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Geographical bases of the formation of toponyms of Saryarka

Abstract. *The article discusses physical and geographical conditions (relief, climate, hydrography, soils), flora and fauna of Saryarka, and geographical basis of the features of their display in local toponyms. Saryarka is one of the largest physical-geographical and natural-historical regions in Kazakhstan. Saryarka borders on Western Siberia in the north, reaches Lake Balkhash in the south, the Kalbinsky Ridge and Tarbagatai in the east, and the Torgai Plateau in the west.*

The territory of Saryarka is characterized by the complexity of the relief in Central Kazakhstan. The features of the relief are influenced by its geological structure and relief-forming factors. Due to the geographical location of the territory, there is a sharply continental climate, a shortage of water resources and their uneven distribution, arid landscapes. These natural features are reflected in the toponyms of the territory. During the work on the classification of geographical names and the grouping of types of toponyms, the dominant names associated with the physical and geographical conditions of the region were determined.

Keywords: *Saryarka, toponyms, relief, climate, hydronyms, vegetation.*

DOI: <https://doi.org/10.32523/2616-6771-2023-144-3-63-76>

Introduction. The science of toponymy, which studies the reflection of historical and geographical phenomena in space, has become one of the most important directions in geography in the last decade. The history and settlement, the traditional economy of the Saks, Huns, Turks (Oguz, Kipchak, Nogai) and other tribes that have inhabited the territory of Saryarka since ancient times have contributed to the formation of toponyms indicating social changes, historical-geographical and physical-geographical features of the region. The proof of this can be the manuscripts of Herodotus, written monuments of the ancient Turks, records of Arab travelers, where there are such toponyms as Ulytau, Kishitau (Bertagi, Kertagi), Arganats, Bulants, Bileuti, Sarlyk, Sorkudyk, Milykudyk, Taldysay, Balkhash (Koksheteniz), Yesil (Asus), Sarysu (Sokuk), Torgai, Bayanaula, etc. Numerous ethnic groups that inhabited the spaces between the ancient Bertagi (Ulytau) to the modern name Belgi tas (the name associated with the stone), gave names to geographical objects in these spaces [1].

The ancient history of the studied territory has been preserved in geographical names, i.e. toponyms. The impact on the natural environment of intensive economic activity during the development of human society can be clearly traced through toponyms.

The famous scientist G.Y. Rylyuk wrote about the connection of toponymy with geography as follows: «Toponyms refer to geographical objects, often contain their clear characteristics, reflecting the natural features of the area, therefore they are of interest to geography. Hence, toponymy is a geographical science»[2].

E.M. Murzaev, B.A. Budagov, H.L. Khanmogamedov, Kazakh scientists K.D.Kaimuldinova, K.T.Saparov, S.Omarbekova, A.E.Ayapbekova, A.U.Makanova, Z.A.Myrzaliev, K.T.Mambetaliev, O.Zh.Sagymbai, A.Ye.Yeginbayeva, A.G.Abdullina and others wrote about the connections of toponyms with the environment in their works.

In their scientific works, they considered the issues of the connection of toponyms with physical and geographical locations. E.M. Murzaev in the work *Essays of Toponymy* notes that «with the help of toponymy, it is possible to determine the physical and geographical features of the territory, the location and formation of some settlements» [3].

Research methods and research materials. *Saryarka, Arka* is a plateau region covering the entire central part of Kazakhstan. *Saryarka* is a folk name. Since ancient times, the local population has called this area of the steppe «*Saryarka*», «*Arka*». The name *Saryarka* means «*a large, vast hill with burnt-out, and yellowed vegetation, a flat plateau, a ridge of numerous hills.*» It is located between the North Kazakh Plain in the north, Betpakdala and Lake Balkhash in the south. In the west it rests on the Torgai plateau. In the east, the border reaches the foothills of Tarbagatai, capturing the northeastern outskirts of Lake Balkhash, then along the Zaisan basin reaches the Kalba ridge [4, p. 231]. *Saryarka* is located between 54°-46° s.w. and 66°-80° v.d., in accordance with the above, in plan it has the shape of an irregular trapezoid, more elongated in the eastern part. The length from west to east is 1200 km. The width in the west is 900 km, in the east 400 km. The area is about 1 million km². Administratively, it completely covers the territories of Karaganda, Ulutau, Akmola regions, a significant part of the Abai region, partly Pavlodar, Kostanay, North Kazakhstan, Zhambyl regions [5].

