Jiuchen Zhang

Professor
Institute of the History of Natural Sciences
Chinese Academy of Sciences
Beijing, China
e-mail: zjc@ihns.ac.cn

Sino-Soviet Cooperation in Natural Resources Surveys: Interactions between the Two Academies

The Chinese Academy of Sciences (CAS) started the natural resources surveys during the heyday of "Learning from the Soviet Union" campaign in China in the 1950s. Therefore, the CAS entered into extensive collaborations with its Soviet counterpart, the Soviet Academy of Sciences (SAS), in the planning and organizing of these surveys. This paper aims to illustrate the role of Soviet scientists in China and the impact of Sino-Soviet scientific cooperation in this period through a detailed examination of the joint natural resources surveys undertaken by the two academies in 1950s.

Keywords: Natural Resources Surveys, the Academy of Sciences, Sino-Soviet Cooperation.

1. "Learning from the Soviets" and Sino-Soviet Cooperation in Natural Resources Surveys

1.1. The Origins of the Cooperation between the Two Academies

The policy of "Learning from the Soviet Union" was established soon after the People's Republic of China was founded. During this movement, the USSR's experiences in organizing scientific research became the model in China. Chinese scientists thought that learning from the Soviet Union could avoid the roundabout course in their research.[1]

Following the model of the USSR, the Chinese government established the Chinese Academy of Sciences in 1949. In 1953, CAS sent its first delegation to the USSR to learn how to organize and lead the research work.[2] In 1955, a delegation of the Soviet Academy of Sciences visited China, which played an important role in promoting the cooperation between the two academies. From then on, exchange visits and cooperative research increased markedly.

A major part of the cooperation between two academies was outright Soviet scientific and technological assistance to China. For example, in the Sino-Soviet scientific cooperation agreement for1958 to 1962 signed in 1958, there were 92 collaborative projects, and 50 of them were in the nature of Soviet assistance, which covered some new scientific and technological areas urgently needed in China, such as the research on semiconductors, computing technology, organic compounds, rare elements and petrochemistry. The other 42 items were either suggested by Soviet scientists, such as projects in the areas of philosophy, economy, history, ethnology, and literature, or based on mutual benefits, which covered astronomy, chemistry, biology, geo-science, and natural resources surveys.

[1] Zhongguo kexueyuan guanyu fangsu daibiaotuan de gongzuo baogao (The report of a delegation of the Chinese Academy of Sciences to the Soviet Union) // Xuexi Sulian de xianjin kexue (learning advanced science from the Soviet Union) (Beijing: Science Press, 1954). P 1–8.

[2] *Guo Muoruo*. Preface // Xuexi Sulian de xianjin kexue. P. 1–4.

1.2. General Situation on the Cooperation in Natural Resources Surveys

As the People's Republic of China launched large-scale economic construction in the early 1950s, it became very important to find out as soon as possible the distribution of natural resources for agriculture in the country. Therefore, the Chinese government began to organize natural resources surveys even though there was a severe shortage of technical manpower and material resources for such undertakings.

One of the first tasks the Chinese scholars faced in starting these surveys was to look for a model on how to conduct them. For this they naturally looked to the Soviet experiences. In general, Chinese scholars thought that scientific planning, tight organizing, and collectivist spirit were the foundation of successful of large scale surveys in the Soviet Union. On the other hand, some researchers hoped that collaboration with Soviet scientists would bring additional benefits, such as the possibility of an expansion of research activities and enhanced prestige of the projects being undertaken.[3] Therefore, Soviet scientists were welcomed in most of survey teams.

Soviet scientists played different roles as the progress and the contents of the survey varied. For example, Soviet geologists, agronomists, and geomorphologists were interested in loess survey as Chinese Loess Altiplano is the typical integrated loess in the world. But when they joined in 1957 in the survey team on water conservancy and soil erosion prevention in the middle reach of the Yellow River, the Chinese scientists had already finished their fieldwork. To meet the needs of the Soviet scientists, the CAS then arranged for 60 Chinese scientists to accompany 6 Soviet counterparts to do the same fieldwork.[4] This kind of cooperation had helped Soviet scientists to collect scientific data, but it's useless for Chinese scientific research. Another example is the survey on tropic biological resources. As Soviet scientists were not familiar with the research of tropic biological resources, "they did not play a very active role in the survey"[5] as Chinese scholar concluded. In contrast, in research fields where Soviet scientists had done the research, such as the integrated survey in Xinjiang, integrated survey on harnessing the desert, and integrated survey in Heilongjiang River valley, Soviet scientists were able to provide a great deal of assistance to their Chinese counterparts.

