

## TOPONYMY OF THE ANCIENT SARY-ARKA (NORTH-EASTERN KAZAKHSTAN)

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**ABSTRACT** This study examines the etymology of the principal physiographic entities of the ancient Sary-Arka area – meaning in the old Turkic language *Yellowing Ridge* – encompassing the present territory of parkland-steppes, rocky highlands and the adjacent mountains of North and East Kazakhstan. The current linguistic evidence points to a complex and chronologically long culture-historical development reflected by the local place names best-recorded for the major rivers and mountains (hydronyms and oronyms, respectively). Not all geo-site names are securely determined by using modern onomastics. Records of material culture provide additional multi-proxy information. Local uniformity of some toponyms across the extensive area assuming a common cultural background attests to a broader ethnic homogeneity and/or mobility of the ancient populations inhabiting this vast and geomorphically mosaic land. This suggests a close relationship and interactions (including demographic exchanges and mixing) between the past pastoral ethnics in the parkland-steppe and semi-desert areas north of Lake Balkhash between the Aral Sea and the southern Urals in the West and the Alatau–Altai Mountain systems in the East. Whereas the hydronyms of the Sary-Arka may have a rather complex and not fully clear origin with a connection to the Turkic-Tatar medieval tribes and nations' occupancy in northern Central Asia eventually modified into the present Kazakh language forms, the oronyms of the East Kazakhstan mountain ranges indicate the Mongolian roots.

**KEY WORDS:** toponymy, ethnic history, cultural history, Sary-Arka, East Kazakhstan

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### Introduction

The onomastics place name (eponymy) research has a long tradition in Kazakhstan (Slovtsov 1844, Groznyi 1940, Medoyev 1948, Bayandin 1949, Tatischev 1950, Konkashpayev 1959, Margulan et al. 1966, Popova 1966) in respect to the historical imprint to landscape left by ancient populations (Plit and Myga-Piątek 2014). A linguistic study focus in relation to the country's geography has been on understanding a regional toponymy of the present Kazakh

parkland-steppes and some particular places associated with a sequenced culture-historical occupation of these lands by prehistoric and early historical nomadic ethnics. This paper examines the etymology of the principal geographical entities – the specific landscape forms – of the present North and East Kazakhstan – the historical area with a poetical name Sary-Arka/Saryarka. This term is known since the ancient times, meaning in the old Turkish language *Yellowing Ridge* (Margulan et al. 1966). Yet, its linguistic roots may go far back into the prehistoric (Bronze

Age) Mesopotamia and the Sumerian civilization (Postgate 1993). According to present archaeology and ethnology evidence Sary-Arka has an actual geomorphological foundation and a direct linkage to the mosaic relief of the dry undulating rocky steppes and parklands of the northern Central Asia. In the ancient lyrics, this vast and open landscape of early nomads was venerated and glorified by the Bronze Age *Akyn* nation. It is also mentioned in the ancient Kyrgyz epics (Van der Heide 2015). Some large rivers with their tributaries flow through this extensive area that played the principal historical role in the cultural evolution and the socio-economic development and life of early semi-sedentary populations settling this territory.

Rich prehistoric and early historical cultural monuments and archaeological localities are found in diverse topographic settings across Sary-Arka bearing witness of a chronologically long and ethnically divergent inhabitation of this part of Central Asia by hunter-gatherer and subsequent pastoral and early agricultural communities (Khazanov 1984, Frachetti 2006, Outram et al. 2009). A close linkage of these sites with the most prominent and strategic topographic settings since the Palaeolithic times is evident, pointing to adaptation to the mountain and steppe environments (e.g., Levine and Kislenko 1997, Vishnyatsky 1999, Zakh et al. 2010, Chlachula 2010, 2017, Kotov 2016). The mountain regions of Central Asia are believed to facilitate spread of early agriculture since the Bronze Age (Motuzaitė Matuzėviciūtė et al. 2015). The most famous archaeological sites of the Sary-Arka and the adjacent Southern Altai are associated with the Iron-Age Scythian civilization with traces of settlement in the steppes, river valleys as well as on the alpine Altai plateaus with the World-famous burial mounds (*kurgan*) sealed in permafrost grounds (Bourgeois et al. 2000, Polosmak 2001, Samashev 2001, 2011, Gorbunov et al. 2005, Chlachula 2018).

This study discusses toponymy of the main regional hydronyms and oronyms (place names of the principal rivers and mountains, respectively) found on the territory of northern and eastern Kazakhstan that still do not have a uniform and generally accepted interpretation. Linguistic, historical and geographical studies and their conclusions are taken into account summarizing

the current knowledge and scientific hypotheses based on the historical and geographical literature analysis. This also concerns the etymology of the regionally principal place names of the main rivers and lakes such as Yertys and Zaysan, and the mountains ranges of the Altai, Tarbagatai, Bayanaul and some other (Yegorina 2002). According to the present evidence, there is no common and scientifically grounded lexical clarification of these geomorphic entities. This may be explained by the 150-year presence of the Mongolian Oyrats in the NE Kazakhstan during the 17<sup>th</sup> and the first half of the 18<sup>th</sup> centuries, and the previous Tatar and Mongol invasions to the territory of Sary-Arka during the 13<sup>th</sup> century that modified or completely obliterated the former place names and their original meanings used by the indigenous tribes. There are some exceptions, such as the hydronym of Irtysh, referring to the main river flowing through the Eastern and NE Kazakhstan that clearly derives from the river *Yertys* encountered in the ancient Turkish written records. The *Yertys* etymology is also found in the early Hungarian annals and chronicles describing the nation's prehistory and early historical times. The original linguistic assignment *Irciss*, however, probably relates to the Ket nation from whom this name was taken over by the medieval Mongols. Finally, examples of physiogeography peculiarities and specific geo-forms of the north-central and eastern Kazakhstan are presented in linkage with the regional historical toponymy. Apart of clarification of the place names' origin, study of the prehistoric and historical landscape change has relevance for mapping of the present geo-relief structures, for understanding of their perception by the former nomads as well as promotion of the modern geo-tourism in the Republic of Kazakhstan (Goessling et al. 2005, Yegorina et al. 2016, Geta et al. 2015, Mazbaev 2016, Saparov and Zhensikbayeva 2016, Zhensikbaeva et al. 2017, 2018).

## Study Area: Geography and Geological History

The north-central and eastern Kazakhstan – Sary-Arka – is naturally a very diverse area with a high degree of geo-diversity characterized by deep ravines, erosional tectonic platforms and



Fig. 1. Geographic location of the study area with the oronyms and hydronyms of northern and eastern Kazakhstan (the territory of Sary-Arka) discussed in the text.

rocky hills surrounded by open parkland-steppes. It is rich of natural, especially metallic minerals that were explored and exploited for since the prehistoric times (Samashev 2001, Kungurov 2006, Baumer 2016a–c). The dominant semi-arid steppe area is covered by feather grasses (*Poaceae* – *Stipa* sp.), reminding a fox tail, broadly distributed across the country (Nobis and Gudkova 2016) and indicative of dry continental steppes with hot summers and windy frosty winters with a little snow cover. The historical name *Sary-Arka* refers to the vast geographical area bound from the South by the Aral-Balkhash Lowland, in the North by the West Siberian Lowland, in the West by the Caspian Plain and the Torgai Valley, and in the East by the Irtysh River valley (Fig. 1). It has most likely a geomorphologic connotation to the prevalent relief of North-Central Kazakhstan (Medoyev 1948, Margulan et al. 1966). From the modern geographic and geomorphic point of view, the Sary-Arka includes a series of low-elevation yellowish granite ranges and mountain ridges (Kokshetau, Karkaraly, Baitau/Bayantau, Shyngystau, Ulytau, Atasu, Imantau, Kyzylzhar, Munly, Mugodzhary, Zhaksy, Zhangystau and some other) drained by small rivers and streams in-charging into the Aral-Balkhash basin in the

southern part of the territory. Some larger rivers drain the area in the north (Yesil, Tobol) belonging to the Irtysh/Yertyys basin.