Results and discussion. *Relief features.* *Saryarka* consists of separate low mountains, hills and ridges scattered over a high denudation plain. The relief gradually decreases to the outskirts, passing into the territory of the surrounding lowlands. It descends steeply along the northern rocky coast of Lake Balkhash. According to the features of the relief, *Saryarka* is divided into western and eastern parts. The western part is more flat, low-mountainous and poorly dissected (the average absolute height is 300-350 m). In this part, high plains and extensive depressions, hollows dominate, residual mountain ranges (isolated mountains) and hills are not widespread. The central part is occupied by the *Teniz-Kurgaldzhin basin*. Together with the adjacent plains, the western part of *Saryarka* is divided into *northern and southern halves*. The northern regions cover the low-mountain, shallow *Kokshetau upland* (Kokshe mountain, 947 m). The relief of the southern part mainly has the character of a high hilly plain. In the western part, a large mountain range – *Ulytau* (1134 m) stretches between high plains and hills from north to south. The relief of its southeastern part, stretching from west to east in the eastern part of the Sarysu River valley, is more elevated (the average absolute height is 500-1000 m) and dissected. The north, northeast of *Saryarka* consists of numerous mountain elevations and isolated mountain ranges that make up the central part of the watershed of river valleys flowing in a southerly direction. The largest are: *Kyzylarai* (the highest peaks are located (1565 m), *Karkaraly* (1377 m), *Kent* (1361 m), in the extreme east the *Shyngystau* massif rises in isolation (Kosoba mountain, 1305 m). Along with this, the list of mountain ranges also includes the mountains of *Bayanaul* (1026 m), *Koyandy* (922 m), *Zheltau* (909 m), *Ereimentau* (892 m), *Niyaz* (830 m), which are spread out in different places, etc. These mountain nodes are surrounded on all sides by high plains. There are hills and hills on them, forming a small-mound. In the north, the high plains are part of the basins of the *Sileti*, *Olenti*, *Shiderti* and *Ashysu* rivers, in the south the Okhrat and the Balkhash region, in the west *Ulytau* and the adjacent areas of the *Teniz* depression [6].

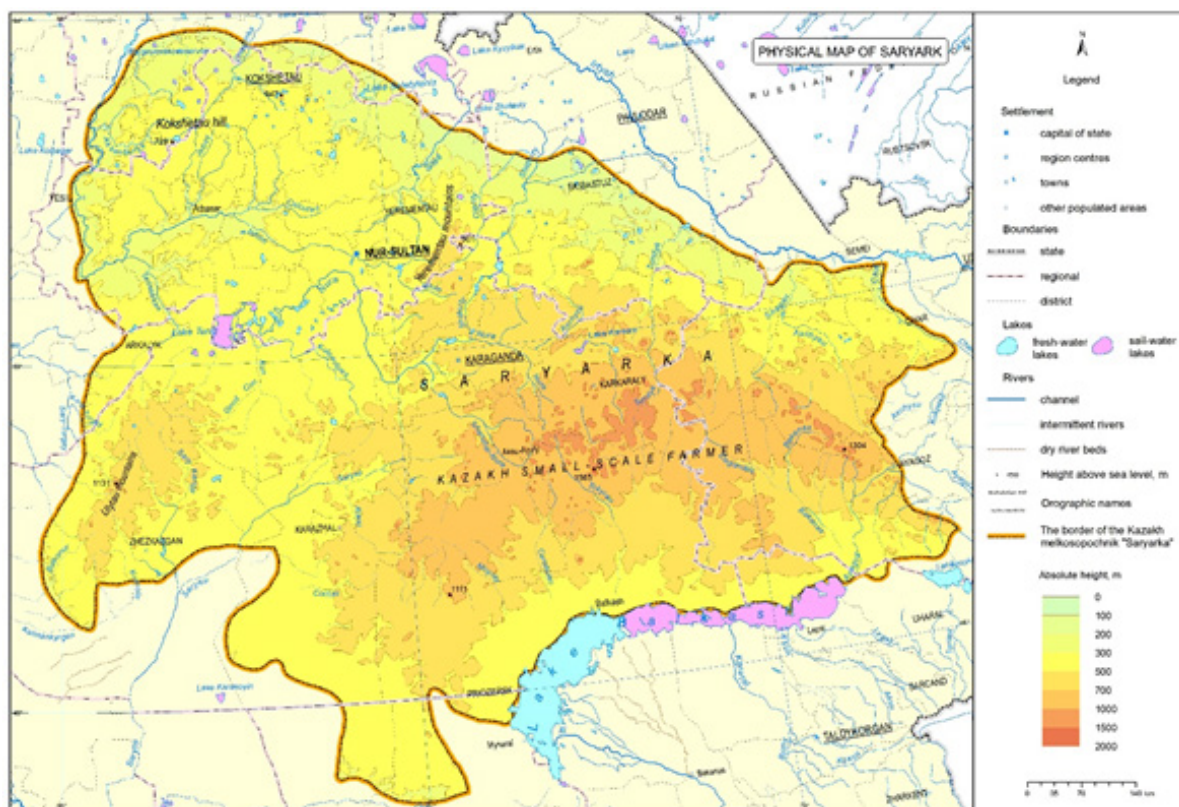


Figure 1 – Physical map of Saryarka

Small hills and individual mountain ranges, manes and raised flat relief became the basis for the formation of various orographic terms. On the territory of Kazakhstan, a specific feature can be traced in the names of orographic objects. For example, in Saryarka, characterized by a shallow relief, high mountains are distinguished by comparative terms *biik* - high (*Abiik*, *Kyzylbiik*), *Uly* – great (*Ulytau*), *soran* - peak (*Aksoran*, *Kyzylsoran*, *Soran*), *karkara*. The names located in the steppe zone of the Arch are associated with the shapes and colors of *Karatau*, *Konyrtau*, *Sarytau*, *Ulytau*, *Aktau*, *Akdin*, *Akbet*, *Kyzyltau*, associated with the lithological basis of *Kokshetau*, *Borlytau*, *Altintau* and other toponyms. The low-mountain belt is characterized by the dominance of isolated mountains with a height of 1000-2000 meters, dome-shaped, ridge, ridged, hillside relief. Features of the relief depend on the geological structure and history of development, relief-forming factors [7] (Figure 1).

If we talk about the lands of Saryarka, the naked flat steppe, hills, low mountains of *Ulytau*, *Karkaraly*, *Kyzylarai*, the nature of *Kokshetau*, *Ereimentau*, *Bayanaul*, *Kyzyltau*, *Shyngystau* and others, glorified in songs, appears before our eyes [8]. The highest mountains are *Saryarka Kyzylarai*, the highest point is *Aksoran* (1565 m). Further to the north are the *Karkaraly* mountains (1403 m), *Kent* (1460 m), then *Bayanaul* (1026 m), *Kyzyltau* (1055 m), in the east of the *Shyngystau* mountains (1304 m). This mountain system is mainly composed of granites. Pine forests grow on the northern slopes, the southern slopes are bare and steep. Placer gritty rocks are widespread at the foot of the mountains.

The formation of the relief of the *Kokshetau* Territory, along with prolonged weathering processes, was significantly influenced by the deposition of the Cretaceous and Neogene periods. There is a large trough, the *Teniz-Kurgaldzhin* depression, which divides the western part of the *Saryarka* into two parts. The *Kokshetau* mountains (about 947 m) are located in the northwest of it. They are composed of Paleozoic limestones, quartzites and porphyrites. Dissected by watercourses. The mountains are of an intermediate nature; in the modern period, as a result of

tectonic movements, they are at the stage of leveling. Absolute heights in the range of 300-400 m, heights of more than 500 m are observed in the area of the Kokshetau Upland. The highest points of the Kokshetau Upland are *Kokshe peak* (947 m), *Zhalgyztau* (730 m), *Zhylandy* (665 m), *Dombyrali* (471 m), *Imantau* (661 m), *Sandyktau* (626 m), *Zerendi* (587 m), *Muzbel* (501 m). There are picturesque lakes in the intermontane depressions. Pine forests grow on the shores of lakes and mountain slopes [9]. "The word "Kok" corresponds to the meaning "very high" or even "heavenly", writes E. Koishybaev. According to T. Zhanuzak, the meaning of the name Kokshe (an adjective) is associated with «the bluish appearance of the area or with the blue, visible from afar» [10].

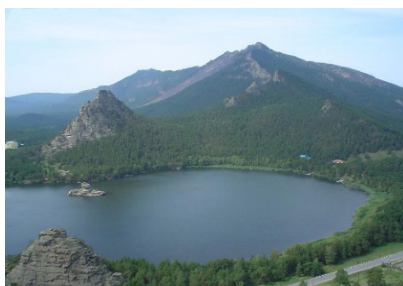
In the southeast of the Kokshetau mountains, the Ereimentau mountains are located. The highest point is *Akdin* (901 m). Since its time, the name has undergone distortion, the name of the hill *Akdin* (*Akdym*) was formed on the basis of the ancient Turkic term "din". In the north-east of Saryarka there is the Siletinskaya plain, in the north-west there is a plain along the Esil River, the Atbasar plain, and the Teniz-Kurgaldzhin depression. To the west of Saryarka up to the Esil River, the Turgai plateau enters its eastern part. The right bank of the Esil River joins the Atbasar, the left bank with the Teniz plain, in the central part of the plain there are lakes Teniz and Kurgaldzhin (Figure 1).

Ulytau is a remnant of a large anticlinorium, composed mainly of granites and stretching in the meridional direction. The mountain slopes are composed of crystalline schists, sandstones, mixed rocks (conglomerate). The region is a convex plain composed of various clay rocks, the peripheral territories of which were formed in the Lower Cenozoic. The most important watershed of the Saryarka latitudinal direction starts from Ulytau. It separates the river valleys of the Aral and Balkhash from the river basins of Lake Teniz and the Ertis River. The watershed in the east runs along a mountain ridge, then abuts against the Tarbagatai mountains [11]. Names in the Ulytau region - *Ulytau*, *Kishitau* (*Bertagy*, *Kertagy*) *Arganaty*, *Bulanty*, *Bileuti*, *Sarlyk*, *Edigenin maily zhurt*, *Kengir*, etc. carry our thoughts into the abyss of ancient times. The highest point of Ulytau is the *Ulytau hill* (1133 m), you can also name the Edige mountains (1064 m), *Zhaksy Arganaty* (757 m), which witnessed historical events [12]. As if protecting the mountains of the *Shyngystau* (*Naimantau*) ridge from loneliness, located on the «most honorable place» of Saryarka (1304 m), Mother Nature spreads in the north-west of the mountains *Hanshyngys* (1152 m), *Kosbastau* (1077 m), and in the south- in the east, the highest point of the *Akshatau* mountains is *Kosoba peak* (1304 m). The mountains *Saryshoky* (1076 m), *Bugyly* (1061 m), *Zhumak* (1149 m), *Konyr-Sandyktas* (1102 m) are located between these mountain ranges (Figure 2).

The *Akshatau* ridge, dissected by river valleys, gradually descending to the southwest of Saryarka, borders the *Bolshoy Kuykentai* (836 m), *Karaungir* (865 m) mountains in the north, *Kotanemil* (1089 m) in the southwest, and the *Zhorga Mountains* (1084 m) in the west. The plain-landscape relief attracts the eye with its uniqueness. As a result of the influence of external and internal forces, amazing rock formations, combed stones, caves «*Konyr Aulie, Ungirtas*» appeared. In the north-west of the *Kaskabulak* ridge in the direction of the peaks of *Sholtan*, *Shyngys*, the *Yeraly* plain stretches. The second edge of the plain of *Yeraly* rests on the hills of *Malaya* and *Bolshaya Akshoky*. To the east of the *Kaskabulak* ridge are the *Baigabyl*, *Araltobe*, *Borli* ridges, and the *Arkat Mountains* are visible in the southeast. In the east, dissected by the *Shet River*, in the west by the *Shagan River*, the slopes and foothills of *Shyngystau* are crossed by such small rivers as *Kos*, *Buzau*, *Kundyzdy*, *Mukyr*, *Takyr*, *Karauyl*, *Bokenshi*, *Koldenen*, *Karazhartas*, etc., drying up in vast meadows [13]. The eastern and southern parts of the *Abraly* mountains (1299 m) are framed by a chain of mountains *Shyngystau*, *Kalmak Emel*, *Ogiztau*, *Zhorga*, *Temirshi*, *Karkaraly*, the north covers the mountains of *Bayanaula* (*Kyzyltau*), *Myrzyk*, *Zhalgyztau*, *Dogalan*, *Degelen*, as well as various high hills, hills, plains. Located in the east of the *Zhaks* mountains, the *Abrals* are more elevated than the *Zhaman Abrals*, which, due to their natural features, are distinguished by adjectives (the word «*Zhaman*» is in the context of «small») [14].

The main ridges of the *Bayanaula* mountains consist of three parts *Akbetau*, *Zhaksaula*, *Zhamanaula*. The mountain region consists of ridges rising by a ridge, separated by river valleys of mountain blocks, separate hills. The highest points of the mountains: *Mount Akbet* (1026 m),

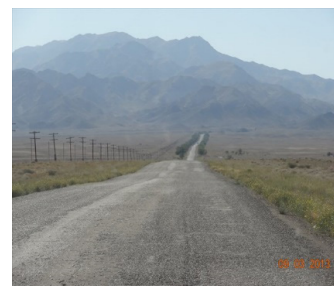
Mount Ogelen (969 m), Shibet (728 m), Zhasybai (804 m), Sarytau (747 m), belong to the district of Zhaksaula. Sh. Ualikhanov considers the etymology of the toponym Bayanaul as - «Bayan» - bai, «Ola» (a distorted name, a more accurate historical name - Bayanaula; Mong. Bayan-ola) is a beautiful, fertile mountainous country. Zhamanaula, on the contrary, corresponds to the meaning of a bare hill mountain. The highest point of Kyzyltau, located in the south-east of the Bayanaul mountains, is Aulie Peak (1055 m) [15].



Kokshetau mountains



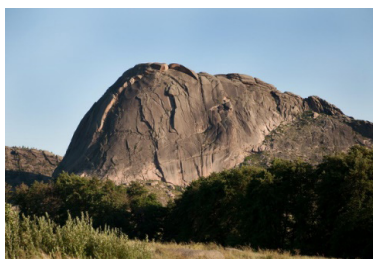
Zerenda mountains in Kokshe region



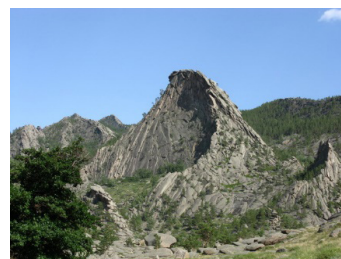
Erementau mountains



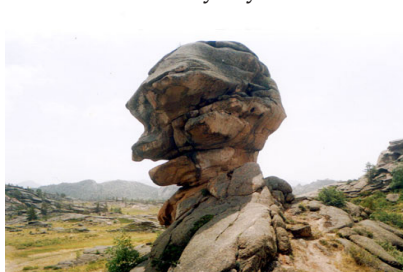
Bayanaul mountains, near Lake Zhasybay



Mount Naizatas



Mount Saken in Toraigyr



Kempirtas Bayanaul



Cave of Brown Aulie in Bayanaul



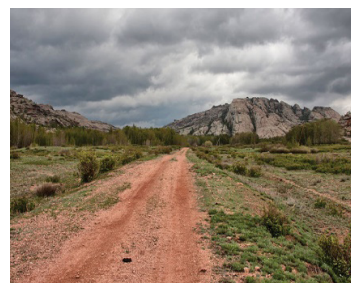
Mount Chingistau



Konyr Aulie cave in Chingistau



Karkaraly mountains



Mount Aksoran



Figure 2 – Small hills and isolated mountain massifs in Saryarka

Geological structure and minerals. The long and heterogeneous history of the development of each part of Saryarka led to the formation of a complex geological structure. The folded structures in the west and north of Saryarka are composed of Caledonian, and the central and eastern parts of Hercynian folding. Folding took place accompanied by deep faults of the Earth's crust, shear-thrust tectonic movements, significant elevation of intrusives and powerful metamorphism. In this regard, rich and valuable ore deposits are common here.

The western folding includes the blocks of *Kokshetau*, *the Teniz trough*, *the Ulytau anticlinorium*, *the Sarysu-Teniz uplift*, *the Zhezkazgan mulda*. Two structural layers are distinguished here. The lower layer is formed by volcanic formations and strongly metamorphosed, compressed deposits of the Early Paleozoic with intrusions of granites, gneisses, glassy rocks of the anticline core. The upper layer is dominated by large-block and carbonate tiers of the Middle and Upper Paleozoic. They are little pressed, the degree of metamorphism is weakly manifested. They are characterized by rupture-block tectonics.

In the eastern part, the profile of Paleozoic deposits has a completely different picture. There is no division into structural layers and the profile consists entirely of geosynclinal deposits interrupted by numerous intrusions of granitoids. Paleozoic effusive-sedimentary rocks consist of folds of the north-western direction. Among the largest structures of the Hercynian folding are the Shyngys, Balkhash and Tekturma anticlinories, forming complex tectonic nodes at the intersections, as well as the North Balkhash synclinorium [16].

The Mesozoic deposits of Saryarka are concentrated in tectonic mulds and grabens that overlap the area of the Paleozoic basement. They consist of loose, clastic, in most industrial-coal deposits (Karaganda, Maykubensky basins, etc.), clay formations of the Mesozoic weathering crust are widespread in the plains. Cenozoic Paleogene-Neogene sandy-clay deposits are common in large depressions (Teniz) and valleys of the ancient water systems of Saryarka. Almost ubiquitous quaternary sediments have a low-power layer and consist of sandy-clay alluvium of modern river valleys, large-block slope formations and eluvium of various origins.

Ores of chromite nickel, titanium, magnetite, cobalt ores are concentrated in the Caledonian magma, and ores of copper, lead, gold, silver, iron, manganese, and tin are concentrated in the Hercynian intrusions. At the end of the Paleozoic, Saryarka completely moved to the continental stage of development, having been subjected to prolonged denudation. At the end of the Mesozoic, the region turned into a peneplain with the spread of residual uplands. In the Cenozoic, as a result of repeated tectonic movements, denudation plains were replaced by accumulative ones. The main low-mountain and hilly watersheds Balkhash-Ertis (1000-1559 m), Sarysu-Teniz (1134 m) and Yesil-Ertis (600-1358 m) underwent uplift. Saryarka is mainly composed of Precambrian and Paleozoic metamorphic shales, quartzite, sandstone and limestone. Granite, diorite, intrusions and effusions of gabbro are widespread among them. Deposits of ferrous and non-ferrous metals are associated with granite intrusions. In the sandy-clay formations of the Carboniferous period, layers of high-quality coal were formed. Rich reserves of brown coal are concentrated in the Jurassic sediments lying on Paleozoic rocks (Ekibastuz brown coal basin). Various denudation forms of relief are associated with the nature of rocks and the peculiarities of their occurrence.

Rock granites, hump-shaped, spherical and chest-shaped forms are common. The extended layers of sandstones and limestones are characterized by ridges and manes, for quartzites – hills. Suffusion depressions and deflationary basins are often found in accumulative rocks [6].

The complexity of the geological structure of the territory of Saryarka, the spread of rocks of various origin (igneous, metamorphic and sedimentary) affected the species composition and mineral reserves. To date, about 150 deposits of coal and drilling coal have been discovered in the carboniferous and Jurassic deposits in the region. More precisely, the Karaganda, Ekibastuz, Maykubenskoye and Teniz-Kurgaldzhinskoye deposits [17]. There are many copper deposits concentrated, mostly they are complex, which contain reserves of gold, molybdenum, silver, zinc, lead, nickel, etc. components. Copper and nickel deposits *Bozshakol, Samar, Sokyrkai, Konyrat, Kenkudyk-Kaskyrkazgan, Karatas, Bozshoky, Sayak, Tastau, Moldybai, Zhalbas, Berikkara, Umit, Eshki-Olmes, Tesiktas, Uspen, Altyntobe*, etc. It can be said that some deposits, the so-called «chud», «places of copper», where stone and bronze tools are found, are widespread in Saryarka. The gold-bearing areas of Maykayyn and Northern Balkhash, the gold-producing region of Stepnyak are distinguished. You can name *Alpys, Souvenir, Zhosaly, Shoptikol, Abyz, Meyzek, Akbastau, Kosmuryr*, gold-silver-containing *Taskar, Muzbel, Sayak, Dominnye, Ayli, Nauryzbai, Sulu shoki, Eshkiolmes*, etc., lead-zinc deposits (*Karagaily, Akzhol, Uzynzhol, Atabai-Dogaly, Ushtobe, Kayrakty, Berikkara, Akshagyl, Uytas, Kyzylespe, Mynshunkyr, Tumiot, Abyz, Akbastau, Kosmuryr*), deposits of rare metals: *Verkhne Kayrakty, Koktin koli, Baynazar, Soran, Tastau, Ontustik Zhauyr, Koytas, Aksorly, Kyzylarai, Shygys Konyrat*, etc. We also found such names that were based on the names of minerals and geological structure, for example, on the basis of iron and manganese deposits, the names *Sarybulak, Akbuyrat, Kotyrtas, Batyrtas, Kenkazgan, Keregetas, Myrzyk, Aigyrzhal, Shoytas, Katpar*, etc. In general, a group of specific names characterizing the features of the territorial distribution of geological rocks and minerals was studied [18].

Climate. Due to the inland location, the climate of Saryarka largely depends on radiation factors. The climate is sharply continental, humidity is insufficient, increasing aridity is characteristic in the south at all. The northern part is occupied by forest-steppes and arid steppe with islands of forest, the southern part corresponds to semi-deserts of the temperate zone. The border of the desert zone runs along the latitude of the Northern Balkhash region. The average annual temperature in January is 14-18°C. The absolute minimum is 46-52 °C. The average annual temperature in July is 19-24°C, the absolute maximum is above 40°C. The average annual amplitude of air temperature exceeds 35 °C. The thickness of the soil layer in the north reaches 90-140 cm, in the south 50-60 cm. Snow cover in the north is 20-25 cm, in the south 15 cm. Frosty weather is observed even before snowfall. Sometimes, due to the impact of a cyclone from the southwest, during a thaw, the air temperature rises to +5-7, then there is a sharp cooling and, as a result, ice. The surface layer of air heats up strongly, the air temperature rises rapidly. The average annual precipitation in the north reaches 300 mm, in the south 150 mm. The low-mountain band holds part of the wet winds and therefore the average annual precipitation in the mountains of Kokshetau and Karkaraly, according to long-term calculations, exceeds 400 mm, in Ulytau 350 mm. Most of the precipitation in the north and in the center falls during the warm period, and in the south, usually in December. Evaporation degree everywhere is 2-4 times higher than the amount of precipitation. In summer, there is a frequent recurring drought. In the north, the winds of the south-west direction prevail, in the south of the north-east. The average annual wind speed is 4-6 m/sec. Days with strong winds (more than 15 m/sec) in Kokshetau 60 m/sec, on Balkhash 20 m/sec are not often observed [19].

Toponyms expressing the degree of climate and weather favorability: *Akkar, Karlykol, Dauyldy, Zheltau, Zheldiadyr, Zhelbuzyr, Zhylysay, Zhylytobe, Mezgilsor, Muzbel, Muzdybulak, Salkyntau, Taigakkol, Shantobe* are based on physical and geographical information formed as a result of the identification of nomads features of natural phenomena.

Internal waters. The hydrographic network of Saryarka is mainly seasonal in nature, the main source of food is snow (more than 80% of the annual runoff is meltwater). Unlike the northern rivers, the water availability of the southern rivers is low, the area of the Northern Balkhash

region belongs to the local runoff. The largest river is *Yesil*. Its waters are used for water supply of industrial enterprises and settlements. Starting from the watershed elevation, 70-90% of the annual runoff passes on the rivers flowing from north to south (*Nura, Sarysu, Sileti, Shiderti, Tokyrauyn, Ayakoz*, etc.) during the spring flood (2-3 weeks). The rest of the time, their waters become much shallower or they break up into old trees. In winter, rivers freeze, small ones freeze to the bottom. Only in the Yesil River there is a constant water flow. For the purpose of water supply of settlements and industrial enterprises of Central Kazakhstan and irrigation of lands, the Ertis-Karaganda canal named after K.I. Satpayev was carried out. Numerous depressions in the relief of Saryarka became the basis for the formation of seasonal and permanent lakes. There are many lakes in Saryarka, the water in many lakes is salty. They all have common features: isolation, shallow water, rapid variability of the level and amount of water throughout the year. The largest lake is *Lake Teniz* in the Kurgaldzhin depression, the water of which has a bitter-sour taste. Freshwater, tectonic lakes (*Burabai, Shortandy, Bolshoe Chebachye, Maloe Chebachye*) are common in the Kokshetau upland. There are also deflationary and suffusion lakes [4].

The names of the rivers *Yesil, Nura, Sarysu, Sileti, Shiderti, Tokyrauyn, Ayagoz, Kulanotpes, Terisakkan, