

Archaeological Research in the Ili Region: A Review



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ABSTRACT

Archaeological research conducted in the Ili River Valley over the last century has revealed that the region was a crossroads in an early system of exchange throughout Eurasia. Relationships have been shown between findings in the area with the Andronovo (ca. 1900–1200 B.C.) and Saka (ca. first millennium B.C.) cultures from the prehistoric Bronze Age (ca. 1500–1000 B.C.) and Early Iron Age (ca. 1000–300 B.C.), respectively. The region has been intensively excavated by Chinese archaeologists in recent decades and an increasing number of cultural and spatial-temporal frameworks have been put forward to organize the Bronze Age and Early Iron Age finds since the late 1970s. A growing body of research has also addressed cultural change and contact. These studies and related debates are almost unknown to international scholars and need to be evaluated in greater detail. This article surveys the archaeological evidence and critically reviews the main data from Chinese research. In discussing the development of archaeology in the Ili region, the article provides a deeper understanding of the current state of research in Northwest China and a solid backdrop against which further studies can be conducted. Pointing out some of the main unsolved questions and obscure areas yet to be addressed, the article suggests future directions for research. **KEYWORDS:** Ili Valley, Xinjiang prehistory, Xinjiang archaeology.

INTRODUCTION

ARCHAEOLOGICAL EXCAVATIONS CONDUCTED IN THE ILI RIVER VALLEY over the last century have shown that the region was a hub of early interaction in East Central Eurasia since prehistoric times. An increasing number of scholars worldwide have stressed the importance of the Ili Valley for understanding the influence and spread of the Andronovo (ca. 1900–1200 B.C.) and Saka (ca. first millennium B.C.) cultures into the region during the local Bronze Age (ca. 1500–1000 B.C.) and Early Iron Age (ca. 1000–200 B.C.), respectively (Dupuy 2016; Kuz'mina and Mallory 2007; Mei 2000; Mei and Shell 1999).¹ As will become clear from the discussion below, the current state of understanding the prehistory of the Ili region stresses the importance of these two cultural traditions, but archaeologists have also increasingly emphasized the local character of the archaeological material.

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Although most of the international knowledge about the Ili region is based on English language works (Chen and Hiebert 1995; Debaine 1988, 1989; Jia et al. 2017; Jia et al. 2009; Mei and Shell 1999), these solid studies only represent a limited portion of research that has been conducted in Northwest Xinjiang. Since the first half of the 1900s, the region has been intensively investigated by Chinese archaeologists and they have excavated more than 50 sites (Table 1). Starting in the late 1970s, a considerable number of Chinese scholars have suggested various cultural categories and

TABLE 1. LIST OF REPORTS OF MAIN EXCAVATIONS IN ILI REGION, BY SITE AND COUNTY

SITE NO. IN FIG. 1	SITE	COUNTY	EXCAVATION YEAR(S)	REPORT(S)
23	Nulasai	Nileke		Not published
25	Yuantoushan	Nileke		Not published
	Ili region		1953	Xibei 1953 ^a
	Ili region		1957–1958	Huang W. 1983 ^b
	Ili region		1960	Huang W. 1960 ^c
	Unspecified ^d	Tekesi	1961	Wang Binghua 1962
2	Xiata, Machang, Sa'erhuobu	Zhaosu	1961–1963	Institute of Ethnic Studies 1962
1	Boma	Zhaosu	1976	Mu et al. 1983
20	Aga'ersen	Gongliu	1976	Wang Bo & Cheng 1989
5	Yimuchang	Tekesi	1978	Xinjiang Academy 1985 ^a
13	Zhongyangchang	Xinyuan	1978–1979	Xinjiang Academy 1985 ^b
22	Halatubai	Nileke	1981–1982	Xinjiang Museum 1988
27	Nazituobie	Tekesi	1982	Not published
9	Heishantou	Xinyuan	1982–1984	Not published
11	Qishiyituan	Xinyuan	1982–1984	Xinjiang Museum 1987, 1991
	Yilian Yutang			
	Kuju'er, Miaopu	Nileke	1985	Wang M. 1986
7	Suodunbulake	Chabucha'er	1987–1990	Xinjiang Institute 1988, 1999 ^b
8	Daxigou	Huocheng	1989	Not published
3	Qiafuqihai	Gongliu/Tekesi	2000	Wang Bo 2012
21	Kalasu	Zhaosu	2000	Xinjiang Institute 2002 ^b
	Huji'ertai	Nileke	2001	Not published
15	Jilintai	Nileke	2001	Jilintai 2002
16	Wutulan	Nileke	2001	Liu & Li 2002
17	Qiongkeke	Nileke	2001–2002	Liu & Guan 2002; Liu & Li 2002;
12	Tiemulike	Nileke/Xinyuan	2001–2004	Zhou X. 2004
	Bietebasitao	Nileke	2003	Not published
	Jialekesikayinte	Nileke	2003	Xinjiang Institute, Xibei & Ili 2007, 2011; Zhou X. 2004
	Qirentuohai	Nileke	2003	Xinjiang Institute 2004 ^b
	Yeshenkelieke	Tekesi	2003	Xinjiang Institute & Ili 2005
3	Qiafuqihai	Gongliu	2004	Wang Bo 2012; Xinjiang Institute 2005
4	Shankou Shuiku	Gongliu	2004–2005	Xinjiang Institute 2006 ^b
28	Zeketai	Xinyuan	2005	Li Suyuan 2005
29	Xiaokalasu	Nileke	2007–2007	Xinjiang Institute, Ili Bureau & Nileke 2008

(Continued)

TABLE 1. (Continued)

SITE NO. IN FIG. 1	SITE	COUNTY	EXCAVATION YEAR(S)	REPORT(S)
	Ili region		2008	Xinjiang Bureau 2011 ^c
	Huji’ertaisayi	Nileke	2009	Liu X. 2011
18	Yijidianzhan	Nileke	2009	Xinjiang Institute 2012 ^a
6	Kuokesuhexi cemetery no. 2	Tekesi	2010	Xinjiang Institute 2012 ^c , 2012 ^f
10	Biesituobie	Xinyuan	2010	Xinjiang Institute 2012 ^b
14	Tangbalesayi	Nileke	2010	Xinjiang Institute 2012 ^e
24	Teliekebulake	Nileke	2010	Ruan 2011
24	Tielekesayi	Nileke	2010	Xinjiang Institute 2012 ^g
	Bakaleke	Tekesi	2011	Liu X. 2011
	Junmayichang Yilian	Tekesi	2011	Liu X. 2011
	Senmutasi	Zhaosu	2011	Liu X. 2011
	Ayousai Goukou	Xinyuan	2012	Xinjiang Institute 2013 ^a , 2013 ^b
	Jiaga	Xinyuan	2012	Xinjiang Institute 2017
	Kala’aoyi	Xinyuan	2012	Xinjiang Institute 2013 ^b
	Basikalasuxi	Zhaosu	2013	Xinjiang Institute 2014 ^e
	Duo’erbuji	Nileke	2013	Xinjiang Institute 2014 ^d
16	Wutulan	Nileke	2013	Xinjiang Institute 2014 ^a , 2014 ^b
26	Qialege’er	Nileke	2013	Xinjiang Institute 2014 ^c
	Biesikalagai	Zhaosu	2014	Xinjiang Institute 2015 ^a
16	Wutulan	Nileke	2014	Xinjiang Institute 2015 ^b
19	Jirentai Goukou	Nileke	2015–2018	Wang Y. & Ruan 2015, 2016; Wang Y. et al. 2019

^a County-based summary of cultural relics recovered during first investigation conducted in the Ili region.
^b Collection of papers, including results of Huang Wenbi’s excavations in Ili River Valley.
^c Results of Huang Wenbi’s extensive archaeological investigation in northwestern Xinjiang at the end of the 1950s.
^d Research conducted on a collection of metals.
^e Launched in Ili Prefecture in 2008, “The Third Immovable Cultural Relics Survey” identified more than 50,000 graves.

spatial-temporal frameworks for the Bronze Age and Early Iron Age remains in the Ili region and discussed ancient interactions with neighboring communities. This research remains almost unknown to international scholarship, however, leaving a significant gap in the field of Eurasian archaeology. This article aims to fill this gap through a survey of the archaeological evidence from the Ili region and critical review of the main studies, discussions, and interpretative models, with a special focus on Chinese research conducted in the past five decades. Research has also been conducted by Russian archaeologists, especially in the eastern Ili Valley region in present-day Kazakhstan (Akishev and Kushaev 1963; Aristov 2001; Ivanov 2018), while Mongolian archaeologists have focused more on the Altai region to the north. These research works are beyond the scope of the present article, however. Table 1 lists the archaeological sites mentioned in this article and in Figure 1 and provides citations to published papers and excavation reports related to each site.

After a brief introduction, a sequence of stages in the evolution of archaeological research in the Ili region is presented in four main sections. We start with the ethnicity-based approach inherited from Soviet archaeology, which remained dominant until the 1990s, then discuss the chronology-oriented studies of the 1990s. The third section tracks the development of a multidisciplinary approach to Xinjiang archaeology as promoted by the Xibu Da Kaifa 西部大开发 [Great Development of the Western Regions] since 2000. Finally, we discuss the recent emergence of new questions and foci of research. By synthesizing the history of the archaeological work done in the Ili region and showing the complexity of prehistoric remains in the area, this article offers a deeper understanding of the current state of research in Northwest China. Pointing out some of the main unsolved questions and lingering issues in the research it furthermore suggests directions for future archaeological work.

Note on Transliteration

Appendix A provides a list of transliterations of geographical, political, and site toponyms as used in this text. Unless otherwise noted, the political place names attached to site names are all counties in the Ili region (Fig. 1). Chinese pinyin transliteration is used for all archaeological sites and most geographical places. Where possible, Uyghur or Kazakh transliterations for geographic and political place names have been provided, but the most popular spelling has been used for well-known geographical places such as Borohoro, Dzungaria, and Ili.

Given the existence of multiple transliterations for names of archaeological sites, this article employs the standards found on official maps. Alternative names sometimes used in old excavation reports are mentioned when necessary. To avoid confusing homonymous sites located in different counties, the county name has been attached as a prefix in a few cases (i.e., Xinyuan Qishiyituan, Zhaosu Qishisituan, Zhaosu Qishiwtutan). A Bronze Age settlement discovered in the village of Kalasu (喀拉苏) in Nileke County is referred to as Xiaokalasu (Xinjiang Institute et al. 2008), which is the site name commonly used by archaeologists to distinguish it from an Early Iron Age cemetery found in another village (in Zhaosu County) with the transliterated name Kalasu (卡拉苏) (Xinjiang Institute 2002b); the latter site name takes no prefix. For an account of the problems concerning names of archaeological sites in Xinjiang, see Jia and Betts (2010:278–279).

Geographical Context

The Ili Valley is a large area covering about 57,000 km². It takes its name from a river that springs from the western stretch of the Tianshan Mountains in Xinjiang. Ili River is fed by three major tributaries (i.e., Gongnaisi, Kashi, Tekesi) and flows westward into present-day Kazakhstan. The Ili River runs for 442 km within China and its basin encompasses a county-level city (Yining) and eight counties (Tekesi, Nileke, Zhaosu, Xinyuan, Chabucha'er, Gongliu, Yining, and Huocheng), all of which are under the jurisdiction of the Ili Kazakh Autonomous Prefecture (Fig. 1A). The Chinese Ili Valley is surrounded by mountains on all sides—the main range of the Tianshan Mountains system to the south and its northern spur (Borohoro Mountains) to the north—except the west, where it opens to the semiarid steppe of modern-day Kazakhstan (Fig. 1B).

Enclosed by the Dzungarian Basin and the rest of Xinjiang, Ili River Valley nevertheless constitutes a relatively independent ecological region characterized by a continental climate with fairly high levels of precipitation (ca. 600–1000 mm annually) and humidity owing to the influence of westerlies. The Ili Valley is characterized by extensive pastures suitable for transhumance, which has been practiced there for millennia (Chen and Hiebert 1995:249). The fertile soil is also favorable for crop cultivation, a practice that can be traced back to the regional Bronze Age, as demonstrated by the discovery of farming tools at various sites (e.g., the spades and sickles at the Aga’ersen site in Gongliu County reported by Wang Bo and Cheng 1989) and recent findings of grain in the settlement at Jirentai Goukou in Nileke County (IA CASS 2019). Around the valley there are large forests, providing wood and a suitable environment for hunting and gathering activities.

