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## The Fate of Y.S. Ma, China's First Female Geologist

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### Abstract

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In April 1944 during the War of Resistance against Japan, three young scientists were killed by bandits in the field.

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Among the three were Ms. Y.S. Ma, the only female geologist in China at the time, a young geologist fluent in five

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foreign languages despite never having been abroad, and Mr. T.Y. Hsu and Mr. K. Chen, both budding and

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accomplished geologists. They were killed on the same day, at the ages of 25, 36, and 28 respectively. This year marks

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the 82nd anniversary of their tragic deaths. This article is dedicated to these three young scholars who died before

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achieving their goals, leaving future generations deeply saddened.

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**Key words:** Died young; murdered; bandits; April 1944; eternal remembrance; GSC

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### 1. Introduction

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As China's first truly scientific education and research institution, the Geological Survey of China

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(GSC) achieved tremendous success within just a few years of its establishment, creating many

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firsts in Chinese geological education, research, and mineral exploration, and even some world

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firsts. However, this came at a heavy price; many geologists died young for various reasons.

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Especially during World War II, with the Japanese occupation of most of eastern and central China,

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almost all universities and research institutions in these developed regions had to relocate to the

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western rear areas of the war effort to continue geological surveys and research. At that time,

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bandits roamed freely in China, especially in the southwestern border regions, posing a significant

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threat and causing immense losses to the developing GSC. Following the tragic murder of the

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brilliant Chinese geologist Y.T. Chao by bandits in Zhaotong, Yunnan Province in 1929, 15 years

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later, in April 1944 during the War of Resistance against Japan, three more young geologists were

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killed by bandits in Guizhou Province, bordering eastern Yunnan.

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On April 24, 1944, a momentous event that shocked the entire nation occurred. Y.S. Ma (Ms. Ma),

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China's first and, at the time, only female geologist, along with two of her colleagues and mentors,

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T.Y. Hsu (Mr. Hsu) and K. Chen (Mr. Chen), were tortured and ultimately murdered by local

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bandits while conducting a field geological survey in Guizhou Province in southwest China. This

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incident, once revealed, shocked the nation and quickly reached the highest levels of government.

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The reasons were as follows: First, the general level of education among the Chinese people at that

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time was extremely low, and those with a university education were extremely rare. The sudden

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murder of three highly educated intellectuals naturally shocked and was unacceptable to the public.



36 Second, the research institution where the three worked, the GSC, was not only China's leading  
37 modern scientific and technological research institution at the time, but also the only research  
38 institution actively supporting China's war of resistance against Japan. They organized the  
39 development of China's unique tungsten and other mineral products, selling them overseas to earn  
40 foreign exchange to support China's just actions against the invaders, or directly exchanging  
41 tungsten ore for urgently needed weapons and ammunition for the war effort. Thirdly, Dr. Wen-  
42 hao Wong (Dr. Wong), the former director of the GSC at the time, had risen to a high-ranking  
43 position in the Chinese government and could directly communicate with Chiang Kai-shek, the  
44 then-leader of China. This then-Minister of Economic Affairs, Dr. Wong, a geologist, rose to the  
45 highest position of Premier of the Executive Yuan of the Kuomintang (Executive Council of the  
46 Central Authorities throughout China before 1949 and in Taiwan afterwards) approximately 3  
47 years later. Fourthly, one of the deceased, Ms. Ma, was China's first and only female geologist at  
48 the time. This was her first real fieldwork after graduating from university, and later events proved  
49 it to be her only field geological survey and research in her lifetime. Following the poem by the  
50 great Tang Dynasty poet Du Fu mourning Zhuge Liang, a famous figure from the Three Kingdoms  
51 period, Ms. Ma also "died before her mission was accomplished, leaving heroes to weep with  
52 sorrow." Even more tragically, unlike the two male companions who were also murdered, Ms. Ma  
53 suffered immense torture and humiliation before her death, a fate too painful to recall.

## 54 2. Biography and Deeds

55 Ms. Ma was only 25 years old when she was murdered. She was in the prime of her life, just as a  
56 flower bud was about to bloom (Fig. 1). How could this not break one's heart and cause one  
57 unbearable grief?