Biogeographically, the study area encompasses the present parklands, steppes and semi-deserts of East Kazakhstan (Fig. 2). These are aligned by the chain of mountains from the North-West (the Southern Urals), the North-East (the Altai) and the South-East (the Tarbagatay Range). The central part is shaped by low-elevation hills (the Central Kazakh Highlands) adjoining the Zaisan Depression in the East filled by lakes – the Zaisan and the Bukhtarma Basins (300–400 m a.s.l.) amid of a dry xerotheric landscape. The Southern Altai is the principal mountain system of East Kazakhstan with elevations >4,000 m a.s.l., bordering in the East the Mongolian Altai through the Tabon-Bogdo-Ula massive (Nairamdal Mt., 4,356 m a.s.l.) (Chupakhin 1968). The East Kazakshtan orogenic massive is divided into several E-W oriented montane formations (Southern Altai, Sarymsakty, Narym and Kurchum) connecting through the Tarbagatai Range (2,992 m a.s.l.) and the Dzhundarskiy Alatau (4,464 m a.s.l.) to the Tian-Shan Mountains (Schultz 1948, Mikhailov 1961). Geomorphologically, the alpine relief is



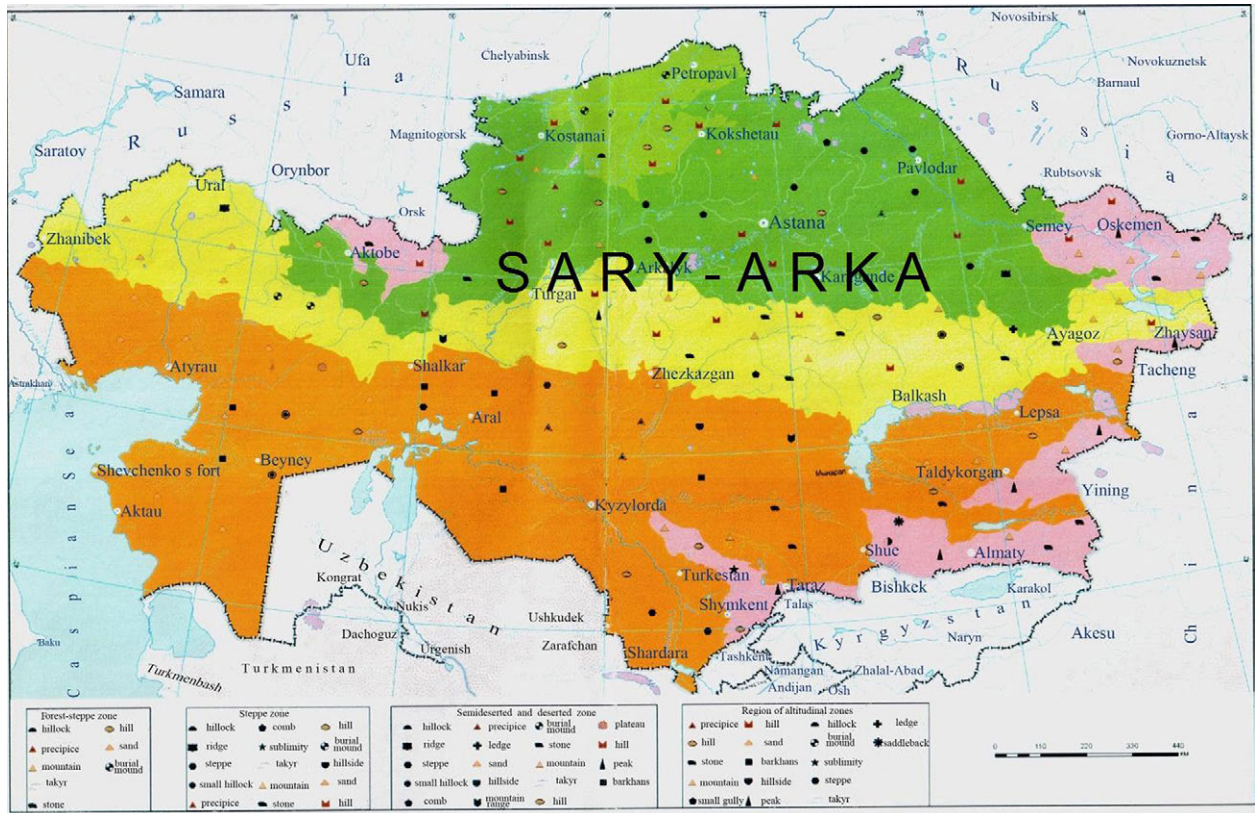


Fig. 2. A bio-geographic map of Kazakhstan with the specific vegetation-cover zones, including, from North to South: parklands (forest-steppes), steppes, semi-deserts/deserts and the mountain zone in the NW and eastern part of the territory. Displayed are some specific geo-sites (legend).

characterized by steep erosional northern slopes representing uplifted relics of old plateaus (>3,000 m a.s.l.) with a westwards-decreasing topographic gradient (3,900–2,300 m a.s.l.). The enclosing inter-basin generated by rifting during the Hercynian orogenesis is largely filled by Paleozoic, Devonian and Carboniferous sea deposits (Deviatkin 1965, 1981, Erofeev 1969, Mikhailova 2002). The central steppe area is built by weathered Proterozoic granites in places interspersed by gneiss units exposed to the present surface in the form of rounded hills and up-to 100 m-elevated flat denudation platforms. These stretch across the land as parallel-running fold erosional relics adjoining the rocky *Melkosopochnik* (highlands) of East-Central Kazakhstan (Svarichevskaya 1965).

