Book Review

No. 9 Bingmasi, Beiping, the cradle and source of modern science and technology in China

——The monograph *No. 9 Bingmasi: A Historical Study of the Former Site of the Geological Survey of China* was published

JZ Yin[1,2,3]

Abstract

This article reviews the book *No. 9 Bingmasi: A Historical Study of the Former Site of the Geological Survey of China* in a relatively comprehensive manner, especially the first generation of Chinese scientists who were eager to save the country through science in this courtyard. Their vivid figures are so real and vivid, and their lofty ambitions are so lofty. The reason why this first scientific institution in Chinese history has achieved great success is not only due to the first generation of Chinese geologists who combined Chinese and Western knowledge, but also inseparable from the participation and great help of geologists from developed countries all over the world. Inclusiveness, freedom, openness, equality and mutual assistance are the foundation of the success of this scientific research institution.

Key words: No. 9 Bingmasi; Beiping; China Geological Survey; the first Chinese scientific institution; a combination of Chinese and Western cultures; freedom and openness; equality and mutual assistance

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1

One day, a friend who came to visit me saw the Chinese version of *No. 9 Bingmasi: Historical Research on the Former Site of the Geological Survey of China* on my desk and exclaimed: Where did you get the detective novel?

I answered with some doubt: Where can I find detective novels? I haven't read this kind of novel for many years.

My friend picked up a book from the desk and handed it to me, saying: This one, *No. 9 Bingmasi*.

I took the book and reminded him with some sarcasm: You'd better put on your glasses and read the subtitle "-- Historical Research on the Former Site of the Geological Survey of China" which is much smaller than the main title.

So he found his glasses and put them on, and then he said to himself as if he suddenly realized something: Oh, it turns out to be *No. 9 Bingmasi: Historical Research on the Former Site of the Geological Survey of China*. If you don't look carefully, you may really ignore the subtitle.

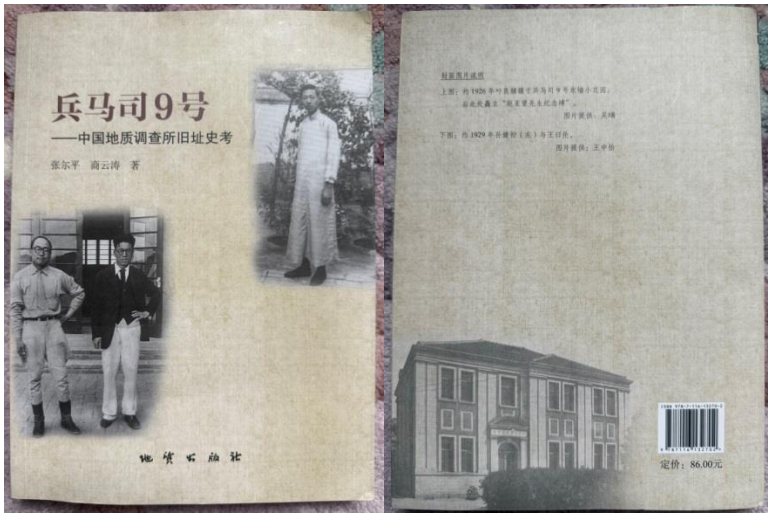

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Figure 1. Cover (a) and back cover (b) of the book *No. 9 Bingmasi: A Historical Study of the Former Site of the Geological Survey of China*[1]

Cover image: L. F. Yih photographed the small garden on the east wall of No. 9 Bingmasi in circa 1926 (above), C. C. Sun (left) and Y. L. Wang (below) in circa 1926; back cover image: The library of the China Geological Survey at No. 9 Bingmasi, completed in 1921

Then he put the book back on the desk with some disappointment and said: I thought so; it turns out to be a book in your major. It's boring.

This friend who specializes in computers is not in the earth science industry, but he loves to read novels, especially detective suspense novels. So I can understand what he said about "boring".

Because I am very familiar with him, I picked up the book and told him: Don't say it's boring, and don't underestimate this book. Don't you like Chinese history and traditional culture? Most of the origins or beginnings of modern Chinese science and technology, or the masters, who first

introduced modern scientific and technological knowledge from the West to China, are the protagonists of this book. Therefore, don't underestimate the No. 9 courtyard of Bingmasi in the old Peking City. Because there were once masters gathered here, and there were people coming and going, but there was no layman, and almost everyone was well-versed in Chinese and Western learning. In addition, many internationally renowned scientists who helped China develop geological sciences displayed their talents here. Later, for a long time, most of the Chinese earth scientists came out of here.

Without their arduous and hard work, there would be no scientific and technological development and civilization in mainland China. This is the historical truth and the former glory of No. 9 Bingmasi.

2

After hearing my simple explanation, my friend suddenly became interested: Really? Come on, tell me in detail.

Figure 2. Members of the Geological Society of China, founded in 1922, took a group photo in front of the library of China Geological Survey at No. 9 Bingmasi

From left to right in the front row: H. T. Chang, V. K. Ting, W. H. Wong, H. T. Lee, Y. C. Sun and P. L. Yuan; J. G. Andersson (first row, left), A. W. Grabau (first row, right); T. I. Loo, C. Y. Hsieh, C. Li and Duo Yang in the second and third rows

I told him: Let me make it short. Modern Chinese science originated in the Republic of China, a seemingly short 38-year period. But don't underestimate this period: short but colorful, warlords fighting but open, free and inclusive. This period can be called the second "Spring and Autumn Period and Warring States Period" in Chinese history, and it is the second great period that truly practiced "let a hundred flowers bloom and a hundred schools of thought contend." Countless flashes of freedom from various schools of thought emerged in this period like mushrooms after rain. Because of the unprecedented all-round openness and freedom of thought and speech, countless aspiring young people went to study in many developed countries overseas, and discovered the huge gap between China and developed countries, and initiated China's democracy and science movement, and then introduced Western advanced science, technology and democratic concepts to China, thus bringing about all-round innovation and progress in

China. Among them, the most systematic and successful one is the establishment and development of the China Geological Survey, China's first scientific institution in the true sense. The survey produced V. K. Ting, the academic leader of the Republic of China, the founder of Chinese earth science, and the true father of Chinese geology. It also produced Dr. W. H. Wong, the first Chinese doctor in geology, who graduated from the University de Louvain in Belgium. Dr. Wong was also one of the pioneers and founders of China's geological cause. The other founder was H. T. Chang. Of course, there was also C. Y. Hsieh, who created many firsts in Chinese and even the world's geology, and T. K. Huang and C. Y. Lee, who later became famous in the Chinese geological community, and almost all the first and second generation geologists in the modern Chinese geological community.

Of course, J. S. Lee, who has been a prominent figure in the geological community of mainland China since the early 1950s and has been almost completely independent, has also left his few footprints here, which were left when he occasionally came here for meetings. His main place of activity was not at No. 9 Bingmasi, but at the Institute of Geology of the Academia Sinica, which he presided over.

In addition, Lu Zuofu, a big industrialist who almost gave up all his profits and transferred almost all important universities, scientific research institutions and military industries in northern China to the southwest of the rear area through the Yangtze River in order to fight the war, not only stayed here, but also actively donated money to support the construction and development of the China Geological Survey. Of course, in addition to Mr. Lu, many celebrities and dignitaries at that time almost all set foot here and actively donated money and materials to build this first real scientific institution in China's history.

Figure 3. Chinese and foreign scholars from the China Geological Survey took a group photo in Zhoukoudian, Fangshan, Beijing around 1930
From left: W. C. Pei, H. S. Wang, K. M. Wang, C. C. Young, B. Bohlin, D. Black, P. T. de Chardin, G. B. Barbour

The China Geological Survey was not only initiated and established by several overseas returnees or "sea turtles": Chinese who have studied overseas and returned to China, who combined Chinese and Western learning, but also internationalized from the very beginning, that is, directly connected with the international community. In other words, all the most cutting-edge results in geology from around the world were almost seamlessly transmitted to China, an ancient oriental country, in real time. As a result, the institute had a high starting point and soon became the most successful scientific research institution in China at that time. It was these "sea turtles" and geologists from all over the world who led and effectively guided the initial research work of the China Geological Survey.