58

59 **Figure 1.** Photo of Ms. Ma during her lifetime (Editorial Department, *Geological Review*, 1944)

60 Shortly after the devastating tragedy, *Geological Review*, one of the most renowned journals in the  
61 Chinese geological community, which had only been published for eight years, published a special  
62 article entitled "A Brief Biography of Ms. Y.S. Ma" in its combined issue of Volume 9, Issues 5-  
63 6 of 1944, the same year the incident occurred, to introduce her short but brilliant life and express  
64 its deepest condolences.



65 This short, one-page article describes Ms. Ma as follows: Ms. Ma was originally from Chengdu,  
66 Sichuan, China. Her ancestors settled in the northeastern border region by running gold mines. She  
67 was born on October 25, 1919 in Heilongjiang. She was intelligent and achieved considerable  
68 success in learning Japanese in her childhood. After the September 18 Incident<sup>1</sup>, her father, Mr.  
69 Boyan Ma, moved inland with his family and she temporarily resided at Jinan Municipal Middle  
70 School. They moved to Shanghai and she studied at Tongji High School, where she was able to  
71 learn German. When the War of Resistance against Japan broke out, Shanghai became  
72 uninhabitable. At that time, her father had passed away, and her four brothers had died one after the other.  
73 Ms. Ma brought her mother, Madam Yang, back to Sichuan and lived with her elder sister, Yihui,  
74 and her brother-in-law, Mr. Jingzhi Yang, in Longchang. The orphaned girl and her widowed  
75 mother faced great hardship, but Ms. Ma was determined to make progress and never gave up. She  
76 entered Hechuan National Second Middle School and graduated in the spring of 1929. She then  
77 entered a pre-university program and, due to her outstanding academic performance, was  
78 recommended for admission to National Central University after six months, entering the  
79 Department of Geology, College of Science. Her academic performance was excellent, ranking  
80 first in his class, and she received the Shanghai Bank Scholarship and the Chairman Lin Sen  
81 Scholarship. Having already established a basic knowledge in German, she studied French as her  
82 second foreign language while in school. Through diligence and hard work, she became proficient.  
83 She graduated in the summer of 1943 and, with top marks, entered the GSC of the Ministry of  
84 Economic Affairs as an assistant engineer. Under the tutelage of Professors Tsan-Hsbun Yin and  
85 Mr. Hsu, she studied palaeontology and meticulously organized fossil specimens. During her  
86 studies, she attended a night class in Russian and was able to read it within six months. In March  
87 1944, she went to Guiyang, provincial capital of Guizhou Province of China to attend the 20th  
88 GSC's Annual Meeting. After the meeting, she went to Western Guizhou with Mr. Hsu and Mr.  
89 Chen to investigate geology and collect data. On April 24, she was attacked by bandits near  
90 Huangchang, which belongs to Qinglong (Annan) County. She was killed along with Mr. Hsu and  
91 Mr. Chen. She was only 25 years old at the time. She had just graduated from school and was  
92 fluent in six languages: Chinese, English, German, French, Russian and Japanese. She had been  
93 ranked first in school examinations 28 times (she had been ranked first in all primary, secondary  
94 and tertiary school examinations 28 times, Liao, 2015 and 2020; Li, 2020), which was rare in the  
95 China. She studied diligently and strived for excellence; she was born to be a great scholar and  
96 had a bright future ahead of her, but tragically her life was ruined!

97 In fact, due to the dangers and hardships of the field at that time, GSC had an unwritten rule that  
98 female scholars were generally not recruited. However, Ms. Ma was exceptionally recruited by  
99 GSC because of her outstanding talent and excellent grades. Unexpectedly, the result was so  
100 unexpected.

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<sup>1</sup>The "September 18 Incident", also known as the "Fengtian Incident" or the "Liutiaohu Incident", was an incident on September 18, 1931, in which the Japanese Kwantung Army stationed in Northeast China suddenly attacked Fengtian (now Shenyang) and occupied Northeast China by force.