From 1956 to 1960, each large survey team of the CAS invited Soviet scientists to take part in the fieldwork and some of them were conducted as formal cooperative projects of the two academies (table 1). Generally speaking, the cooperation of the two academies was on a mutually beneficial basis.

---

[3] *Gu Zhun Zishu*. Gu Zhun's memoirs. Beijing: Chinese Youth Press, 2000. P. 236.

[4] *Zhou Hang*. Zhongsu kexuejia hezuo kaocha Huanghe zhongyou shuitubaochi gongzuo (cooperation on the survey of water conservancy and prevention of soil erosion in the middle reach of the Yellow River) // Kexue Tongbao (science bulletin). 1957. № 17. September, 12. P. 540.

[5] *Zhu Kezhen*. Zhongguo kexueyuan zonghe kaocha gongzuo de xianzhuang ji jidai jiejue de wenti (the current status of and the urgent problems facing the integrated surveys of the Chinese Academy of Sciences) // Zhongguo kexueyuan nianbao. 1957. Annual bulletin of the Chinese Academy of Sciences for 1957. Beijing: Chinese Academy of Sciences, 1958. P. 197–200; reprinted in Zhu Kezhen // Zhu Kezhen quanji (the completed works of Coching Chu). Vol. 3. Shanghai: Shanghai Scientific and Technological Education Press, 2004. (hereafter Zhu Kezhen quanji). P. 360–363.

Table 1

Subjects and person-time of Soviet scientists in China in 1958[6]

The name of the team	Total	Land layout	Physical geography	Physiognomy	Geobotany	Hydrogeology	Agrology	Geology	Hydrology	Forestry	Irrigation works	Chemistry	Glaciology	Biology	Distribution of productive forces
Yellow River Team	6	1	1	1		1	1				1				
Xinjiang Team	11		1	1	1	2	3	1	1		1				
Heilongjiang Team	60?														
Yunnan Team	4			1	1		1							1	
Gansu-Qinghai Team	5–6		1					1–2		1			1		1
Qaidam Basin Team	3					1						2			

2. Three Kinds of Cooperation

2.1. Integrated Survey of Tropic Biological Resources

In the early 1950s, southern China was the only large tropical areas in the socialist world. Therefore, there was not only the economic value but also strategic/political value in exploiting its tropical biological resources. In fact, it was in response to a special request from the Soviet requirement that the Chinese government initiated a large-scale project on the utilization of tropical resources in southern China, including integrated surveys on tropical biological resources conducted by the CAS with participation of Soviet scientists.

Lac was one of the important tropical biological resources. Both China and USSR needed to import lac from the expensive international market. In March 1953, the SAS sent a delegation to China and cooperated with the CAS to survey for lac resources for about a half year. This was the first time that the two academies cooperated in natural resources surveys. According to Zhu Kenzhen, the vice president of the CAS, Soviet scientists made a deep impression on their Chinese colleagues about their effective deployment of Marxist dialectic materialist viewpoints in their research during this survey.[7]

In 1955, the USSR asked for about 3,000 to 5,000 tons of lac import from China.[8] Clearly, lac became a main focus in tropic biological resources surveys in this period. Not

[6] The Archives of the CAS: Z374-23.

[7] *Zhu Kezhen*. Zai huansong sulian kexueyuan zijiao diaochatuan yanhuishang de zhici (address at the sending-off banquet for the SAS' lac survey team) // Zhu Kezhen quanji the completed works of Coching Chu. Vol. 3. Shanghai: Shanghai Scientific and Technological Education Press, 2004 (hereafter Zhu Kezhen quanji). P. 137.