Figure 4. The gate of the China Geological Survey at No. 9 Bingmasi in the late 1920s
The building inside the gate is the West Building, which is very familiar to the colleagues of the Geological Survey

At the same time, the China Geological Survey attaches great importance to the training of the younger generation. Many students trained by the Institute were sent to developed countries such as Europe and the United States for further studies, and were entrusted with important tasks after returning to China. Later, they became the backbone and mainstay of various aspects of geoscience. Several generations of geologists, such as V. K. Ting, W. H. Wong, T. K. Huang, Tsan-Hsbun Yin and C. Y. Lee, all studied abroad and obtained relevant degrees. A large number of professional talents in the Institute also have the experience of further study and investigation abroad. This enables them to have a clear understanding and comprehensive understanding of international academic progress and the gap between China and the international geological community, and to absorb the experience and guidance of foreign experts in their work.

Figure 5. Group photo of some classmates from the Institute of Geology in 1915
From left: T. I. Loo, L. F. Yih, Yuanmo Hsu, T. C. Chow, K. W. Hsu, T. O. Chu, C. C. Liu, H. T. Lee, C. Y. Hsieh, Zhixin Chao; Note: The Institute of Geology was a short-lived geological training institution before the establishment of the China Geological Survey. Most of its graduates entered the China Geological Survey

Figure 6. Group photo of some teachers and students of the Institute of Geology in 1916
Front row, from left: W. H. Wong, H. T. Chang, V. K. Ting; middle row, from left: P. Y. Tung, T. O. Chu, T. C. Chow, H. T. Lee, H. C. T'an, K. W. Hsu, C. C. Wang; back row, from left: Zhixin Chao, L. F. Yih, Yuanmo Hsu, T. I. Loo, C. Li, C. C. Liu

It must be said that the fact that the China Geological Survey actively invited foreign scholars to join the institution at its inception was an important factor in its rapid development and rapid acquisition of international academic reputation. In other words, freedom, openness and tolerance are one of the important factors for the success of the institute.

Since the 1910s, the Ministry of Agriculture and Commerce of the Republic of China or its subordinate Mining Administration has successively hired more than a dozen foreign geologists and paleontologists to work in China. Through them, the Geological Survey has received strong support from foreign foundations for its field and related research. These foreign scholars either work in China for a short period of one or two years, or conduct research in the institute for more than 20 years. Some foreign scholars were already world-renowned scientists before coming to

China, and therefore have a certain authority and academic influence in the geological community. They cooperated sincerely with the Geological Survey, either taught at the Institute of Geology, or worked as technicians at the Geological Survey, or led young geologists to conduct surveys, or held multiple positions. They helped China build its own geological research team from scratch, founded a high-level academic journal, participated in the establishment and presided over the institute's Cenozoic and Soil Research Laboratories, etc., and played an important role in the construction and development of China's geological cause[1].

Figure 7. Group photo of teachers and graduates of the Paleontology Group of the Department of Geology, Peking University in 1923
Front row, from left: Y. C. Sun, S. K. Lee, A. W. Grabau, C. Ho, L. Wang; Back row, from left: C. C. Young (second), K. M. Wang (third), T. F. Hou (fourth), Hishchih Chang (fifth)

Among the foreign scholars who have cooperated with the China Geological Survey, in the 1910s, there were Friedrich Solger (1877-1965) from Germany, Swedish geologists Andersson J. G. Andersson (1874-1960), Eric Nystrom, mineral geologist F. R. Tegengren (1884-1980), paleobotanist Thore Gustaf Halle (1884-1964), Canadian scholar Davidson Black (1884-1934), etc. In the 1920s, there were American geologist Amadeus William Grabau (1870-1946), Vice President of the French Geological Society and paleontologist Pierre Teilhard de Chardin (1881-1955), Austrian paleontologist Otto Zdansky (1894-1988), Swedish paleontologist Birger Bohlin (1899-1990), Scottish geologist George B. Barbour (1890-1977). In the 1930s and 1940s, there were German anthropologist Franz Weidenreich (1873-1948), American soil scientists R. L. Pendleton and James Thorp (1896-1984); and Japanese geologist Morita Hijiri who joined in the 1940s.

Figure 8. J. G. Andersson, a Swedish geologist who worked at the China Geological Survey in the early days

Scholar Han Qi pointed out in his discussion of the scientific cooperation between V. K. Ting and W. H. Wong and other foreign scholars[2]: In the short period of more than 20 years from the establishment of the Geological Survey to the outbreak of the Anti-Japanese War, the China Geological Survey established close ties with the Swedish Museum of Natural History, the Swedish Far Eastern Museum, Uppsala University, the American Museum of Natural History, the French Institute of Human Paleontology and other institutions in the field of research related to China. There was both cooperation and competition among scholars from various countries, which jointly promoted the development of Chinese geology and gradually realized its localization. These foreign experts introduced and applied the latest international academic achievements to China's geological research, providing Chinese geological colleagues with an international research perspective.

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Hearing this, my friend sincerely sighed: I didn't expect that China's modern scientific career originated here. In this case, please allow me to take this book back and study it carefully.

I am very happy that my friend has come to his senses, and I agree that he can take this book back and read it slowly, hoping to spread the truth about the scientific origin of China's career through him and his own friends.

At the end of the gathering that night, my friend happily took the book home.

3

Because of ideological issues, after 1950, the geological community in mainland China only knew one person and only promoted one person and one geological theory, namely S. K. Lee and his so-called geomechanics. There was no V. K. Ting, the real founder and Lee's mentor, nor W. H. Wong, another important founder of Chinese geology, Lee's colleague, and C. Y. Hsieh, an outstanding geologist, and other former people from the China Geological Survey. This tendency of Lee to dominate the geological community in mainland China has not completely disappeared.

This shows the stubbornness of the ideology that completely abandons facts.
Nevertheless, with the increasing development of communication technology and the unstoppable international exchanges brought about by it, the historical data about the China Geological Survey and its founder have become more objective and fair. The era of only Lee and his theory has finally come to a heavy end, although the negative traces are still obvious and stubborn. The most commonly used and famous search website in mainland China, "Baidu", introduces V. K. Ting, the founder of Chinese geology, as follows:

Figure 9. A small gathering of elites from the China Geological Survey in the early 1930s
W. H. Wong (first from left), A. W. Grabau (third from left), V. K. Ting (first from right), C.Y. Hsieh (fourth from right)

V. K. Ting (1887-1936), a native of Taixing, Jiangsu, China, was a famous scholar and one of the important leaders of the academic community during the Republic of China. He was known as the father of Chinese geology, a geologist, social activist, educator, one of the most influential figures in the history of Chinese science and culture, and the founder of China's geological cause[3-4]. He made unique contributions in the fields of geology, geography, cartography, anthropology, eugenics, history, archaeology, paleontology, zoology, philosophy, minority linguistics, and the compilation of ancient Chinese scientific and technological documents. He was a typical encyclopedic figure. Ting founded and led China's geological work, founded the Geological Society of China, and was also a pioneer of modern cartography in China. His contribution and influence on Chinese geology are unparalleled. Ting was a versatile person. He also had a high level of attainment in literature, and his poems were highly praised.
Ting entered a private school when he was young, and went to Japan and Britain to study when he grew up. He graduated from the University of Glasgow in 1911 with a double diploma in zoology and geology. After returning from studying abroad, he conducted geological surveys in Yunnan, Guizhou and Sichuan at his own expense, laying the foundation for China's geological science research. He was hailed as the Xu Xiake of the 20th century. After that, he taught courses

such as physiology, English and chemistry at Nanyang Middle School in Shanghai. In 1913, he served as the head of the Geology Section of the Mining Administration of the Ministry of Industry and Commerce. Later, he joined hands with H. T. Chang to establish the Geological Research Institute of the Ministry of Agriculture and Commerce of the Republic of China and served as its director. He resigned from the post of director in 1914. In 1916, he established the China Geological Survey of the Ministry of Agriculture and Commerce and served as its director. After resigning from the post of director of the Geological Survey in 1921, he served as honorary director and general manager of Beipiao Coal Mine for about 5 years. In 1922, he presided over the first preparatory meeting of the Geological Society of China. In 1923, he was elected as the second president of the Geological Society of China. In the spring of 1929, he served as the honorary director of the Cenozoic Research Laboratory of the Geological Survey. In 1931, he became a professor of geology at Peking University. On January 5, 1936, he died young due to coal gas poisoning during an inspection at the Tanjiashan Coal Mine in Hunan. Ting was a perfect combination of multiple roles, including a professional scientist, an organizer of scientific undertakings, and a disseminator of scientific ideas. Ting's expertise in science and good at doing things was not only reflected in his organization and management of scientific undertakings in China's early years, but also in his colorful and legendary experiences later. As the founder of Chinese geology, Ting not only laid the foundation of Chinese geology, but also charted the path for its healthy development. In the early days of China's geological undertakings, Ting played the role of a "politician in the academic world" to the fullest. He founded China's earliest and most successful specialized geological education institution, the Institute of Geology, and founded China's earliest geological survey institution and also China's earliest scientific research institution, the China Geological Survey. Under Ting's leadership, Chinese geology achieved outstanding results and gained a world reputation as early as the 1920s[3-7].