Because of its favorable ecology, the Ili Valley has been inhabited since the Palaeolithic period (ca. 100,000–10,000 B.P.). Several Palaeolithic assemblages consisting of fossils, flakes, and a few stone tools have been found in the Nileke, Gongliu, and Zhaosu counties. Examples found at Keqikekusubutai in Nileke were displayed in the “Tianma zhuifeng: Xinjiang Yili caoyuan wenwu he minzu fengqing zhan 天马追风: 新疆伊犁草原文物和民族风情展 [Following the Celestial Horses: Culture and Traditions of the Ili Grassland, Xinjiang]” exhibit at the Xuzhou Museum in Xuzhou City, Jiangsu Province from 30 August through 30 October, 2016.² There are also findings from Shankou Shuiku in Gongliu and Zhaosu Qishiwtutan in Zhaosu (Wang L. 2005:26). The Neolithic period in Xinjiang (ca. 3000–2000 B.C.) is characterized by three types of remains, namely, microliths, polished stone, and pottery (Chen G. 1994:105–106). In the Ili region, the Neolithic is represented by findings in the Jilintai area of Nileke County (Ruan 2004). Jilintai comprises many of the sites discussed in this article, including Qiongkeke, Caiqiaomen, Bietebasitao, Jialekesikayinte, A’kebuzaogou, Sa’erbulake, Qirentuohai, Tiemulike, and Huji’ertaisayi. The Copper Age has rarely been treated as a stand-alone period. Despite severe criticism by senior scholars such as Gryaznov (1969:45–46), the Copper Age is still considered a simple transitional phase between the Stone and Bronze Ages and is usually included in chronologies as the final stage of the Neolithic period (Chen G. 1994:105–108).

Judging from the archaeological evidence, the Ili area was more extensively occupied throughout the Bronze Age and Early Iron Age than any time before. As discussed below, this two-period division was initially suggested by Wang Binghua (1985a), then the chronology was refined by Ruan Qiurong (2004) and Shao Huiqiu (2007a) in the 2000s. Supported by comparative typological analyses and radiocarbon dating results, this framework remains valid to this day. Our current understanding of the prehistory of this region was formed over the course of four phases in archaeological research, each of which is discussed at length below.

THE BEGINNINGS: SOVIET INFLUENCE ON XINJIANG ARCHAEOLOGY

Soon after the establishment of the People’s Republic of China (PRC) in 1949, the Ili region became a focus of interest among archaeologists working in Xinjiang and China more generally. In 1953, the first excavation campaign was launched and the area has been continuously investigated since then (Table 1). In spite of the numerous discoveries made during the ten years of the Cultural Revolution (1966–1976), discussion of the material basically remained at a standstill. Research work gradually

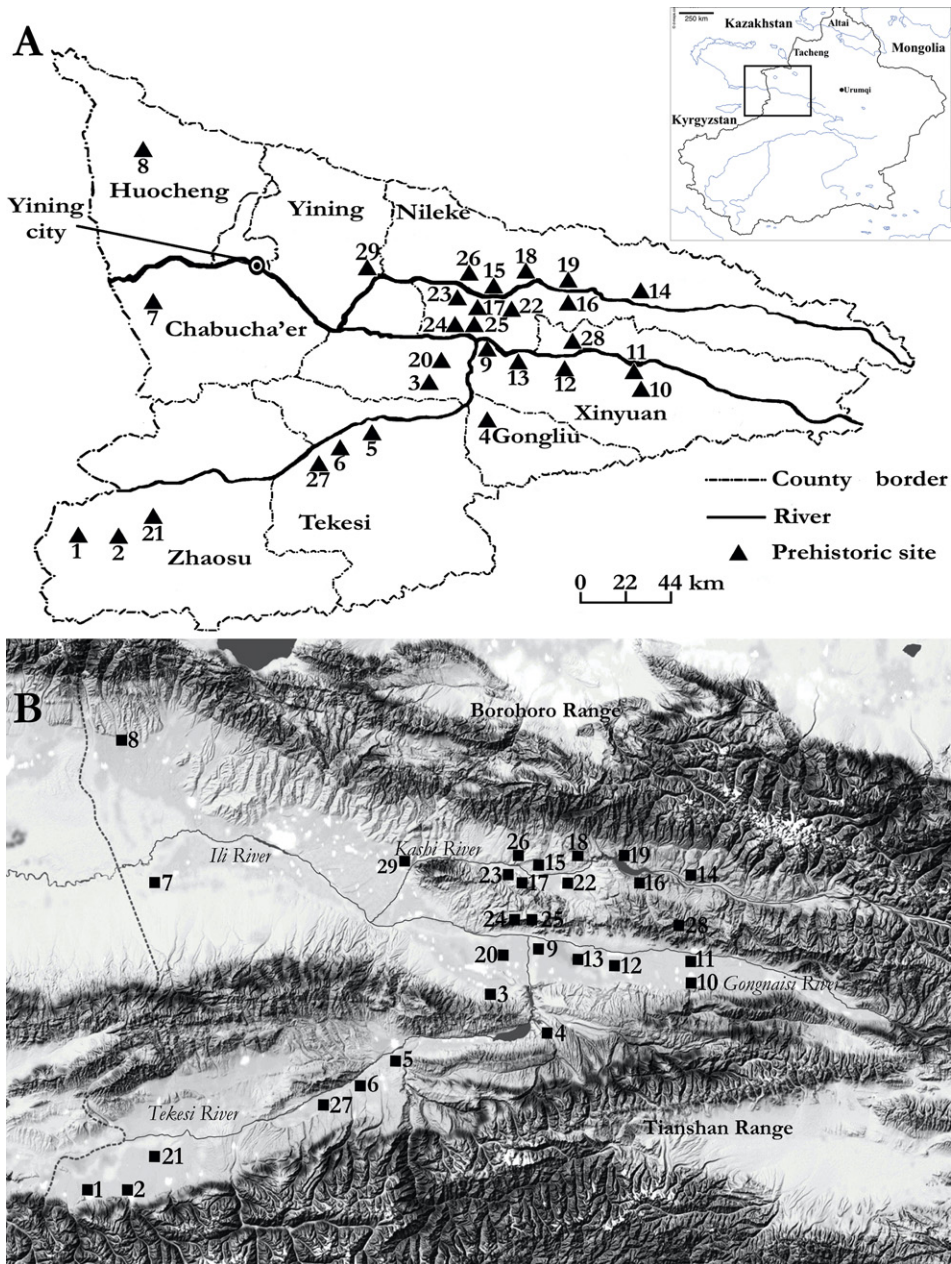


Fig. 1. Maps of the Ili region: (A) political map by county (drawn by Zhang Chi) and (B) physical map (created by Marcella Festa, base map from *Stamen Design*, URL: maps.stamen.com/m2i/#terrain/1500:1000/8/43.602/82.771), with main prehistoric sites marked: (1) Boma; (2) Xiata; (3) Qiafuqihai; (4) Shankou Shuiku; (5) Yimuchang; (6) Kuokexuxi; (7) Suodunbulake; (8) Daxigou; (9) Heishantou; (10) Biesituobie; (11) Yutang; (12) Tiemulike; (13) Zhongyangchang; (14) Tangbalesayi; (15) A'kebuzaogou; (16) Wutulan; (17) Qiongkeke; (18) Yijidianzhan; (19) Jirentai Goukou; (20) Aga'ersen; (21) Kalasu; (22) Halatubai; (23) Nulasai; (24) Teliekebulake and Tielekesayi; (25) Yuantoushan; (26) Qialege'er; (27) Nazituobie; (28) Zeketai; (29) Xiaokalasu (in compliance with PRC regulations, some sites in Xinyuan, Zhaosu, and Nileke counties have not been shown); (upper right inset) Map of Xinjiang (China) (created by Marcella Festa, base map from *d-maps*, URL: d-maps.com/carte.php?num_car=22949&lang=en).

expanded and diversified in the late 1970s and, by the 1980s, Xinjiang archaeologists had begun organizing the material from the newly excavated sites. The material evidence was interpreted in light of the Soviet culture-history model, which still had a great influence on Chinese archaeology (Trigger 2006:211–313; Webster 2008). The Soviet cultural-historical approach accepted the existence of social groups or cultures each with its own distinctive ethnic identity and theories of diffusion and migration were only used with caution to explain cultural change (Trigger 2006:248–277, 326–343). Accordingly, Chinese archaeologists in Xinjiang developed local cultural sequences by organizing the findings into spatially and chronologically defined “cultures” synonymous with ethnic groups. The formation of cultural frameworks and the assignment of the findings were carried out by meticulous typological analysis and classification, combined with the study of textual sources such as the *Hanshu* 汉书 [The Book of Han] and *Shiji* 史记 [Records of the Grand Historian] (Beckwith 2009; Hulsewé and Lowe 1979; Yap 2019).

The lasting impact of Soviet archaeology on Chinese practices, especially in terms of theoretical foundations, methods, and research agendas, was principally due to the relations between the two countries in the 1950s. Under the banner of Sino-Soviet brotherhood, the Soviet Union offered financial assistance and academic support to modernize Chinese research and education. Communist China opened Russian language schools to prepare its people to study and work with their communist ally. This granted Chinese archaeologists access to Russian language texts, which not only included theoretical and methodological works but also excavation reports and the results of material examinations. As a consequence, analysis of archaeological evidence from Xinjiang was mostly conducted by comparison with material from Central Asia and southwestern Siberia. These studies became crucial to the interpretation and cultural attribution of the material finds. A number of pro-Soviet archaeologists that became leading scholars in China, including Su Bingqi (1909–1997) and Xia Nai (1910–1985), promoted the Soviet model among younger generations of scholars even after the Sino-Soviet brotherhood came to an end in the 1960s (Shelach 2004; Zhang Liangren 2011). The Soviet model thus continued to influence Chinese archaeology for several reasons, the first being that some of the fundamental theories and methods through which China developed its own modern archaeology had come from Soviet research. Moreover, the rigid arrangement of the material into “cultures” could be combined with the traditional historiographical and antiquarian Chinese approach, allowing archaeologists to produce chronologies relatively easily (Hein 2016; von Falkenhausen 1993). Finally, the establishment of individual cultural-historical sequences identified with different ethnic groups was in line with a decentralization policy introduced by Deng Xiaoping in the 1980s that granted greater decision-making power to provincial archaeological institutions (Trigger 2006:268).

On the basis of the Soviet model, Chinese archaeologists began to classify the remains from the Boma site in Zhaosu and Halatubai site in Nileke. They were assigned to the ethnically defined Wusun Culture, which was named after a seminomadic steppe population described in ancient Chinese texts as having occupied northwest China from the second century B.C. to fifth century A.D. (Beckwith 2009). The remains from Boma and Halatubai were arranged according to a tripartite relative chronology: early (ca. 200–100 B.C.), middle (100 B.C.–A.D. 100), and late (A.D. 100–200) “Wusun” periods (Xinjiang Museum 1988). This framework set the foundation for a momentous work on Xinjiang archaeology. Published in 1983, “Thirty Years of

Xinjiang Archaeology” provided a systematic overview of Xinjiang archaeological research from the founding of the PRC until 1979 and lay the foundation for a discussion of Ili Valley prehistory (Xinjiang Academy 1983). Most notably, the assignment of the archaeological remains of Ili to Wusun Culture was almost solely based on Soviet research and chapters in the ancient *Hanshu* 汉书 and *Shiji* 史记 texts that mention the Wusun people as inhabitants of the “Western regions” during the Han period (206 B.C.–A.D. 220).³ Other features of the Wusun community, and even its very existence, were of little concern to archaeologists and were barely discussed from an archaeological perspective in China. The research was mostly limited to the cultural attribution of the findings.

The mid-1980s witnessed the emergence of a different view of the prehistory of Xinjiang. Wang Binghua’s (1985a) pioneering article divided the remains into two periods, namely the Bronze Age and Early Iron Age, which he assigned to the years 2000–1000 B.C. and 1000–200 B.C., respectively. Relying mostly on archaeological evidence and, to a significantly lesser extent, on written sources, Wang’s chronological framework was grounded on typological similarities between early sickles and axes from the Aga’ersen, Gongliu site with those from the Andronovo culture in Central Asia. Other artifacts, including a bronze warrior wearing a Scythian-type pointed hat and some cauldrons decorated with zoomorphic motifs from the southern bank of the Gongnaisi River in Xinyuan County, were traced back to an Early Iron Age context and linked to the Saka community by typological comparison (Wang Binghua 1985a:57–58). Wang Binghua also consulted written sources, especially chapter 96 of the *Hanshu*, which described the Saka as ancient inhabitants of the Ili and Chu valleys (Wang Binghua 1985a, 1985b). Wang’s study had the merit of more consistently employing archaeological elements as chronological markers and proposing a more dynamic view of Ili prehistory than had earlier archaeologists. This could have paved the way for a discussion of cultural evolution and allowed comparison within a wider geographical context, but unfortunately his work was mostly overlooked. The Soviet ethnic-based archaeological Wusun Culture model, now integrated with a new, albeit similar, concept of a Saka Culture, continued to dominate debates in Xinjiang archaeology until the 1990s.