The present-day relief of East Kazakhstan provides evidence of a complex landscape development triggered by past climate change and the regional tectonic activity (Nekhoroshev 1958, 1967, Dodonov 2002, Akhmeteyev et al. 2005, Dyachkov et al. 2014). Three biogeographic provinces reach the present territory – the central Kazakhstan

(Aral Sea-West Siberian) province, the southern Siberian (Yenisei) province and the Central Asian (Tian-Shan – Mongolian Altai) mountain province, with the latter having experienced the most intensive Quaternary physiography evolution accompanied by intensive erosion processes (Velikovskaya 1946, Grigoriev 1950, Chupakhin 1968). The pre-Cenozoic landscape history of the continental areas of Central Asia is characterized by a low topographic gradient of old planation surfaces and former sedimentary sea basins subsequently broken by the late Miocene Earth crust movement (Nekhoroshev 1967). Neotectonic activity in conjunction with past global climate changes shaped the former relief particularly during at the Pliocene/Pleistocene and early Middle Pleistocene. The territorial Cenozoic (Late Pliocene-Middle Pleistocene) orogeny constructed a system of mountain ranges separated by deep depressions periodically filled by lacustrine water bodies (Dodin 1961). Intensive erosion of the uplifted geological formations led to several denudation cycles flattening the former relief (Aubekerov 1993). The topographic elevations

are distorted by long-term weathering processes and sculptured into exposed vegetation-free rocky granitic hills of an average 700–750 m a.s.l. elevation (Obruchev 1951).

The progressive cooling during the late Middle and Late Pleistocene generated permafrost expansion on the northern and central plains merging with the insular mountain permafrost (Aubekerov and Gorbunov 1999). The glaciations in the mountain areas affected the adjacent ice-free foothills with prevailing continental cold and arid climate and intensified denudation processes (Kozhamkulova and Kostenko 1984). The regional geomorphology is largely defined by the Quaternary (palaeo-)landscape evolution with the warmer Early-Middle Pleistocene interglacials witnessed by strongly weathered palaeosols followed by increased continentality and a progressing relief gradient during the Late Pleistocene (Galakhov and Mukhametov 1999). A pronounced Last Glacial natural dynamics of the Altai Mountains is documented by spectacular glaciofluvial terraces in the principal mountain valleys associated with a release of deep ice-dammed glacial lakes subjected to cataclysmic drainages during the final stages of the regional alpine-zone deglaciation (Butvilovskiy 1985, Rudoy and Baker 1993, Rudoy and Kirianova 1994, Herget 2005). The Last Glacial (MIS 4 and 2) loess up to 20 m thick, interstratified by palaeosol, blankets the western mountain foothills and adjoining slopes in the main sedimentary (river) valleys (Chlachula 2010).

The present hydrology network belongs to the Irtysh drainage system with the Black Irtysh and Bukhtarma Rivers being the main tributaries. The modern climate is strongly continental, with warm semi-humid summers and very cold winters with an increasingly uneven precipitation distribution ranging from 1,500–2,000 mm/year on the NW Altai slopes to 200 mm/year in the Zaisan Lake basin with semi-desert vegetation transgressing into an open Kazakh steppe along the margins.

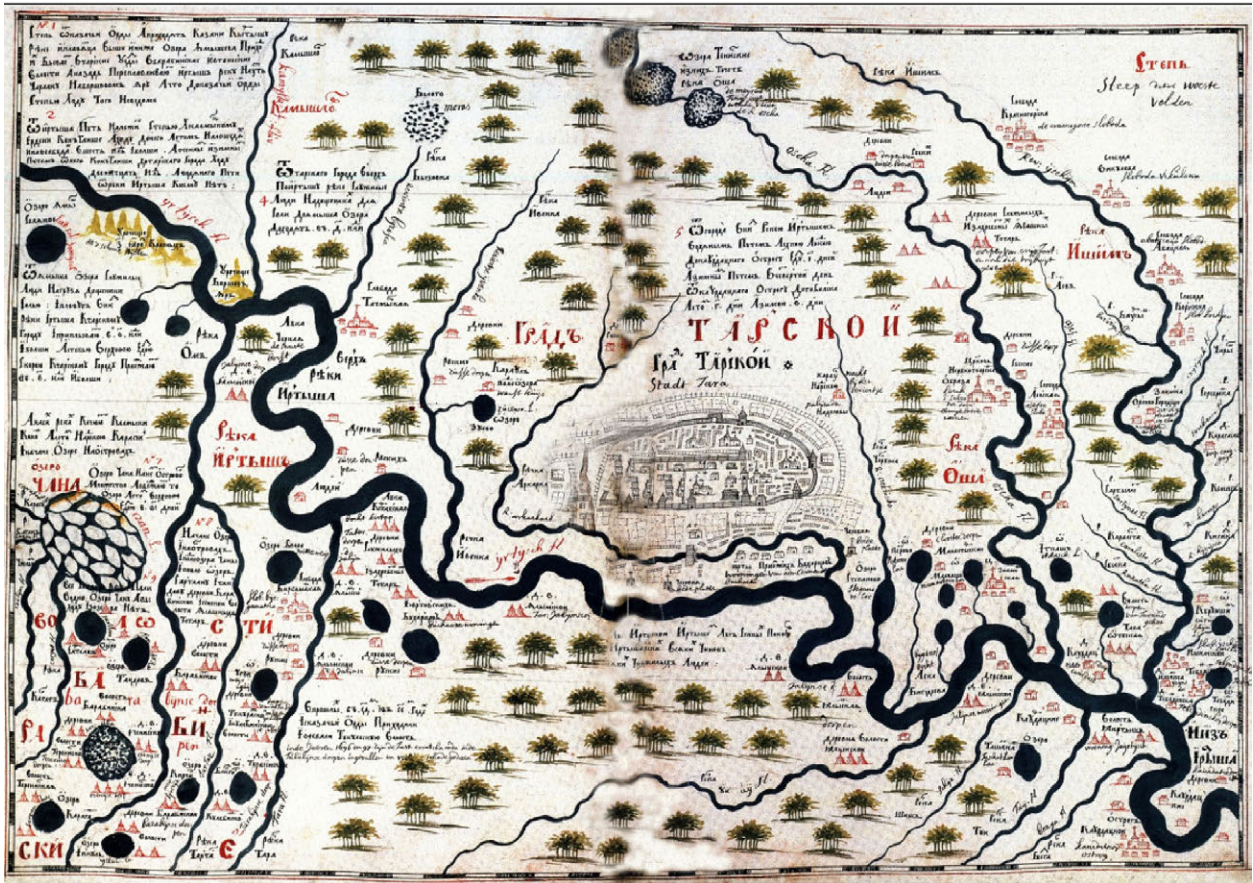
## Historical Research Background

In consistency with the above geographic and geomorphic characteristics, the toponymy of Sary-Arka with its typical relief features and