101 Her graduation thesis, "*The Lower Triassic Fauna of Tongzi County, Northern Guizhou*", was the  
102 first study and naming of ostracod fossils<sup>2</sup> in the area. After entering GSC, she followed Mr. Hsu  
103 to carry out paleontological research and sorted out the fossil specimens of GSC, which was "well-  
104 organized and made great achievements" (Li, 2020). She was the first female geologist recruited  
105 by GSC. This trip to Guizhou with Mr. Hsu was also her first field work after joining GSC, but  
106 she unexpectedly suffered this tragedy.

107 Based on the above biography, modern researchers of the history of geological science in mainland  
108 China have added the following details about Ms. Ma (Li, 2020; Liao, 2020): Y.S. Ma (October  
109 25, 1919 - April 24, 1944), a Hui nationality, whose ancestral home was Chengdu, Sichuan, China,  
110 was born in Qiqihar, Heilongjiang Province. In 1939, she was recommended to the Department of  
111 Geology of Central University and became the first female student in the department. After  
112 graduating in 1943, she was admitted to GSC of the Ministry of Economic Affairs as an assistant  
113 engineer. She was the first female geologist in GSC and studied palaeontology with Mr. Hsu,  
114 specializing in Triassic strata fossils. In 1944, after attending the 20th GSC's Annual Meeting, she  
115 went to western Guizhou to conduct geological surveys. On April 24 of the same year, she was  
116 attacked and killed by bandits near Huangchang, Qinglong County, Guizhou Province, at the age  
117 of 25. Her graduation thesis, "*The Lower Triassic Fauna of Tongzi County, Northern Guizhou*",  
118 named the ostracod fossils in the area for the first time. In 1945, GSC established the Y.S. MA  
119 Science Memorial Award. Seven of the award recipients were later elected as academicians of the  
120 Chinese Academy of Sciences.

### 121 **3. One after another**

122 In early 1929, V.K. Ting (Ting) and Dr. Wong, the two founders of Chinese geology and the two  
123 former directors of GSC, discussed selecting some outstanding young scholars from the GSC to  
124 form a team to conduct geological surveys in the southwestern provinces of China (Zhang and  
125 Shang, 2022). In a letter to his friend Hu Shih (Suh Hu), a famous Chinese scholar, social activist  
126 and diplomat, Ting explained the purpose and significance of this southwestern geological survey  
127 as follows (Hu, 1993): First, to connect the work in Guangxi and Yunnan... To completely solve  
128 all kinds of problems, we must go to Guizhou, which is located at the junction of the two  
129 provinces... The road to Yunnan and Guizhou is the most difficult to travel. Bringing them here to  
130 set an example and temper they can serve as models for future generations. The selected people  
131 included H.C. T'an, Y.T. Chao, deputy director of the Palaeontology Laboratory, Y.L. Wang, who  
132 had recently been transferred from Shanxi University, and T.K. Huang and C.Y. Lee, who had  
133 graduated from university less than a year ago. In order to train the geologists in topographic  
134 mapping, Shiying Zeng, who studied surveying and mapping, also accompanied the team to

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<sup>2</sup>The Ostracodile fossils are fossils formed from the calcareous shells of ostracods, which belong to the class Crustacea of the phylum Arthropoda. They are tiny, usually 0.5-2 mm long, with their bodies enclosed in two shells. The shell surfaces are smooth or decorated with reticulations, tubercles, spines, etc. There are approximately 33,000 species.



135 provide guidance. Ting specifically mentioned: "The place we are going to has always been a den  
136 of bandits, not to mention now."



137

138 **Figure 2.** In 1937, T. Fang (left), Shiying Zeng (center), and C.Y. Lee (right) answered questions from  
139 visiting experts from the Museum of Fine Arts, Boston, in front of a sample map of China's topography compiled by  
140 the GCS at a scale of 1:3,000,000 (Zhang and Shang, 2022)

141 Tragically, on November 15th of 1929, Y.T. Chao, while working in the field in Zhaotong, Yunnan,  
142 was murdered by bandits in a village inn.

