员开规划会议, 讨论制定突破氢弹的具体规划。会议在回顾了前一段氢弹理论研究工作, 分析了美国、苏联等国氢弹发展的历史以后, 制定了旨在突破氢弹技术的《氢弹科研大纲》。” See: [117].

[119] See, for example: [IPRS-CST-88-002](#), p.40; Lewis and Xue. *China Builds the Bomb*. Stanford University Press, 1991. p.200; Dong Sheng. *The Secret of China's Two-bomb-One-Satellite*. Huaxia Publishing House, 2007. p.786. (东生: 《天地颂——“两弹一星”百年揭秘》, 华夏出版社2007年版786页); Peng Jichao. *China's Nuclear Test Records*. CCP Central Party School Press, 2005. (彭继超: 《东方巨响——中国核武器试验纪实》, 中共中央党校出版社2005年版。)

[120] He's original Chinese: "1964年10月至1965年9月,我先后在河南的罗山和信阳参加'四清'运动,未能参加于光远所组织的座谈和讨论。但由于我的爱人庆承瑞也被邀请参加了坂田昌一文章的注解工作,所以就在给我的信件中告诉了一切详情。根据我们在信件来往中所交换的意见,庆承瑞和我合写了一个《关于〈关于新基本粒子观的对话〉的对话》,先后刊登在1965年8月份的《光明日报》和1965年的《自然辩证法研究通讯》第3期。" See: He Zuoxiu. *A Memoir about New China's Theoretical Physics*. History of CPC in Beijing 2005(1):55-58. (何祚庥:《关于新中国理论物理研究的一段回忆》,《北京党史》2005年1期55-58页。)

[121] Original Chinese: "根据二机部党委的决定,1965年1月,黄祖洽、于敏等原子能研究所轻核理论组的31位科研人员携带着预先探索研究的所有成果和资料,调到了九院理论部,在主战场汇合,一起攻关。黄祖洽、于敏被任命为理论部副主任。轻核理论组另外的10余位科研人员,包括去了河南省参加'四清'社会主义教育运动的何祚庥,则留在了原子能研究所继续从事基础理论方面的研究工作。" See: [117].

[122] Original Chinese: "1961年第四季度何祚庥等调到九所参加突破原子弹的工作。黄祖洽也在九所兼职参与原子弹的攻关,每周只有一半的时间在原子能研究所,轻核理论组的工作担子主要落在了于敏的肩上。1963年何祚庥又重新调回了轻核理论组。" See: [117].

[123] Original Chinese: "何祚庥对记者说: '如果说我有点什么好处,就是我不妒忌人。原子弹、氢弹几大关键人物都是我推荐的。" See: [19]. Note: According to numerous reports about He, only Zhou Guangzhao and Yu Min were recommended by He. As mentioned before, Yu Min was recommended by both Huang Zuqia and He Zuoxiu, while Mr. Ge Nengquan, Dr. Qian Sanqiang's biographer, claims that Qian was going to use Yu all along. See: [93], pp.310-313.

[124] Original Chinese: "'钱三强对中国两弹的最大贡献是他同意周光召和于敏参加原子弹和氢弹研究,'何祚庥说。" Li Xiguang. Zhou Guangzhao: *The Key Person Who Made the Breakthrough in China's Nuclear Weapons Program*. Li Xiguang's Blog on Sina.com, Feb. 6, 2011. (李希光:《[周光召:突破中国核武器技术的关键人物](#)》,李希光的新浪博客,2011年2月6日。)

[125] Original Chinese: "何祚庥毕竟还有一段革命的经历。而周光召院士虽然也加入了共产党,但一查社会关系极其复杂,这样的出身能够调来搞原子弹吗?连知人善任的钱三强教授一听到周光召的出身,也都犹豫起来。当晚他和核工业部刘杰部长通了长途电话,一旁的何祚庥极力担保周光召政治表现极好,尤其是业务能力极强。部里终于打破唯成分论。" See: [19].

[126] Huang Chaoqun. Zhou Guangzhao. In *The Stories of USTC*. Ed. by Ding Yixin. Liaohai Publishing House, 1999. pp.173-178. (黄超群:《周光召》,见丁毅信主编《中国科大逸事》,辽海出版社1999年版173-178页。)

[127] He's original Chinese: "更重要的是,光召同志有极为复杂的社会关系,按照当时的准则,是绝对不可能接受[进入原子弹项目]的。" See: He Zuoxiu. 1992. Comrade Sanqiang's Important Contribution to Atomic Energy Science and Technology. *Studies in Dialectics of Nature* 8(8):72-74. (何祚庥:《回忆三强同志在原子能科学技术中的重大贡献》,《自然辩证法研究》1992年8期72-74页。)

[128] See: [93], pp.273-274.

[129] Original Chinese: "何祚庥总得交差,但又怕开会时有人'上纲上线',伤于敏的心,就先发言定个调。他大谈一通知识分子学习改造的重要性。学习改造是包括每个人在内的,谈到于敏就很有分寸感,说对别人的意见呢,有则改之,无则加勉,又说为人民服务贵在有自觉性,不应'三请诸葛亮'才出山。说到'诸葛亮',不免有半开玩笑的味道,一时气氛轻松了许多。" See: [19].

[130] See: [93], pp.419-421; Zhang Jifu. Qian Sanqiang and China's H-bomb. *Modern Science* 1995(1):12-15. ([张纪夫](#):《钱三强与中国氢弹》,《[金秋科苑](#)》1995年1期12-15页。)

[131] Original Chinese: “何祚庥院士说: ‘以往人们有个误解, 认为我们从原子弹到氢弹, 用时很短, 其实早在原子弹爆炸成功前我们已经开始研究氢弹了。’” Ou Mei and Liu Yuanhao. *Tsinghua: The Intelligence Booster for the Two-bomb One-satellite*. *Social Outlook* 2011(4):34-37. (欧媚、刘源浩: 《[水木清华: “两弹一星” 智力助推器](#)》, 《社会观察》2011 年 4 期 34-37 页。) “在这四年多的时间中, 这一理论组共进行了下列两方面的工作: 一是氢弹中各种物理过程的探讨和研究; 二是氢弹作用原理和可能结构方面的探索.....以上这些探索和研究, 现在看来, 确是氢弹理论探索初期所必需做的。因此, 虽然当时的工作还不成熟, 但是毕竟起了先走一步, 探索道路, 提出种种想法, 准备有关方程和数据的作用。所以自从 1965 年 2 月起和九所的经验与力量结合起来, 共同努力, 再经过一年零五个月的时间, 就爆炸了我国第一颗氢弹。” See: He Zuoxiu, Huang Zuqia, and Yu Min. *Memoir on the Exploratory Research on Hydrogen Bomb*. Cited in [25], p.185. (何祚庥、黄祖洽、于敏: 《关于氢弹理论预研工作的回忆》, 见《钱三强年谱》185 页。)

[132] Original Chinese: “何祚庥曾向填补我国原子核理论空白的于敏请教: 科学研究的本领是怎样锻炼出来的? 于敏回答说: ‘我常常注意观察前辈科学家的思想方法。’短短的一句话, 使何祚庥记到今天, 他告诉我们: “可能于敏自己已经不记得他对我说过这句话了, 这是一句使人终身难忘的重要的话, 它让我学到了活的科学方法论。” See: [19].