[8] Zhongguo sulian kexueyuan zijiao gongzuodui gongzuobaogao (the report of Sino-Soviet workteam of lac) // Zhongguokexueyuan nianbao: Annals of the CAS of 1955 / ed. by the CAS secretariate, 1956.

all Chinese scientists agreed with this emphasis on lac. Zhu Kezhen, for example, wrote in his diary that "from my own point of view, Sino-Soviet cooperation should be all-around cooperation on tropic biological resources surveys instead of focusing only on lac. Some researches were more important than lac, such as animal and plant distribution, rubber and coffee".[9]

Indeed, rubber was an important tropical biological resource both in economy and national defense. In the summer of 1952 a Chinese delegation visited Moscow and signed a series of agreements with the USSR. Most of the agreements were in the nature of Soviet technical and economic aid to China, but some agreements were meant as Chinese rewards for Soviet assistance. Planting rubber trees in southern China was one such agreement because of the severe shortage of rubber in the Soviet Union due to the embargo by the west. Of course, rubber was also very important to the national economic construction in China. Thus China agreed to undertake a large-scale rubber plantation project in order to meet the Soviet and Chinese needs for rubber. Therefore, planting rubber trees became the second largest program during Chinese first five-year-plan (1953–1957).

Responding to the government's request and in accordance with the Sino-Soviet cooperation agreements, the CAS organized an "integrated survey team for tropic biological resources in Yunnan Province" in 1953, whose main task was to survey the feasible places for planting rubber trees. There were dozens of institutes and hundreds of scientists involved. In 1955, the SAS sent a seven-scientist delegation to China. Soviet scientists not only took part in the survey, but also gave 15 lectures during the 5 months they were in China, which covered topics in zoology, botany, entomology, and meteorology.[10]

During the survey, scientists found out that rubber plantation had proceeded on a massive scale even before detailed surveys and planning were conducted, causing serious environmental problems such as soil erosion and plantation failures. The scientists carried out research and gave local governments and the plantation authority advice on rubber plantation and environmental protection. It included suggestions on how to prevent damage from the wind, droughts and cold waves, on the need to forbid the burning of the grass on wilderness lands, on the responsible and optimal use of fertilizers. At the end of the survey, they also gave a formal report to the central government on these matters. But unfortunately few of these reports were taken seriously and the problems worsened as time went on. Rubber trees couldn't grow because of the cold local weather that was not taken into considerations, vegetation was destroyed in large area, and some land was turned into desert after reclamation. Lasting the end, nearly 333km^2 of rubber plantation had to be given up.

In early 1957, Zhu Kezhen led a survey team to south of China to survey tropical biological resources. In his team there were seven Soviet scientists who were experts in forestry, agrology, biology etc. and about a dozen Chinese scientists who were the experts in geography, economy, forestry, biology, forestry, agrology etc. The most prominent among them was Academician Vladimir N. Sukachev, director of the Soviet Academy's Forestry

[9] *Zhu Kezhen*. Zhu Kezhen riji (Zhu Kezhen's diary). Beijing: Science Press, 1989 (hereafter Zhu Kezhen riji). Vol. 3. P. 703.

[10] Zhongguo-Sulian kexueyuan zijiao gongzuodui gongzuobaogao (The report of lac survey team of CAS and SAS) // Zhongguo kexueyuan shiliao huibian (Data collection of Chinese Academy of Science in 1955) / ed. by Wang Zhongjun. Printed by the Office of the Committee on the Collection of Materials and Studies on the History of the CAS, 1995. P. 200–203; and the Archive of the CAS (zhongguo kexueyuan danganguan): Z374-7.

Institute, who had bravely opposed Lysenkoism in 1950s.[11] Even though the Soviet scientists could not provide many useful suggestions on rubber plantation due to unfamiliarity with the plant and the tropical environment, they, especially V. N. Sukachev helped introduce the concept of ecology to their Chinese colleagues which in turn helped Chinese scientists to examine the problems caused by the mismanaged rubber plantation and propose solutions from a holistic point of view.[12]

The problems with rubber plantation were not only from the natural conditions and mismanagement, but also from changing international political environment. While the reclamation met the trouble in China, international restrictions on rubber trade had eased up by the late 1950s. Soviet Union was now able to buy rubber from the international market. Therefore, the Sino-Soviet agreement on exploring rubber resources was no longer enforced. Even though China did eventually develop a successful rubber plantation in southern China, it paid a dear price in terms of resources wasted and environment damaged. For the Chinese scientists involved, the experiences provided a lesson in how international scientific collaboration was not only shaped by practical needs and environmental restrictions but also unpredictable domestic and international politics.

2.2. Integrated Survey in Xinjiang

In May 1956 the Integrated Survey Team in Xinjiang, which was also one of the cooperative projects between the two academies, was founded.