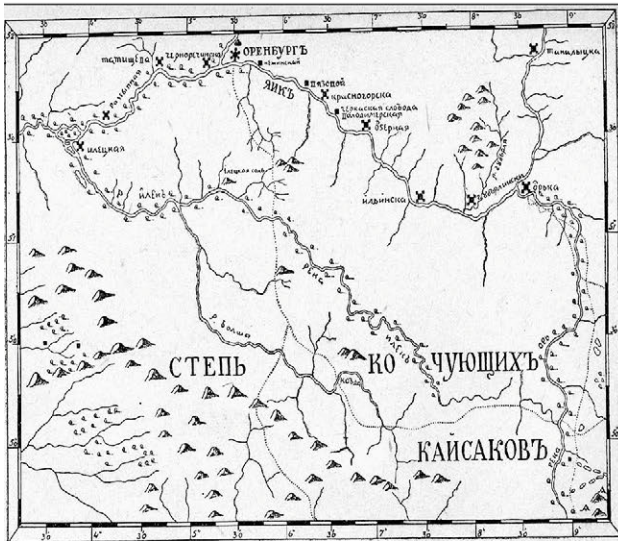
some unique geo-sites indicates a rather ancient origin. From a geo-environmental point of view, this may mirror presence of a variety of local ecosystems (Fig. 4) and culture-historical adaptation strategies of the past hunters' populations and later semi-sedentary nomadic communities settling this vast territory. The traditional understanding of the Sar-Arka is believed to mean *Yellow watersheds* or *Outspread ridge* (Medoyev 1948). In opposite, the etymology approach of this study, by referring to the old Turkish linguistic records, suggests an alternative interpretation – *Sary* – meaning *A side, land of light* and *Arka* meaning *North*. Thus, this place-name represents *The Land of the North* or *The North Side*. The eponymy roots, however, may go far back as to the Eneolithic (5<sup>th</sup>–4<sup>th</sup> Millennium BP) into the time of ancient ore prospectors exploiting the Sary-Arkas' copper deposits found in the Zhezkazgan and the Rudny Altai Mountains (Baumer 2016a). A certain parallel is known from the southern area of the Central Asia – the Near East – in term of introduction of metallurgy in the early civilizations of Mesopotamia and India (Roberts et al. 2009). A certain culture-chronological linkage to the ancient Mesopotamia is seen in the Sumerian nation that called themselves *Kengirler* i.e. *Miners* (Moorey 1982). The present NE Kazakhstan or *Sary-Arka* was likely one of the centers of mineral mining and introduction of metallurgy (Chernykh 1992, Baybatsha 1998). The existing archaeological evidence suggest a geographical origin of the Sumerians from somewhere in the Kyrgyz (=Kazakh) steppes on the border between long-headed ancient Indo-Europeans and short-headed Turanians ethnics (Grozny 1940). Altogether, the territory is unique in its material and spiritual culture of the former pastoral traditions spanning over many millennia of occupancy along the historical Silk Road (Barfield 1989). The local geo-settings played a major role in the cultural and economic life of the ancient population of Central Kazakhstan (Margulan et al. 1966). Except for metallic minerals, the broader area of Sary-Arka is also rich of semi-precious and precious stones that attracted attention since the prehistoric times (Pacekov et al. 1990, Sherba et al. 2000, Chernenko and Chlachula 2017).

During the Iron Age (1<sup>st</sup> Millennium BC), northern Kazakhstan was occupied by pastoralist tribes known under the name of Sakas (Saks)

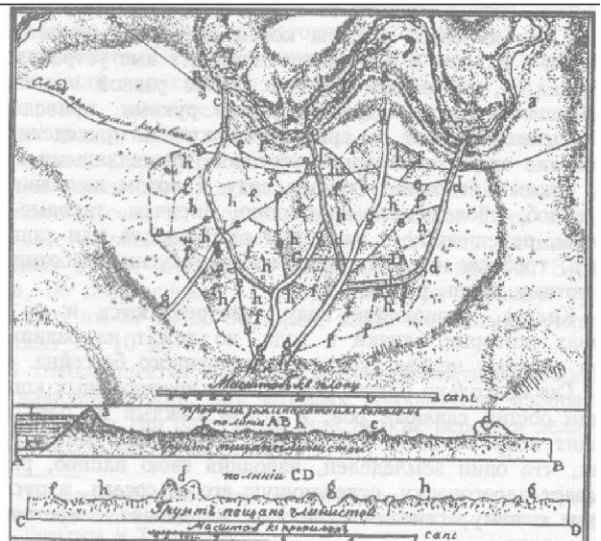




A



B



C

Fig. 3. A – The Siberia Sketch cartographic map with geographical loci along the Irtysh River presented by S.U. Remezov (dated to 1697); B – The Kaysakov (Kazakh) nomadic steppe south of the Irtysh/Yertys River; C – A Kyrgyz (Kazakh) steppe-setting plan of arable lands.

mentioned in the old Greek and Assyrian written records as Scythians or Turans. The Arabic and Persian sources refer to the present Central Asia as to the Northern Land or the Tatar Land

– Desht-i-Kipchak of the Batus Ulus – a regional geopolitical entity established by Mongols that absorbed the Turkic tribes of the northern steppes of Central Asia (David 1946). The Turkic-Tatar





Fig. 4. A – A local pastoralist yurt (kibitka) dwelling of the Kyrgyz (Kazakh) nomads (late 19<sup>th</sup> century); B – illustration of a Kyrgyz horsemen; C – the traditional Kyrgyz (Kazakh) people of the Sary-Arka steppe (19<sup>th</sup> century); D – fire in the Kyrgyz steppe (a painting by T. Shevchenko, 1848).

ethnic elements became dominant in the following 13<sup>th</sup>–15<sup>th</sup> centuries taking over political powers from the Mongols and consolidated in the Golden Horde fighting with the medieval Russian State. After its political disintegration, independent khanates in the western Siberia and Central Asia were established. From 15<sup>th</sup> to 18<sup>th</sup> century, the territory of Sary-Arka became a part of the Kazakh Khanate reaching a major development under Khan/Emir Chagataid Tughlugh Timur (Kundakbayeva 2016). Cattle-breeding remained principal economy under the tribal/extended family social organization. During the 18<sup>th</sup> until the early 20<sup>th</sup> century (1925), the territory of the present-day north-central and East Kazakhstan was a part of the Russian Empire (the Tomsk Gubernia) after the collapse of the Kazakh

political unity in the 1730–40s' and thus a subject of geographic investigations and mapping by the Russian cartographers. Hand-in-hand, the historical linguistic research was carried out in the frame of the Russian geo-political sphere. This is documented by cartographic works and illustrated maps, such as *the Sketch of Siberia* by Remezov (1697) with the Irtysh River course (Fig. 3), or ethnographic drawings and photographic illustrations depicting the lifestyles and land-use of the local Kyrgyz/Kazakh steppe pastoral people (Fig. 4). In the 19<sup>th</sup> century, the broader area came into focus of the British Crown in connection with its political interests in Central Asia as documented by the map of *Independent Tartary* by J.F. Tallis (1851) or the geographic map by A.K. Johnston (1879).

## Method and Approach

Methodology of the present summarizing study is based on an in-depth analysis of the Sary-Arka eponymy and toponymy of some principal hydronyms and oronyms providing a culture-historical mosaic of this vast and literally enigmatic steppe-land. Archives of the Gumilov National University, the National Library of the Republic of Kazakhstan and the Archaeological Museum in Astana were used. The place-names' interpretations is based on a multi/proxy approach combining, apart of the linguistic records also ethnological and archaeological evidence and data.

## Results: The Sary-Arka Landscape Eponymy

### Oronyms

Mountains have played a very important role in the life of the ancient inhabitant of Sary-Arka throughout millennia. The mountain habitats use to provide lush pastures in protected valleys, rich biotopes for hunting-gathering activities as a supplement to the traditional nomadic pastoralism (Chlachula 2011), as well as places of metallic raw material distribution and refuge in times of enemy tribe invasions. Low-to high-elevation mountain systems characterize the topographically broken relief of the present north-eastern and central Kazakhstan, providing witness of intense past regional orogenic processes. Neotectonics is particularly active in the eastern part of the territory with the uplifting Rudno Altai, Southern Altai, Naryn, Tarbagatay and Dzungarskiy Alatau ranges (Velikovskaya 1946, Mikhailov 1961, Veselova 1970). Contrary to the orogenically active eastern part of the territory, the geologically mature northern and central part of Sary-Arka constitutes chains of the Pre-Cambrian bedrock structured into systems of separate mountain ranges such as Bayanaul, Ulytau, Shyngystau, Kokshetau, Termirtau, Chingistau, Zhaksy, Karkaly, Kyzylarai, Mugodzhary and some other (Fig. 1) predominantly bearing the old-Turkic or Mongolian names.

The Baitau Mountains toponymy suggests a combination of the Mongolian words *bayan*, *bain* - rich and *ola*, *oola* - mountain (Konkashpayev

1959). The Kazakhs as the historical population of this area have always called these mountains *Bayanaula* instead of the Russian form *Bayanaul* (Fig. 5A-B). The eastern and western geographical extensions of the central Bayanaul massif (Akbet Mt., 1,022 m a.s.l.) - the Zhaksyaula (Zhaksy) and Zhamanaula, respectively - document the geomorphic diversity with a varying 800-1050 m altitude range (max. elevation Kyzyltau Mt., 1,055 m a.s.l.). The modified designation of the Bayanaul Mountains relates to the Russian settlement of the same name - Bayanaul - established in 1826 as a military post in the frontal part of the mountain range. Some similar toponymy variants are also known, such as *Bayan-Ola*, *Bayanaula* or *Zhaksyaula* and *Bain-ola* meaning *rich mountains*. Overall, there is a general agreement on the Mongolian linguistic origin of the Bayanaul Mountains. A mountain of a similar name - *Bain-ola* is located near the present capital of Mongolia, Ulan Bator (Kenesbayev et al. 1971). Another mountain range of Sary-Arka largely formed of granite - the Ulytau Mountains (Kazakh: Ұлытау) located in the southwest of the Kazakh Upland in the NW part of the Karaganda Region (Fig. 5C) indicates the Turkic meaning *Great Mountain*. This is also one of the oldest mountains ranges (Akmeshit Mt., 1,131 m a.s.l.) in Kazakhstan extending ca. 200 km from North to South and geomorphologically characterized by peneplanation surfaces showing intensive past denudation processes and wind-erosion. In the 17<sup>th</sup>-18<sup>th</sup> centuries, the mountains of Argynaty (Ulytau) were considered as the center of the Kazakh steppes and a preferred location of khans the nomadic tribes.

Other mountain ranges of a generally high geological (pre-Cambrian) age are found on the territory of Sary-Arka with a generally Turkic-Kazakh toponymy provenance. The Shyngystau or Chingis-Tau Mountains (Kazakh: Шыңғыстау or Чингис-Тай) in the Abay Region of northern Kazakhstan run in a north-west direction at the eastern edge of the vast Central Kazakhstan Uplands - *Melkosopochnik* (Fig. 1). The central part of the massif forms an undulating plateau of exposed weathered rocky bedrock. Although the principal mountain ranges - Akshatau and Kyzylzhal - have the appearance of watersheds, most of the local rivers (Bakanas, Arsalan, Akshatau) emerge at the eastern edge





Fig. 5. Present landscape physiography associated with the discussed oronyms in north-central and eastern Kazakhstan (Sary-Arka). A. Bayanaul Mountains (700–1,000 m a.s.l.) shaped by Palaeozoic orogenesis with Lake Zhasybay (Pavlodar Region); B. Bayanaul – the Akbet Mt. (1,022 m) near Lake Toraigyr; C. Ulytau Mountains (1,133 m a.s.l.) structured of granitic massifs with canyon-shaped planation relief of colorful stratified Mesozoic sedimentary rocks (Ulytau Region); D. Kokshetau Mountains (947 m a.s.l.) with Borovoye/ Buragay (Pine Forest) Lake (Akmola Region); E. Kyzylarai Mountains – Aksoran Mt. (1,565 m), the highest peak of central Kazakhstan (Karaganda Region); F. Mugodzhary Hills (average elevation 400–500 m a.s.l.) formed by the Pre-Cambrian Earth crust uplift and situated in open steppe connecting to the Southern Urals (Aktobe Region).

of the uplands. The Shyngystau Mountains are bound to the legend of inauguration of Temudzin as of the chief of all the Mongol tribes on one of the mountains' white tops in 1206. Cave Konyr Aulie (Коныр Аулие), a karstic limestone cavity 70 m long and up to 14 m high, is traditionally venerated by the Kazakh people in the Chingis-Khan's commemoration. A similar geological structure have the Karkaly/Karalaly (*Black Stone*) Mountains raising in semi-desert north of Lake Balkhash (Fig. 1).

The Kokshetau Mountains in the Akmola Region in northern Kazakhstan are located in the present Burabay National Park. This area is known for natural beauty with lakes surrounded by pine forest, with the principal Lake Borovoye (Fig. 5D). Its name originates from the Russian word *bor*, which means *pine forest*; the former Turkic name is *Auliekol* – *holy lake*. The Kyzylarai (Kazakh: Кызыларай) Mountains (Aksoran Mt., 1,565 m a.s.l.) is the highest massive of the Kazakh Uplands located in the Karaganda Region of central Kazakhstan (Fig. 5E). In spite of the barren rocky landscape, numerous prehistoric occupations are associated with this area, including the famous megalithic (Bronze Age) settlement of the Begazy-Dandybaev Culture (Margulan 1979).

The Mugodzhary Mountains (Мугоджарские горы) are considered as the southernmost extension of the Urals massive (Fig. 1) latitudinally running for ca. 200 km in the form of two parallel ranges – the Western and Eastern Mugodzhary with the highest peak Large Boktybay (657 m a.s.l.) (Svarichevskaya 1965). The hilly region amid of undulating steppes (Fig. 5F) is drained by several larger rivers, such as Emba and Irgiz, and includes a number of lakes. The broader area of the Southern Urals provided a vital geo-habitat for peopling since the earliest times (Kotov 2016). According to the present understanding, the oronym Mugodzhary or *Mugadzhar* means *sharp top-located ledges*. Alternatively it may be linked to the old-Turkic name of the nomadic tribe *Mugan* occupying this geographically diverse area and the adjoining northern Caucasus during the 10<sup>th</sup>–11<sup>th</sup> centuries AD (Anthony 2006). In the 18<sup>th</sup> century Russian sources, when this territory was a part of the Empire and under the tsarist jurisdiction, these mountains are mentioned under several names – *Mugulzhar-cal*, *Mugalzharsky*, *Magulzharskimi* or

*Mugaldzharskimi Gorami* or *Magaldir Tau* or in as *Malgazir* in the imperial atlas from 1745 (Tatischev 1950). These names came into general use since the 18<sup>th</sup> century. If there is some earlier (Middle-Age) etymology linkage to the Mongols (in the Turkic word *Mongul* or *Mogul* meaning *Mongol* or *Kalmyk* people) remains unclear but cannot be excluded (Menges 1995). The linguistic designation of the local mountains point to their Turkic-Tartar and more recent Kazakh provenance (e.g., *Ala-Bie-Tau* – *Mottled mountain mare*; *Dau-Tau* – *Mountain of dispute*; *Ken-Kuys/Kenkus* – *Wide Gorge*; *Obaly/Ubaly* – *Burial mound Mountains*; *Zhaksy Tau* – *Good Mountain*; *Jaman-Tau* – *Poor Mountain*).

The highest and most extensive Altai/Altay Mountains include several separate mountain chains adjoining the Southern Altai of East Kazakhstan – the Gorno Altai of southern Siberia, and the Mongolian and Chinese Altai, all with elevations over 4,000 m a.s.l. (Belukha 4503 m) (Fig. 6A). Its name comes from the Mongolian *Altyn* which is translated as *gold-bearing* or *the place where gold occurs* or simply *the Golden Mountains* (Konkashpayev 1959). The word root *alt* means *gold*; the suffix *tai-place*. This interpretation corresponds to the ancient Chinese name of Altai – *Jinshan* which also means *Golden Mountain* by referring to the area with abundance of gold (Kenesbayev et al. 1971). Gold as the most precious metal has been mined in this area/since the prehistory (Eneolithic) and particularly during the following Iron Age as witnessed in the World-famous Scythian *royal* burials found in the local mountain permafrost grounds (Polosmak 2001, Samashev 2010, Chlachula 2018). An alternative explanation of the Altai name is linked with the old Mongolian language as a *mountainous country of land rich mountains* (Murzaev 1984). The Mongols call the Altai *Altaiyn-Nuru*. The form *Altun yiysh* encountered in the Orkhon runic stone inscriptions may then represent an ancient form of the word Altai, which is also based on the word *Altun* – *gold*. It cannot be excluded, however, that this name was inherited by the Mongols from ancient times (when the suffix *i* was still active), and displaced the use of ancient Turkic *Altun yiysh*. The Mongolian derivation affix *ai* may corresponds to the Turkic affix *a*, *ai*, *i*. Accordingly the name of the Altai clearly bears linkage to both the Turkic and Mongolian



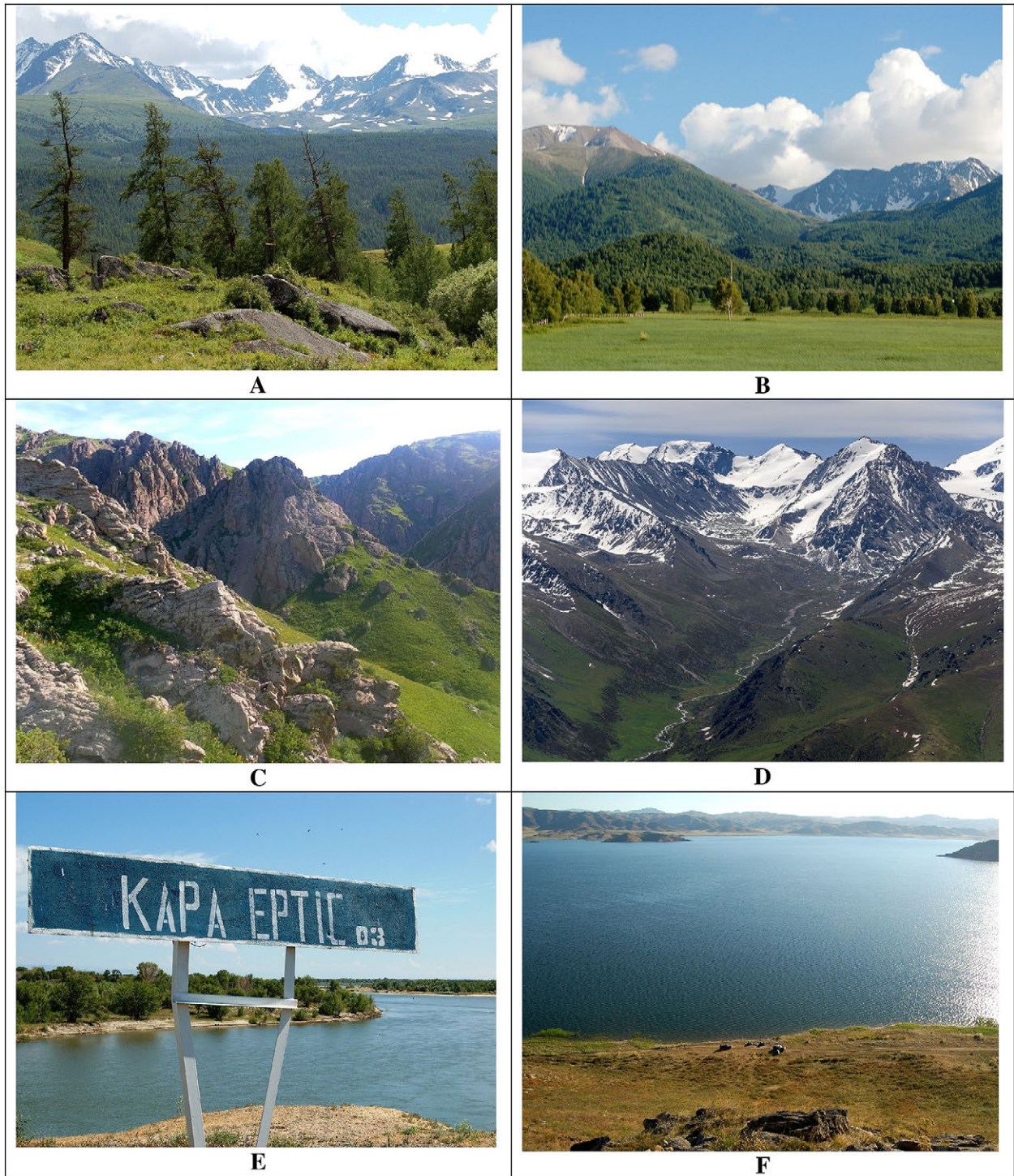


Fig. 6. Present landscape physiography associated with the discussed oronyms and hydronyms in Eastern Kazakhstan. A. Southern Altai massif (4,082 m a.s.l.) (Katon-Karagai District); B. Narym Mountains (3,816 m a.s.l.); C. Tarbagatai Mountains (2,992 m a.s.l.); D Dzungarskyi Alatau Mountains (4,622 m a.s.l.); E. Black Irtysh River (Kurchum District) draining from the Chinese Altai; F. Lake Zaisan filling a tectonic depression (water lever at 420 m a.s.l.) connecting to the Bukhtarma Basin.

languages by combining the two parts: *Altun* – *gold* – and the derivational affix *ai, i* meaning *gold-en* or *gold-bearing* (mountains). The etymology of the Narym Range connecting westwards to the

Southern Altai (Fig. 6B) and drained by the river of the same name is believed to be Mongolian.

The identical eponymy root as of the Altai can be seen in the Alatau Mountains (Fig. 6D).

located further south of the Altai Massive connecting to the Tian-Shan (Fig. 1). Its etymology is evidently associated with the Turkic *Alatau* meaning *motley mountains*, i.e., the mountains with a variety of vegetation, rocky landscape and snow caps. According to the early Chinese annals, the name may also refer to a local *Alat* tribe that belonged to the Hephthalite nation (also called *White Huns* in the Byzantinian sources) centered in the early Middle Ages (5<sup>th</sup>–6<sup>th</sup> century AD) Bactria (Kurbanov 2010). Equally interesting is the oronym of the mountain range Tarbagatai (2,000–3,000 m a.s.l.) in eastern Kazakhstan stretching along the border with China (Figs 1, 6C). Its name comes from the Mongolian *tarvag* (in the Kazakh *tarvaga*) – *marmot* or *having marmots* by adding the affix *tai* i.e. *the Marmot Mountains* (Konkashpayev 1959). This, however, is a certain misinterpretation of the Mongolian *tagh-taw-tay* meaning *mountain* by the Turkic nations, such as the Kazakh. All the mentioned oronyms show uniformity in their linguistic formation, with the Turkic affix *lyk* (Kazakh *ly*, *dy*) and the Mongolian *tu* also found in a number of other place names of the north-central and eastern Kazakhstan (Bayandin 1949).

In sum, the Sary-Arka landscape and the adjoining mountains of East Kazakhstan are linguistically closely bound to the nomadic ethnics occupying this area for centuries and millennia. A partial ethnic influence and transmission of the place names from one to another is well apparent.

## Hydronyms

The etymology of the north-central and east Kazakhstan hydronyms still does not have a uniform linguistic interpretation in terms of combined linguistic, culture-historical and geographic studies. The main hydronyms of Sary-Arka, i.e., the NE territory of the present Kazakhstan, refer to the principal rivers and their major tributaries. The best example of this is Irtysh– the largest river of Kazakhstan and the area of Sary-Arka.

The Irtysh/*Yertys*, called the Kara (Black) Irtysh in its upper reaches (Fig. 6E), starts in the Chinese Altai flowing through the Zaisan Depression and the northern Kazakh stepped prior to joining the Ob River in the West Siberian Lowland as its main left tributary. Most of the river flows through Kazakhstan, and Russia (about

97%) and only 3% through NW China (Fig. 1). Its total length of 4,450 km outreaches the Volga/Idel River (Slotvtsov 1844) the flow rate of which is almost two-times faster than of Irtysh. This denomination reflects the nature of the river itself with *Yedel* in the old Sarmatian language (*Zhedel* in Kazakh) meaning *fast* (Groznyi 1940). *Irtysh* then is presumably an old Turkic/Tatar name referring as to a *Man's mountain* (Tatischev 1950). Another interpretation points to the Kalmyk designation of the river as of *Irtansh*, i.e. *the Prince or atheling* (Omarov 1975). A total of 1393 rivers drain the present hydrology catchment basin of the Irtysh River, 16 of them are ca. 200–500 km long

In the ancient Turkic written records in honor of the sultans Kul-Tegin and Tonykok the name of the river *Yertys* is found exactly with the same pronunciation as in the modern Kazakh language (Abdrakhmanov 1959, Popova 1966) implying a linkage to the homeland of the Kyrgyz-Kazakh nations. By analyzing the etymology of the word *Yertys* some geographical indices of the river are also encountered in the medieval Hungarian chronicles that mention the *Togora* River i.e. the same river that is found in the Vienna Illustrated Chronicle by Tuross Togata. Among other proposed explanations of the word Irtysh, there is the *land* and *dig* of the Kyrgyz language of *Irciss* found in the old Celtic ethnic dialects subsequently taken over by the Mongols expanding during the 12<sup>th</sup> and 13<sup>th</sup> centuries across the northern steppes of Central Asia. Judging from the structure of the word, its second part *shesh* is likely of the Turkic origin reminding the *Ketses* both terms meaning *river*. The first part may suggest the ancient Indian *ar* or *Arna* implying *raging stream* (Murzaev 1984). This meaning corresponds to hydro-geomorphology of Irtysh being a mountain river in its upper reaches and still representing a swift river with a high water capacity further downstream along its middle courses before transgressing into a major, slow-moving and broadly-meandering channel in the West Siberian Lowland (Popova 1966).

The argumentation for a chronologically relatively recent Mongolian medieval (13<sup>th</sup> century) origin of the Irtysh name and its dissemination into other eastern languages has support in its linguistic root encountered analogously in the components of other hydronyms of Central Asia





Fig. 7. A geomorphically very diverse semi-arid open steppe landscape of the Sary-Arka (the eastern part of the Central Kazakhstan Highlands – *Mel'kosopochnik*) with rocky hills and deep ravines formed by exposed Pre-Cambrian granitic bedrock.

-Irsu, Irkol and Irghiz among other (Djanuzakov 1982). The first part of this hydronym – *ir* – is most likely old Turkic (Sevortyan, 1974). Hydronyms with such a root are also found from Asia Minor to Mongolia (Yrgyz, Irsu, Yrqt, Yrkol, etc.). The Kazakh *irim*, Turkish *irmak*, both meaning *river*, and the Uzbek *irmoq-tributary* may all have the same etymology and thus be directly related to the hydronym *Ertis*. The second component – *cis* – seems to be associated with the Ket *ses* providing the final *Ir-ses/Irchis/Ircis*, i.e. *River* (Murzaev 1984). Widespread in the south-western Siberia, the originally Iron-Age word *ses, shesh* (river) was apparently modified in the Turkic language to *tish, cis*. The first part of the word *Ertis* – *iyir, iyirim, iyirilgen* – in the old Turkic language means wandering. Therefore, the combination of the Turkish affix *ir* and the Ket *ses-cis-shesh* most likely resulted in the hydronym *Ertis* and *Iyirses* eventually turned to *Yerses, Yertes*. In the present Kazakhstan, there are several geographically broadly distributed place-names formed by the same word component, such as the rivers of *Iyiradyr, Iyiri Iyirkol, Iyirsu* and some other.

By explaining the Irtysh River eponymy, attention should also be paid to spelling of the word *Yertis* with the second part meaning *water* or *river*. Similar structures have other north-central Asian hydronyms. The Yrghyz (Irgiz) River consists of two components: *yrghy* – *old* and *su* – *water, river* (Abdrakhmanov 1975). Hence, it is very likely that *Iyirty-su (Irty-su)* gradually transformed into *Iyirtys – Yertys – Irtysh* as in the case of the river *Yrghy-su*, which turned into *Yrghyz (Irghiz)*. Except of the Irtysh River, there is also a lake of a similar name in Bashkiria – *Irtash (Irtyash)* in the southern Urals. In the Tatar language this means *man's stone*. Interestingly, the Irtysh as a major river of West Siberia calls in Tatar *man's mountain* and used to be referred among the local people as to *quiet, safe and rich of fish* (Slovtsov 1844, Tatischev 1950). The same lake is mentioned by Slovtsov (1844) in his *Historical review of Siberia* as Lake Irtyash geographically positioned *between the Iseti and Miyasa*. It should be noted that the Siberian Khanate (also called the Siberian Ulus/Yurt) of the 13<sup>th</sup>–15<sup>th</sup> centuries and encompassing the present territory of NE

Kazakhstan and western Siberia had close cultural and ethnic links with the southern Trans-Urals and the north Caspian Sea area, where the Nogai Yurt (the Nogai Horde) reigned. The land called *Ediger's Siberia* laid close to the main Nogai Yurt, and the Siberian Yurt was likely historically located between the Iset and Miyasa Rivers at the Irtyash lake (Kenesbayev et al. 1971). Thus, the Turkic-Tatar linguistic linkage to the Irtysh River is beyond any doubts.

In conclusion, the historical eponymy of the Irtysh River seems to be rather complex. It is likely formed of two linguistic parts of fundamentally different periods – the Celtic *ses* and the old Turkic *lyir* – jointly resulting in the present river's name meaning *a meandering or raging river*. Finally, it should be taken into account that the Ket *ses*, *shesh* has not been preserved in this form in any other language in contrast to *Ircis* found in Mongolian, *Erczis* in Chinese and *Yertis* in Kazakh.

Another principal hydronymy entity of the Sary-Arka concerns the Zaisan Lake (Zaisan Nor, Nor-Zaisan in Kazakh) which is, after Lake Balkhash, the second largest lake of Kazakhstan located in the East Kazakhstan region (Figs 1, 6F). Positioned in the Zaisan tectonic depression, the lake with length of 100 km and width of 26–39 km occupies an area of close to 3,000 km<sup>2</sup> (Yegorina 2002). According to the present interpretation, the lake's name origin relates to the Mongolian *zaasing* – *noble* (Abdrakhmanov 1959, Konkashpayev 1959) and is presumably bound to an old legend. According to this the local people were saved from starvation during the Dzhungar reign by catching local fish which is still rather opulent in the lake waters. In commemoration of this event, the lake was named Zaisan-Nor – *Noble Lake* (Kenesbayev et al. 1971). In congruence with this explanation, the medieval Mongolian privileged class (nobility) was also called as *Zaasing*.

## Discussion

As presented above, certain toponyms across the Sary-Arka area have common onomastics background even for the geographically rather distant places. This similarity clearly implies close cultural and economic links, and past political tights also reflected in the ethnological

affinities and archaeological records (Gryaznov 1969, Anthony 2002). A certain geographic culture-historical amalgamation over the c. 2,000 km steppe regions from the Altai in the East to the Urals in the West is corroborated by the etymology. A very good example is the name *Irtysh*. Both the Irtyash (Irtyash) Lake in Bashkiria in the southern Urals and the Irtysh (Yertysh) River in NE Kazakhstan have the same linguistic root meaning in the old Turkic language *Man's Stone* (from *ir*, *er* – *man* and *tas*, *tash* – *stone* or *mountain* (Tatischev 1950). Another comparative case is the Sibirka River in Bashkiria that drains the Urals foothills as a left tributary of the Chusovaya River, providing evidence of proximity of the Urals Nogai and the West Siberian Yurts (Uluses) – the medieval tribal organizations (Kundakbayeva 2016). This fact points to a broader ethnic uniformity and/or mobility with socio-economic interactions of the ancient populations inhabiting this vast territory.

On the other hand, the linguistic complexity suggests a diversity of the culture-historical origin of the particular ethnics inhabiting the ancient Sary-Arka. Besides of the Irtysh/Yertysh River, no uniform common and scientifically grounded lexical interpretation of other hydronyms is generally accepted. Most of the present place names of the area indicate the Mongolian cultural milieu because of their 150-year presence and reign in the North-Eastern Kazakhstan during the 17<sup>th</sup> and the early 18<sup>th</sup> centuries, and previously during the 12–13<sup>th</sup> centuries. At that time, most of Central Asia was incorporated in the Mongolian Khanate and experienced the allied Tatar invasions (Kundakbayeva 2016). The origin of some place names may go back to the earlier times (the 9<sup>th</sup> century AD) in association with the Kumak (Kumyk) and Kipchak ethnic substrate (Menges 1995).

A complexity of the ethnic interactions between the north Central Asian groups (Mongolian, Turkic and indigenous, such as Altaic) is also indicated by genetic evidence of the present Kazakh and other Turkic nations' people from the north Kazakhstan–southern Siberia region (Gogkumen et al. 2008). The same pattern of the East-West demographic exchanges and mixing facilitated by the absence of any major physiographic barriers and concretized in the present place names of Sary-Arka can be visualized since the ancient times and represented by the



proto-Uralic, proto-Altaic and Palaeo-Siberian ethnics (Dolukhanov 2003). The historical toponymy imprint to the Sary-Arka's relief is overwhelmingly Turkic adding to the Mongol place names in the eastern part of the land. The old Turkic influence is linguistically documented across wide areas of Asia from western China and Iran to the Balkans (Sevortyan 1974, Menges 1995, Johanson 2001, Alymov et al. 2010).

Knowledge of the culture-historical evolution, the relief physiognomy formation and anthropogenic-natural interactions to specific geomorphic settings in a particular area contributes to the local landscape management, geoheritage promotion and geotourism development (e.g., Coratza et al. 2012, Migon and Goudie 2012, Thomas 2012, Zwoliński, Stachowiak 2012, Ilieş et al. 2017). The Sary-Arka region of NE Kazakhstan has a major potential in this respect (Zhensikbayeva et al. 2017, 2018).

## Conclusion

The north-central and eastern Kazakhstan (the ancient Sary-Arka) shows a complex and timely long culture-historical evolution reflected in the local place names best-recorded for the major rivers and mountains. Yet, not all the regional eponymy entities can be securely determined using geo-forms' linguistics. In view to the present evidence of the oronyms and hydronyms found on this territory it can be summarized:

- the Turkic affix *ly-li*, *dy-di* and the Mongolian affix *tu-ty* are of the same linguistic root. These affixes are attached to nouns and form the principal Sary-Arka's place-name background mostly going back to the early Middle Ages;
- the Irtysh River hydronym suggests formation of the river's name by two culturally different linguistic components: the old Turkic *iyir* – *wandering* and the Ket *ses* – *river*, eventually designating the Irtysh River as *a meandering or raging river*;
- the Mongolian affix *tai* (e.g. Altai) was created by merging the affixes *tu* and *ai*;
- an identical cultural (Mongolian) origin can be seen in the East Kazakhstan mountain ranges by adding the affix *tai/tau* – Tarbagatai, Baitau (Bayantau), Kokshetau, Temirtau and some other mountains.

The toponymy characteristics provide insights into population exchanges in northern Central Asia throughout the millennia since the Eneolithic of the ancient Indo-European inhabitants through the Bronze and Iron Ages (3<sup>rd</sup> and 1<sup>st</sup> Mill. BC) of the Turanian, Scythian and Saks ethnics until the historical period (2<sup>nd</sup> Mill. AD) represented by nomadic, territorially mobile in part semi-sedentary peoples. The major culture-geographic imprint relates to the Mongolian invasion into the parkland-steppes of the present northern Kazakhstan during the 13<sup>th</sup> century, and the following Turkic-Tatar tribes politically integrated into the military hordes and representing a substratum of the modern Kazakh nation. Spatial distribution mapping and onomastics understanding of the main geographic entities has a major relevance to the currently expanding (eco-)tourism taking into account all the relief and the associated geo-ecosystem peculiarities and unique nature of the Sary-Arka's territory.

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