[133] The six Red Flag articles are:

1. He Zuoxiu. *The Roles of Experiment, Abstraction, and Hypothesis in Scientific Research*. *Red Flag* 1961(11):12-22. (何祚庥: 《实验、抽象和假说在科学研究中的作用》, 《红旗》1961 年 11 期 12-22 页。)
2. He Zuoxiu. *On Some Issues Concerning the Practice Criterion in Natural Scientific Research*. *Red Flag* 1962(2):13-24. (何祚庥: 《论自然科学研究中有关实践标准的若干问题》, 《红旗》1962 年 2 期 13-24 页。)
3. He Zuoxiu. *Natural Science and Practical Application*. *Red Flag* 1962(7):24-28. (何祚庥: 《自然科学和实际应用》, 《红旗》1962 年第 7 期 24-28 页。)
4. He Zuoxiu. *The Role of Mathematical Methods in Understanding the Objective World*. *Red Flag* 1962(10):22-30. (何祚庥: 《数学方法在认识客观世界中的作用》, 《红旗》1962 年第 10 期 22 - 30 页。)
5. Zhou Guangzhao and He Zuoxiu. *Theories and Experiments in Physics Research*. *Red Flag* 1963(10/11):29-36. (周光召、何祚庥: 《物理学研究中的理论和实验》, 《红旗》1963 年 10-11 期 29-36 页。)
6. He Zuoxiu. *On Some Issues Concerning the Practice Criterion in Natural Science Research (II): A Reply to Comrades Du Lei, Wu Junguang, Tao Delin, et al.* *Red Flag* 1964(10):55-65. (何祚庥: 《再谈自然科学研究中的实践标准问题——答杜雷、吴俊光、陶德麟等同志》, 《红旗》1964 年 10 期 55-65 页。)

He also published at least three related articles in other publications:

1. He Zuoxiu. *On Scientific Methodology*. *New Construction* 1962(9). (何祚庥: 《谈谈科学方法论问题》, 《新建设》1962 年 9 期。)
2. He Zuoxiu. *The Practice Standard Shouldn't Be Understood Apart from Historical Perspective*. *New Construction* 1962(11). (何祚庥: 《不能离开历史观点理解实践标准》, 《新建设》1962 年 11 期。)
3. He Zuoxiu. *On the Relationship between Relative Truth and Absolute Truth*. *Wen Wei Po*, Aug. 6, 1963. (何祚庥: 《论相对真理与绝对真理的关系》, 1963 年 8 月 6 日《文汇报》。)

[134] He's original Chinese: “1961 年, 党中央制定了科学工作‘14 条’, 总结了自 1958 年以来在科学工作上所出现的偏差及其经验教训。为了纠正在一个时期内发生的对于实验、抽象和假说等等科学方法所产生的误解, 《红旗》杂志约我写了一系列有关科学方法论的文章, 计有《实验、抽象和假说在科学研究中的作

用》、《数学方法在认识客观世界中的作用》、《物理学研究中的理论和实验》、《论自然科学研究中有关实践标准的若干问题》等等，先后刊登在 1961-1963 年的《红旗》杂志上。由于这是在中国首先尝试用马克思主义观点系统地探讨科学方法的文章，并由于这一组文章反映了科学研究工作中常遇到的一些方法论问题，因此颇受读者欢迎。” See: [40].

[135] He's original Chinese: “假说的形成是和人们的世界观联系着的。成功的假说一般是自觉或不自觉地在一定程度上运用了辩证唯物论的方法论和世界观中的某些原理而获得的结果。如果缺乏科学的态度，并从错误的世界观和方法论出发，就不免得到错误的假说。这类假说对于科学的发展往往不起推动作用，反而将人们的注意力引入迷途。例如，天文学上有些主张宇宙有限的科学家，提出若干宇宙如何形成的‘假说’，如宇宙膨胀论，其目的只是为了证明上帝创造世界的神话。这类假说，在哲学上固然是错误的，在科学上也缺乏根据。这类假说，我们是反对的。” See: He Zuoxiu. *The Roles of Experiment, Abstraction, and Hypothesis in Scientific Research*. Red Flag 1961(11):12-22. (何祚庥：《实验、抽象和假说在科学研究中的作用》，《红旗》1961 年 11 期 12-22 页。)

[136] He's original Chinese: “我在《论自然科学研究中有关实践标准的若干问题》一文中说：‘形式逻辑的知识告诉我们，证明一个全称肯定的命题要考虑到所有的实际情况，而推翻一个全称肯定的命题却只要一个简单的例子就行了。’而在《不能离开历史观点理解实践标准》一文中又说：‘实践检验科学的基本内容，是由个别来检验一般，由有限推出无限，而个别和一般、有限和无限之间矛盾的解决，却决不是一两次的实践就能穷尽的。’又在《再谈自然科学研究中的实践标准问题》一文中写道：‘从逻辑上说，由实践来纠正理论上的错误，是比较容易符合逻辑上完备性的条件的，三段论知识告诉我们，要推翻一个全称肯定的命题，只要有一个特殊的例外就行了，但是要由实践来证明一个普遍命题，却要复杂一些。因为在一定具体条件下的实践，总是具体的实践，而理论却总是某种一般性、普遍性、无限的东西。’——这实在是玻普所提出的科学理论‘只能证伪，不能证实’的学说的翻版，然而我在提出这些论点时，却比玻普早得多。如果说在科学的哲学领域内也有什么‘发明权’的话，我便是比玻普更早的‘发明人’之一。” See: [40].

[137] He's original Chinese: “然而我的这些意见却是错误的。正如朱波同志所指出的，‘列宁在论述认识与实践的关系时曾经指出：‘实践高于（理论的）认识，因为实践不仅有普遍性的优点，而且有直接的现实性的优点’。（《列宁全集》，第 38 卷，第 230 页）这就是说，经过实践验证为正确的认识，不但适用于某个具体的事物，而且也同样适用于条件相同、性质相同的所有事物，具有普遍的意义和作用。……诚然，实践总是具体的，人们的实践总是以个别类型的事物为对象。从这个意义上说来，人们在一定条件下进行的实践总是个别的，但是，只是这样说也还是不够的、不全面的。实践是个别的，个别中包括一般。只承认前者而不承认后者，是不全面的，是对实践作了片面的形而上学的理解。‘我以为朱波同志对我的批评，是正确的、中肯的。’” See: [40].

[138] in 1999, He claimed that “In the five years I spent in the Central Propaganda Department, I read and understood Marx, so I firmly believes in Marxism.” (“在中宣部 5 年，我读懂了马克思，因而坚信马克思主义”。 See: [13].

[139] Hegel. *Science of Logic*. Translated by W.H. Johnston and L. G. Struthers. George Allen & Unwin Limited, 1951. p.460.

[140] See: He Zuoxiu. *On Some Issues Concerning the Practice Criterion in Natural Science Research*. Red Flag 1962(2):13-24. (何祚庥：《论自然科学研究中有关实践标准的若干问题》，《红旗》1962 年 2 期 13-24 页。)

[141] For analyses and reviews, see: Friedman, E. 1983. *Einstein and Mao: Metaphors of Revolution*. The China Quarterly 93(1): 51-75; Cheng, Y. 2006. *Ideology and Cosmology: Maoist Discussion on Physics and the Cultural Revolution*. Modern Asian Studies 40(1): 109-149.

[142] Xu Tao, Qian Sanqiang, Gong Yuzhi, and Yu Guangyuan. Memories of Mao Zedong's Talks about the "Infinite Divisibility of Matter." Literature of Chinese Communist Party 2008(1):96-97. (徐涛、钱三强、龚育之、于光远: 《回忆毛泽东谈“物质无限可分”》, 《党的文献》2008年1期96-97页。)

[143] See: Hung-yuan Tzu. *Reminiscences of the Straton Model*. Proceedings of the 1980 Guangzhou Conference on Theoretical Particle Physics. Science Press, Beijing China, 1980, Vol. 1, pp. 3-31. Note: More details about the discussion between Mao and Qian can be found in [25], pp.115-116.

[144] Mao Zedong. 1957. *A Dialectical Approach to Inner-Party Unity: Excerpts from a speech at the Moscow Meeting of Representatives of the Communist and Workers' Parties. Selected Works of Mao Tsetung*, Vol. 5. Foreign Languages Press, 1977. pp.514-516.

[145] Hu Danian. *China and Albert Einstein: The Reception of the Physicist and His Theory in China, 1917-1979*. Harvard University Press, 2005. p.235, note 10.