Figure 10. Inauguration ceremony of Qinyuan Fuel Research Laboratory of China Geological Survey, No. 9 Bingmasi, October 1930

A. W. Grabau (seated right), C. Y. Hsieh (second from right, the first director of the Fuel Laboratory), Duan Xing (third from right), H. S. Wang (third from left); also included W. H. Wong, S. G. King and his wife (donors of the Fuel Laboratory), Davidson Black and G. B. Barbour, etc.

Hu Shi, the most famous scholar in modern China and another academic leader, said that Ting was "a most glorious and capable good man, a great man who was born to get things done, to lead people, to train talents, and to establish academics."[5].

Ssu-nien Fu (Sinian Fu), a famous scholar in modern China and another academic leader, commented on Ting: I think Ting is indeed the representative of the best and most useful Chinese in the new era. He is the highest essence produced in the process of Europeanization of China, a high-powered machine fueled by scientific knowledge, a person who obliterates subjectivity, serves academics, society, and the country, and serves the progress and happiness of the public[5-6].

The second person who made the greatest contribution to the establishment and development of Chinese geology is none other than W. H. Wong (1889-1971). According to relevant data[1,7-9], Wong was born in a gentry and merchant family in Ningbo, Zhejiang. He studied in Belgium in the late Qing Dynasty and majored in geology. He later received a doctorate in science from University de Louvain and returned to China in 1913. As a famous scholar in the Republic of China and one of the most famous geologists in early China, Wong made pioneering and outstanding contributions to many aspects of Chinese geological education, mineral exploration and development, earthquake research, etc. He was China's first doctoral student in geology, the author of China's first *Geology Lecture Notes*, the first Chinese scholar to write *China Minerals*, the compiler of China's first colored national geological map, the first Chinese scholar to examine earthquake hazards and publish a monograph on earthquakes, one of the founders of the first *China Mining Minutes*, the first geologist to represent China at the International Geological Congress, the first Chinese scholar to systematically and scientifically study China's mountain ranges, the first scholar to classify Chinese coal according to its chemical composition, the originator of the world-famous Yanshan Movement and related magmatic activities and metal deposit formation theories, and the leader of the organization that developed China's first oil field. Wong served as a director of the private Jiaozuo Institute of Technology (now China University of Mining and Technology and Henan Polytechnic University), and served as a scholar in the National Government, in charge of mining resources and production during the War of Resistance. By earning foreign exchange from the export of China's unique mineral products such as tungsten ore, he strongly supported China's war of resistance during World War II.

Wong was the highest-ranking and most tortuous person among the "scholars-turned-politicians" in China during the 1930s and 1940s. As an outstanding geologist and pure scholar, he once served as the premier of the Nationalist government, truly second only to the president.

In 1935, Chiang Kai-shek appointed himself as the Premier of the National Government, and Wong as the Secretary General of the National Government. In 1937, Wong became the Minister of Economy, in charge of China's wartime industrial production and economic construction during the War of Resistance. In 1945, Wong was elected as a member of the Central Committee of the Kuomintang and served as the Vice Premier of the National Government, but resigned in 1947. In June 1948, Wong was invited by Chiang Kai-shek to serve as the first Premier of the National Government after the Constitution was enacted, but his cabinet resigned in November of the same year. At the beginning of the following year, Chiang Kai-shek stepped down, and Wong became the Secretary General of the Presidential Office of Acting President Zongren Li in February. In May of the same year, Zongren Li's peace talks with the Chinese Communist Party failed, and Wong resigned as the Secretary General and fled to France. In the same year, Wong was elected as the first academician of the Academia Sinica. In his later years, he returned from overseas with the intention of resuming his geological research as a scholar, but he was unable to

fulfill his long-cherished wish to continue his geological research. In the end, he died in depression as a nominal member of the CPPCC. He died in the same year as S. K. Lee, who had been in great glory since 1950.

It is worth mentioning that Wong's second son, Xinhan Weng, died heroically in 1944 as a pilot of the Kuomintang Air Force. After the outbreak of the Anti-Japanese War, other dignitaries sent their children abroad to enjoy wealth and glory, but Wong, a high-ranking official with direct access to the highest level, sent his son to the front line as a pilot. Xinhan Weng received training in India and returned to Yunnan, China to perform missions. Once when he was returning from a mission in a bomber, he accidentally saw a Japanese barracks and attacked it. As a result, the plane ran out of fuel and crashed on a high mountain in Yunnan[7-9].

Figure 11. In front of Jiufeng Seismic Station of the China Geological Survey in Beiping in the early 1930s

From left: C. Y. Hsieh, H. T. Chang, Kaiye King, Shaofang King, Shaotang King, W. H. Wong and S. P. Lee

The third person who played a practical role in the founding of China's geological cause was H. T. Chang, who was older than Ting and Wong. According to Baidu[10], Chang (1877-1951) was a geologist, geological educator, expert in the history of geological science, a pioneer in the cause of Chinese scientific history, and one of the founders of modern Chinese geology. Chang and Ting jointly founded the Geological Research Institute of the Ministry of Agriculture and Commerce of the Republic of China, a geological training class, and cultivated the first batch of geologists for China. Many of them later became the main force of China's early geological work. Chang studied the knowledge of ancient Chinese books on paleontology, minerals, rocks and geological minerals from the perspective of modern geological science, and successively wrote works such as *Shi Ya* （*On Rocks*）and *Gu Kuang Lu* (*Ancient Mining Records*), which

pioneered the study of the history of Chinese geological science. Chang participated in the establishment of the Geological Society of China and served as the first president. He was a master of the Chinese geological community.

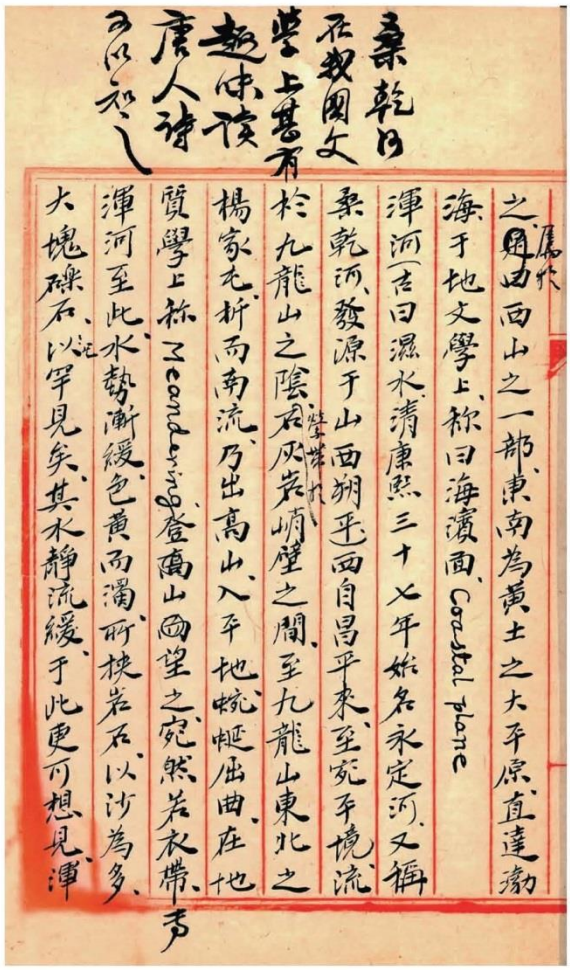

Figure 12. Part of *the Geological Report near Mentougou* compiled by outstanding student L. F. Yih in 1915