Xinjiang has many subjects for valuable survey and research, such as continental petroleum stratum, landform formation in drought areas, surface and underground water replenishment, alkali-saline soil meliorating, and vegetation evolvement in drought areas. Soviet scientists had rich experiences in this research field. As early as 1935, they had done some research on the geography, hydrography and climatology in Xinjiang. And Soviet scientists had done many researches in drought area in USSR.

When the Xinjiang team was founded, the scientists paid more attention to collecting scientific data. Scientists from different research fields were involved in the team, such as physiognomy, climatology, hydrography, geology, agrology, botany, zoology, entomology, agronomy, economy, etc.

During the first two years, most of the subgroup had paid more attention on collecting scientific data and doing scientific research instead of doing research for serving economic construction. This kind of approach was criticized by the Soviet experts soon. In October 1957, a CAS delegation went to Moscow to get Soviet advice on the CAS' scientific long-term plan, including its integrated survey of Xinjiang. The SAS organized a committee with 16 experts to discuss the plan on the survey. The committee pointed out that the plan had no clear aim and provided no clear relevance to local economical construction.[13]

To follow up on the Soviet experts' suggestions, the Xinjiang team began to establish groups according to specific assignments for serving the local economic construction. This

[11] *Charles H. Smith*. Sukachev, Vladimir Nikolaevich, accessed in February 2009 at: http://www.wku.edu/~smithch/chronob/SUKA1880.htm.

[12] Zhu Kezhen diary entries for March 5 and 6, 1957 // Zhu Kezhen. Zhu Kezhen riji. Vol. 4. P. 25–26.

[13] *Zhu Kezhen*. Canjia 1957 nian zhongguo kexuejishu fangsu daibiaotuan de baogao (the report of the Chinese science and technology delegation to the USSR in 1957) // Zhu Kezhen quanji, Vol. 3. P. 444–449.

kind of group had clear task and could correspond easily to the needs of the local government. But some research fields were not amenable to such an approach because they had no direct relations with economic construction.[14]

From 1957 onward, Soviet scientists began to join the Xinjiang team as it became a cooperative program of the two academies (table 2). They helped the team to make the survey plan, answered questions during the fieldwork and solved the problems during the work.

Table 2

Soviet scientists in the Xinjiang team[15]

Year	1957	1958	1959	1960
Person's number	8	10	11	6

During the fieldwork, Soviet scientists found out that the salinization of soil was serious in lands reclaimed for agriculture. Therefore, solving this problem became the major work in 1958. And a Soviet expert on ameliorating saline soil was invited by the team and came to China soon. Soviet scientists also gave a training course in ameliorating saline soil, which had 150 Chinese young scientists attending.

During the fieldwork in Xinjiang, Soviet scientists trained many young Chinese scientists through answering their question during fieldwork, holding symposiums, giving lectures, etc. There were many academic exchanges during the fieldwork. Sino-Soviet scientists also worked together to publish summaries of their fieldwork.

2.3. Integrated Survey in Heilongjiang River Valley

The Sino-Soviet collaboration on the integrated survey in the Heilongjiang River (Amor River) valley is the largest cooperative projects between the two academies.

In the 1950s, the branch of Heilongjiang on the Soviet side often caused flooding and serious damage. Therefore, the SAS decided to survey around the valley for building reservoir. The survey needed the cooperation of the Chinese side. In early 1956, the SAS sent a letter to the CAS proposing a cooperative survey of the Heilongjiang with water conservancy in mind.

The CAS reacted positively. Chinese scientists lacked the experience in conducting an integrated survey of a river valley. So they regarded this as a good opportunity to learn from Soviet scientists.

The Chinese government also reacted positively to the idea of a joint survey of the Heilongjiang by the two academies, but it was cautious on the specific contents of the survey. The Heilongjiang valley was a disputed area of Sino-Soviet border and this problem hadn't been solved at that time. But neither China nor the Soviet Union wanted to raise the issue of the border problem at that time due to their close political relationship and the massive Soviet assistance to China.

---

[14] "Zonghe kaocha weiyuanhui ge kaochadui dierge wunianjihua shiqi de kaocha renwu he zhuyao baozhengcuoshi ji wenti" (main tasks, measures and problems of the survey teams of the Chinese Integrated Surveys Commission during the period of the second five year plan), available from the Reference Room at the CAS Institute of Geographical Sciences and Natural Resources.

[15] The Archives of the CAS: Z374-52.

Chinese Vice Premier Li Fuchun held a meeting with CAS leaders in June 1956 to discuss the proposed cooperation. He told the Chinese scientists that this cooperation in the Heilongjiang valley should be limited to just the survey during the first five-year-plan (1953–1958), that any step beyond that, such as the exploitation and development of this area should be left for the third or forth five-year-plans. Premier Zhou Enlai also indicated that Chinese scientists' task was to survey the resources, to learn from the Soviet scientists, and to train young scientists. The cooperation on exploitation shouldn't be discussed during this phase of the cooperation.[16]

In May and June 1956, the two academies carried out extensive discussion on the schedule, contents, and the method of cooperation on Heilongjiang. In August, the Sino-Soviet cooperation treaty was signed, and at the same time, the CAS established the Integrated Survey Team of Heilongjiang Valley and sent Chinese scientists there in several groups.

There were five component groups of the team and each group had a Chinese and a Soviet leader. On the Soviet side, there were more than ten institutes and more than 100 scientists involved in the survey. Most of them were senior scientists and among them there were some famous scientists, including four academicians. But on the Chinese side, although there were about 100 to 200 scientists who took part in the survey each year, most of them were young scientists. This is because that the CAS just wanted to get more experience on the river survey and train its scientists[17].

There were five groups of the team in the early phase of the survey: economics, water conservancy, transportation, geology and geography, and agriculture. Because it had no immediate plans for development in the region, the Chinese government canceled the economics group and water conservancy group in 1957.[18] But the Soviet side paid much attention to economical developments in the region, including especially the prospect of irrigation works. Therefore, the SAS insisted that economical studies be an important part of the joint undertaking. As the SAS had sent several economists to the team, the Chinese side agreed to revive the economics group and water conservancy group for the sake of maintaining Sino-Soviet friendship.

One of the central objectives of the economics group and water conservancy group was to choose the place for reservoirs, which turned out to be controversial. Taipinggou was one of the examples. Technically, Taipinggou was considered a perfect place for building the reservoir, but it would result in the flooding of a large area of agricultural land on the Soviet side and thus was opposed by the Soviet leader of the survey team. To prevent it from evolving into a political problem, the State Council of China instructed the Chinese scientists in 1957 that they not raise the issue with the Soviet scientists formally.[19] Nevertheless, the issue still stirred up fierce debates between the Chinese and Soviet leaders during the survey.[20] Later the dispute faded away when the general Sino-Soviet political relationship was broken in 1960.

---

[16] *Yuan Zigong.* Heilongjiang liuyu zonghekaocha wangshilu (past events of the integrated surveys in the Heilongjiang Valley) // Yuanshi ziliao yu yanjiu (materials and research on the history of the Chinese Academy of Sciences). 2001. № 6. P. 1–23.

[17] The Archives of the CAS: Z374-43.

[18] Zhu Kezhen riji, (Diary of Zhu Kezhen). Vol. 4. Science Press, 1989, P. 48.

[19] Zhu Kezhen. Guanyu canjia zhongsu zonghedui kaocha heilongjiang zuoyouan zhongsudiqu de baogao (On the report of participation in the survey team along the riversides of Heilongjiang) // Zhu Kezhen Quanji. Vol. 3. P. 383.

[20] Gu Zhun talked about it in Gu Zhun Zishu and Fan Hongye had a detailed description of the incident // Zhukezhen riji li de Gu Zhun (Gu Zhun in Zhu Kezhen's diary). Nanfang zhoumo (Southern Weekend). 2004. December 2.

According to the 1956 treaty, a joint academic committee was founded to organize the survey, unify the methods, inspect the fieldwork, and review the resultant reports. The committee also planned to organize academic conferences on the subject at the pace of once a year, to be held in Moscow or Beijing.

In 1960, the fieldwork phase of the cooperation was completed and the two academies would hold the last academic conference in October 1960 in Beijing. But at this time the political relationship between the two governments had worsened. Therefore, holding of the last conference was in doubt. The leaders of the SAS suggested that the conference be postponed with the reason that the reports couldn't be finished.

Finally, the conference was held in April 1962 in Beijing. This was the first joint academic conference between the two academies after the two countries' relation soured. Therefore the two governments paid great attention on it. The Soviet ambassador attended the conference and Chinese Premier Zhou Enlai made a gesture of formally receiving the Soviet guests after the conference in the Great Hall of the People in Beijing. Thus, because of the special political circumstances, the conference became a showcase to demonstrate the diminishing friendship between the two countries and the achievements of the cooperation. It was perhaps successful in politics, but it did not help resolve the many academic questions raised during the survey.

3. The Influence of the Sino-Soviet Cooperation and Its Evaluation

Although Sino-Soviet ties worsened in early 1960s, the Chinese government and scientists gave high appraisal to the contributions of Soviet scientists who had worked in China. In August 1960, the Chinese State Council sent out a notice to government officials, which said that "we should affirm that most of the Soviet experts had given Chinese construction a great help and they were friendly. We should affirm their contributions and our mutual friendship."[21] The CAS also sent out an emergency notice and asked its institutes to have every thing well arranged for the Soviet scientists who were on their way home.[22]

During the cooperation, Sino-Soviet scientists had built ties of friendship. When they heard the bad news of the recall of their Soviet colleagues, many Chinese scientists were shocked and many Soviet scientists were not willing to withdraw.[23]

In the research field of natural resources surveys, most of the fieldwork had already finished when the two countries' ties broke. But the research work based on the data collected during the fieldwork was just beginning. Therefore, instead of cooperative research, the scientists did their research separately.

On the Soviet side, the scientists had by the early 1960s finished their survey reports during the last 3 or 4 years. They would have liked to get the permission to use the data of the survey in China and wanted to get more information from the Chinese side. Some scientists even hoped that their reports could be published in China. When faced with such requests, the CAS asked the State Council for instructions. Afterwards, the CAS replied to the Soviet officially that the CAS had no obligation to give any advice or data on their inquiries, but it would send Soviet academic reports to Chinese scientists for feedback and suggestions. But

[21] The Archives of the Ministry of Foreign Affairs, Beijing: 109 00927 01.

[22] The Archives of the CAS: Z374-77.

[23] Zhu Kezhen riji. Vol. 4. P. 460.

at the same time, the CAS told Chinese scientists involved that their responses to the Soviet inquiries should depend on the political attitudes of the scientists in questions and contents of their reports and that they did not need to reply in every case. The only exception to this cooperative gesture was the reports on the survey of Xinjiang. Because some reports touched upon the border problem, the CAS refused the requests of Soviet scientists to use the Chinese data from the surveys in Xinjiang in their publications for fear that such use would imply acceptance of their conclusions.[24]

On the Chinese side, scientists eventually finished their survey reports independently. But because of the worsening political relations between the two countries, the contributions of the Soviet scientists to the surveys were cut out in their reports. Of course, the drafts of those reports completed before 1960 had given Soviet scientists high praises, but most of these reports were not published later. Therefore, for a long time in China people had little knowledge about what the Soviet scientists did in these important surveys. Only recently, along with the opening of various archives to the public have we been able to research and evaluate the extent and evolution of Sino-Soviet scientific cooperation in natural resource surveys.

When the CAS began to organize the surveys, Chinese scientists lacked the experiences in this research field. During the cooperation, Soviet scientists helped their Chinese counterparts to make the fieldwork plan and solve problems. Perhaps the most important contribution of the Soviet scientists was the training of young Chinese scientists. Besides working with young Chinese scientists in the field, Soviet scientists also trained them through courses, lectures, and scientific reports. According to Chinese statistics, during the Heilongjiang Valley Survey, Soviet scientists helped train more than 300 young scientists, and half of them were able to carry out survey work independently afterwards during the four years of cooperation.[25] Comparing with sending students to the USSR, this kind of training benefited more young Chinese scientists, required lower financial support, and was very effective.

The integrated surveying of natural resources was one of the important areas of Sino-Soviet cooperation in the 1950s. Studying this history, we can see the many connections between scientific advances, political developments, the international environment, and the shifting ties between the two countries which in turn exerted a great influence on the scientific cooperation between the two academies. Perhaps this review of the past experience will be useful for both the scientists and policy-makers involved in current and future international scientific cooperation between China and Russia and other countries.

I express my thanks to Professor Wang Zuoyue for his helpful suggestions and his assistance in the preparation and revision of the English edition of this paper.

[24] The Archives of the CAS: Z374-137.

[25] Zhu Kezhen riji. Vol. 4. P. 441.