143 Upon hearing this devastating news, Ting wrote tearfully to his friend Hu Shih: ".....I have not  
144 encountered such a heartbreaking thing since my mother died.....He is exceptionally talented.....  
145 My affection for him and the great hopes I place on him far exceed those for my six brothers. He  
146 is a student who has never been abroad, yet he can give speeches in fluent English and understand  
147 books in German and French. He is only thirty-one years old this year, and his works are already  
148 quite impressive. Where else can we find such a talent?" (Hu, 1993; Zhang and Shang, 2022). Dr.  
149 Wong was equally saddened by Y.T. Chao's untimely death, and had hoped that Zhao would  
150 become the director of GSC. A separate article will be dedicated to introducing Y.T. Chao's life,  
151 achievements, and scientific contributions. This will not be elaborated upon here.

152 From the late 1930s, due to the severe impact of the Japanese invasion of China, GSC had to focus  
153 its fieldwork on the extremely underdeveloped southwestern region of China. At that time, this  
154 area was plagued by extremely poor public security, rife with bandits and robbers who would stop  
155 at nothing to stop them. The remote, deep forests that geologists had to personally venture into  
156 were, in effect, havens, even paradises, for these outlaws. In other words, the places where Chinese  
157 geologists worked were precisely the dens of wolves and tigers. But how could they catch tiger  
158 cubs without venturing into the tiger's den? This was the harsh reality that Chinese geologists of  
159 that era had to face.

160 Due to GSC's enormous influence both domestically and internationally, and the fact that its  
161 founders, Ting and Dr. Wong, had direct access to the highest levels of government, coupled with  
162 their own significant social influence, geologists were often escorted by military and police escorts



163 from various county governments along their field expeditions (Fig. 3), ranging from 2-3 people  
164 to 7-8 people. However, due to funding constraints and/or other complex reasons, some scholars  
165 were unable to obtain adequate protection from local military and police during their field  
166 expeditions.



167

168 **Figure 3.** A group photo of Chinese geologist C. Li (second from right) and others with their guards during a  
169 geological field survey in the 1920s (Zhang and Shang, 2022)

170 In April 1944, fifteen years after Mr. Y.T. Chao was murdered by bandits, a similar tragedy befell  
171 geologists at GSC. This time, three outstanding young geologists were killed. One of them was a  
172 woman, an extremely rare find in the field at the time in China. The other two were Mr. Hsu (Fig.  
173 4), a researcher at GSC, and Mr. Chen, an engineer. This unprecedented tragedy in the history of  
174 modern Chinese science shocked the nation and the public.



175

176 **Figure 4.** The only surviving photograph of T.Y. Hsu (left) during his field geological survey (Ai, 2018)

177 T.Y. Hsu (1908-1944) entered the Department of Foreign Languages and Literature at Fudan  
178 University in 1927, while also studying social sciences. In 1928, he transferred to the Department  
179 of Political Science (Editorial Department of *Geological Review*, 1944; Li, 2020; Liao, 2020). In 1931,  
180 he entered the Department of Geology at the University of Montpellier. After obtaining his master's  
181 degree in the spring of 1935, he conducted research on Cretaceous crustaceans and Carboniferous  
182 coral fossils at the Palaeontology Research Laboratory of the University of Paris, and soon joined



183 the French Geological Society. He returned to China in the summer of 1935, and in November of  
184 the same year, he joined the Palaeontology Research Laboratory of GSC as an associate researcher.  
185 After the outbreak of the War of Resistance against Japan, he moved westward with GSC to  
186 Changsha, and later to Beibei, Chongqing. In 1942, he was promoted to researcher and  
187 concurrently served as the director of the Invertebrate Group of the Palaeontology Research Center.  
188 From the time he joined GSC until his death, he went to the field 21 times in ten years, and  
189 published 29 palaeontology papers in Chinese and foreign languages. In 1940, he received a  
190 research grant from GSC in memory of Mr. Y.T. Chao, and in 1944, he received the second V.K.  
191 Ting Memorial Scholarship from the Academia Sinica. He was only 36 years old when he was  
192 brutally murdered in 1944. By the time of his death, he had completed as many as 74 works in just  
193 nine years, with five more unfinished. In 1949, after identification by Paleontologist Enzhi Mu,  
194 the crinoid fossil discovered by Mr. Hsu in Guanling, Guizhou, China in 1944, the last year of his  
195 life, was named "*Traumatoocrinus hsui Mu*". Mr. Hsu was the founder of Triassic stratigraphy  
196 research in China (Unnamed, 2018). During his Triassic geological survey in Hubei and Southwest  
197 China, he established the biostratigraphic sequence of bivalve biota in China and proposed the  
198 foundational theory of Triassic division and correlation. His book "*Triassic in Southwest Guizhou*",  
199 co-authored with Mr. Chen, systematically expounded the characteristics of Triassic strata in the  
200 region. Before his death, he served as the editor of "*Bulletin of the Geological Society of China*"  
201 and wrote many popular science articles on geology, promoting public understanding of geology.