[146] See: 坂田昌一: 《基本粒子的新概念》, 《自然辩证法研究通讯》1963年1期7-14; 何祚庥: 《关于坂田昌一的〈基本粒子的新概念〉的评注》, 《自然辩证法研究通讯》1963年1期15页。

[147] Yu's original Chinese: “第二年, 即1965年6月, 《红旗》再次发表坂田那篇《基本粒子新概念》的译文, 由于坂田说苏联译得不甚准确, 我们从日文重新译出, 题目按原文恢复为《关于新基本粒子观的对话》, 并加了编者按语。” See: Yu Guangyuan. *Mao Zedong and Natural Dialectics*. In *Memories of Mao Zedong*. Central Literature Publishing House, 1993. pp.357-365. (于光远: 《毛泽东和自然辩证法》, 见《缅怀毛泽东》, 中央文献出版社1993年版357-365页。)

[148] Sakata, S. 1961. *Dialogues Concerning a New View of Elementary Particles*. in Supplement of the Progress of Theoretical Physics 50:185-198 (1971).

[149] Yu's original Chinese: “1963年11月16日, 毛泽东听取聂荣臻汇报1962-1972年科技十年规划时讲, 社会科学也要有一个十年规划。他接着讲: ‘有一本杂志《自然辩证法研究通讯》, 中间停了好久, 现在复刊了。复刊了就好。现在第二期已经出了’。他问这个刊物是哪里出的。我回答了毛泽东的问题, 但当时我不知道他为什么对本杂志这样的注意。回家后翻阅复刊后的那两期杂志, 推断这是在刊物上发表了坂田的文章的缘故。” See: [147].

[150] Gong Yuzhi. *Natural Dialectics in China*. Peking University Press, 1996. pp.98-104. (龚育之: 《自然辩证法在中国》, 北京大学出版社1996年版98-104页。) Also see: [147].

[151] 坂田昌一: 《关于新基本粒子观的对话》, 《红旗》1965年6期19-31页。庆承瑞、柳树滋: 《〈关于新基本粒子观的对话〉注释》, 《红旗》1965年6期32-39页。

[152] Original Chinese: “读后感觉这些观点和表达这种观点的语气不同一般, 而且似曾有所闻, 如同10年前在中南海丰泽园的中央书记处扩大会议上毛泽东主席的一番对话, 但身在乡下, 不知内情。回到北京后, 得知该‘按语’果然有毛泽东的背景。” See: [25], p.186.

[153] Original Chinese: “《红旗》杂志今年第六期刊载了日本著名理论物理学家坂田昌一的《关于新基本粒子观的对话》一文, 并加了编者按语, 希望我国的自然科学工作者重视在科学研究工作中学习和运用唯物辩证法。5月12日、6月17日, 《红旗》编辑部哲学组和中国科学院哲学研究所自然辩证法组邀请了北京的一部分物理学工作者和哲学工作者举行了两次座谈会, 围绕在物理学研究工作中自觉地运用辩证唯物主义这个问题进行讨论。此外, 中国科学院哲学研究所、原子能研究所、半导体研究所、心理研究所, 中国科学技术大学, 北京大学物理系和技术物理系等单位都组织了讨论。7月3日, 北京良然辩证法学会筹委会和北京科学会堂联合举办了报告会, 由朱洪元同志作《关于新基本粒子观的对话, 有关问题的介绍, 到会的有北京的自然科学工作者、哲学工作者等六百多人。7月17日和21日上午, 全国科协、中国科学院哲学研究所、北京市自然辩证法学会筹委会联合召开了自然辩证法座谈会, 邀请在京的和少数外地的科学

技术工作者七百余人就如何自觉地运用毛泽东思想指导科学技术工作这个问题交换意见。大家在座谈之前听取了于光远同志的报告。” See: Anonymous. *The Science Community in Our Country Enthusiastically Discusses Sakata's Article Published in the Red Flag*. *Journal of Dialectics of Nature* 1965(3), (《我国科学界热烈座谈〈红旗〉杂志发表的坂田昌一的文章》，《自然辩证法通讯》1965年3期。)

[154] See: [150], p.30.

[155] See: Friedman, E. 1983. *Einstein and Mao: Metaphors of Revolution*. *The China Quarterly* 93(1): 51-75; Cheng, Y. 2006. *Ideology and Cosmology: Maoist Discussion on Physics and the Cultural Revolution*. *Modern Asian Studies* 40(1): 109-149. Note: Another indication of Mao's intention in 1965 was revealed in the same issue of the Red Flag which published Sakata's Dialog: The first item published in the journal was an old militant article Mao wrote in 1938: *Problems of Strategy in Guerrilla War Against Japan*.

[156] Friedman, E. 1983. *Einstein and Mao: Metaphors of Revolution*. *The China Quarterly* 93(1): 51-75. Note: According to Friedman, "Guo Moruo and Liao Chengzhi were dispatched [by Mao] in 1955 to meet Sakata at Kyoto University and invite him to China." "Sakata was given numerous platforms from which to proclaim his philosophy of science." However, Chinese literatures paid little, if any, attention to Sakata's trip in 1956, possibly because of lack of information. See: Wang Tingfang. Guo Moruo Couple and Two Japanese Scientists. *Centennial Tide* 2002(10):36-40. (王廷芳:《郭沫若夫妇与两位日本科学家》，《百年潮》2002年10期36-40页); Xie Enze. 1997. *The Spread and Influence of Shoichi Sakata's Science Philosophical Thought in China*. *Studies in Dialectics of Nature* 13(5):38-41. (解恩泽:《坂田昌一科学哲学思想在中国的传播及其影响》，《自然辩证法研究》1997年5期38-41页。)

[157] Blokhintsev, DI. 1959. *The Contemporary Concepts of the Elementary Particle Structures*. *Atomic Energy Science and Technology* 1959(3):131-135. (布洛欣采夫:《基本粒子构造的现代概念》，《原子能科学技术》1959年3期131-135页。)

[158] Zhu Hongyuan, Zhou Guangzhao, Wang Rong, and He Zuoxiu. *The New Developments and Some Philosophical Issues in the Modern Theory of Elementary Particles*. *Journal of Dialectics of Nature* 1960(2):65-68. (朱洪元、周光召、汪容、何祚庥:《现代基本粒子理论的新发展以及其中存在的一些哲学问题》，《自然辩证法研究通讯》1960年2期65-68。) Note: In 1990s, He claimed that the article was written by him. (Original Chinese: "1960年，朱洪元、周光召、汪容和何祚庥曾联合写了一篇由何祚庥执笔的《现代基本粒子理论的新发展以及其中存在的一些哲学问题》的哲学论文，刊登在1960年的《自然辩证法研究通讯》的第2期、第65-68页上。") See: He Zuoxiu. *From Yuan Qi Theory to Particle Physics*. Hunan Education Press, 1999. p.129. (何祚庥:《从元气学说到粒子物理》，湖南教育出版社1999年版129页。)

[159] There are at least two stories about He's participation in the Sakata fever. One was told by He himself (see: [120]), the other was told by Liu Jixing, one of He's colleagues at the Institute of Theoretical Physics, in which it revealed that He wrote the article by escaping labor work and hiding in a room. See: Liu Jixing. 2007. *A Theoretical Physicist Who Struggles for His Ideal: Congratulate Mr. He Zuoxiu on His 80th Birthday*. *Physics* 36(10):798-800. (刘寄星:《一位为理想而奋斗的理论物理学家——祝贺何祚庥先生八十寿辰》，《物理》2007年10期798-800页。)

[160] Original Chinese: "8月，受中国科学院、教育部、中宣部和对外文化联络委员会的委托，组织中国科学院原子能研究所、数学研究所和北京大学的粒子物理理论工作者，学习毛泽东提出的物质无限可分的哲学思想，集合起来进行基本粒子结构问题的讨论与研究。” See: [25], p.187.

[161] The paper doesn't have an English title and abstract. The English title was borrowed from [143], which was referring a publication in the *Atomic Energy*, but it has exactly the same meaning as the Chinese title published in *Acta Scientiarum Naturalium Universitatis Pekinensis*. The *Atomic Energy* magazine couldn't be found in any major databases of Chinese academic literatures, therefore its exact Chinese title is unknown to me.