There is a comment from teacher H. T. Chang: "The Sanggan River is very interesting in Chinese literature, which can be seen from reading Tang Dynasty poems"

After passing the examination for the title of scholar (*Xiucai*, one who passed the imperial examination at the county level) in 1899, Chang was invited to be a private school teacher for several years. In 1905, he went to Japan to study at government expense and entered the Third High School in Kyoto, Japan. In 1911, he returned to China after receiving a bachelor's degree from the Department of Geology, Faculty of Science, Tokyo Imperial University, and began to work. In September 1911, he went to Beijing to take the examination for overseas students and won the title of *Gezhi Jinshi* (*Jinshi*, a candidate who passed the palace examination) with the highest score. Ting, who had studied geology in the UK, was also on the same list. Chang was immediately hired as a geology lecturer in the Agricultural Department of the Imperial

University of Peking, and thus became the first Chinese to teach geology in a university. In 1912, the Provisional Government of the Republic of China was established in Nanjing, and Chang served as the head of the Geology Department under the Mining Administration of the Ministry of Industry. During this period, he drafted an article entitled *Private Discussion on Geological Survey of China*, emphasizing the importance of geological work to arouse the attention of the whole nation. At the end of the article, a brief for the establishment of a geological research institute was attached, with the intention of training young people. After hard work, the Geological Research Institute was officially established in Beijing in 1913, with Chang as the director. Although it is called the Institute of Geology, it is actually the earliest specialized school of geology in China. After that, Chang devoted all his efforts to cultivating geological talents. After the students trained by the Institute of Geology graduated in 1916, the China Geological Survey, which was established at the same time as the institute, expanded its scale. Chang then became the head of the Geological Section of the Geological Survey and engaged in comprehensive research on geology and minerals. In 1922, under the active advocacy of Chang and others, the Geological Society of China was established at the beginning of the year, and Chang was elected as the first president. This academic group played a very important role in the development of China's geological cause. In 1928, Chang gave up the field geological survey due to illness and decided to resign from the Geological Survey. After that, Chang wrote books and articles behind closed doors, and wrote many papers covering many fields of geology. In 1946, Chang was hired as an editor for the National Compilation and Translation Bureau in Nanjing, and moved from Shanghai to the Nanjing Geological Survey to concentrate on writing.

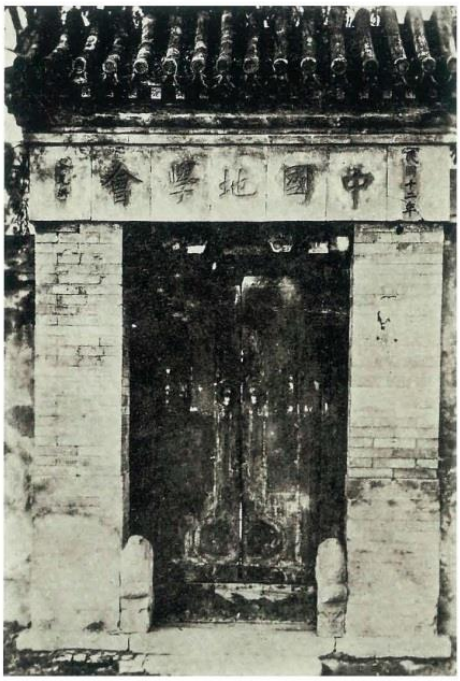

Figure 13. The gate of the Chinese Geoscientific Society at No. 11 Beiheyan, Houhai, Beijing in 1924
The plaque was inscribed by Yuanhong Li, who was known as the "Rock of the Republic" in the history

4

In 1949, T. K. Huang, the late leader of the former China Geological Survey, summarized China's geological survey and research work in this way[11]: In the 50 years before the establishment of the Republic of China, China's geological research was "monopolized" by foreigners. After the Republic of China, Chinese scholars began to become the main body of China's geological research. Under the demonstration and influence of foreign scholars, the work of the China Geological Survey gradually deepened, the research level was rapidly improved, and the research strength became mature. They continued to publish their results in various academic journals and seminars, attracting widespread attention from the geological and scientific communities. This group became the main force in many different disciplines of geology. Many of them, with their profound academic background, played an organizing and leading role in many academic institutions later.

Figure 14. During the geological trip to the 16th Annual Meeting of the Geological Society of China held in Chongqing in about 1940

T. K. Huang (squatting); from left: C.Y. Hsieh (third from left, holding a hat in his right hand), S. Chu (right behind T. K. Huang, holding a hat in his left hand), C. Y. Lee (standing in the middle behind C. Y. Hsieh and S. Chu), W. K. Kuo (left behind S. Chu, wearing a checkered scarf), T.O. Chu (front, second from right)

From the beginning of training geological talents, the China Geological Survey has successfully carried out foreign scientific cooperation and hired many foreign scientists to participate in the guidance of work. Among them, J. G. Andersson was one of the earliest to come to China and achieved outstanding results. Huang pointed out in 1948[11]: In addition to assisting Mr. Chang and Mr. Ting in establishing the Institute of Geology and the Geological Survey, Andersson, a mining consultant in the early Republic of China, also worked hard to investigate China's geological mineral resources. The famous Hsuan-Lung type hematite deposit was discovered under the leadership of Andersson. In terms of pure geological research, Andersson made the greatest contribution to the study of the Cenozoic era, and his discoveries in archaeology are particularly commendable. In 1916, the work of the Geological Survey started. Before and after

this, the iron ore resource investigation and Yangshao cultural relics excavation led by Andersson were one of the outstanding achievements of the cooperation between foreign scholars and the Geological Survey[1]. On July 17, 1922, the Geological Survey held a grand opening ceremony for the library and exhibition hall in the conference room of the No. 9 Bingmasi. President Yuanhong Li of the Republic of China attended and spoke. After the meeting, everyone visited the exhibition hall at No. 3 Fengsheng *Hutong* or alleyway, which exhibited the "Andersson Collection of Human Stone Tools and Pottery Exhibition Room".

Figure 15. Yangshao pottery and its description exhibited in the exhibition hall of the China Geological Survey in the 1920s

As Western industrialization had a more and more profound impact on China, China, which had begun to industrialize, had a growing demand for coal and iron. For this reason, in 1910, Jian Zhang, a top-ranked industrialist, proposed “the cotton and iron policy” and served as the Minister of Agriculture and Commerce in the early years of the Republic of China. In 1914, the Ministry of Agriculture and Commerce invited Andersson to serve as the Chinese government's mining policy consultant. In early 1916, the Ministry of Agriculture and Commerce established the Geological Survey Bureau, with Y. O. Chang, the director of the Mining Administration, concurrently serving as the director, and Andersson, a consultant, and Ting, a senior geological engineer, serving as the deputy directors of the bureau. Although Ting was actually in charge, he relied heavily on Andersson, a well-known scientist.

At the beginning of his work in China, Andersson proposed to investigate the iron ore deposits throughout China as a basis for the development of various industries. The central government deeply agreed with his idea, and all the staff in the institute also worked hard to serve the public and cooperated. Therefore, a team consisting of three Swedes was formed, namely Andersson, the hired technician of the Geological Survey Institute, Professor Nystrom of Shanxi University,

and Tegengren, a mineral geologist of the Swedish Geological Survey. They investigated, tested and evaluated a large number of mineral deposits. After the exhibition of students' achievements of the Geological Institute in July 1916, the exhibition hall initially set up four exhibition halls, including coal and iron exhibition halls, which were divided into coal mines (listed by major mining areas) and iron mines (listed by types). According to relevant data in 1925, the coal and iron exhibition halls of the exhibition hall had 230 types of coal specimens totaling 1,041 pieces, and 256 types of iron ore specimens totaling 354 pieces. In 1917, Tegengren's contract expired and he returned to Sweden, but he still used his spare time to study China's iron ore deposits. Andersson compiled all the new data and made important additions based on his own geological surveys of ore deposits in Zhili (*Hebei* now), Shandong, Jiangsu, Anhui and Hubei. In 1919, W. H. Wong serialized "Iron Ore Notes" in the *Agricultural and Commercial Gazette*, recording the composition, ore formation and reserves of domestic iron deposits. From 1921 to 1923, *Geological Bulletin Type A* published two volumes of *China Iron Ore Records* written by Tegengren, which collected many achievements of Swedish scholars and personnel of the Geological Survey. It is a masterpiece of China's early research on the mineralization and distribution of ore deposits.