Other synthetic works during this phase were built on the Chinese historiographical approach. For example, on the basis of archaeological and written material, Wang Mingzhe and Wang Binghua (1983) tried to establish a chronological framework for the Ili material by linking the Wusun findings from Northwest Xinjiang to the *Hanshu* (especially chapter 96, “Xiyu zhuan 西域传 [Western Regions]”), thus dating the Ili finds to after the second century B.C. In addition, through a review of the Wusun archaeological evidence from Central Asia excavated by the Soviets, they carried out a preliminary comparative study of the Wusun material in different regions.

Further comparative research was conducted on metal objects. Zhang Yuzhong (1985) compared the shape and material composition of metalwork from Central Asia with a wide range of bronzes found in Xinyuan and Zhaosu counties during the Second National Immovable Cultural Relics Survey in the Ili Region (1981–1985).⁴ Relying mostly on Chinese translations of Soviet research that associated the use of bronze with the Saka people and iron with the Wusun people (e.g., Huang and Zhang 1983), Zhang Yuzhong (1985:80) assigned the remains in the Ili region to the Saka. A few years later, he tested his theories by examining earthen mounds excavated at the

sites of Tiemulike, Xinyuan and Suodunbulake, Chabucha'er; he believed their features reflected the Saka tradition of Northwest Xinjiang (Zhang Y. 1989).

The late 1980s witnessed the slow emergence of physical anthropological research in Xinjiang. Two leading scholars, Han Kangxin and Pan Qifeng, concluded that thirteen skulls from the sites of Boma and Xiata (夏塔, a.k.a. Xiatai 夏台) in Zhaosu County featured a mix of what they identified as Europoid (showing western Eurasian features) and Mongolian (showing eastern Eurasian features) traits, which they considered similar to the traits of the Wusun people in Central Asia. Their work supported archaeological theories of the existence of Central Asian groups in the Ili region (Han and Pan 1987).

OPENING CHINA TO THE WORLD

In the 1990s, the opening of China to Euro-American countries and scholarly communities precipitated an inflow of new information, approaches, theories, and methods and led Chinese scholars to discuss prehistoric archaeology from a wider perspective. In the spirit of international cooperation, the meticulous typological study of prehistoric artifacts and chronologies based on ancient written texts were now combined with new methods of analysis, including improved radiocarbon dating (An Z. 1991; Zhou and Chen 2009:91), DNA and molecular genetic analyses (Renfrew 2009:xvii), metallurgical analyses (Wan 2011), and the use of sophisticated computer software for sedimentological, geochemical, and palynological studies (Grimm 1990). This made it possible to compare various material cultures within a more secure chronological framework. Although these technologies were not fully implemented in the Ili River Valley, considerable research improvements were made, notably with the propagation of radiocarbon dating methods and publication of C14 dating results by the Chinese Academy of Social Science in 1991 (IA CASS 1991) (Table 2). The 1990s also witnessed further development of specialized fields including physical anthropology and to a smaller extent archaeometallurgy.

Amid these new developments, Soviet interpretative models and methods ceased to be dominant in Chinese archaeology. In particular, the static concept of a Wusun Culture was gradually replaced by a more dynamic view of Ili Valley prehistory as reflected in the revival of Wang Binghua's (1985a) notions of the Bronze Age and Iron Age. Archaeologists showed a greater interest in identifying distinctive local traits, which then became the main criteria for defining cultures. Sites exhibiting similar "local" features were grouped into a great number of small local cultural frameworks. These local cultures were only broadly analyzed in evolutionary terms; they mostly remained culturally and chronologically fixed entities assigned either to the Bronze or Early Iron Age.

These studies were carried out by way of typological comparison with material from Central Asia that had already been attributed by Soviet and Russian archaeologists to one or another of two periods, that is, the Andronovo or Saka cultures (Festa 2017; Mei 2000:2–6). Lack of clear definition of what could be considered a "local trait" led to major disagreements among scholars over how to classify the remains. It was not easy to attribute any remains to either the Bronze Age or Early Iron Age because neither period had been securely defined chronologically or culturally. These issues were stressed by Wang Binghua (1985a), Chen Ge (1990), and An Zhimin (1991). They argued that difficulties in dealing with Xinjiang prehistory were complex and that any

TABLE 2. RADIOCARBON DATES OF MATERIAL FROM THE ILI REGION

NO. PER FIG. 1	SITE	LAB. NO.	MATERIAL	^{14}C B.P.	SOURCE
1	Boma M2	WB7811	Wood	2220 \pm 80	IA CASS 1991
	Boma M4	WB7803	Wood	2210 \pm 65	
	Boma M5	WB7810	Wood	2060 \pm 80	
2	Xiata M47	WB77-18	Wood	2320 \pm 60	Mei 2000
	Xiata M27	WB78-04	Wood	2150 \pm 65	
6	Kuokesuxi no. 2 M24	BA110434	Wood	3355 \pm 35	Jia et al. 2017
	Kuokesuxi no. 2 M51	BA110436	Wood	3355 \pm 30	
	Kuokesuxi no. 2 M153	BA110439	Wood	3295 \pm 35	
	Kuokesuxi no. 2 M82	BA110444	Wood	3400 \pm 30	
	Kuokesuxi no. 2 2015YTKM53	BA172042	Human bone	3150 \pm 25	
7	Suodunbulake 90M7	BK91062	Wood	2105 \pm 70	Xinjiang Institute 1999b
	Suodunbulake 90M10	BK91063	Wood	2405 \pm 80	
	Suodunbulake 90M33	BK91064	Wood	2295 \pm 70	
10	Biesituobie M1		Wood	2240 \pm 25	Xinjiang Institute 2012b
	Biesituobie M2		Wood	2220 \pm 30	
12	Tiemulike M2	BK82107	Wood	2470 \pm 60	IA CASS 1991
	Tiemulike M4	BK82108	Wood	2140 \pm 60	
14	Tangbalesayi 2016NTM3	USA - 450558	Horse bone	3270 \pm 30	Wang Y. et al. 2019
	Tangbalesayi 2016NTM3	USA - 450559	Human bone	3230 \pm 30	
16	Wutulan 2013YNWM16	BA131544	Human bone	3255 \pm 25	Wang Y. et al. 2019
	Wutulan 2013YNWJ2	BA131547	Wood	3400 \pm 50	
18	Yijidianzhan M8	BA091477	Wood	2195 \pm 35	Xinjiang Institute 2012a
	Yijidianzhan M36	BA091478	Wood	2310 \pm 35	
	Yijidianzhan M15	BA091475	Wood	2445 \pm 35	
	Yijidianzhan M7	BA091474	Wood	2305 \pm 35	
	Yijidianzhan M12	BA091476	Wood	1430 \pm 35	
19	Jirentai Goukou 2018NJY43	USA - 496699	Wood charcoal	4040 \pm 30	Wang Y. et al. 2019

(Continued)

TABLE 2. (Continued)

NO. PER	FIG. I	SITE	LAB. NO.	MATERIAL	¹⁴ C B.P.	SOURCE
		Jirentai Goukou 2018NJY4	USA - 514311	Wood charcoal	3960 ± 30	
		Jirentai Goukou 2018NJY5	USA - 514312	Wood charcoal	3990 ± 30	
		Jirentai Goukou 2018NJH15	USA - 496701	Animal bone	2920 ± 30	
		Jirentai Goukou 2016NJF2	USA - 450555	Animal bone	3300 ± 30	
		Jirentai Goukou 2015NJF33	BA160867	Animal bone	3275 ± 30	
		Jirentai Goukou 2015NJF53	BA160863	Animal bone	3185 ± 30	
		Jirentai Goukou 2015NJF63	BA160871	Caprid bone	3250 ± 30	
		Jirentai Goukou 2015NJH26	BA160864	Animal bone	3285 ± 30	
		Jirentai Goukou 2018NJF2510	USA - 513858	Animal bone	3260 ± 30	
		Jirentai Goukou 2018NJF27	USA - 513859	Carbonized seed	3120 ± 30	
		Jirentai Goukou 2015NJM49	BA160883	Human bone	2935 ± 20	
		Jirentai Goukou 2015NJM75	BA160892	Human bone	2950 ± 25	
		Jirentai Goukou, eastern wall no. 2 of tower	USA - 513857	Animal bone	3270 ± 30	
21		Kalasu 2016NKF2 no. 3	BA172062	Animal bone	2920 ± 25	Wang Y. et al. 2019
		Kalasu 2016NKH8	BA172063	Animal bone	1845 ± 25	
		Kalasu 2016NKF3H13	BA172064	Animal bone	2895 ± 35	
		Kalasu 2016NKH7	USA - 450557	Animal bone	2970 ± 30	
23		Nulasai			2340 ± 70	IA CASS 1991
25		Yuantoushan			2589 ± 170	Mei 2000
26		Qialege'er 2013NQF1	BA131478	Animal bone	3290 ± 20	Wang Y. et al. 2019
		Qialege'er 2013NQF2	BA131479	Animal bone	3285 ± 20	
		Basikalasuxi M1		Caprid bone	2315 ± 30	Xinjiang Institute 2014e
		Jialekesikayinte M42		Wood	2345 ± 35	Xinjiang Institute, Xibei & Ili 2011
		Jialekesikayinte M51		Wood	2250 ± 35	
		Jialekesikayinte M56		Wood	2345 ± 35	
		Jialekesikayinte M60		Wood	2275 ± 35	
		Jialekesikayinte M68		Wood	2325 ± 35	
		Jialekesikayinte M73		Wood	2490 ± 35	
		Jialekesikayinte M104		Wood	2280 ± 40	

interplay between indigenous developments and external influences remained unclear, which made it hard to link material remains to specific cultural groups.

Many Xinjiang scholars were involved in the debate surrounding the lack of standards for establishing cultural and temporal attributions of the sites. [Shui Tao \(1993\)](#), for example, posited the presence of only a Late Bronze Age phase in the region. He assigned burials from the sites of Xiata and Boma (Zhaosu), Suodunbulake (Chabucha'er), Halatubai (Nileke), and Tiemulike (Xinyuan) to Tiemulike Culture on the basis of typological similarities with findings assigned to Saka Culture in Semirech'e, the Chu Valley, and the Lake Issyk region (areas corresponding to present-day eastern Kazakhstan and Kyrgyzstan). On these grounds, he dated the remains from Ili to no earlier than the sixth century B.C. and considered them the product of an eastward migration of Central Asian communities. In contrast, [Chen Ge \(1994\)](#) divided the prehistory of Xinjiang into three main periods: Neolithic, Bronze Age, and Early Iron Age. Focusing on the latter, [Chen \(1995\)](#) published the results of his typological research on pottery material from a larger area encompassing the northern foothills of the Tianshan Mountains. He established four cultural types, all assigned to the Early Iron Age: the Wulapo Shuiku type, represented by the Zhongyangchang site in Xinyuan (ca. 500 B.C.); the Heishantou type, including the Yimuchang site in Tekesi (ca. 500 B.C.); the Tiemulike type, comprising the mining and smelting sites of Nulasai and Yuantoushan (both in Nileke) and the Xinyuan Qishiyituan ruins (ca. 700–400 B.C.); and the Xiata type, represented by the Xiata and Boma tombs in Zhaosu (ca. 400 B.C.–A.D. 300).

In the mid-1990s, [Yu Taishan \(1996\)](#) reviewed all previously conducted research on the prehistory of the Ili River Valley in the first chapter of his *Xiyu Tongshi* [General History of the Western Regions]. He then introduced some new archaeological finds and, on the basis of a comparative typological study, proposed an earlier chronology for the area. He included the Suodunbulake Cemetery in Chabucha'er in the Heishantou type and assigned the Halatubai Cemetery in Nileke to the Xiata type, but dated it to ca. 450 B.C.–A.D. 350. He then dated the Tiemulike remains from Xinyuan County to ca. 750–500 B.C. All these findings were assigned to the Early Iron Age because of their similarities with more securely dated material from central Xinjiang and Central Asia. At the end of the same year, [An Zhimin \(1996, 1998\)](#) argued against the Early Iron Age designation and instead attributed findings from Xiata, Suodunbulake, Halatubai, and Tiemulike to the Bronze Age. More specifically, An dated the findings from the Ili region to ca. 1000–300 B.C. by examining the shapes of bronze weapons and vessels from these four sites and comparing them to items attributed to the Andronovo Culture.