[162] Original Chinese: “更能确切地反映出层子这一层也只是人类认识的某个里程碑的思想。” See: [93], p.324. Also see: Li Huazhong and Xian Dingchang. 2002. *Particle Poetry II*. Physics 31(2):122-124. (李华钟、洗鼎昌:《粒子诗抄(续一)》,《物理》2002年31卷2期122-124页。)

[163] Original Chinese: “中国物理学工作者汪容今天上午代表北京基本粒子理论组在北京物理讨论会全体会议上所作的一篇学术报告,再一次以雄辩的事实向人们指明:毛泽东思想是在阶级斗争、生产斗争和科学实验三大革命运动中战无不胜的强大武器。人们在科学实验中只要能够很好地掌握和运用这个武器,就一定能够充分发挥主观能动性,把精神力量转化成为巨大的物质力量。这篇题为《在毛泽东思想光辉照耀下研究基本粒子理论》的报告说明,参加北京基本粒子理论组研究工作的中国物理学工作者们,以毛泽东思想为武器,勇于实践,善于实践,深入虎穴,揭示矛盾,终于创造性地提出了反映基本粒子内部结构的‘层子模型’理论,把基本粒子内部结构的理论研究向前推进了一大步。” See: Xinhua News Agency. *The Academic Report on Elementary Particle Theory Presented by Our Scientific Workers Drew Widespread Attention*. July 26, 1966. (新华社:《[我科学工作者关于基本粒子理论的学术报告引起普遍重视](#)》,1966年7月26日。)

[164] Anonymous. *Oppose Imperialism and Colonialism, Develop National Science and Culture*. Peking Review, August 5, 1966. Issue 32:24-26.

[165] Original Chinese: “萨拉姆曾对周恩来说:‘这是第一流的科学工作’。” See: He Zuoxiu. *From Yuan Qi Theory to Particle Physics*. Hunan Education Press, 1999. p.146. (何祚庥:《从元气学说说到粒子物理》,湖南教育出版社1999年版146页);“巴基斯坦有位后来获得诺贝尔奖的教授萨拉姆在会上评论说,《层子模型》的作者一定是个很聪明的人。” See: Li Huazhong and Xian Dingchang. 2002. *Particle Poetry II*. Physics 31(2):122-124. (李华钟、洗鼎昌:《粒子诗抄(续一)》,《物理》2002年31卷2期122-124页。)

[166] Weinberg, S. *The First Three Minutes: A Modern View of the Origin of the Universe*. Basic Books, 1993. p.136.

[167] Robert J. Cence, R.J. and Baltay, C. (eds.) *Proceedings of the Seventh Hawaii Topical Conference in Particle Physics*. University of Hawaii Press, 1977. pp.162-163.

[168] The website of the Scientific Research Division of the Institute of Theoretical Physics at CAS. *The Awards Received from 1978 to 2005*. (中国科学院高能物理研究所科研处:《[1978年-2005年高能所获奖情况统计](#)》。)

[169] According to Ding Zhaojun and Hu Huakai, Yang and Li praised the model highly in The 1980 Guangzhou Conference on Theoretical Particle Physics (Original Chinese:“1980年初,在广州从化召开了粒子物理国际会议。朱洪元代表当年的‘理论组’在会上做了《关于层子模型的回忆》的报告,原‘理论组’中有25位学者在这次会上做了学术报告。李政道、杨振宁都对这次会议所提交的以层子模型为代表的论文给予了高度评价。”) See: Ding Zhaojun and Hu Huakai. 2007. *A Historical Account of the Accomplishment of the “Straton Model” in China*. Journal of Dialectics of Nature 29(4):62-67,112. (丁兆君、胡化凯:《“层子模型”建立始末》,《自然辩证法通讯》2007年4期62-67+112页。) However, no such a conclusion could be reached after careful examination of the reference the authors cited. The original Chinese was “会议结束前在顾问委员会的会议上,李政道和杨振宁两位先生都认为会议开得好,水平高,和世界上同类型的国际会议不相上下,特别是一批四十岁上下的能力很强的科学工作者给他们很深的印象,国内同行报告的水平反映了‘文革’后的理论研究不但得到恢复,而且迅速提高。” (See: Li Huazhong and Xian Dingchang. 2002. *Particle Poetry V*. Physics 31(8):540-542. 李华钟、洗鼎昌:《粒子诗抄(续四)》,《物理》2002年31卷8期540-542页), which says that Yang and Li praise the conference, rather than the straton model. According to Li Huazhong, T. D. Lee’s remark was on his paper about gauge field theory. (See: Li Huazhong. 2002. *Gauge Field Theory in China: In Honor of the 80th Birthday of Professor C. N. Yang*. Physics 31(4):249-253. 李华钟:《规范场理论在中国——为祝杨振宁先生80大寿而作》,《物理》2002年31卷4期249-253页。)

[170] Gloria B. Lubkin, GB. 1971. *C. N. Yang Discusses Physics in People’s Republic of China*. Physics Today 24(11):61.

[171] According to Hung-yuan Tzu^[143]: “Colleagues outside China have heard about these works, but know little about their contents.Since 1972, many colleagues of Chinese origin visiting China enquired about the actual contents of the straton model. Owing to the particular historical circumstances, it was only possible to give very brief account on very few occasions. Even the names of the author's were not mentioned.”

[172] In *Selected Papers (1945–1980) Of Chen Ning Yang, with Commentary*, published in 2005 by World Scientific, Yang mentioned the straton once: “By hadronic matter we mean the constituents of hadrons, that is, quarks or stratoms, or any ‘stuff.’” (p.75). In 2004, when commenting that year’s Nobel Physics Prize, Yang said the following: “At that time, everyone was studying the structure of hadrons, Chinese proposed an idea of straton model. However, the later development was in a different direction, therefore no people talks about straton model anymore.” (Original Chinese: “那个时候，大家都在研究强子结构，中国提出了层子模型的想法。但后来的发展在另外一个方向上，所以层子模型后来也没有人讲了。” See: Dai Xiaolin. *Yang Zhenning Shed Light on the Reason Why Chinese Scientists Missed the Nobel Physics Prize*. Beijing Morning News, Oct. 14, 2004. 代小琳: 《杨振宁评诺贝尔物理奖 中国科学家为何失之交臂》，2004年10月14日《北京晨报》。)

[173] Xiong Weimin. *The Secret of China’s Synthetic Insulin Project*. China Youth Daily, Nov. 23, 30, and Dec. 7, 2005. (熊卫民: 《解密人工合成胰岛素》，2005年11月23日、30日、12月7日《中国青年报》。)

[174] No “straton” could be found in Dr. T. D. Lee’s highly regarded *Particle Physics and Introduction to Field Theory* (Harwood Academic Publishers, 1981) and *Symmetries, Asymmetries, and the World of Particles* (The University of Washington Press, 1988). The word “straton” is neither present in the three volumes of *T.D. Lee: Selected Papers* (General Editors: Gian-Carlo Rota and David Sharp, Birkhäuser, 1986) nor *T.D. Lee: Selected Papers 1985-1996* (Edited by Hai-Cang Ren, Yang Pang, CRC Press, 1998).

[175] 宋健主编、惠永正副主编: 《现代科学技术基础知识》，科学出版社、中央党校出版社 1994 年版。

[176] 周光召主编: 《现代科学技术基础》，群众出版社 1999 年版 38-39 页。

[177] Search Google Scholar with “straton model” on November 14, 2013, yielded 106 hits. Except for a few papers in the area of history of science, all the others were Chinese publications.