Tegengren wrote in the book: Thanks to the cooperation of Chinese colleagues in the Geological Survey, this work was carried out vigorously, and it took almost two full years to carry out iron ore exploration throughout China. In this book, a large number of important survey reports of these Chinese colleagues are published for the first time.

Figure 16. A group photo of some staff members of the Peking Research Institute of the Geological Survey in April 1930

Front row from left: W. H. Wong, □, Emile Licent, Shu-hua Li, G. Bouillard, Sven Hedin (1865-1952) and P. T. de Chardin; Back row including: H. T. Chang, Jean Jérome Augustin Bussiere, K. H. Hsu, T. C. Chow, etc.

In this regard, C. Y. Hsieh later commented[1]: "Since the publication of Tegengren's *Chinese Iron Ore Records*, the geology, distribution and reserves of iron deposits in China have been systematically recorded. Its rich collection and detailed description make it a truly unprecedented

masterpiece."

This is a great era of brilliant stars, prosperity and harmony. It is also a beautiful era in which a large number of elites compete with each other, support and help each other in the courtyard of No. 9 Bingmasi. In addition to the leaders Ting, Wong, Chang and Hsieh mentioned above, there are countless talented geologists who have since become famous in the Chinese geological community, such as C. Y. Hsieh, T. K. Huang, C. Y. Lee, Y. C. Cheng, T. O. Chu, T. I. Loo, H. T. Lee, L. F. Yih, C. Lee, K. W. Hsu, C. C. Wang, H. C. T'an, T. C. Chow, C. C. Liu, C. C. Young, T. H. Yin, S. F. Sheng, Y. S. Chi, W. C. Pei, Y. C. Cheng, S. P. Lee, Z. C. Chow, T. Fang, L. Wang, Y. C. Sun, C. C. Tien, T. F. Hou, S. S. Yob, S. Chu, S. C. Chang, P. Kao, K. Chen, Y. L. Wang, N. Chin, M. S. Chen, L. P. Chia, C. C. Yu, Hishchih Chang, P. L. Yuan, C. Y. Wang, K. H. Hsu, H. S. Wang, K. L. Fong, K. M. Wang, S. C. Chien, C. H. P'an, L. C. Ch'ang, Chingchang Biq, K. C. Hsu, Y. Hsiung, V. C.Juan, T. Y. H. Ma, L. C. Li, Y. T. Ma, Y. Wang, Kungtow Y. King, Y. T. Nan, C. C. Pai, H. C. Sze, T. S. Liu, C. Chu, C. C. Chang, M. N. Bien, H. L. Ching, Chia-Lin P'an, K. C. Hou, W. Y. Chang, C. S. Kao, L. T. Yeh, T. C. Sun, H. D. Wang，T. I. Young，Yueh-Yen Lee，P. C. Wang，M. Hu，S. H. Li，K. Y. Yen……

Figure 17. Grabau and students from the Department of Geology at Peking University in 1930

Of course, there are also talented geologists such as Y. T. Chao, who was killed by bandits during field geological surveys, Y. S. Ma, a female geologist who was fluent in five languages, T. Y. Hsu and K. Chen. Regarding these geologists who died young, another article will be dedicated to mourning and commemorating them!

Grabau was a German-American. He graduated from the Massachusetts Institute of Technology in 1896 and entered Harvard University the following year to receive his doctorate. He served as a lecturer and professor of paleontology and geohistory at Columbia University. He wrote major works such as *Principles of Stratigraphy*, *Standard Fossils of North America* (co-authored), and *Geology*. In August and September 1919, Ting, the founder of Chinese geology who was traveling in the United States, invited Grabau to work in China. A year later, Grabau came to Beijing as promised and served as the director of the Paleontology Research Laboratory of the Geological Survey. He also served as a professor in the Department of Geology of Peking University, taking on the teaching tasks of three courses: geohistory, paleontology, and comparative European and American stratigraphy. When Grabau talked about the textbooks he

wrote, he did not read them word for word, but started to speak fluently and freely, which was very vivid and exciting. At that time, China was in turmoil, the government was in financial difficulties, and Peking University owed wages several times. Grabau had to consult doctors frequently because of his leg disease, so his situation was very difficult.

Due to the constant war in China in 1930, Y. L. Wang, the assistant who helped Ting sort out the field data, was basically unable to travel, so he went to Peking University to study paleontology and stratigraphy with Grabau after work. In the next three or four years, as long as he did not go out, Y. L. Wang continued to study with Grabau.

Later, when recalling the scene of taking classes with Grabau, Y. L. Wang described it like this: He had a leg disease and could not walk. He had to use a chair to carry him to the podium during class, and then sit on a rotating chair and use a long bamboo pole to point at the hanging charts and explain. He had extensive knowledge and spoke eloquently. Every year, the materials he taught were supplemented with new materials, so there was no repetition. His tireless attitude of teaching and cherishing the newcomers made me admire him with all my heart.

Figure 18. On the way to the 16th International Geological Congress held in Washington, D.C. in 1933
Front row from left: Swedish geologist Nils G. Horner, Ting and Grabau; Back row from left: Chardin and Grabau's secretary Alice Woodland

T. K. Huang, a leading figure of the China Geological Survey in the late Republic of China, later recalled that paleontology is the basis of stratigraphy, and stratigraphy is the basis of all branches of geology. In the early days of the Geological Survey, there was no real paleontologist in China. With the joining of Grabau, a famous geologist and paleontologist, the Geological Survey immediately established a paleontology research laboratory and appointed Grabau as the director. At that time, the paleontology research laboratory of the Geological Survey was still the first of its kind, and it occupied an important page in the history of Chinese science. Grabau went to eastern Hebei to conduct field geological surveys as soon as he arrived in Beijing. In his first

year in China, he published a paper on the fauna of the Kaiping Basin in the *Geological Report* of the Geological Survey. At the same time, Grabau and Andersson actively assisted Ting in planning the publication of the *Chinese Paleontology* and wrote the first two volumes of the invertebrate paleontology section (1922). Thanks to the joint efforts of these predecessors, the *Chinese Paleontology* quickly became an international leader.

Figure 19. Group photo of some teachers and graduates of the Department of Geology of Peking University in 1928
Front row from left: S. G. King, T. Yang, H. T. Lee, A. W. Grabau, L. Wang, Y. T. Chao; Back row from left: C. Y. Lee, Cengwei Yang, S. Chu, and T. K. Huang

Grabau's student T. K. Huang later recalled: Mr. Grabau was full of energy in the laboratory and worked day and night. He was eloquent and tireless in teaching. Because of his appeal, many young people wanted to become paleontologists and put the heavy responsibility of studying Chinese strata and paleontology on their shoulders. Grabau's profound knowledge and teaching charm attracted many young students to follow him. By the early 1930s, China's paleontologists were talented and paleontological research was flourishing. The first few generations of paleontological talents in China were carefully trained and guided by Grabau, such as Y. T. Chao, who was good at brachiopods and Carboniferous strata, C. C. Young and W. C. Pei, who were good at Cenozoic and ancient vertebrate fossils, H. C. Sze, who studied paleobotany, and C. C. Tien, Y. S. Chi and Jie Xu, etc.
Y. C. Sun commented on Grabau: The reason why the status of geology in Chinese science is not backward is actually due to the great contributions of Chinese paleontology and stratigraphy, including the research results published in the *Chinese Paleontology* and the *Bulletin of the Geological Society of China*. Most of the work was done by Grabau himself and his disciples.

Figure 20. Grabau in the west wing of No. 58 (now No. 6) Bingmasi Hutong on February 19, 1946
About a month later, on March 20, A. W. Grabau died at the age of 76. This is the last picture left by his students when they visited him

In 1925, Grabau initiated the establishment of the Beijing Natural History Society, which attracted important biologists and some geologists from Beijing and abroad to join, especially foreign scholars, forming a scientific group centered on Grabau. This shows the great influence of Grabau at that time. In 1934, S. K. Lee, the director of the Department of Geology of Peking University, went to the UK to give lectures, and Grabau served as the acting director of the Department of Geology of Peking University. During this period, he negotiated many times to apply for various equipment and funds for the newly built Geological Museum of Peking University, and the Geological Department was able to move to the Songgongfu Geological Museum in the summer of 1935.

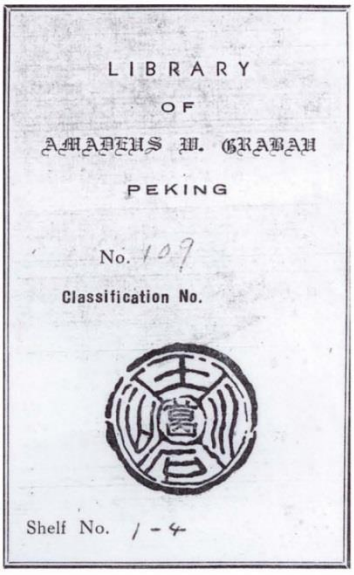

Figure 21. A. W. Grabau's personal library book stamp in the late 1930s
According to Grabau's will, all his books and maps were donated to the Geological Society of China. These books are now a valuable collection of the China Geological Library

Grabau was already a well-known scientist in the United States and was called a "living library" by his peers. He had his own library. At that time, his books were numbered and had a diamond-shaped blue seal, which read "Private Library of Amadeus W. Grabau, Columbia University, New York City". When he took office, he brought these private collections to Beijing. In the early 1930s, Grabau donated part of his private library's collection to the Geological Society of China, which was collected in the South Building of No. 9 Bingmasi. From 1933 to 1937, the society spent a total of 500 yuan on fire insurance for the donated pictures and books by Grabau.
In February 1937, the 13th Annual Meeting of the Geological Society of China was held in Meeting Room No. 9 of Bingmasi. The participants approved the emblem designed by Chang, Hsieh, C.C. Young, and Grabau. There are five deformed Chinese characters on the emblem: earth, stone, mountain, water, and China. The Chinese character *Zhong* represents China and can also represent the Geological Society of China. The four Chinese characters on the four sides represent the most important geological phenomena. Grabau asked someone to redesign the Grabau's seal (Figure 21) based on the emblem of the society, which was used in his private library in Douyacai Hutong. Each of his books has a number and shelf number, which shows his cherishment and meticulous management of books. As a founding member of the Geological Society of China, Grabau witnessed and supported every step of the society's growth. This seal carries the deep feelings of this old foreign scientist for the Geological Society of China.
As soon as the July 7 Incident broke out, Wong, the chief representative of the Chinese delegation attending the 17th International Geological Congress in Moscow, called Hongfen Sun, the director of the China Education and Culture Foundation, and asked him to help protect Grabau's personal safety. At the same time, Wong called T. C. Chow, the director of the Geological Survey, and asked him to provide strong assistance for the expenses needed for Grabau and Hsieh to travel from Peking to Nanjing.

Figure 22. A. W. Grabau, sketched by Swedish geologist Sven Hedin in 1930

After Peking University moved south, Grabau had to stay in Peking to continue writing due to leg disease. The Japanese army once wanted to occupy the Peking branch of the Geological

Survey. Grabau sat in a wheelchair, holding the American flag and shouting anti-war slogans, lying at the gate to prevent the Japanese army from entering. Grabau sympathized with and supported the efforts of the Chinese intellectual community to fight the national crisis together, and his students and colleagues in the rear also kept thinking about him.

After the July 7 Incident, Grabau was forced to stay in Beijing and guard his books in Douyacai Hutong because he was unable to walk. He could not bear to leave and worked hard to compile his masterpiece *On the Vicissitudes*. He received a gift of US$1,000 from the Geological Society of America as the cost of this work. From 1940 to 1941, Minister of Economic Department Wong and Director of the Geological Survey Tsan-Hsbun Yin wrote to Hengde Hu, President of Peking Union Medical College Hospital, twice, hoping to arrange for Dr. Grabau to go to the southwest rear area and were willing to pay all related expenses. However, various objective factors forced Grabau to stay in the bustling city of Peking and persist in his writing.

After the outbreak of the Pacific War in 1941, Grabau was transferred from his residence in Xicheng, Peking to the British Embassy in Dongjiaomin Lane. In July 1945, on the eve of the victory of the War of Resistance Against Japan, T. K. Huang recorded his concern for his teacher Grabau: He has been trapped in Peking for many years and his life is very difficult. I hope he will be liberated in the near future and meet us all. After Japan surrendered, C. C. Wang and W. C. Pei from the Peking Branch went to visit Grabau and found that he was in a very difficult situation. In December 1945, they moved Grabau to the west wing of the Geological Exhibition Hall for better care.

On March 20, 1946, Grabau died at the age of 76. Grabau's last words were: I wish to be buried in the Geological Museum of Peking University. After the Peking University Council, which was still in Kunming at the time, learned about it, it decided to follow Mr. Grabau’s last words? On March 26 and April 27, several academic groups and geological research institutions in Kunming and Beibei, Chongqing, respectively held memorial services to mourn this geologist with an internationalist spirit. On June 2, Mr. Grabau's ashes were buried in front of the Geological Museum of Peking University in Songgongfu, and a foundation stone was erected. All of Mr. Grabau's books, periodicals and maps were donated to the Geological Society of China in accordance with his will. The Society asked the Peking Branch to accept Mr. Grabau's last letter on behalf of the Society, and asked the Peking Branch of the Geological Survey to temporarily keep it.

Grabau has written many books and taught tirelessly, and he enjoys a high reputation in the scientific community. In March 1925, C. Y. Wang, a student of Grabau when he taught at Columbia University in the United States and then president of the Geological Society of China, proposed to establish the "Grabau Medal of the Geological Society of China" and took the lead in donating 600 yuan. To this end, the Council of the Geological Society of China seconded and agreed to pass 7 award rules. Among them, Article 2 is: The Grabau Medal is awarded every two years, and the Geological Society of China awards it to those who have made important research results or great contributions to Chinese geology or paleontology.

The first Grabau Medal in 1925 was awarded to Grabau himself. At the 4th Annual Meeting of the Geological Society of China held in May 1926, Wong awarded and delivered a speech on behalf of President C. Y. Wang, commending Grabau for his outstanding contributions to Chinese geology and paleontology. The Grabau Medal was awarded from 1925 to 1937 before the outbreak of the Anti-Japanese War, and was awarded 7 times. It was stopped during the Anti-Japanese War. After Grabau's death in 1946, the medal was awarded twice more until the Kuomintang withdrew from the mainland. The Grabau Medal had a great influence in the

academic community and was the highest award in the Chinese geological community at that time.

Figure 23. Y. S. Chang and Y.L. Chen, couple, beside the Grabau Monument at the exhibition hall of the Beijing Branch of the China Geological Survey in 1947
Y. S. Chang and Y. L. Chen graduated from the geology department of Peking Normal University in the mid-1940s and continued to work in geology after graduation

On Grabau's 60th birthday in 1930, Chang, Ting, Wong, Hsieh, S. K. Lee, C. H. Chu, L. F. Yih, and Y. C. Sun jointly sent a congratulatory telegram to Mr. Grabau. One paragraph in the telegram expressed the common feelings of colleagues: "Since you came to China, we have always regarded you as one of us, forgetting that you are a foreigner. We know that in your heart, your love for science is strong enough to transcend race and nationality." In May 1936, the Soviet Paleontological Society nominated Grabau as an honorary member of the society. In November of the same year, the National Academy of Sciences of the United States awarded Grabau the Mary Clark Thompson Medal in recognition of his immortal contributions to geology and paleontology, and awarded him the medal in April of the following year. Grabau did not go to the United States to receive the award. In his reply to the National Academy of Sciences of the United States, he emotionally recounted the development of the Geological Society of China, the China Geological Survey, and the Department of Geology of Peking University from small to large, and finally to remarkable achievements. Grabau also predicted: "The scientific study of natural history has become a kind of intellectual study in China. As it begins to develop, those of us who have witnessed its prosperity and made some contribution are confident that in the future, Chinese scientists will gradually make achievements in geology, paleontology, biology and archaeology, which will make important contributions not only to their own country but also to world science."
In 1947, the Chine Geological Survey erected the "A. W. Grabau Memorial" in front of the Geological Exhibition Hall at No. 58 (now No. 6) Bingmasi Hutong, which became a landscape for scholars to admire. The monument is divided into two parts. The upper part is an imitation of

the ancient Egyptian obelisk that was popular during the Republic of China period, with an inscription in official script. The lower part is a three-layer square split base. The upper layer of the base is engraved with a 21 cm × 20 cm rectangular picture frame on the front, and a side-by-side line drawing of Grabau painted by Sven Hedin for him on his 60th birthday in 1930 (Figure 22). The middle layer of the base is engraved with his English name and date of birth and death. Mr. Grabau's ashes were buried in front of the Geological Museum of Songgongfu, Peking University.

In 1948, C. C. Young wrote on the second anniversary of Grabau's death: Recalling Grabau's residence in Douyacai Hutong, Beiping many years ago, it has become a cultural center in Beiping, with constant visitors every day. Among them were his superiors, his students, his colleagues, his fellow geologists and paleontologists, as well as biologists, anthropologists and geographers who were not from the same field but were also scientific workers. No matter who came, Grabau was always in high spirits. No matter who asked for advice, he always gave careful guidance, with a spirit of preaching. Whether it was chatting or discussing academic matters, it was all in a friendly atmosphere.

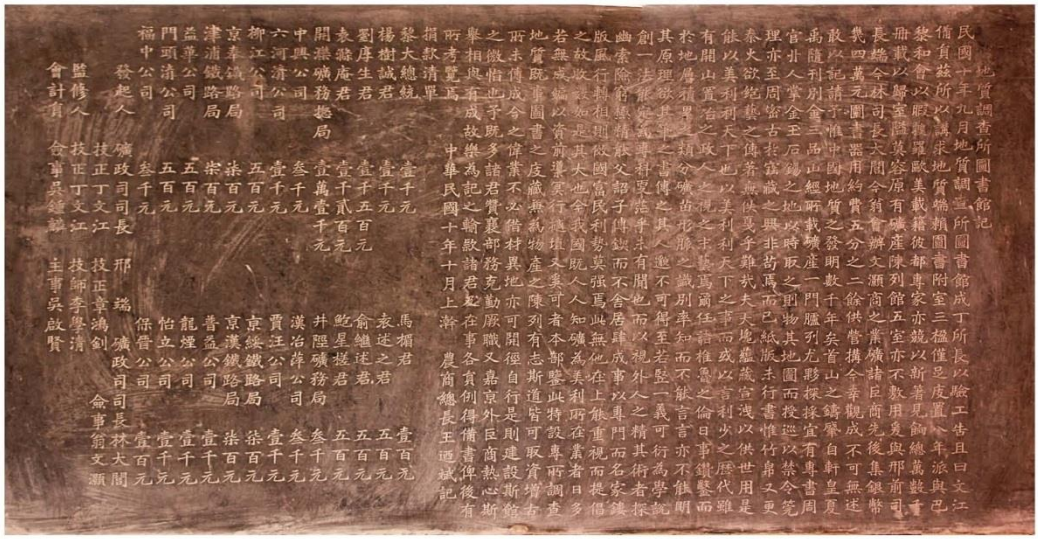

Figure 24. The stone tablet of "Geological Survey Library Record" published in 1921
It is noted that: President Li (donated) 1,000 yuan

In the late 1950s, the building and rockery at No. 6 Bingmasi Hutong were demolished, and the relevant departments of the Ministry of Geology moved Mr. Grabau's monument to the east wall of No. 9 Bingmasi Hutong opposite, adjacent to the monument of Y. T. Chao. The two monuments coexisted in one corner, which also satisfied the mutual appreciation between the master and the apprentice.

It is extremely regrettable that the two monuments were destroyed at the same time during the "Cultural Revolution of China". Grabau's grave in front of the Peking University Geological Museum also suffered a similar fate. In 1982, Peking University re-erected Grabau's tombstone in Yanyuan. In June 2006, the China Geological Museum transported the fragments of the two monuments of Y. T. Chao and Grabau to the warehouse for preservation.

Wong once recalled the teacher-student friendship between Grabau and Y. T. Chao, two outstanding scientists: After his teacher Mr. Grabau came to China, he cultivated many

paleontological talents, and the one who made the greatest contribution to research, Grabau said that Mr. Zhao was second to none and regarded him as the loveliest and respected young man.
All these pioneers of Chinese geology left their heroic figures and youthful footsteps in Courtyard No. 9 Bingmasi during their lifetime. They are still so vivid today, and therefore have been mentioned in this book to a greater or lesser extent.

5

In October 1928, Wong published "A Commemorative Speech on the 10th Anniversary of the Geological Survey", reviewing the history of establishing academic journals since 1919: "The proposal of the China Geological Survey of China was founded in 1911, and the publication of geological illustrations began in 1919. In the past ten years, the Institute has published *Geological Bulletin*, *Geological Reports*, *Paleontology*, and other single volumes, with a total of more than 50 volumes printed." The professional journals of the Geological Survey focus on international academic exchanges and introduction of achievements and the use of foreign languages is the basis for mutual communication. The *Geological Bulletin* founded in 1919 and the *Geological Reports* A, B and C published in 1920 all focus on using Western languages: mainly publishing English papers by foreign experts, a few French and German papers, all with Chinese translations or abstracts. Chinese papers by domestic scholars are accompanied by English abstracts. There are also scholars like Wong who publish papers in French and English, with Chinese attached. This kind of editorial requirement or academic norm enables Chinese scholars to stand on the platform of international communication, master foreign languages without neglecting them due to daily work, and understand the progress of the international frontier of geoscience to improve the research level of the group, which is very beneficial to the cultivation of scientific talents.

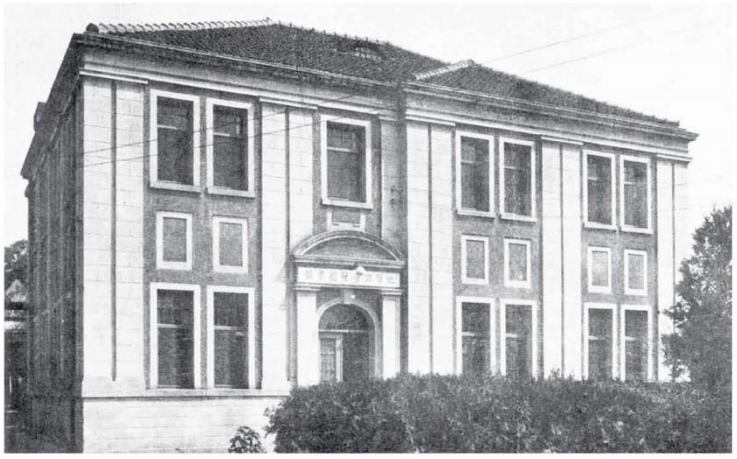

Figure 25. The China Geological Survey Library at No. 9 Bingmasi, completed in 1921

In 1922, the Geological Society of China was established in the conference room of the China Geological Survey. The academic research of the Geological Survey was based on the society, and widely attracted Chinese and foreign scholars in the geological field, as well as people in the mining, railway and metallurgical fields. The academic atmosphere was free and active. In that

year, the number of members increased from 26 to 62, including 21 foreign scholars. The society also recommended foreign geologists and paleontologists as corresponding members. The society used English as the conference language.

"In the early days of modern geology in China, it was necessary to strengthen international exchanges and expand international influence. The Geological Society of China held an academic conference every year. These conferences were always attended by Western scholars, and even scholars from China were specially invited to attend the conference to report. Therefore, it was imperative to use English as the conference language."[1]

With the establishment of the Society, the national English geological journal *Bulletin of the Geological Society of China* was launched. The papers of the journal are mainly in English, with two catalogs in English and Chinese, and one volume is published each year. When the Geological Survey moved to Nanjing in 1935, the three editors-in-chief of the 14 volumes of *Bulletin of the Geological Society of China* were all from the Geological Survey, namely V. K. Ting, L. F. Yih and W. H. Wong. No. 9 Bingmasi is not only the Society's clubhouse, but also the editorial office and distribution office of the journal. There is no doubt that the Geological Survey has made outstanding contributions to expanding the influence of the Society and promoting the internationalization of academic exchanges.