A few years later, [Yang Yiyong \(1999\)](#) meticulously examined the graves, grave goods, funerary ritual remains from a large number of sites across the counties of Chabucha'er (i.e., Suodunbulake), Zhaosu (i.e., Xiata), Tekesi (i.e., Yimuchang), Xinyuan (i.e., Tiemulike, Yutang, and Heishantou), and Nileke (i.e., Halatuobai) and assigned them to a single Suodunbulake culture. The Suodunbulake Culture was characterized by painted pottery that Yang considered to have been produced locally. However, he associated some metal objects, such as weapons and ornaments with anthropomorphic decorations, and the earthen and stone burial mounds with the Scythians of Central Asia. Thus, Suodunbulake Culture was placed in an Early Iron Age context and believed to be connected to the Saka. Yang conducted a brief but pioneering survey of the Ili region and, after identifying similarities in the material

remains and physical environment of the Kazakh steppe where the Saka had supposedly lived, discussed possible connections between the two regions. This was based not only on similar archaeological evidence, but also on the plausibility of a common pastoralist economy (Yang 1999:117–118). A similar attempt to link the two was made over a decade later by Ding Jie (2011). Assuming the existence of a single Suodunbulake culture in the Ili region, Ding divided it into three subgroups: Suodunbulake, Halatuobai, Qiongkeke. He also identified an eastern regional type of Sudubulake Culture in central Xinjiang, represented by the Nanshan Cemetery in Shihezi County. Ding based his discussion of the local economy and society on environmental characteristics and type of remains recovered in the area.

In addition to research on archaeological sites, various studies were conducted on different materials, especially pottery and metals. By showing the remarkable similarities with more securely dated remains from Central Asia (i.e., Andronovo and Saka) or subjecting some of the finds to carbon dating, such research made it possible to push back the metal ages to the second millennium B.C. For example, pottery vessels from the cemetery at Daxigou in Huocheng were found to be similar to Andronovo pottery with regard to shape (i.e., flat bottom, large shoulders and mouth) and decorative technique (both are carved) (Li and Dang 1995). Likewise, metal objects from different sites in the Ili region, including the sickles, axes, and chisels from Aga'ersen, were attributed to an Andronovo-type culture because of similarities in shape and alloy; they were thus dated to the second millennium B.C. (Li and Dang 1995; Mei and Shell 1999; Peng 1998). By examining the style of metal finds including mirrors with handles, zoomorphic ornaments and tools, three-legged cauldrons, and knives and axes from later sites in Ili Valley, Gong Guoqiang (1997) found similarities with material from the Saka community in Semirech'è and the agro-pastoralist Tagar group in the Minusinsk Basin (ca. 800–200 B.C.) (Bokovenko 1995), both of which were placed in the first millennium B.C.

Rather unusually, analyses of gold and silver ornaments were also conducted in this period. Such materials had commonly been used in prehistory by steppe pastoralist groups as well as by Central Asian farming communities, but they were only rarely present in Central and East China contexts (Bunker 1993). Based on the comparisons, scholars suggested further connections between the Ili region and communities west of the current Chinese border (An Y. 1999).

A small though increasing number of physical anthropological studies were also conducted in the 1990s. Much of the work was carried out by archaeologists who were not necessarily trained to analyze biological material; their research focused on archaeological questions related to building chrono-cultural frameworks. They did not use human remains to investigate sociocultural phenomena. Instead, the study of the origin of the diverse population of Ili Valley was primarily intended to connect the population of Northwest Xinjiang to more securely dated communities to the west and east. Among others, Shao Xingzhou and Wang Bo's (1991) found that four female skulls from Yutang in Xinyuan (ca. 800–200 B.C.) carried Central and Eastern Eurasian traits, so they were assigned to a Wusun-type population. Shao and Wang (1991) also stressed the discovery of deformed skulls, a phenomenon also observed by Lü Enguo (1993) in a cranium from Xiata dating to the first millennium B.C. Although some scholars have associated such skull modification with ritual practices of some Central Asian communities, it was only discussed in comparative terms and considered

evidence for links with the Wusun. Questions of possibly related beliefs and rituals were not investigated.

THE XIBU DA KAIFA 西部大开发 [GREAT DEVELOPMENT
OF THE WESTERN REGIONS]

In 2000, the Chinese government launched the Xibu Da Kaifa or Great Development of the Western Regions, a state program aimed to improve the infrastructure and economy and protect the natural environment in Western China, filling the development gap between the coastal and inner regions of the country (Lai 2002). As a consequence, a large number of salvage surveys and rescue campaigns have been conducted under state license in Xinjiang and new findings have been uncovered every year since the beginning of the twenty-first century. This rich body of new material has increasingly featured in exhibitions and published in reports and collections of papers. In 2005, the Museum of the Ili Kazak Autonomous Prefecture in Yining City opened a new, permanent exhibit entitled “Steppe Nomads and the Celestial Horses: The Early Culture of the Steppe,” with more than 200 prehistoric findings included in the exhibit. To celebrate the occasion, the museum published a systematic review of archaeological materials from the Altai region, Tacheng, and Ili Valley (Wang Linshan 2005). On the basis of previous chronological studies, and by approaching the new archaeological record through comparative typology, the findings were classified into three periods: Neolithic, Bronze Age, and Early Imperial.

The Neolithic, characterized by stone tools and rock art, was considered monocultural. The Bronze Age was divided into three regional types. Sazi-Qiongkeke Culture, named after two representative cemeteries found in Tuoli County in Tacheng and Nileke County in Ili, was said to have dominated Ili Valley and Tacheng (Xinjiang Institute 1996, 2002a). The other two cultural traditions, Qiemu'erqieke and Deer Stone, had developed in the Altai region. All three types were considered part of a system of constant mutual interaction and integration. This was shown, for example, by the spread of similar stone and metal artifacts and stone statues throughout the entire region. The mechanisms of such interactions were not investigated, however. The Early Iron Age was equated with the Early Imperial era because it corresponded to the Han dynasty (206 B.C.–A.D. 220).

In 2007, a new general review of Xinjiang archaeology was published entitled *Xinjiang Tongzhi: Wenwu zhi* [Xinjiang Encyclopedia: Records of Cultural Relics], with Ili remains covered in chapter 5 of volume 81 (Xinjiang Committee 2007). Shao Huiqiu's (2007a) doctoral thesis was another important contribution that year. He reviewed the features and chronology of prehistoric remains in Xinjiang and compared them to a wider range of neighboring cultures in order to trace the role of external influences on the evolution of Northwest China in prehistory. Focusing particularly on an area encompassing the Ili region, central and eastern Xinjiang, Central Asia including Semirech'è and Fergana Valley, and southwestern Siberia, he conducted a comparative analysis of pottery and metal artifacts and, to a lesser extent, sites and funerary structures, to establish a chrono-cultural sequence for northwestern Xinjiang. He concluded that the region had been occupied by an Andronovo-type culture in the Bronze Age and Suodunbulake Culture, which shared similarities with the Saka, had developed there around 800 B.C. The Suodunbulake cultural group occupied a large area stretching from Semirech'è to the west and central Xinjiang and as far as an area

between Shihezi City and Balikun County to the east. In his following publications, Shao continued to compare the Chinese archaeological record with materials from neighboring regions to create new cultural frameworks for understanding the evolution of ancient cultures in northern Xinjiang (Shao 2009; Shao H. and Zhang 2019).

The concerns with organizing large amounts of new material into archaeological cultures and chronological frameworks are reflected in the research of another emerging figure in Ili River archaeology, Ruan Qiurong. He has held leading positions on several archaeological expeditions, such as those carried out in cemeteries at Qiafuqihai (Xinjiang Institute 2005), Shankou Shuiku (Xinjiang Institute 2006b), Yijidianzhan (Xinjiang Institute 2012a), Biesituobie (Xinjiang Institute 2012b), and Kuokesuxi (Xinjiang Institute 2012c) and in the Jilintai area (Ruan 2004; Xinjiang Institute 2002a).⁵ Through comparative typological analyses, especially of grave structures on a wide scale (i.e., the entire Ili region, Central Asia, and southwestern Siberia), Ruan posited the existence of two periods in Northwest Xinjiang: the Bronze Age, dated to 1500–1000 B.C. and associated with Andronovo Culture; and the Early Iron Age, set in the first millennium B.C. and linked to the Saka. Ruan (2004:80) also showed interest in the pre-Andronovo period when he pointed out the existence of a deposit of microliths sealed by a layer of distinctive Andronovo material at A'kebuzaogou, Nileke in the Jilintai area. This discovery has not been investigated much since then.

The chrono-cultural framework established in the 2000s by Shao and Ruan—a Bronze Age (ca. 1500–1000 B.C.) impacted by Andronovo Culture and an Early Iron Age (first millennium B.C.) influenced by contact with the Saka—represented a step forward in the archaeology of the region for two main reasons. First, a more precise chronology for the Ili region was defined on the basis of a wide range of archaeological evidence including pottery, metals, and grave structures from the larger Central Asian region and radiocarbon dating results (Table 2). This chronology has been corroborated by the newest discoveries and studies and is still accepted and employed by most scholars to this day (Jia et al. 2017; Wang Lu et al. 2019). Second, Shao and Ruan's research represented a new trend in Xinjiang archaeology that recognized the importance of a sound knowledge of material cultures from Central Asia and other regions outside China for conducting comparative analyses of archaeological remains from the Xinjiang territory. The progressive opening up of China begun in the previous decade allowed archaeologists to deepen their understanding of cultures in Central Asia and southwestern Siberia through international projects involving local archaeologists and institutions (Kovalev et al. 2009). In addition, Chinese archaeologists gained access to a different set of sources, including ancient Greek texts (e.g., by Herodotus) and current works in English; these gradually replaced Russian research as the most commonly consulted foreign literature (Ruan 2013; Shao 2007b, 2008). These tools proved to be pivotal for acquiring a deeper understanding of diverse local cultures in the Ili region from a wider Central Asian perspective. In doing so, Ruan and Shao's works paved the way for more substantial discussions of northwestern Xinjiang in terms of the interactions that occurred with Central Asia by way of migration processes. As discussed below, the idea that an Andronovo migration into the region had possibly occurred was further developed by Ruan when he introduced the concept of a Tangbalisay type of Andronovo Culture in 2013 (Ruan 2013, 2015).

At the turn of the twenty-first century, Chinese archaeologists gradually became more concerned about the definition and meaning of “archaeological culture.” On the basis of previous contributions (An Z. 1999; Su 1965; Xia 1959; Zhang Z. 1986) and newly translated foreign works on the topic (Chen C. 2004; IA CASS 1996, 2004; Ken and Liu 2005), discussions emerged on how archaeological culture could be theoretically defined and methodologically identified. These explicit conversations about the nature of “culture” were reminiscent of the exhaustive debate that occurred in Anglo-American archaeology starting in the 1950s and continued for several decades (Trigger 2006; Watson 1995). Major criticisms were directed at simplistic models grounded in typological similarities between objects and sites, even as new multidisciplinary approaches toward archaeological culture gained momentum (Chen C. 2003; Luan 2002; Zhao 2008). In particular, Zhao (2008) defined eight levels of analysis, including recurring material; time; space; compositional factors (internal, external, and innovative); origins; modes of transformation; reasons for transformation; and interactions.

Xinjiang archaeologists were seldom involved in these theoretical and methodological discussions, since they were still dealing with the preliminary organization of the huge quantity of new materials discovered during the Xibu Da Kaifa. However, some scholars proposed different concepts of culture on which new cultural frameworks for the specific context of Xinjiang could be built. Among them, Chen Ge (2002) was very critical of the practice of identifying multiple small archaeological cultures based on local features that had begun in the previous decade. He deemed it unscientific because analytic criteria could not be used to define these cultures. Chen instead put forward the concept of an Ili Basin Culture including sites in western Xinjiang and Central Asia that he dated to the Iron Age (ca. 800 B.C.). Chen founded his system on three main analytic foci: patterns of distribution (across Tianshan, Ili, and Pamir); chronology (based on typological comparison of grave structures and burial goods with the more securely dated remains in Central Asia and carbon dating results from findings in Boma, Tiemulike, and Xiata); and technological and typological similarities amongst a group of findings (i.e., pottery from the Ili Basin Culture). Based on this, he discussed possible contacts between the Ili communities and cultural groups further west, including the agro-pastoralist Karasuk community that occupied the Minusinsk Basin ca. 1200–800 B.C. (Legrand 2006) and the Chust cultural group that settled in Fergana ca. 1300–800 B.C. (Kohl 1984:188–191). According to Chen, other ill-defined relationships had been established with communities in central and eastern Xinjiang, such as those from the Chawuhugou site in Hejing County and the Subeixi site in Turfan, and cultures further east such as the Siba (ca. 1900–1500 B.C.) (Li Shuicheng 1993) and Shajing (ca. 800 B.C.) (An Z. 1992), both of which are characterized by painted pottery. Although Chen stressed the importance of a sound knowledge of the mechanisms of interaction, as well as of local features of ancient material cultures, for reaching a full understanding of the prehistory of northwestern Xinjiang, he did not investigate these topics. Chen also failed to define what constituted a “group of findings” and his sampling methods and criteria for determining such a group. Nevertheless, his argument represented a great step forward in Xinjiang archaeology. By proposing a sophisticated three-level analysis, Chen questioned some fundamental concepts in Xinjiang archaeology, including the supremacy of typological comparative analysis of objects over all other analytical methods, and he did so with specific reference to the complex archaeological scenario in Northwest China. In his attempt

to renew Xinjiang archaeology, Chen was explicitly critical of the attribution of Ili remains to Wusun Culture because it had been based on the study of historical texts. He argued that the *Hanshu* identified “Wusun” as a state made up of a number of ethnic and cultural groups, so “Wusun” should not be directly equated with any single culture or ethnic group. Rejecting ethnicity as a conceptual tool for understanding archaeological cultures, Chen emphasized patterns of spatial distribution as a means for defining cultures and regarded the physical environment as a crucial factor in their evolution.⁶ For example, he argued that the Ili Valley was part of a Central Asian region and that both areas had developed a similar pastoralist economy in part due to a shared environment.

The Ili Basin Culture concept gained prominence in Xinjiang prehistoric studies and was employed by several scholars, including Ruan Qiurong, who assigned the Qiongkeke cemeteries to this culture (Xinjiang Institute 2002a), and Han Jianye (2007), who limited it to China, disregarding archaeological remains outside the country. The Ili Basin Culture concept paved the way to the formulation of new questions related to subsistence strategies, technological development, and, to a lesser extent, social organization. These questions were especially welcomed by bioarchaeologists and archaeometallurgists, whose research also benefited from the development of new technologies, in particular increasingly precise tools for measuring bones and teeth and conducting metallographic and elemental analyses. For example, bioarchaeologist [Chen Liang \(2003\)](#) examined 23 skulls from the Suodunbulake Cemetery and discovered that they displayed morphological characteristics comparable to people from Central Asia. Chen augmented his analysis by identifying several prevalent dental diseases (i.e., periodontal disease, caries, and apical root abscesses) among the individuals, consistent with a pastoralist meat-based diet. Some individuals show severe teeth misalignments suggestive of certain ritual practices; these rituals were not further investigated, however.

One of the most influential contributions to the field of archaeometallurgy has been Mei Jianjun’s (2000) pioneering doctoral thesis, which analyzed Bronze Age and Early Iron Age metallurgy in Xinjiang. Through typological, metallographic, and elemental analyses, Mei’s research shed light on the local prehistoric development of metallurgy in various areas of Xinjiang. In the Ili region, he distinguished two main cultural periods, the Bronze Age and Early Iron Age, that had been influenced by Andronovo and Saka metallurgy, respectively. Mei also examined ore, slag, and ingot samples from the ancient mining and smelting site of Nulasai in Nileke to identify the type (lead/arsenic copper alloy) and technique (matte formula) of production. Remains radiocarbon dated to the first millennium B.C. had earlier been identified by [Wang Mingzhe \(1984, 1985\)](#) and also mentioned in [Chen and Hiebert’s \(1995\)](#) synthetic article. However, no further field research had been conducted until Mei Jianjun and Li Yanxiang’s studies in the 2000s. They discovered more than a dozen ancient mining shafts and smelting slag heaps from which five matte ingots were unearthed ([Mei 2000; Mei and Li 1998, 2001](#)). Another mining site, with no evidence related to smelting activities, was discovered in Yuantoushan, Nileke, although it was not further investigated ([Wang Binghua 1985a, 1985b; Wang Lu et al. 2019](#)). Dated to the first millennium B.C., the Nulasai and Yuantoushan sites provide rare insight into local metal production in the Ili River Valley.

Mei’s research on early metallurgy in Northwest Xinjiang includes studies on early metal remains at Qiafuqihai in Gongliu and in the Jilintai area in Nileke. He argued that late Bronze Age metallurgy in the Ili region was dominated by imported tin bronze

and that the alloying process was remarkably similar to the Andronovo one and completely different from that used in eastern Xinjiang (Ling and Mei 2008; Ling et al. 2008). By contrast, copper and bronze cauldrons from Early Iron Age sites were made of locally sourced materials (perhaps from Nulasai and Yuantoushan), but showed influences from western (Eurasian Steppe) and eastern (Central Plain) traditions with respect to style (Mei et al. 2005). It is noteworthy that similar metallurgy has been identified in eastern Xinjiang, but it has not yet been analyzed in detail (Ling and Mei 2008; Mei 2000; Mei et al. 2005).

Little interest has been shown in the social organization, rituals, and beliefs of ancient communities in the Ili region, in spite of the discovery of two large round ritual stone structures along the Kashi River on the eastern and western sides of cemetery no. 1 at Qiongkeke, Nileke (Xinjiang Institute 2002a:14–15) and the investigation of 49 rock paintings representing several deer and human figures in the same area (Xibei University and Xinjiang Institute 2006). There is no discussion of the significance of these remains either on a local scale or in relation with other cultural groups in the relevant publications. Further research is needed to consider these sites in relation to the numerous rock paintings portraying humans and animals that have been discovered in Mongolia, northern Kazakhstan, and the Altai region (Kovalev 2014, 2015). To date, however, no further scientific analysis on the petroglyphs has been conducted.

THE LAST DECADE

As a consequence of the research progress made since the Xibu Da Kaifa, the last decade has been characterized by increasing international interest in Northwest Xinjiang. The region has gradually been recognized as a relevant crossroads of early interaction by Chinese and non-Chinese scholars alike (Jia et al. 2017). A reliable cultural and chronological framework has since been established—a Bronze Age (1500–1000 B.C.) associated with Andronovo Culture and an Early Iron Age (1000–300 B.C.) connected to the Saka group of Central Asia—through assessing new data and reviewing old findings. Various comprehensive studies have been published based on typological classification and comparative analysis, which have remained the dominant approaches to Xinjiang archaeology.

One of the most important contributions within the past decade is Liu Xuetang's (2011) analysis of the stratigraphic relationship between cemetery no. 1 and the settlement at Qiongkeke in Nileke. The examination revealed the existence of an earlier “lower culture” and later “upper culture.” The lower culture was attributed to the Bronze Age and dated to the second millennium B.C. because of the discovery of Andronovo-type grey flat-bottomed vessels decorated with incised patterns. Liu assigned the upper culture to the Early Iron Age in the date range of 1000 B.C. to A.D. 100. Liu divided the Ili and Tacheng regions into four main geographical areas (i.e., the Ili, Kashi, Gongnaisi, and Tekesi river basins) and compared old and more recent findings in these areas with the remains at Qiongkeke in order to establish a chronological and cultural framework for Northwest Xinjiang. Among the oldest discoveries he considered were from the sites of Sazi in Tuoli and Suodunbulake in Chabucha'er. Recent discoveries included those from Yeschenkeleke in Tekesi (Xinjiang Institute and Ili 2005), Shankou Shuike in Gongliu, and Xiaokalasu in Nileke. Liu's (Liu X. 2011) work includes two chapters, one devoted to rock paintings—which he divided geographically into three groups corresponding to the Kashi, Gongnaisi, and Tekesi river

basins—and one dedicated to sites of worship found at Tiemulike in Xinyuan County and at Qiongkeke Cemetery no. 1 and Bietebasitao, both in Nileke County. Liu only described the archaeological remains; he did not discuss the functions, possible related rituals, or sociocultural implications of these findings.

Ruan Qiuorong (2011) presented the results of excavations carried out in 2010 at several cemeteries, including at the sites of Tielekesayi, Teliekebulake, and Tangbalesayi in Nileke County; Biesituobie in Xinyuan County; and Kuokesuxi in Tekesi County.⁷ Considering the grave structures and types of pottery, he divided the findings into three chronological groups: the “early tombs,” including the new finds at Tangbalesayi and Kuokesuxi Cemetery no. 2, were of the Andronovo type and dated to ca. 1300 B.C.; a later Saka-type group was placed in the first millennium B.C.; and the “late tombs” were linked to the Tang Dynasty (A.D. 618–907).

An edited volume entitled *Yili hegu kaogu wenji* 伊犁河谷考古文集 [Essays on the Archaeology of the Ili Valley] was published the following year (Wang Linshan 2012). The book comprises excavation reports and academic papers showcasing findings ranging from prehistoric times to the Mongolian period (A.D. 1205–1279). The prehistoric section is a comprehensive review of studies conducted prior to 2011, including metallurgical and anthropological research, chronological analyses, rock art, and studies on possible interactions with communities in the north and the west. In his introduction to the book, Wang Bo (2012) presents the research that had been conducted up to that point and discusses the current state of research, including the three-period chrono-cultural framework established for the Ili region. Wang Bo starts with the Stone Age (10,000–1500 B.C.) as represented by Palaeolithic remains at Shankou Shuiku in Gongliu and Zhaosu Qishiwtuan, including stone tools and fossils of mammoths and ancient species of deer (see also Wang Linshan 2005:26). In the Bronze Age ca. 1300–800 B.C., the Ili region was home to the Sazi-Qiongkeke Culture, which is mostly known from the funerary contexts of Qiongkeke, Xiaokalasui, and Tangbalesayi in Nileke, Kuokesuxi no. 2 in Tekesi, and Daxigou Cemetery no. 1 in Huocheng. According to Wang Bo (2012), Sazi-Qiongkeke Culture can be further divided into two subcultures, the Sazi and the Qiongkeke, although he does not specify on what basis the distinction is drawn. The Sazi-Qiongkeke Culture is characterized by the production of flat-bottomed, large-mouthed, grey pottery vessels decorated with incised motifs. The burials include cremations and inhumations with the body placed flexed on its side within simple, roughly rectangular pit graves. Wang Bo equates Sazi-Qiongkeke Culture with Liu Xuetao's (2011) lower Qiongkeke Culture, but draws no parallels between the archaeological material from the Ili region and the Andronovo. The Early Iron Age (ca. 900–300 B.C.) is characterized as Jilintai Culture, a name taken from a group of cemeteries that had been intensively excavated in 2001–2004. Wang does not provide a description of this culture. Although he finds it comparable to some extent to Chen Ge's Ili Basin Culture (ca. 800 B.C.) (Chen G. 2002) and Liu Xuetao's (2011) upper Qiongkeke Culture (ca. 1000–100 B.C.), he distinguishes the three on chronological terms.

The same year, Guo Wu (2012) systematically reviewed and discussed older and more recent archaeological discoveries on the basis of “regional types.” Through comparative typological analyses of findings from the Dzungarian Basin, including the Ili region, Altai, and northern slopes of the Tianshan mountain range, Guo attempted to identify the cultural and chronological positions of prehistoric groups in the three areas and trace possible interactions among them. Like Wang Bo (2012), Guo mostly

focused on remains found within China and neglected to consider neighboring regions.

The following year, on the occasion of a successful exhibit of “The Steppe Culture in the Ili Region: Searching the Historical Track of the Nomads,” the Museum of the Ili Kazakh Autonomous Prefecture published an eponymous catalog (Ili Museum 2013). The archaeological remains of Ili, some of which have yet to be published, were presented in seven evolutionary stages: hunting era, primitive farming-husbandry era, grassland deer stone culture, grassland rock painting culture, early nomadic era, historical period, and modern Kazakh nomadic culture. The catalog contains useful, detailed color plates of various findings and sites.

The launch of the First National Movable Cultural Relics Survey in Xinjiang (2012–2016) prompted a considerable number of excavations and encouraged the publication of reports and new studies. A report published in 2012 on the excavations at Kuokesuxi Cemetery no. 2 in Tekesi documents over 200 graves (Xinjiang Institute 2012c, 2012f). A group of pits featuring pebble mounds and containing round-bottomed globular vessels in association with refined bronze objects and some iron tools were assigned to the Early Iron Age. The Bronze Age was represented by different types of graves, including: simple pit burials; earth-mounded pebble-lined rectangular structures with ramps (e.g., M51 and M53); and rectangular pits with side chambers (e.g., M24 and M82). All these graves are associated with Andronovo-type pottery and metal artifacts. Similarly, at Tangbalesayi in Nileke (first excavated in 2010), a variety of grave structures and burial features, including Bronze Age rectangular pit graves (with or without extensions) into which bodies of the deceased are placed in either a flexed or supine position, were discovered in association with Andronovo-type pottery and metal objects (Xinjiang Institute 2012d, 2012e). The discovery of horse remains in grave M23 was exceptional since the internment of horses is a rare occurrence in the Ili region during the Bronze Age; horse remains are more often discovered within Early Iron Age contexts. Archaeologists have noted that burials at Kuokesuxi, Tangbalesayi, and other funerary Bronze Age sites in the Ili region vary, but have barely conducted any further investigation. The Tangbalesayi Cemetery also included Iron Age graves covered with pebble mounds and containing globular red pottery pots, bronze plaques and horse trappings, and iron knives (Xinjiang Institute 2012d, 2012e). The large funerary area at Yijidianzhan in Nileke comprises four groups of graves (i.e., Dongmaili, Ta’erkete, Shenbukeqi no. 1, Shenbukeqi no. 2) radiocarbon dated to between the eighth and third centuries B.C. Because of similarities with the upper Qiongkeke Culture remains (Liu X. 2011), the site was assigned to the Early Iron Age (Xinjiang Institute 2012a). This designation is substantiated by the presence of ceramics and metal objects such as arrows that are comparable in shape, material, and decoration to Iron Age findings from the Chawuhugou Complex in Hejing County (Xinjiang Institute 1999a).

In 2013–2014, a large cemetery including 154 graves and three ritual structures (J1–3) were found and excavated in Wutulan, Nileke (Ruan 2015; Xinjiang Institute 2014a, 2014b, 2015b). The site had been used for a long period encompassing the Bronze Age and Early Iron Age. The Bronze Age is characterized by various types of grave structures, including those with and without ramps, and associated with Andronovo-type pottery and metal artifacts. The Early Iron Age is represented by globular painted red pottery vessels, some with high necks, comparable to those recovered from Chawuhugou in Hejing and dated to the first millennium B.C. The

Wutulan Cemetery includes the distinctive complex M3, which consists of a large pit filled with the complete skeletons of sheep, goats, dogs, wolves, and chickens and scattered human remains. The pit is surrounded by 16 smaller rectangular slab graves and is fenced by a round stone enclosure. With the exception of M16—where a cremated adult was found—each slab burial contained remains of one child accompanied by one or two pottery vessels and, occasionally, bronze items (e.g., a large earring from M15) or tools for metal production (e.g., an ingot mold in M11). More than one hypothesis has been formulated to explain this unique concentration of children's graves. It could suggest that child sacrifice was practiced or that certain places were designated as children's cemeteries (Kuz'mina and Mallory 2007:195). Another explanation could be found in the seasonal character of holding funerary ceremonies for children. Some groups of steppe pastoralists did not immediately inhumate or cremate the bodies of children who died during the winter (infant mortality greatly increased because of the bitter winter climate), but instead collected and buried them together in spring (Kupriyanova 2004).

Because of its rich finds, Wutulan Cemetery was used as a case study in Ruan Qiurong's (2015) reconstruction of the prehistory of the Ili region. On the basis of typological comparisons with archaeological discoveries in China and Central Asia, he argued that the Tangbalesayi type of Andronovo Culture developed in Ili Valley during the Bronze Age (Ruan 2013, 2015). The Early Iron Age was influenced by the Saka. The Wusun period then corresponds chronologically to the Han Dynasty (206 B.C.–A.D. 220). According to Ruan, the cultural attribution of the ritual structures J1–3 and the M3 funerary complex is more dubious, however. Looking at the type of stone tools found at the three ritual structures, excavators argued that they represented a mix of local and external features. The “pie-shaped” (*bingxingqi* 饼形器) tools, which are frequently found in nearby sites such as Xiaokalasu and Qielege'er in Nileke, were locally produced, whereas the “mushroom-shaped” (*moguzhuangshi* 蘑菇状石) stones were ascribed to the Catacomb community, an agro-pastoralist group that inhabited a territory roughly corresponding to present-day Ukraine around 2600–2000 B.C. and produced spherical pots, flint knives, bronze implements, and silver ornaments (Chernykh 1992:124–131). Similar mushroom-shaped stones characterize the remains of the Sintashta-Petrovka community (ca. 2100–1800 B.C.) in the upper Ural and upper Tobol River regions (Anthony 2009:52). Ruan reexamined the evidence and reconstructed one of the ritual structures in three dimensions; he noted that the building structure was comparable to Catacomb ceremonial sites. In his analysis of the M3 funerary complex layout, he highlighted its similarities with Sintashta funerary sites (Ruan 2015:79, fig. 2, fig. 3). The Wutulan ritual structures J1–3 and M3 funerary structure have been regarded as evidence of an eastward transfer of certain rituals through the mediation of steppe populations related to the Andronovo (Ruan 2015:79). Ruan did not, however, address questions concerning the types of rituals performed, the sociocultural implications of the structures, or how this “mediation” between the Ili community and western cultures might have occurred.

Between 2015 and 2018, the large Jirentai Goukou site in Nileke County was excavated (Wang Y. and Ruan 2015, 2016; Wang Y. et al. 2019). Covering a surface of 4500 m², the complex consists of a settlement and a graveyard including 76 burials. Field investigation centered on the settlement, which excavators postulate has been in use from the Neolithic or Copper Age (ca. third millennium B.C.) to around 1000 B.C.

Considerable attention was paid to the layout of the site; ash pits and hearths were identified and houses were classified according to size. Another research focus was on the kiln structures, which were found in association with remains of coal and metallurgical tools such as casting molds and crucibles. Considering these findings and their geographical proximity to coal mines and deposits of copper and other minerals at Nulasai and Yuantoushan, archaeologists speculated that the Jirentai Goukou community produced pottery and metal items using local resources. Also noteworthy is the discovery of over 2000 carbonized millet seeds and small quantities of barley and wheat, suggesting the cultivation of crops (for a picture of the seeds, see [IA CASS 2019](#)).

The discovery of large, well-preserved sites such as Kuokesuxi no. 2, Wutulan, and Jirentai Goukou has stimulated questions and research on new aspects of Xinjiang prehistory, with a significant emphasis on the internal developments and organization of prehistoric societies. The settlements in Northwest Xinjiang have rarely been scientifically excavated. With few exceptions such as the fairly well-reported residential sites in Nileke County at Jirentai Goukou, Xiaokalsu, and Qialege'er ([Xinjiang Institute 2014c](#); [Xinjiang Institute, Ili Bureau and Nileke 2008](#)), most settlements are only mentioned in passing. As a consequence, most of the information for the Ili region has come from cemeteries, which have sometimes been assumed to reflect past human activities in the region. Among other scholars, [Wang Bo \(2013\)](#) briefly examined the characteristics of multichamber graves in the Ili Valley and [Tan Yuhua \(2014\)](#) analyzed burials at Jialekesikayinte in Nileke County in order to distinguish the identity and social status of the ancient residents of the cemetery. The Jialekesikayinte funerary site, assigned to 500–100 B.C. by radiocarbon dating, presents a variety of grave structures. The vertical pits are divided into three types according to shape: (1) vertical rectangular pits (1.5–2 m deep); (2) trapezoidal pits; and (3) trapezoidal or elliptical pits with stone slabs lining the bottom and covering the opening ([Xinjiang Institute, Xibei, and Ili 2011: 21](#)). Because of the homogeneity of the grave goods, including globular red pottery bowls and cups with handles, high necked pots, and a few bronze ornaments, these burials have been assigned to a single cultural group ([Xinjiang Institute 2006a](#); [Xinjiang Institute, Xibei, and Ili 2007, 2011](#)). Tan argued that a group of large mounds belonged to high-status people because of the considerable resource investment required to build these structures and the installation of a ditch encircling each mound that was likely intended for extra protection.

Significant progress has been made over the last decade by the development of archaeometallurgical analysis and increasing application of radiocarbon dating ([Table 2](#)). This has stimulated archaeological interest in the local evolution of technology and provided new data for tracing interactions with neighboring communities. The great effort put into research on copper and bronze artifacts has resulted in a number of analyses of tools from typological, elemental, and metallographic perspectives. Based on previous studies ([Guo 1999](#); [Ling and Mei 2008](#); [Ling et al. 2008](#); [Mei et al. 2005](#); [Wang Bo 1995](#)), [Li Suyuan and colleagues \(2013\)](#) discussed the types, materials, techniques, and possible uses of 30 Early Iron Age cauldrons from different areas in the Ili region and dated to ca. 1200–200 B.C. Some of the cauldrons are comparable to the ritual containers used during shamanic ceremonies in southwestern Siberia. Others resemble funerary vessels of the Zhou in the Central Plain (1046–256 B.C.). Their metallurgical properties and production techniques thus reflect western influences from the steppe and eastern influences from the Shang

(1600–1046 B.C.) or Zhou cultures. Li and his collaborators did not discuss possible mechanisms of cultural and technological transfer, however.

A few years later, [Li Suyuan \(2015\)](#) systematically examined a broader range of metal objects from five Bronze Age sites: Aga'ersen in Gongliu; Nazituobie in Tekesi, Zhaosu Qishisitan, Zeketai in Xinyuan, and Tangbalesayi in Nileke. Through a comparative study of shape typologies, Li associated all of them with Andronovo artifacts. More recently, [Wang Lu and colleagues \(2019\)](#) carried out compositional and metallographic analyses of 33 samples from different parts of the Ili region, showing that tin bronze was characteristic of the Ili Bronze Age. In the Early Iron Age, not only did unalloyed copper become more common but also the tin content in bronze items decreased significantly. Combined with their analysis of local metallurgical activity in the Ili region from the first millennium B.C., including the aforementioned mines and smelting sites at Nulasai and Yuantoushan ([Mei 2000; Mei and Li 1998, 2001; Wang Binghua 1985a; Wang Lu et al. 2019](#)), [Wang Lu and colleagues' \(2019\)](#) lead isotope analysis results have shown that imported tin was used in Bronze Age metals, whereas the tin used in the Early Iron Age was locally acquired. [Wang Lu and colleagues \(2019\)](#) consider the changes in the alloys and sources of metals between the Bronze and Early Iron Age, including the shift from metal importation (Bronze Age) to metal production (Early Iron Age), as evidence of a flow of materials and technological knowledge; this argument is consistent with results obtained by [Ling and Mei \(2008\)](#).

Another promising field of research is bioarchaeology, which includes physical anthropology and palaeopathology. While the former has been employed for some decades, palaeopathology is a rather new approach in Xinjiang archaeological research. It has nevertheless already provided new and significant data on local prehistoric populations, including their lives, subsistence strategies, and relations with other populations. For example, [Liu Wu and colleagues \(2010\)](#) published a study on tooth samples from an unspecified site in Nileke County dating to the first millennium B.C. These were compared with samples from other areas in Xinjiang (i.e., Yingpan in Yuli County, Yanghai in Turfan County) and Central China (Henan and Shanxi). Based on differences in four dental features (i.e., degree of tooth wear, caries, ante mortem tooth loss, and exostoses in mandibular and maxillary bones), Liu identified two population groups, one from Xinjiang and one from Central China. He ascribed their varying dental pathologies to differences in diet and lifestyle. In particular, he suggested that samples from Central China were representative of an agricultural community, whereas the Xinjiang group were on a meat-based diet, most likely connected to their pastoralism. Analyses of human remains dated from the late second millennium B.C. throughout the first millennium B.C. from the Jilintai area in Nileke were also carried out by [Zhang Linhu \(2010\)](#). Considering the sex ratio, life expectancy, skeletal condition, skull features, and tooth characteristics, Zhang showed that the local people were mostly pastoralists and had a meat-based diet. Zhang also identified signs of anemia among a large number of individuals, which was attributed to nutritional imbalances and poor hygiene. Moreover, a high trauma rate was noted among adult males aged 30 to 50 years old, likely resulting from social instability or conflict.

[Zhang and Zhu \(2013\)](#) tried to establish the population affiliation of 269 individuals from Jilintai through a nonmetric analysis of 78 samples.⁸ They employed 29 parameters to compare their samples with others from Xinjiang, Central Asia, and Europe. The Jilintai population was found to have been very close to the Turfan people of eastern Xinjiang, but also presented some affinities with eastern and western Eurasian

populations. [Liu Ning \(2010\)](#) examined samples taken from throughout the Ili region that dated to around the second half of the second millennium B.C. and found that the local population was of the Central Asian type but presented some east Eurasian traits. These were interpreted as the outcome of continual migrations from southwestern Siberia. [Nie Ying \(2014\)](#), who performed physical anthropological and palaeopathological analyses on 48 samples from the cemetery at Qiafuqihai, Gongliu (dated to the first millennium B.C.), also identified east and west Eurasian traits in the local population, with the east Eurasian traits more common among female individuals. Moreover, through her examination of teeth and skeletal bones and estimation of the community's life expectancy, Nie argued that the population was devoted to animal husbandry and sheep herding and had a largely meat-based diet. Their bones revealed traces of serious injuries, attributed to social instability.

A new research direction is the study of body modification, with particular interest in skull alteration and trephination. Nie and her team presented research on cranial modification in Xinjiang at the American Association of Physical Anthropologists conference in 2014 and the 82nd Annual Meeting of the Society for American Archaeology in 2017 ([Nie et al. 2014](#); [Nie et al. 2017](#)). Among other samples, more than 200 skulls from the Jilintai area were examined through statistical analysis of cranial measurements. Around 10 percent of the skulls, mostly of females, were found to have been deliberately deformed. Cross referencing with archaeological finds revealed that graves in which individuals with modified skulls were buried were richer in burial goods, suggesting that these individuals had held a special position in their community. The human remains from Jilintai have also been the focus of a book by [Zhang Linhu \(2017\)](#). Using a range of methods, including demographic analysis and palaeopathological and craniofacial examinations, Zhang's work provides important data on the composition, patterns of disease, and nutrition of the population in the Jilintai area. [Zhang Linhu \(2017\)](#) also described the perforated skull of a male who had survived an intentional cut, but no further interpretation of this finding was made.

New research fields such as palaeoenvironmental studies have also emerged in recent years in Xinjiang. As a result of the Xibu Da Kaifa and global emphasis on the issue of climate change, an increasing number of studies on the current and palaeoenvironments of Xinjiang have been conducted in order to identify climatic trends in this environmentally unique region and forecast the future climate. This body of research has turned out to be useful to archaeologists as well. A few areas have been examined in the Ili region. The lacustrine sediments from the Ebinur, Manas ([Ma et al. 2011](#)), and Sayram lakes ([Jiang et al. 2013](#)), for example, have revealed that around 3000 B.C., the surface of these lakes was larger than at present. Palynological studies on assemblages from the Ebinur Lake have shown that in the third to second millennium B.C., meadows and steppe vegetation expanded until a dry phase slowly set in around 1500 B.C. ([Jiang et al. 2013:349](#); [Ma et al. 2011:3](#)). Accordingly, the climate in the Ili region during the Bronze Age (ca. 1500–1000 B.C.) was probably more humid than it is today; it became drier during the Early Iron Age (ca. 1000–200 B.C.). So far, these data have not been discussed in association with archaeological findings; only general observations on the possible climatic reasons for the shift from the Bronze to the Early Iron Age in Northern China have been put forward ([Mei 2003](#); [Shui 2001:175–184](#); [Tian 1997:269](#)). There is a lack of analysis specific to the Ili region.

CONCLUDING THOUGHTS

Summary

Archaeological work on the Ili River Valley has made great strides over the past 50 years. This is reflected not only in the results of the excavations but also in the discussions of local cultural characteristics, regional chronologies, and possible contacts between Ili and adjacent regions. From 1949 until the 1990s, a large number of sites were excavated in the Ili region. In order to organize such an enormous amount of material into chrono-cultural frameworks, Chinese archaeologists relied on the Soviet ethno-cultural historical model in association with Chinese historiography. Through a combination of comparative typological analyses, written sources, and the results of a few physical anthropological analyses from the late 1980s, archaeologists sought to establish a chronological sequence for the Wusun Culture, which was believed to have dominated the Ili area in the first millennium B.C.

From the 1990s onward, a new political climate brought about by the collapse of the Soviet Union and the opening of China resulted in a decline in Soviet influence on Chinese research in tandem with an increasing scholarly exchange with Euro-American archaeologists. This provided new analytic tools for establishing more reliable cultural and chronological frameworks for the prehistory of the Ili region. In particular, there has been an increasing use of scientific dating methods in Xinjiang archaeology and the adoption of a multidisciplinary approach that incorporates physical anthropology and archaeometallurgy. These developments, combined with the Chinese historiographical tradition and typological comparisons with Central Asian material, promoted new topics of analysis. Finding evidence of “local traits” constituted the dominant criterion for grouping sites into “cultures” and situating them in the Bronze Age—Early Iron Age chronologies. The lack of a definition for what constituted a “local trait” and even how to define the Bronze versus Early Iron ages led to diverging opinions among scholars about the interpretation of the evidence. These debates paved the way for further research on internal developments in the Ili region.

The first decade of the 2000s was marked by several important archaeological, theoretical, and technological steps forward. As a result of the Chinese government’s Xibu Da Kaifa project, extensive excavations yielded abundant research material. At the same time, the progressive opening up of China to the world allowed Chinese researchers to access deeper knowledge of the archaeology of Central Asia. New leading figures such as Shao Huiqiu and Ruan Qiurong then established a more refined chronology for the Ili region: a Bronze Age (1500–1000 B.C.) associated with the Andronovo and an Early Iron Age (1000–300 B.C.) connected to the Saka of Central Asia. By viewing the Ili Valley from a broader Central Asian perspective and considering its possible relations to the Andronovo archaeological culture, their work paved the way for discussions on early interactions in the region. [Chen Ge’s \(2002\)](#) study of archaeological cultures, his rejection of ethnicity as a tool for their construction, and his subsequent formulation of new questions have stimulated the emergence of new research on subsistence strategies, technological developments, and so on. Finally, technological advances—especially in the fields of physical anthropology and archaeometallurgy—provided further data and enriched discussions on the chronology and cultural attributes of archaeological remains in the Ili region and the connection of Ili Valley inhabitants to neighboring communities. Most of the research

did not go much beyond demonstrating the existence of such contacts, especially with the Andronovo and Saka cultures, and possible associated mechanisms and patterns of interaction were not discussed in depth. More recently, archaeological research has been more often anchored in a growing body of studies in the fields of cultural and physical anthropology, archaeometallurgy, and geo-environmental studies, prompting new questions about internal developments, social complexity, subsistence strategies, beliefs and rituals, human–environment relations, and cultural change and interactions.

Current State of Research

The Ili region Bronze Age has been placed at ca. 1500–1000 B.C. on the basis of radiocarbon dating results (Table 2) and a typological comparison with the Andronovo material that has been more securely dated to 1900–1200 B.C. (Kuz'mina and Mallory 2007:459–477). Archaeological and some limited bioarchaeological evidence such as the location of settlements in lower valleys and farming tools in association with large amounts of carbonized seed and sheep and goat remains suggests that the area was occupied by nomadic pastoralists who herded sheep and goats and cultivated crops. The Ili region seems to have been culturally homogeneous in the Bronze Age. The artifacts (i.e., pottery, metal tools, and ornaments) discovered here show similarities to the Andronovo material but rarely to other archaeological cultures. In particular, since bronze-making technology is not easily transmitted without the movement of craft workers (Linduff and Mei 2009; Ling and Mei 2008; Ling et al. 2008; Mei 2000; Roberts et al. 2009), most scholars believe that, by importing metals and metalworking technology into the region, steppe communities were indeed responsible for the emergence of the Bronze Age in Northwest Xinjiang (Mei 2000). It is therefore reasonable to suggest that Northwest Xinjiang may have constituted an eastern periphery of Andronovo Culture.

Some unique burial features have been noted, however. For example, the variability of grave structures, including simple pits and those with ramps and side chambers, contrasts sharply with the homogeneity of Andronovo-type funerary goods such as those found in the Wutulan Cemetery. It is noteworthy that Early Iron Age pit graves featuring side extensions were discovered in western Xinjiang (e.g., at the Kalasu Cemetery in Zhaosu) (Xinjiang Institute 2002b). However, these graves were characterized by large mounds covering the grave openings and included ornate metal objects such as iron ornaments and gold plaques, but no Andronovo material was found. Therefore, it is now reasonable to consider the variability of graves structure type as phenomena related to sociocultural dynamics rather than chronology.

Another critical question concerns the scantiness of horse findings in the Ili region, which marks a significant difference from Andronovo sites. Furthermore, some human remains in Northwest Xinjiang (Jilintai area) have been linked to populations in Central Asia (Liu W. et al. 2010; Zhang Linhu 2010), where some of the Andronovo tribes supposedly lived, but the evidence is still scarce and geographically limited. There is at present insufficient evidence to argue that the Ili region was influenced by Andronovo Culture by way of migration. However, there is support for Ruan's (2013, 2015) view that Tangbalesayi Culture was closely related to the Andronovo. Ruan (2015:83) equates the Tangbalesayi with the Alakul and Fedorovo types of Andronovo Culture, and implies that it too is a “cultural variant” of the Andronovo phenomenon.⁹ It remains to be explained how and why the process of cultural “adaptation” of the

Andronovo culture to a new environment and the local traditions of the pre-Andronovo occupants of the Ili region occurred, and what the relation between the Tangbalesayi group with other Andronovo communities might have been. To do so, questions concerning the concept of an Andronovo Culture, its variants, expansion, migrations, and contacts with other communities in Central Asia and southwestern Siberia need to be further investigated (Frachetti 2008).

The Ili Early Iron Age ca. 1000–300 B.C. was influenced by the Saka group. However, the extent of the impact is still poorly understood. The decline of Andronovo influence and the emergence of a new cultural tradition are indicated by new types of ceramic and metal artifacts. The ceramics are globular red vessels with handles, some of which are painted. Sometime between the Bronze Age and the Early Iron Age, there is a shift from imported metalware to local metal production. Specifically, in the Early Iron Age, raw materials were sourced locally, but the style of the objects was reminiscent of Scythian objects such as weapons, tools, and containers featuring zoomorphic decorations and horse gear. In addition, consistent evidence of borrowings from the Chawuhugou community (e.g., several tools in Qiongkeke, Wutulan, and other sites) and a growing body of material showing similarities with findings in eastern Xinjiang (including bronze disks from Basikalasuxi in Zhaosu County similar to those found at Tianshanbeilu in Hami City) have been recovered in the Ili region (Ling and Mei 2008; Xinjiang Institute 2014e). Moreover, possible influences have been traced from other cultures to the east and to the west, including the Siba, Karasuk, and Chust (Chen G. 2002). This suggests that the Early Iron Age cultural landscape of the Ili region was rather complex.

The Future

In spite of significant research output from the Ili region over the past several decades, important issues remain to be effectively addressed, especially with regard to cultural evolution and change. This article proposes four main directions for future research.

First, more sites should be excavated and documented, especially settlements. As mentioned above, most archaeological findings in the Ili region come from funerary contexts, while relatively few habitation and production sites have been investigated and even fewer documented. Not only would future research benefit from the detailed publication of newly excavated settlements, a reevaluation of excavated materials that have only been mentioned in passing by scholars or published in synopses would also make a great contribution (Xinjiang Museum 1987; Zhang Y. 1997). Where possible, reviewing original excavation notes and refining existing maps and drawings using modern software would provide crucial material for further investigation. For now, the excavations at the settlements at Xiaokalasu and especially Jirentai Goukou, both discovered in Nileke County in the past two decades, look promising as they are being documented in detailed reports featuring high-quality pictures and maps. Research should focus on the characteristics of local archaeological cultures as well as possible external influences from the Andronovo.

Second, since much of the past research has focused on building cultural frameworks and on the Ili region as a hub of cultural interaction, greater attention should be directed at the sociocultural dimension and the evolution of past communities on a local scale (Hein 2017; Shelach 2002). Existing results should also be reevaluated as evidence of broader social and cultural networks. Since few settlements have been

unearthed so far in the Ili region, mortuary sites could be used as proxies for studying social complexity for the time being. The homogeneity of the Andronovo-type grave goods discovered in a variety of burial structures in cemeteries at Wutulan and Kuokesuxi, for example, is a phenomenon worth investigating from a social perspective.

Moreover, questions related to beliefs and rituals have been scarcely addressed in Xinjiang, even though there is a substantial existing pool of study material (Davis-Kimball 2001; Wang Binghua 1992). The Ili region is no exception. The ritual structures discovered at Tiemulike, Qiongkeke, Bietebasitao, and Wutulan—which show the existence of sacred places separated from residential sites where specific sacrificial rituals were performed—have been poorly reported and investigated. In particular, specific research on structure M3 at Wutulan and its concentration of child burials may provide insights into local rituals (such as the seasonal nature of the burials and possible human sacrifice) and suggest social motivations for these practices. In addition, considering that “children’s cemeteries” and the practice of human sacrifice are known for the Andronovo Culture (Kupriyanova 2004; Kuz’miina and Mallory 2007; Lamberg-Karovsky 2002), this study would provide new data to the discussion of ritual transfer. Another research direction would involve analyzing the rock paintings and stelae that are widely distributed throughout the Ili River Valley. Some of them are stored in museums at Yining City and Tekesi County and have been published by Wang Bo and Qi Xiaoshan (1995:141–159, 102–112), but more research is needed. An understanding of the distribution patterns, decoration techniques, and motifs would add considerably to the discussion on local beliefs and rituals.

Third, archaeological research in Xinjiang would continue evolving from being merely descriptive to being more analytical through taking advantage of the latest technologies (e.g., computer technology, DNA, isotopic analysis of human tissues) to integrate other sets of data from other research fields. For instance, a better understanding of the genetic composition of the Ili population could be reached by expanding the sampling area in Northwest Xinjiang and comparing the results to large-scale regional DNA studies (Narasimhan et al. 2019), which so far have not included any samples from Xinjiang. Results of analyses of human remains need to be systematically integrated with the archaeological data. The prevalence of eastern Eurasian traits in female individuals in Qiafuqihai Cemetery in Gongliu and in the Jilintai area of Nileke County, for example, could be explained more clearly by cross-referencing with archaeological evidence (Nie 2014; Nie et al. 2014; Nie et al. 2017). Similarly, research on trepanned skulls has mostly remained in the realm of bioarchaeology, which mostly explains how the perforation process was carried out and its medical consequences (Zhang Linhu 2017); we are still missing the archaeological perspective on why the skulls were perforated and what the sociocultural implications of such a practice might have been for the local community. Bioarchaeological data contribute greatly to understanding not only ancient migrations of populations but also cultural transfer. Considering the case of perforated skulls again, a significant number of trepanned crania have been found in Northwest China, including in Xinjiang, at Xiaohe, Lop Nur (Xinjiang Institute 2004a, 2007), Yanbulake in Hami City, and Chawuhugou and Alagou in Hejing County (Han K. 1990, 1993, 2007). Specimens were also discovered at Chaiwangang Xigang in Yongchang County in present-day Gansu. In Qinghai, trephined skulls were recovered from graves M70 and M73 at Yangshan in Minhe County and M392 at Sunjiazhai in Datong (Gansu 2001; Han K.

2001, 2005). Perforated crania have also been recorded in Central and Eastern China in the provinces of Shandong, Henan, and Heilongjiang (Han and Chen 2007), southwestern Siberia, Tuva and Inner Mongolia, and Semirech'e (Liu X. 2009:222–226). The evaluation of the data from the Ili region in a broader context would highlight commonalities and differences in medical and technical knowledge and ritual practices across Central and Eastern Asia, providing new information for research on interaction patterns. More study on the diet of the ancient occupants of the Ili region, including analyses of faunal and macrobotanical remains (e.g., grains from Jirentai Goukou), skeletal pathology, dental wear patterns, and isotope analyses on human tissues, would allow a firmer understanding of the regional economy. The reevaluation of findings within a broader context, that is, by comparing them to research conducted in Central Asia (Frachetti et al. 2010; Hermes et al. 2019; Lightfoot et al. 2014; Splenger 2015; Ventresca Miller et al. 2014), southwestern Siberia (Svyatko et al. 2013), and other parts of China (Dodson et al. 2013), would add important data to the discussion on early interactions.

Pottery analysis has dominated the study of Xinjiang prehistory. However, it has mostly been limited to typology. Extending this research to materials and production techniques, combining analyses of settlements and ceramic evidence, and cross-referencing with mortuary spaces and pottery quality (not limited to size and shape) would offer further information on production organization and social stratification. Physical and chemical residue analyses could shed light on what these ceramic pots contained. Research on the symbolic value of pots and their decorations would add data concerning local cultures and belief systems. Identifying ceramic clay types and the techniques of production would provide further insights into the relation of Ili to the Andronovo and Saka cultures, as well as broader networks of interaction.

The Andronovo influence on Ili Bronze Age metallurgy is well documented, but the extent of such a transfer and the mechanisms behind it have yet to be established, so this research would benefit from more extensive metallurgical analysis. The Saka contribution to Early Iron Age metallurgy in Northwest Xinjiang is poorly understood. Evidence of local metal production activities was found at the mining and smelting site of Nulasai in Nileke County and at the sites of Jirentai Goukou and Wutulan, but the connection to Saka Culture is far from conclusive. Regional interaction, especially with central and eastern Xinjiang, also needs to be explored.

Human–environment relations should be investigated more closely on the basis of further palaeoenvironmental studies and the use of spatial analysis (GIS) and social network analysis (SNA) tools in order to better understand distribution and interaction patterns. An intriguing question concerns contacts within the territory that is today's Xinjiang. The archaeological evidence suggests no such interactions occurred in the Bronze Age and that it was only in a later period—corresponding to the decline of Andronovo Culture and the replacement by the Saka—that communities in western, central, and eastern Xinjiang established some form of contact. It is possible that by the middle or end of the second millennium B.C., new climatic conditions may have favored a more intense occupation of the territory, especially in the Tianshan valleys, and the establishment of new routes connecting different populations in the first millennium B.C. This remains a working hypothesis awaiting more detailed findings from environmental and archaeological studies.

Last, this article will prove a success if it stimulates collaboration. While it focuses on Chinese research, there is a large body of relevant research by Russian and Mongolian

scholars that needs to be considered. More recently, western scholars have also shown considerable interest in the Ili region, but challenges such as the language barrier and differences in methods and theoretical approaches have yet to be fully overcome (Hein 2016). We trust that this goal will become a priority in the future, so as to create a fully collaborative research environment and make the Ili region a focus of international debate.

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NOTES

1. Andronovo is an archaeological complex characterized by settlements and funerary sites with similar material finds spanning an area stretching from the Urals to the Minusinsk Basin and from the northern border of the forest-steppe to the Pamirs of Tajikistan. Andronovo graves are simple cists or pits, sometimes fenced with stones or covered by a mound. Burial rituals included cremation and inhumation. Inhumated bodies were usually placed in a flexed side position. Andronovo pottery is characterized by hand-made grey pottery vessels with a flat bottom, large shoulders, and wide mouth. They are decorated with carved geometric designs. Metal items include agricultural utensils such as curved sickles, spades, chisels, and decorated shaft-holed axes. Ornaments include bracelets and penannular earrings. For more information, see Chernykh (1992:210–215), Frachetti (2008) and Kuz'mina and Mallory (2007).
The Saka were a group of nomadic Iranians (Scythians) who inhabited the northern and eastern Eurasian Steppe during the first millennium B.C. The Saka were buried in pits within larger *kurgans*, together with a range of weaponry including bows, arrows, arrowheads, and knives decorated with zoomorphic motifs and horse trappings including bridle bits, cheek pieces, harness rings, and various decorative strap plates. Pottery included hand-made and wheel-made globular pots (with or without spouts), basins, and bowls. For more information, see Yablonsky (1995).
2. Details on the exhibit are available on the Xuzhou Museum website, URL: www.xzmuseum.com/news_detail.aspx?id=2386.
3. In the *Hanshu*, see chapter 61, “Zhang Qian Li Guan zhuan 张骞李广利传 [Zhang Qian and Li Guan],” and chapter 96, “Xiyu zhuan 西域传 [Western Regions],” and in the *Shiji*, see chapter 123, “Dayuan Leizhuan 大宛列传 [Treatise on the Dayuan]” (for further information, see Beckwith 2009; Hulsewé and Lowe 1979; Yap 2019).
4. The First National Immovable Cultural Relics Survey in the Ili District was conducted between 1956 and 1959, and the third survey occurred between 2007 and 2011.
5. The Qiongkeke funerary area in Jilinta has been investigated since 1985, albeit in an irregular and unscientific manner. Only since 2001 has systematic research been conducted on two cemeteries in the area, named Cemetery no. 1 and Cemetery no. 2. Findings from Cemetery no. 1 have been published (Xinjiang Institute 2002a).
6. Despite the diminishing influence of the Soviet model, some scholars were still discussing ancient cultures and societies in ethnic terms (e.g., Ding 2011).
7. Ruan calls the cemetery at the last site “Kukesu” (库克苏), but most other reports refer to it as “Kuokesu” (阔克苏); this article follows the more common usage.
8. Zhang and Zhu (2013) use the term “race” to refer to population affiliation; the “race” concept is commonly employed in physical anthropology in China.
9. Kuz'mina and Mallory (2007:60) state that a cultural variant “can correspond to the ancient tribe that occupied a territory and was separated from other tribal territories by a largely unoccupied zone.” The “separation” most likely involved an “adaptation” of what is considered the original cultural background of the community (i.e., Andronovo Culture) to a new environment and to the traditions of local groups (i.e., a pre-Andronovo culture).

APPENDIX A: TRANSLITERATION OF TOPONYMS

GEOGRAPHICAL TOPONYMS		
PINYIN	汉字	TRANSLITERATIONS ^a
Boluokenu	博罗科努	Borohoro (K., E.)
Gongnaisi	巩乃斯	Künes (U.)
Kashi	喀什	Karsh (U.); Kashgar (E.)
Tekesi	特克斯	Tekes (U.)
Tianshan	天山	
Yili	伊犁	Ili (E.)
Zhunga'er	准噶尔	Junghariyā (U.); Dzungaria (E.)

^a U = Uyghur, K.= Kazakh, E.=English

CITIES AND COUNTIES		
PINYIN	汉字	UYGHUR
Chabucha'er	察布查尔	Qapqal
Gongliu	巩留	Tokkuztara
Huocheng	霍城	Korgas
Nileke	尼勒克	Nilka
Tekesi	特克斯	Tekes
Xinyuan	新源	Künes
Yining	伊宁	Ghulja
Zhaosu	昭苏	Mongolküre

SITES	
PINYIN	汉字
A'kebuzaogou	阿克布早沟
Ayousai Goukou	阿尤赛沟口
Aga'ersen	阿尕尔森
Alagou	阿拉沟
Bakaleke	巴喀勒克
Basikalasuxi	巴斯喀拉苏西
Biesikalagai	别斯喀拉盖
Biesitoubie	别斯托别
Bietebasitao	别特巴斯陶
Boma	波马
Caiqiaomen	彩桥门
Chaiwangang	柴湾岗

(Continued)

APPENDIX A: (Continued)

SITES	
PINYIN	汉字
Chawuhugou	察吾乎沟
Daxigou	大西沟
Dongmaili	东麦里
Duo'erbuji	多尔布津
Halatubai	哈拉图拜
Heishantou	黑山头
Huji'ertaisayi	胡吉尔台萨依
Jiagacun	加噶村
Jialekesikayinte	加勒克斯卡茵特
Jilintai	吉林台
Jirentai Goukou	吉仁台沟口
Junmayichang Yilian	军马一场一连
Kala'aoyi	喀拉奥依
Kalasu	喀拉苏
Keqikekusubutai	克其克苏布台
Kuju'er	库居尔
Kuokesuxi	阔克苏西
Luotuoshi	骆驼石
Machang	马场
Miaopu	苗圃
Nanshan	南山
Nazituobie	那孜托别
Nulasai	奴拉赛
Qiafuqihai	恰甫其海
Qialege'er	恰勒格尔
Qiongkeke	穷克科
Qirentuohai	奇仁托海
Sa'erbulake	萨尔布拉克
Sa'erhuobu	萨尔霍布
Sazi	萨孜
Senmutasi	森木塔斯
Shangsunjiazhai	上孙家寨
Shankou Shuiku	山口水库
Shenbukeqi	什布克其
Subeixi	苏贝希
Suodunbulake	索墩布拉克
Ta'erkete	塔尔科特
Tangbalesayi	汤巴勒萨伊
Teliekebulake	铁列克布拉克
Tianshanbeilu	天山北路
Tielekesayi	铁勒克萨依
Tiemulike	铁木里克
Wulapo Shuiku	乌拉泊水库
Wutulan	乌吐兰
Xiaohe	小河

(Continued)

APPENDIX A: (Continued)

PINYIN	SITES	汉字
Xiaokalasu		小卡拉苏
Xiata		夏塔
Xiatai		夏台
Xinyuan Qishiyituan		新源七十一团
Yanbulake		焉布拉克
Yanghai		洋海
Yangshan		阳山
Yeshenkelieke		叶什克列克
Yijidianzhan		一级电站
Yimuchang		一牧场
Yingpan		营盘
Yuantoushan		圆头山
Yutang		鱼塘
Zeketai		则克台
Zhaosu Qishisituan		昭苏七十四团
Zhaosu Qishiwutuan		昭苏七十五团
Zhongyangchang		种羊场

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