[178] Original Chinese: “1965 年秋，他和胡宁、张宗燧合作，率领一批年青理论物理工作者建立和发展关于强子结构的‘层子模型’理论。” See: Bian Yue. *Zhu Hongyuan*. In *Collections of the Best Papers in Physics in the First Half of the 20th Century in China*. Ed. by Dai Nianzu. Hunan Education Press, 1993. P.1090. (卞约: 《朱洪元》，戴念祖主编《20 世纪上半叶中国物理学论文集粹》，湖南教育出版社 1993 年版 1090 页。)

[179] Xian Dingchang. “Straton Model” Is an Important Development in Hadron Structure Research. Case Studies of Science and Technology Innovation at CAS. II. Academy Press, 2004. p.55. (洗鼎昌: 《“层子模型”是强子结构研究的重要开拓》，《中国科学院科技创新案例(二)》，学苑出版社 2004 年版 55 页); Liu Yaoyang. 2012. *Memory of the Theoretical Research on Particle Physics in 1960s*. Physics 41(9):565-568. (刘耀阳: 《六十年代粒子物理理论研究的回忆》，《物理》2012 年 41 卷 9 期 565-568 页); Huang Tao. 2013. *Memory of the Last Half Century: I and High Energy Physics*. Modern Physics Knowledge 25(1):32-39. (黄涛: 《五十载回首——我和高能物理》，《现代物理知识》2013 年 25 卷 1 期 32-39 页。)

[180] He’s original Chinese: “朱洪元和何祚庥曾经多次地讨论了这些‘奇怪’的问题: ‘夸克’究竟是真实的粒子，还是只是数学上的符号?” “朱洪元和何祚庥还讨论到强子为什么具有 SU(6)对称性的问题。” “朱洪元和何祚庥讨论到那时 (1959-1960 年) 在苏联杜布纳联合核子研究所参加工作时，苏联有一位年轻的研究人员 Volkof 博士曾建议过一种特殊的统计，即自旋为 1/2 的费米子，也可以有‘对称’状态的波函数。” See: He Zuoxiu. *From Yuan Qi Theory to Particle Physics*. Hunan Education Press, 1999. p.146. (何祚庥: 《从元气学说到粒子物理》，湖南教育出版社 1999 年版 146 页。) Also see: ^[40].

[181] See: He Zuoxiu. *The Three Great Debates: The Philosophical Questions in Modern Physics Research*. Beijing Normal University Press, 2000. pp.36-38. (何祚庥: 《谈谈马克思主义哲学指导自然科学研究的一些问题: 层于模型的研究对马克思主义哲学指导自然科学研究做了有益的探索》, 见: 何祚庥《三大论战——现代物理学研究中的哲学问题》, 北京师范大学出版社 2000 年版 36-38 页。)

[182] Original Chinese: “《层子模型建立的前前后后》。” It was first published internally and fragmentally before 1997, and then fully in 1997 in He's book, *Philosophical Reflections on Composite Quantum Field Theory*. Beijing Normal University Press, 1997. pp.224-233. (何祚庥: 《量子复合场论的哲学思考》, 北京师范大学出版社 1997 年版 224 - 233 页。) In 1999, the article appeared again in He's another book, *From Yuan Qi Theory to Particle Physics*. Hunan Education Press, 1999. pp.136-150. (何祚庥: 《从元气学说说到粒子物理》, 第十三章《中国人的工作——关于强子结构的层子模型》, 湖南教育出版社 1999 年版 136-150 页。)

[183] Original Chinese: “中国科学院院士、中国科学院理论物理所研究员、博士生导师何祚庥直言, 昨天得知美国科学家凭借量子色动力学的‘夸克渐近自由’获得本年度的诺贝尔物理学奖, 感觉‘非常之遗憾’。因为, ‘在这个领域里, 我们的研究曾早于美国, 成果也非常接近最后的结果。’ “作为当年我国夸克模型课题组的主要研究人员, 何祚庥说, 在这个领域里我们曾与美国等科学家一样在国际前沿工作, 取得了非常有意义的成果, 发展势头非常好。我国在 1965 年率先提出了夸克模型 (在我国也叫做‘层子模型’) 这一量子色动力学中的关键理论, 而且, 当时提出的关于颜色的概念已经很接近最后的结果。‘这个成果就算不一定是原始、最根本的结果, 但也已经是次原始的了’。何祚庥说, 1966 年, 在北京举行的一次国际会议上, 该成果得到了国内外专家的肯定。” See: Wang Hui. *He Zuoxiu: We Used to Be Earlier Than the Americans* in *Quark Particle Theory*. Beijing News, Oct. 7, 2004. (王荟: 《[何祚庥: 夸克粒子理论研究“我们曾早于美国”](#)》, 2004 年 10 月 7 日《新京报》。)

[184] Xin Ge. [Shamelessness Shouldn't Be Anyone's Nature—An Open Letter to Nature, Part XXV: Fang's Plagiarism History: The Michigan State University Case](#). Sent to Nature on May 19, 2013.

[185] Eddie. *It Is Very Unserious of Academician He Zuoxiu in His comment on This Years Nobel Physics Prize and the "Straton Model."* XYS20041008. (Eddie: 《[何祚庥院士对今年诺贝尔物理学奖和“层子模型”的评论很不严谨](#)》, 新语丝 2004 年 10 月 8 日新到资料。)

[186] Original Chinese: “例如层子模型的指导思想与盖尔曼的物质不是无限可分的夸克模型是对着干的, 但我们现在把这条界线隐盖了, 把‘层子’干脆冒充说成是‘夸克’。” See: Wang Dekui. *Preliminary Study on the Triple Spin Theory: Chairman Mao Zedong and the Theory of Infinite Divisibility of Matter*. Well Read 2003(2):61-67. (王德奎: 《[三旋理论初探: 毛泽东主席与物质无限可分说](#)》, 《博览群书》2003 年 2 期 61-67 页。)

[187] Li Huazhong. 2006. *Quark Dynamic Model (QCD) and Gauge Field Theory*. Physics 35(4):340-344. (李华钟: 《规范场和夸克动力学模型——关于 QCD 和层子模型的议论》, 《物理》2006 年 35 卷 4 期 340-344 页。)

[188] He's original Chinese: “层子模型不仅统一地解释了有关强子的结构及其相互作用, 而且为粒子物理的更深层次的突破, 如量子色动力学的建立, 弱电统一理论的建立, 提供了物质的前提。” See: He Zuoxiu. 1990. *Professor Zhu Hongyuan's Contributions to Particle Physics*. Modern Physics Knowledge 2(6):1-3. (何祚庥: 《记朱洪元教授在粒子物理学的贡献》, 《现代物理知识》, 1990 年 2 卷 6 期 1-3 页。)

[189] See: Jiang, X. 1993. [Yao-yang Liu Is the Earliest Discoverer of the "Colors" of Quarks](#). BIHEP-TH-93-33:1-8; Pietschmann, H. *Phanomenologie der Naturwissenschaft*. Springer, 1996. pp.162-163; Jiang Xiangdong. *A SELDOM HEARD OF SIGNIFICANT ACHIEVEMENT IN FUNDAMENTAL SCIENTIFIC RESEARCH: THE DISCOVERY OF COLORED QUARKS BY YAO-YANG LIU*. The Chinese Journal for the History of Science and Technology 1999(1):1-8. (江向东: 《鲜为人知的基础研究重大成果——刘耀阳夸克颜色的发现》, 《中国科技史杂志》1999 年 1 期 1-8 页。)

[190] Original Chinese: “据层子模型工作的参与者回忆, 当时的学术带头人认为, 最重要的事乃是确定基本粒子内部是否有结构, 是否符合‘一分为二’的思想, 因而把主要精力用来求强子的波函数。” *ibid.*

[191] Original Chinese: “有人说他那物质无限可分的层子说是伪科学。” (See: [2004-08-13 18:19:56](#).)

[192] Original Chinese: “层子说实际上就是夸克说, 只听过一个搞伪科学的人到处说它是伪科学[。]你是不是也是听这个人说的?” (See: [2004-08-13 21:31:39](#).)

[193] Original Chinese: “认为层子就是夸克的西方物理学家多了。” (See: [2004-08-14 03:32:11](#).)

[194] Original Chinese: “从事科学研究的科学家不应把外行的指手划脚, 信口开河奉为圭臬, 这正是何炸麻的问题之所在。” (See: [2004-08-14 15:34:16](#).)