202 K. Chen (1916-1944, Fig.5) was admitted to the Department of Natural History at Xiangqin  
203 University of Guangdong Province (later renamed Guangdong College of Arts and Sciences) in  
204 1937. He conducted research on the geology of the Lianxian area of Guangdong while he was in  
205 school, and wrote an article entitled "*A General Survey of the Geology along the Lianshan*  
206 *Dazhangling in the Eastern Slope of Lianxian County*" (Li, 2020; Liao, 2020). After graduating in  
207 the summer of 1941, he first joined the Geological Survey of Guangdong and Guangxi Provinces  
208 of China, where he co-authored "*Geological and Mineral Resources of Jiufeng in Lechang*" with  
209 K.S. Mo and Lianjie Liu. His graduation thesis, "*Geology of the Eastern Slope of Lianxian County,*  
210 *Guangdong Province*", was deeply appreciated by the reviewers C.C. Young, a Paleontologist, and  
211 T.K. Huang, a geologist, of GSC, who recommended Chen to work at GSC. K. Chen joined GSC  
212 in September 1942 as an assistant engineer and was promoted to a fifth-level engineer in  
213 September 1943. K. Chen worked with T.Y. Hsu on paleontological research and accompanied  
214 him on investigations of the Triassic geology in southwestern Guizhou. The two co-authored  
215 several papers on the Triassic fossils in Guizhou. Although his specialty was Triassic  
216 palaeontology, Chen also devoted considerable time to mineral resource surveys and wrote and  
217 published reports such as "*A Brief Geological Report on the Xiangxi Coalfield in Zigui County,*  
218 *Hubei*" (*Brief Report of GSC*, No. 19), "*Aluminum Deposits in Yunnan*", and "*Phosphate Deposits*  
219 *in Yunnan*" (*Quarterly Journal of the China Resources Commission*, Vol. 1, No. 2) to support  
220 China's War of Resistance against Japan. Chen himself drew most of the fossils collected by Mr.  
221 Hsu. He was only 28 years old when he was tragically murdered by bandits in 1944.



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**Figure 5.** Hand-drawn portrait of Mr. K. Chen (GSC, 1944)

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225 At the time, Ma, Hsu, and Chen had just attended the 20th GSC's Annual Meeting held in Guiyang  
226 from April 1st to 8th. As arranged by GSC, they were heading to western Guizhou to map a  
227 1:200,000 geological map and conduct paleontological surveys and specimen collection. The three  
228 arrived in Panxian County, Guizhou on April 17th and worked there for three days before arriving  
229 at Yangsongchang in the county on the evening of the 20th to stay overnight. The next day, they  
230 walked 30 kilometers to Guanziyao in Xingzhong Township, Puan County, where they worked for  
231 a day on the 22nd. On the morning of the 23rd, they traveled approximately 13 kilometers to  
232 Wuliping and stayed overnight at the home of the village head, Yongchang Ye. On the 24th, they  
233 planned to travel 30 kilometers from Wuliping towards Maokou, but unfortunately, they were  
234 robbed and killed by bandits near Huangchang in Qinglong County.

#### 235 **4. The course of the tragedy**

236 Subsequent interrogation of the perpetrators revealed the details of the three persons' deaths (Hou,  
237 1944). On the 22nd, while at the market in Guanziyao, the three were inadvertently targeted by a  
238 pair of greedy eyes. This man, named Zhongsan Yi (ZS Yi), lived in Meihuaqing, approximately  
239 1.5 kilometers from Guanziyao. ZS Yi noticed that these three outsiders had "quite a few bags and  
240 used new banknotes for shopping." Seeing the potential for wealth, he conspired with Zhanhong  
241 Long, a notorious bandit from Wuliping, to rob them.