The Geological Survey tried to align its academic journals with international standards in terms of language and writing. "The goal of geological journals at this time is the internationalization of academic exchanges. On the one hand, it needs the support of Western author groups, and on the other hand, it also needs to promote the research results of China to the world." In 1922 and the following two years, the Geological Survey established the English version of "Chinese Paleontology" A, B, C and D, and in 1937, it established a new paleoanthropology special issue "Chinese Paleontology New D". In this group of journals, with Grabau, Halle, Zdansky and other foreign scholars as the pioneers, high-level papers by scholars from various institutions and universities in China followed closely and were published one after another, and soon became the main force in Chinese paleontological research.

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In 1931, H. T. Chang said when talking about the research of Chinese paleontology: the progress of Chinese stratigraphy "really benefited greatly from paleontology... The researchers were centered on Dr. Grabou, the chief technician of the Peking Geological Survey, and his students and friends followed closely behind, learning from each other and achieving more and more results. The *Chinese Paleontology* published by the Peking Geological Survey is divided into four types: A, B, C, and D. More than 40 volumes have been published, most of which were independently completed by Chinese paleontologists." It quickly became a famous journal in the international geological community.

No. 9 Bingmasi not only preserves the figures of many heroic Chinese heroes of that time, but

also many of China's internationally renowned geological theories that are still used today, such as the Yanshan Movement founded by Dr. Wong, and even many (if not all) of the firsts in Chinese geology, all of which took place in this small courtyard that was once the focus of the Chinese and international community but is now very dilapidated.

Before the outbreak of the full-scale war of resistance against Japanese aggression in China in 1937, the Geological Survey had achieved scientific research results that attracted the attention of the international geological community after 20 years of development and accumulation. The Chinese academic community commented: "Among all the scientific research undertakings in my country, geology and paleontology are the most internationally renowned and the most significant in terms of achievements. Geological research centered on the Peking Geological Survey, with the cooperation of the Central Research Institute, Guangdong and Guangxi and the geological survey of various provinces, has achieved outstanding results in the national geological mapping, mineral and rock surveys, theoretical research and practical applications of paleontology, soil, fuel and earthquake. Among them, the discovery of the "Peking Man" fossils is particularly precious and has made great contributions. Some people say that China's achievements in geological research have surpassed Japan and can even catch up with the world. This may not be false."[1] In 1930, the famous patriotic industrialist Zuofu Lu visited the Geological Survey at No. 9 Bingmasi and met with Ting and said: "I have traveled a lot in the south and north, and it is rare to see a successful cause. Today at the Geological Survey, I finally see the great achievements you have made. Several scholars led some young people to conduct geological surveys in various places, and then came back to study here. How many places in China can do serious things like this?"

In March 1936, President Yuan-pei Tsai of the Academia Sinica published an article commenting that the Geological Survey "truly enjoys the reputation of China's first scientific research institution"[12].

Suh Hu (Hu Shih) wrote in his book commemorating Ting, who died young: "The glorious history of the Geological Survey itself is an important part of China's scientific history... The Geological Survey founded and developed by Ting and his friends became a world-renowned pure science center in a very short time."

Chi-Sun Yeh, the father of Chinese physics, said at the 25th anniversary celebration of the establishment of the Geological Survey in December 1941: "In 1916, the Chinese began to study geology themselves, which means that the Chinese began to study natural science. Geology has achieved such a satisfactory result in 25 years, and it has its own development process and reasons. If other sciences want to achieve the same level of development as geology, they must learn from the struggle methods and efforts of the China Geological Survey in the past 25 years."

Yes, in just over 20 years, the China Geological Survey has created many firsts in the history of modern Chinese science and technology, especially in the history of earth science[13-16], which is worthy of the Chinese people's eternal pride. Regarding the countless firsts in geology created by Mr. C. Y. Hsieh alone, I have already discussed them in several articles, such as *A complete chronicle of Chia Yung Hsieh (C. Y. Hsieh) and his life and works*[13], *Finally, the complete eight-volume Collected Works of Chia Yung Hsieh is published*[14], and *Who Discovered the Largest Oilfield in China*[15]. Interested readers can search and read the relevant articles, and I will not go into details here.

Before the Geological Survey moved to Nanjing in 1935, No. 9 Bingmasi was the academic center of Chinese geology. This courtyard is very famous in the scientific community at home and abroad because it has produced many great scientists and achieved outstanding

achievements.

6

I once wrote in my book review of *Less Words but Earnestly Practice--My Father Chuangan Zhang*[17]: I almost cried when I read about the simplicity and purity of traditional Chinese intellectuals in that golden age, especially their great patriotism and love for the country and the nation.

The reason why the Republic of China is considered one of the few golden ages in Chinese history is that Chinese intellectuals at that time could focus on scientific research without having to worry about various political movements that would make people tremble with fear or even lose their lives, let alone being criticized, thrown into prison, or even forced to commit suicide or be killed.

Although in terms of objective material conditions, China at that time was extremely poor and backward, and field investigations could only rely on primitive means of transportation such as camels, donkeys, horses and ox carts, and most of the time they had to rely on their own two legs and two hands. At the same time, scientists in developed Western countries had already driven cars to conduct field geological surveys and research.

Figure 26. C. C. Sun (first from right), Y. L. Wang (second from right), and Mrs. C.C. Sun (first from left) with Honglie Sun (center) on their way from Nanjing to Chongqing in the 1930s

What is even more valuable is that despite the extremely difficult times, the deep friendship between people at that time, like brothers and sisters, caring for each other and taking care of each other, is also touching and memorable. What is particularly important is that the friendship between the generations at that time was not temporary, but lasted for a lifetime and lasted until death.

For example, the book mentions that after the genius geologist Y. T. Chao was unfortunately killed by bandits while on a field trip in Yunnan, China. The China Geological Survey acted quickly and made proper arrangements for his wife and children, so that they could survive without worries and the children could grow up healthily and receive a good education.

After Mr. Ting, the founder of the China Geological Survey died of gas poisoning while inspecting coal mines in Hunan, his close friend Dr. Wong kept his word and took on all the

living expenses of Mrs. Ting. Even after 1949, when Wong had no actual job and normal income in the mainland and was extremely depressed, he still did his best to help Mr. Ting's widow, Ms. Shi.

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7

The book *No. 9 Bingmasi: A Historical Study of the Former Site of the Geological Survey of China* was published by the Geological Publishing House in Beijing in September 2022. The authors are Ms. Erping Zhang and Mr. Yuntao Shang. In addition to the concise preface written by Academician Honglie Sun, the son of Mr. C. C. Sun, one of the pioneers of petroleum geology in China (Figure 26), the author's concise postscript, a relatively detailed index and the "Extended Data List" as an appendix, the book mainly consists of the following six chapters:

- Chapter 1 The First Cornerstone (including three sections);
- Chapter 2 China's First Modern Scientific Institution (including six sections);
- Chapter 3 Scientific Contributions (including six sections);
- Chapter 4 Architecture and Stone Carving (including three sections);
- Chapter 5 Peking Branch (including five sections); and
- Chapter 6 Protecting the Old Site (including two sections).

The book has a total of 247 pages and 270,000 Chinese characters.

It must be said that the main purpose of this book is to strongly call on the relevant government departments to clear out the No. 9 Bingmasi Courtyard, which has been occupied by residents for many years since 1949, to repair this important historical relic and properly protect and utilize it. Of course, while recalling the great historical significance of this small courtyard, this book also deeply reflects the social outlook, political ecology, human relations and other aspects of China in the 1920s-1940s, that is, the so-called a glimpse reveals the whole leopard.

This book excavates and verifies historical materials in detail, the text is vivid and beautiful, the pictures are thought-provoking, and the story is readable. It is a good book worth collecting.

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Author contributions
JZ Yin contributed to the data collection, compilation and interpretation and wrote the paper.

Data availability

The data that support the findings of this study is available from the author upon reasonable request.

Declaration of competing interest

The author declares that he has no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Use of AI tools declaration

The author declares that he has not used Artificial Intelligence (AI) tools in the creation of this article.