[195] Original Chinese: “物质无限可分论出自古希腊阿那克萨戈拉的种子论, 与原子论相对。” (See: [2004-08-14 20:28:31](#).)

[196] He Zuoxiu. 1987. *Further Discussion on the Theory of Infinite Divisibility of Matter*. Studies in Dialectics of Nature 3(6):1-5. (何祚庥: 《对“物质无限可分论”的再探讨》, 《自然辩证法研究》1987年6期1-5页。)

[197] *The Encyclopædia Britannica*, the 11th Edition, Volume 1. Cambridge University Press, 1910. p.943.

[198] Yi Ming. *Does Fang Zhouzi Understand TCM?* AIR-China, May 28, 2011. (亦明: 《方舟子懂中医吗?》, 中国学术评价网 2011年5月28日。)

[199] He's original Chinese: “黄涛同志对-L-S-Z 量子场论有甚为深入的理解, 而我却在物理直观上较为明晰和透彻, 我们两人互相取长补短。经过大约半年的奋斗, 我们基本上建立起一个复合场量子场论的体系。” See: [40].

[200] He's original Chinese: “我和黄涛同志商量了一下, 决定尝试将它们改写成公理化的形式, 即由假定 I, 假定 II,来建立起一个逻辑上比较严密的体系。回想我在年轻的时候, 曾经激烈地批评过‘公理化’的数学体系, 认为这‘完全是形式’的, 徒然将数学问题写得十分艰深, 使人难以读懂。没想到的是, 20年一过, 为了将其中隐藏着的隐患搞清楚, 我竟然求助于‘公理化’方法起来!” See: [40].

[201] So far, He Zuoxiu has published at least 7 papers on the composite particle quantized field theory, all in Chinese, all between 1974 and 1977, and they have been cited by a total of 27 papers, all by Chinese, and 20 of them were self-citations:

1. 何祚庥、黄涛: 《关于复合粒子场论的若干问题》, 《科学通报》1974年1期。(Cited by 3, 1 self-citation.)
2. 何祚庥、黄涛: 《一种新的可能的复合场的量子场论》, 《物理学报》1974年2期。(Cited by 20, 16 self-citations.)
3. 何祚庥、黄涛: 《复合场场论和层子模型(I)》, 《物理学报》1974年4期。(0 citation.)
4. 何祚庥、黄涛: 《复合场场论和矢量为主(VMD), 赝矢量近似守恒(PCAC), 场流关系以及流代数的一些问题》, 《物理学报》1974年6期。(0 citation.)
5. 何祚庥、黄涛: 《关于复合场场论的两个问题》, 《科学通报》1975年9期。(0 citation.)
6. 何祚庥, 张肇西, 黄涛: 《关于复合场场论的微扰展开式》, 《物理学报》1976年3期。(Cited by 4, 2 self-citations, plus 1 citation from He's wife.)
7. 何祚庥、张肇西: 《关于复合粒子量子场论的重整化理论和红外发散消去问题》, 《物理学报》1977年6期。(0 citation.)

[202] Original Chinese: “何祚庥说，这个方案提出了一个大胆的设想，利用加速器生产核燃料。这可不是异想天开，世界上还有多个国家尝试过类似的研究，而且至今仍是加速器的研究方向。只是，放在上世纪六十年代中国的科研水平，用加速器生产核燃料是不可能实现的——中国当时连能够达到高能标准的加速器都没有。” See: Dong Shaodong. *Chinese Accelerator: A Complete Story about the Construction of Beijing Electron Positron Collider*. Beijing Daily, Feb. 28, 2012. (董少东: 《[中国加速器：北京正负电子对撞机建设始末](#)》，2012年2月28日《北京日报》。)

[203] Original Chinese: “何祚庥曾在中宣部负责过科技宣传工作，笔头硬，又是高能物理专家，报告就交给他起草。” *ibid.*

[204] “回忆起那份报告，何祚庥笑了：‘报告里当然要把高能物理研究的现状、我们大家的意见和希望都客观写出来，遣词造句更要符合那个年代的特色。比如高能物理研究和建设高能加速器的意义，就要说“落实毛主席指示”、“捍卫毛主席物质无限可分的伟大论断”。’” *ibid.*

[205] *ibid.*

[206] For the background of the campaign, please see: Friedman, E. 1983. *Einstein and Mao: Metaphors of Revolution*. The China Quarterly 93(1): 51-75; Cheng, Y. 2006. *Ideology and Cosmology: Maoist Discussion on Physics and the Cultural Revolution*. Modern Asian Studies 40(1): 109-149; Hu, D. *China and Albert Einstein: The Reception of the Physicist and His Theory in China, 1917-1979*. Harvard University Press, 2009. pp.152-169; Xu Liangying. *A Preliminary Study on the Campaigns of Criticizing Einstein and the Theory of Relativity during China's "Cultural Revolution" Era*. Xu Liangying and Wang Laidi's Blog on Sina.com, Sept. 26, 2011. (许良英: 《[关于我国“文化大革命”时期批判爱因斯坦和相对论运动的初步考查](#)》，[许良英和王来棣先生的博客](#)，2011年9月26日。)

[207] Original Chinese: “中科院‘批判自然科学理论中资产阶级反动观点’毛泽东思想学习班。” See: Xu Liangying. *A Preliminary Study on the Campaigns of Criticizing Einstein and the Theory of Relativity during China's "Cultural Revolution" Era*. Xu Liangying and Wang Laidi's Blog on Sina.com, Sept. 26, 2011. (许良英: 《[关于我国“文化大革命”时期批判爱因斯坦和相对论运动的初步考查](#)》，[许良英和王来棣先生的博客](#)，2011年9月26日。)

[208] The argument was well-known, but it was Mr. Xu Liangying who revealed that the person who put forward the argument was Mr. Guo Hanying. See: [207].

[209] Hu Danian. *China and Albert Einstein: The Reception of the Physicist and His Theory in China, 1917-1979*. Harvard University Press, 2005. pp.158-159.

[210] Almost all of He's criticizing points, whether in biology or quantum mechanics, have their precursors in the post-WWII Soviet Union. See: Graham, LR. *Science and Philosophy in the Soviet Union*. Alfred A. Knopf, Inc., 1972.

[211] On January 18, 1978, He Zuoxiu and Guo Hanying published an article in Guangming Daily exposing the crime committed by the Gang of Four in their anti-Einstein criticism campaign. (See: Friedman, E. 1983. *Einstein and Mao: Metaphors of Revolution*, note 84.) Between 1976 and 1979, He and Guo co-authored at least six more papers, and one of them was criticizing the Gang of Four's science policy. (何祚庥、赵红州、郭汉英: 《批判“四人帮”的科学技术上层建筑论》，《哲学研究》1978年第4期。)

[212] For the background of the campaign, please see: Gregor, AJ. & Chang, MH. 1979. *Anti-Confucianism: Mao's Last Campaign*. Asian Survey 19(11):1073-1092; Wu, TW. *Lin Biao and the Gang of Four: Contra-Confucianism in Historical and Intellectual Perspective*. Southern Illinois University Press, 1983; Peng Houwen. *The Historical Study on the Struggles between Confucianism and Legalism during the "Criticize Lin, Criticize*

Confucius" Campaign. General Review of the Communist Party of China 2011(12):15-19. (彭厚文: 《“批林批孔”运动中的儒法斗争史研究》, 《党史博览》2011年12期15-19页。)

[213] Yu Guangyuan. *I in the Cultural Revolution*. Shanghai Far East Press, 1995. pp.99-100. (于光远: 《文革中的我》, 上海远东出版社1995年版99-100页。)

[214] Theoretical Study Group of 1st Laboratory of Peking Institute of Botany, Academia Sinica. 1975. *The Struggle between Confucianism and Legalism in Relation to the Development of Herbal Science in Ancient China*. Acta Phytotaxonomica Sinica 13(3):1-8. (中国科学院北京植物研究所一室理论学习组: 《[儒法斗争与我国本草学的发展](#)》, 《植物分类学报》1975年13卷3期1-8页。)

[215] HO TSO-HSIU. 1975. [The Materialistic Theory of Yuan Ch'i—One of the Brilliant Philosophical Ideas of the Legalist School](#). SCIENCE CHINA Mathematics 18(6): 695-713. (何祚庥: 《我国法家的光辉哲学思想——唯物主义的“元气”学说》, 《中国科学·数学》1975年5期。)

[216] Cheng Yishan. *The Yuan Qi Theory in Ancient China*. Hubei People's Publishing House, 1986. pp.5-25. (程宜山: 《中国古代元气学说》, 湖北人民出版社1986年版5-25页。)

[217] He Zuoxiu. *From Yuan Qi Theory to Particle Physics*. Hunan Education Press, 1999. p.7. (何祚庥: 《从元气学说到粒子物理》, 湖南教育出版社1999年版7页。)

[218] 小野泽精一等: 《气的思想——中国自然观和人的观念的发展》, 1978年东京大学出版会初版, 上海人民出版社1990年李庆中译本; 程宜山: 《中国古代元气学说》, 湖北人民出版社1986年版5-25页; 李存山: 《中国气论探源与发微》, 中国社会科学出版社1990年版; 李志林: 《气论与传统思维方式》, 学林出版社1990年版; 曾振宇: 《中国气论哲学研究》, 山东大学出版社2001年版。

[219] He Zuoxiu. *Did Yuan Qi Theory Really Influence the Conception of Field in Modern Physics?* Philosophical Researches 1997(4):60-65. (何祚庥: 《元气学说是否真的影响到近代物理学“场”的观念的形成?》, 《哲学研究》1997年第4期60-65页。)

[220] For example, in both Hu Shih's *The Outline of Chinese Philosophy History* (《中国哲学史大纲》), first published in 1919, and Feng Youlan's (Fung Yu-lan) *A Brief History of Chinese Philosophy* (《中国哲学小史》), first published in 1931, Xun Kuang was classified as a Confucian. Even in Feng's *A History of Chinese Philosophy, New Edition* (《中国哲学史新编》) published in 1962 by People's Publishing House, which was written according to Marxist historical materialist stance, and even Xun Kuang was canonized as “the greatest materialist philosopher before Qin Dynasty” in the book, he was still identified as a Confucianist. (p.499). Also, in the *Concise History of Chinese Philosophy* (《简明中国哲学史》, 人民出版社1973年版), a quasi-official Chinese Philosophy History textbook edited by Professor [Yang Rongguo](#) (杨荣国), who would become the chief philosopher in China during the “Criticize Lin, Criticize Confucius” campaign, and published in 1973 by the authoritative People's Publishing House, Xun Kuang was said “originally belonged to Confucian” (“荀子本属儒家”, p.56), “Xunzi's thought didn't completely get rid of the influence of Confucianism” (“荀子的思想没有完全摆脱儒家的影响”, p.61). In short, few philosophical books written by scholars identify Xunzi as a Legalist before 1973, or after the overthrow of the Gang of Four.

[221] Ren Zhitian. *Xun Kuang*. In *The Representative Legalists and Progressive Thinkers in the History and Brief Introduction to Their Works*. Tianjin People's Publishing House, 1995. pp.50-55. (任志田: 《荀况》, 见天津日报社编: 《历史上法家代表人物和进步思想家及其著作简介》, 天津人民出版社1995年版50-55页。)

[222] See, for example: 宫哲兵: 《唯道论的创立 质疑中国哲学史“唯物”“唯心”体系》, 武汉出版社2004年版。

[223] Yang Zebo. *Critical Biography of Mencius*. Nanjing University Press, 1998. (杨泽波:《孟子评传》, 南京大学出版社 1998 年版。)

[224] Yan Li. Wang Chong. In *The Representative Legalists and Progressive Thinkers in the History and Brief Introduction to Their Works*. Tianjin People's Publishing House, 1995. pp.133-138. (严理:《王充》, 见天津日报社编:《历史上法家代表人物和进步思想家及其著作简介》, 天津人民出版社 1995 年版 133-138 页。)

[225] 王充:《论衡·非韩》。见黄晖撰《论衡校释》卷十, 中华书局 1990 年版。

[226] *The Representative Legalists and Progressive Thinkers in the History and Brief Introduction to Their Works*. Tianjin People's Publishing House, 1995. (天津日报社编:《历史上法家代表人物和进步思想家及其著作简介》, 天津人民出版社 1995 年版。) Also see other books:《历史上的儒法斗争》, 云南人民出版社 1974 年版;《历史上的儒法斗争(二集)》, 云南人民出版社 1974 年版;曹思峰主编:《儒法斗争史话》, 上海人民出版社 1975 年版;北京汽车厂工人理论组编:《儒法斗争故事》, 中华书局 1975 年版;武汉市教师进修学院史地教研室主编:《儒法斗争史讲义》, 出版机构及年代不详。

[227] The Writing Team of the History of the Struggles between Confucianism and Legalism. *Introduction to the History of the Struggles between Confucianism and Legalism*. People's Publishing House, 1975. pp.111-113. (北京大学儒法斗争史编写小组:《儒法斗争史概况》, 人民出版社 1975 年版 111-113 页。)

[228] Original Chinese:“圣人之道, 使天下无不达之情, 求遂其欲而天下治。后儒不知情之至于纤微无憾, 是谓理, 而其所谓理者, 同于酷吏之所谓法。酷吏以法杀人, 后儒以理杀人, 浸浸乎舍法而论理。死矣! 更无可救矣!” Dai Zhen. *A Letter*. in *The Complete Works of Dai Zhen*. Vol. 6. Huangshan Publishing House, 1995. p.496. (戴震:《与某书》, 见《戴震全书六》, 黄山书社 1995 年版 496 页。)

[229] Gong Jie. *Critical Biography of Zhang Zai*. Nanjing University Press, 1996. (龚杰:《张载评传》, 南京大学出版社 1996 年版。)

[230] He's original Chinese:“在 70 年代我还做了一件考证工作, 即企图证明我国古代哲学家长期研讨的元气或阴阳二气形成世界万物的学说中的元气, 是一种连续形态的物质。……如果元气确是一种连续形态的物质, 并且世界万物是由连续形态的‘物质的始原’所形成的话, 那么这将是哲学史上的重大事件。因为这是和西方哲学完全不同的观念, 这是东方哲学特有的贡献, 这将大大提高中国哲学史在世界哲学史中的地位。……很遗憾, 在这篇‘考证式’的文章中, 也讲了某些法家和儒家的斗争的话, 其实这是和文章的主题无关的, 这就是‘时代的痕迹’了。然而在那一时期, 如果不讲点‘门面话’, 这一稿件是绝对登不出来的。” See: [40].

[231] Dong Guangbi. *The Difference in the Naturalistic Views between Ancient Chinese Yuan Qi Theory and Ancient Greek Atomic Theory*. *Journal of Tsinghua University and Peking University* 1975(4):30-34. (董光璧:《我国古代“元气论”和希腊古代“原子论”自然观的差异》, 《清华北大理工学报》1975 年 4 期 30-34 页。)

[232] He's original Chinese:“于是我开始收集有关元气学说的史料”。 See: [40].

[233] Theory Study Group in the Physics Department at Beijing Normal University. 1975. *The Struggle between the Confucianism and Legalism Reflected in the Understanding of Matter in Ancient China*. *Physics* 4(2):69-75. Also in: *Chinese Science Bulletin* 20(3):105; *The Struggle between the Confucianism and Legalism and the Development of Science and Technology in Ancient China*. The Science Press, 1976. pp.83-96. (北京师范大学物理系理论学习小组:《从我国古代对物质的认识看儒法斗争》, 《科学通报》1975 年 20 卷 3 期;《物理》1975 年 2 期;《儒法斗争与我国古代科学技术的发展(第二辑)》, 科学出版社 1976 年版 83-96 页。)

[234] He's original Chinese:“任老广泛涉猎中国哲学、中国宗教各领域。他所撰写的《中国哲学史》四卷本, 是用马克思主义‘立场、观点和方法’研究中国哲学的奠基地的著作。我写过一篇文章, ‘我国哲学史上的光辉

思想——唯物主义的“元气”学说’其实是学习任老这一光辉著作后的‘心得’。” He Zuoxiu. 2009. *An Academic Great Master Who Using Stand, Viewpoint and Method of Marxism to the Research of Traditional Ideological and Cultural of China*. SCIENCE AND ATHEISM 2009(5):22. (何祚庥：《一位用马克思主义“立场、观点和方法”研究中国传统思想文化的学术大师》，《科学与无神论》，2009年5期22页。)

[235] Ren's original Chinese: “荀子继承了宋、尹派唯物主义精气的学说，他认为气是构成世界的总根源，他说：‘水火有气而无生；草木有生而无知；禽兽有知而无义；人有气有生有知亦且有义，故最为天下贵也。’” See: Ren Jiyu (editor-in-chief). *A Brief History of Chinese Philosophy*. People's Publishing House, 1973. p.163. (任继愈主编：《中国哲学史简编》，人民出版社1973年版163页。) Note: Ren's 4-volume book was only distributed internally during the Cultural Revolution, its concise one-volume version was openly published in 1973 by the People's Publishing House, from which the above quotation was cited.

[236] Ren's original Chinese: “据近人考证，《管子》书中《心术》上下、《白心》、《内业》等四篇，是宋钲、尹文的著作。他们提出物质性的‘精气’为自然界的原始物质，认为自然界万物的生成和变化都根源于气，气充满天地之间，比‘天’更为根本。荀子继承了宋、尹的元气论，指出水火、草木、禽兽和人都是由‘气’构成的。” *ibid*, p.82.

[237] Zhang Dainian. *The Outline of Chinese Philosophy*. China Social Sciences Press, 1994. pp.39-40. (张岱年：《中国哲学大纲》，中国社会科学出版社1994年版39-40页。) Note: According to the preface of the book, it was a reprint of the 1958 edition, originally published by Commercial Press. (据该书前言，此版本基于1958年商务印书馆版本，后来增添部分均有注明。) About Zhuangzi's qi theory, see: Zheng Shigen. *Zhuangzi's Qi Theory*. Taiwan Student Press, 1993. (关于庄子气论的论述，见郑世根：《庄子气化论》，台湾学生书局1993年版。)

[238] Ren's punctuations: “水火有气而无生；草木有生而无知；禽兽有知而无义；人有气有生有知亦且有义，故最为天下贵也。” (Note the three semicolons.) Common punctuation: “水火有氣而無生，草木有生而無知，禽獸有知而無義【， or ; or 。】人有氣、有生、有知，亦且有義，故最為天下貴也。” (See: 《荀子精华》，中华书局1942年版45-46页；《荀子简注》上海人民出版社1974年版85页；《〈荀子〉选注》北京人民出版社1976年版45页；《荀子》，时代文艺出版社2008年版66页；《荀子全译》贵州人民出版社2009年版134页；《荀子解说》华夏出版社2009年版132页。)

[239] Engels, F. *Dialectics of Nature*. Foreign Language Publishing House, Moscow, 1954. p.324.

[240] See: 中央编译局：《马克思恩格斯全集》第二十卷人民出版社1971年版588页；恩格斯：《自然辩证法》，于光远等译，人民出版社1984年版144页。

[241] Clements, J. *Mao Zedong*. Haus Publishing, 2006. p.26. For a little more comprehensive introduction to Legalism, please see: Needham, J. and Wang L. *Science and Civilisation in China*. Volume II. *History of Scientific Thought*. Cambridge University Press, 1956. pp.204-215.

[242] For discussion about Confucianist *minben* thought, see: Murthy, V. 2000. *The democratic potential of Confucian Minben thought*. *Asian Philosophy* 10(1):33-47; Nuyen, AT. 2000. *Confucianism, the Idea of Min-Pen, and the Democracy*. *Copenhagen Journal of Asian Studies* 14:130-151; Wang, E. and Titunik, RF. *Democracy in China: The Theory and Practice of Minben*. in *China and Democracy: The Prospect for a Democratic China*. Zhao, S. (ed.) Psychology Press, 2000. Pp.73-88.

[243] Original Chinese: “民为贵，社稷次之，君为轻。” Translated into English by James Legge. See: *The Chinese English Four Books*. Hunan Publishing House, 1992. p.541. (《孟子·尽心下》，译文来自《汉英四书》，湖南出版社1992年版541页。)

[244] He Zuoxiu. *A New Interpretation of Yuan Qi*. In *Collected Works in the History of Science and Technology*. Shanghai Science and Technology Press, 1984. pp.35-41. (何祚庥: 《元气新解》, 见《科技史文集》第12辑, 上海科学技术出版社1984年版35-41页。)

[245] He's original Chinese: “1) 这一学说力图从统一的物质本源来认识和说明物质世界。……2) 这一学说在一定程度上涉及了辩证唯物主义对物质结构的一个基本观点, 物质结构是连续和不连续的辩证的统一。……3) 这一学说还蕴含着辩证唯物主义所着重探讨的物质和运动的不可创造和不可消灭的思想。……4) 这一学说蕴含的一个重要思想是力图从事物的内在矛盾来说明自然界的运动和变化。……5) 这一学说否认自然界有绝对真空的存在, 这也是符合近代科学发展的一个重要观点。” *ibid*.

[246] Original Chinese: “在科学史方面, 早在1980年, 何祚庥就在科学史研究所培养研究生。” Dai Heshu. He Zuoxiu. In *Biographies of Chinese Specialists in Science and Technology: Physics*, Vol. 3. China Science and Technology Press, 2006. pp.142-160. (戴禾淑: 《何祚庥》, 见中国科学技术协会编《中国科学技术专家传略理学编—物理学卷3》, 中国科学技术出版社2006年版142-160页。)

[247] The website of the Institute for History of Natural Sciences at CAS. (中国科学院自然科学史研究所网站: 《[〈自然科学史研究〉编委会](#)》。) Accessed on Nov. 14, 2013.

[248] Needham, J. *Science and Civilisation in China: Volume 2, History of Scientific Thought*. Cambridge University Press, 1956. p.374.

[249] Martin, W.A.P. *The Cartesian Philosophy before Descartes*. In *Hanlin Papers. Second series: Essays on the History, Philosophy, and Religion of the Chinese*. The Tientsin Press, 1894. pp.207-234.

[250] He's original Chinese: “如果这一猜测得到证实的话, 这当然是一条重要史料, 表明元气学说通过狄卡尔对西方自然科学起了重要影响。” See: [244].

[251] See: Liang Qichao. *The Theories of the Two Ancestors of the Modern Civilization*. In *The Complete Works of Liang Qichao*. Beijing Publishing House, 1999. pp.1030-1050. (梁启超: 《近世文明初祖二大家之学说》, 见《梁启超全集》, 北京出版社1999年版1030-1035页。) Note: the article was written in 1902.

[252] Xinhua News Agency's Office of People's Name Translation. *Names of the World's Peoples: a Comprehensive Dictionary of Names in Roman-Chinese*. China Translation & Publishing Corporation, 1993. p.740. (新华通讯社译名室: 《世界人名翻译大辞典》, 中国对外翻译出版公司1993年版740页。)

[253] Gu Yingli. 2008. *Analyses on Errors in Translating Foreign Scientists' Names into Chinese*. China Terminology 2008(6):36-38. (顾英利: 《外国科学家人名汉译差错例析》, 《中国科技术语》, 2008年6期36-38页。)

[254] See: [244], p.39.

[255] See: [217], p.33.

[256] On November 13, 2013, searching Chaoxing Digital Library (超星数字图书馆) using 笛卡儿 or 笛卡尔, the conventional Chinese translation of Descartes' name, yielded 22,841 hits; using 狄卡尔, He Zuoxiu's translation of Descartes's name, yielded 67 hits.