242 At that time in Guizhou Province, small groups of scattered bandits, who were farmers in ordinary  
243 times but would gather to rob travelers, were "everywhere." ZS Yi was such a bandit leader, known  
244 as "Boss" by the other bandits. He had previously served in the army of a local warlord, and was  
245 called "Commander Yi" by the locals. He was also the cousin of Rongqian Yi, a prominent local  
246 figure and the chairman of the Qinglong County Provisional Council. Under ZS Yi's command,  
247 the habitual bandit Zhanhong Long "gathered more than 20 bandits from Puan and Qinglong  
248 counties" and "each took on the roles of spy, lookout, porter, and robbery operative, and waited in  
249 several groups" to prepare for the robbery. Because these small groups of scattered bandits did not



250 have their own firearms, ZS Yi "sent his subordinates overnight to deliver three rifles and two  
251 semi-automatic rifles to each bandit."

252 Although Hsu and his two companions were unaware that they were being targeted by bandits,  
253 they were aware of and wary of the poor security situation in the area. Because of the tragic case  
254 of Y.T. Chao, the former director of the palaeontology research Center of GSC, who was robbed  
255 and murdered by bandits during a field survey in Yunnan in 1929, Hsu inquired about the security  
256 situation in Xingzhong Township from the township head, Shaoqian Yan, while they were staying  
257 there. Before setting off on the 23rd, Hsu specifically requested the township head to send able-  
258 bodied men to accompany and protect them. However, the township head assured them that his  
259 jurisdiction was absolutely safe and that he could take full responsibility, resolutely refusing their  
260 request.

261 Early on the 24th, the three set off from Wuliping to continue their journey. Before departing,  
262 Village Head Yongchang Ye specially hired three porters to carry their luggage and act as guides  
263 to lead the way. Around 11 a.m., guided by bandits disguised as porters, they arrived at a secluded  
264 spot near Huangchang in Qinglong County, about 8 kilometers from Wuliping—an ambush set up  
265 by the bandits. Nine bandits, already lying in wait in the roadside woods, rushed out. Hsu, walking  
266 in front and about 2 meters behind the porters, was suddenly shot by a bandit; the bullet pierced  
267 his waist and abdomen, killing him instantly. Ma and Chen, walking behind, heard the gunshot  
268 and "immediately tried to run away," but were blocked by the bandits who "fired warning shots,  
269 making escape impossible, and were captured." Having succeeded, the bandits dragged Ma and  
270 Chen for more than 10 kilometers, and around 6 p.m., shot Chen and dumped his body in the  
271 Maluhe Forest in Qinglong County. Although Ma righteously warned the bandits, "I am a  
272 university graduate and a government official. You all have sisters. Please kill me, do not defile  
273 me....." The more than ten ferocious bandits ignored her and, utterly devoid of conscience, gang-  
274 raped and murdered Ma. The robbers robbed the three of their belongings, including 53,000 yuan  
275 in cash, luggage, clothes, and geological instruments. Ms. Ma was shot in the back and out of the  
276 chest, while Mr. Chen was shot through both chests and died a gruesome death (Hou. 1944; GSC,  
277 1944).

278 When Hsu was the first to be killed, one of the porters, named Liegou An, fled the scene and  
279 reported the incident to the local headmen and village heads of Qinglong and Puan counties. The  
280 location where Hsu was murdered was only about 10 kilometers from the Datian Township Office  
281 in Qinglong County. If the local headmen and village heads had immediately organized a pursuit,  
282 Ma and Chen might still have been rescued. However, it wasn't until the next day that the local  
283 government sent personnel to investigate.

## 284 **5. This sorrow will last forever**

285 While Hsu and his two companions were conducting field geological surveys in Pu'an and  
286 Qinglong, their colleague, H.Y. Hou, an investigator at GSC, was conducting research on the



287 relationship between plants and soil in nearby Panxian (Hou, 1944). Subsequent events proved  
288 that Hou made unparalleled and enormous contributions in urging the relevant authorities to solve  
289 this major case and in maintaining communication with the GSC leadership in Chongqing, the  
290 wartime temporary capital. To strengthen the handling of the aftermath and prevent Hou from  
291 fighting alone in Guizhou, Y. Hsiung, a GSC's soil scientist from Guizhou, and C.Y. Hsieh, the  
292 director of the Mineral Exploration Bureau and a researcher at GSC, were sent to Guizhou to assist.  
293 Due to space limitations, details will not be elaborated upon.

294 The main culprit, ZS Yi, had been shot and killed on May 12th while resisting arrest during his  
295 escape. Not long after, three more bandits involved in the murder of the three geologists were  
296 killed on the spot, and the remaining thirteen were captured and executed by firing squad in Puan  
297 County on June 4, 1944, after interrogation and verification of the facts.

298 Finally, a fundraising campaign was jointly initiated by renowned Chinese geologists, other  
299 scholars and social elites, etc. The funds were used for the survivors' care of Hsu, Chen, and Ma,  
300 as well as for the education of Hsu's orphans. To permanently commemorate the three scholars  
301 who sacrificed their lives, a portion of the donations was used by GSC to establish the Y.S. Ma  
302 Memorial Prize, the T.Y. Hsu Memorial Prize, and the K. Chen Memorial Prize. The three awards  
303 mentioned above have been reviewed since 1945 and are granted to relevant scholars. The Y.S.  
304 Ma Award is mainly awarded to female geologists, while the K. Chen Award is mainly awarded  
305 to young scholars. These awards ceased to exist after 1949.

306 On June 11, the Geological Society of China and GSC jointly held a memorial service for Ma, Hsu,  
307 and Chen in the auditorium of GSC in Beibei, Chongqing. The venue displayed portraits of the  
308 three (as shown in Fig. 5). More than 200 people attended, including figures in the Nationalist  
309 government's military and political circles, as well as renowned educators and foreign scholars  
310 such as Joseph Needham.

311 With the efforts of all parties, the coffins of the three scientists, Ma, Hsu, and Chen, were  
312 transported to Guiyang. They were buried in Huaxi on June 21, and a monument was erected in  
313 their memory. By the end of June, 24 of the bandits who murdered Ma, Hsu, and Chen had been  
314 apprehended or brought to justice. Dingchang Wu, the chairman of Guizhou Province, and the  
315 county magistrate of the county where the incident occurred resigned in disgrace.

316 On August 5, the Executive Yuan notified the Ministry of Economic Affairs that, "based on the  
317 resolution of the 670 th meeting of this Yuan, we request the National Government to issue an  
318 official commendation and grant T.Y. Hsu 5,000 yuan, and K. Chen and Y.S. Ma 3,000 yuan  
319 each." Soon after, the National Government approved the Executive Yuan's request and officially  
320 issued a commendation order for Ma, Hsu, and Chen:

321 *Order of the Nationalist Government, August 30th, 1944*



322 *The Executive Yuan reports: According to a report from the Ministry of Economic Affairs, three researchers from the*  
323 *Geological Survey of China—T.Y. Hsu, K. Chen, and Y.S. Ma—were dispatched to western Guizhou to investigate*  
324 *geology and mineral resources. They were tragically killed by bandits. The Ministry requests that an official*  
325 *commendation be issued. It is understood that T.Y. Hsu and the others possessed specialized knowledge and performed*  
326 *their duties with courage and bravery. Their deaths in the line of duty are deeply mourned. An official commendation*  
327 *should be issued to show respect and remembrance.*

328 *Chairman: Chiang Kai-shek*

329 *Premier: Chiang Kai-shek*

## 330 **6. Immortal Glory**

331 GSC was founded in Beijing (Peking) in 1913, initially named the Geological Survey Institute of  
332 the Mining Administration Department of the Ministry of Industry and Commerce. Due to repeated  
333 changes in the name of its supervising agency, the institute was successively renamed the  
334 Geological Survey Institute of the Ministry of Agriculture and Commerce, the Geological Survey  
335 Institute of the Ministry of Agriculture and Mining, the Geological Survey Institute of the Ministry  
336 of Industry, and the Geological Survey Institute of the Ministry of Economic Affairs. In 1944, it  
337 was named the Geological Survey of China (GSC) under the Ministry of Economic Affairs. Its  
338 location was moved from Beijing (Peking) to Nanjing in 1935, and during the War of Resistance  
339 against Japan, it was forced to relocate again to Changsha and Chongqing. However, its physical  
340 existence remained uninterrupted. Renowned geologists V.K. Ting, Dr. Wong, T.K. Huang, and  
341 Tsan-Hsbun Yin successively served as directors or acting directors. In 1944, the director was C.Y.  
342 Lee. The institute was praised by Tsai Yuanpei, a prominent contemporary Chinese educator, as  
343 "China's first truly scientific research institution." GSC has made pioneering contributions to many  
344 disciplines, including geology, geography, mineral resources, palaeontology, paleoanthropology,  
345 seismology, soil science, cartography, and archaeology, achieving a series of major scientific  
346 research results with global influence, such as the excavation and research of "Peking Man" at  
347 Zhoukoudian. "In the years before 1949, GSC was a source of great pride for the Chinese people  
348 (Li, 2020)."

349 After the outbreak of the War of Resistance against Japan, Dr. Wong, then director of GSC, twice  
350 published "Letters to Colleagues of GSC," reminding everyone that while scientific truth knows  
351 no borders, scientists have a motherland, and "scientific pursuits should never be used as a pretext  
352 to abandon the nation." He also urged everyone to use their professional knowledge to serve the  
353 war effort, to conduct "rapid and detailed investigations of urgently needed mineral resources, and  
354 to compile illustrated guides."

355 After GSC was forced to relocate with the Nationalist government, scientists not only continued  
356 scientific research and field investigations, but also devoted more energy to geological and mineral  
357 resource surveys in the rear areas, directly contributing to the development of industry and mining  
358 in the rear and to the defense of the country. For example, T.Y. Hsu not only continued his  
359 paleontological research, writing scientific papers and giving academic lectures, but also served as



360 assistant secretary of the Geological Society of China and editor of its journal, participated in the  
361 annual meeting of the Geological Society of China, edited and proofread the "*Journal of the*  
362 *Geological Society of China*", compiled a secondary school natural history textbook (general  
363 geology and geological history section) on behalf of the National Compilation and Translation  
364 Bureau, and actively mentored young scholars.

365 At the memorial service for the three persons on June 11, Dr. Wong delivered a deeply moving  
366 and indignant speech: "I am particularly saddened by two things today. First, 14 percent of our  
367 geological community has died tragically in the line of duty, one after another, yet this has not  
368 received sufficient attention from society. This is truly insufficient to inspire the future. Second,  
369 when someone is killed by bandits, there is little sympathy shown. The deaths of such important  
370 scholars are considered commonplace. While we ourselves should constantly strive to improve,  
371 the local authorities should also feel ashamed." Dr. Wong even likened Chinese science to the dark  
372 ages of the 16th century: "Today is like the 16th century; scientists must make continuous  
373 sacrifices to break through the darkness."

374 On the other hand, within his authority, Dr. Wong secured as much financial compensation as  
375 possible for the families of Hsu and the others. He ultimately increased the original special  
376 allowance of 5,000 yuan for T.Y. Hsu and 3,000 yuan each for K. Chen and Y.S. Ma tenfold, thus  
377 achieving the effect of "comforting the dead and comforting himself."

378 Following the murder of the three young geologists, major newspapers and other news media  
379 reported and mourned their deaths. Even after the change of regime in mainland China, and  
380 especially after the Reform and Opening Up, numerous articles and books continue to express deep  
381 remembrance and mourning.

382 Since the establishment of GSC, many outstanding geologists have made significant contributions.  
383 Among them, many Chinese geologists who died young are particularly regrettable and will  
384 forever live in people's hearts. They are Y.T. Chao, S. Chu, Y.S. Chi, T.Y. Hsu, K. Chen, Y.S. Ma,  
385 and the founder V.K. Ting, among others.

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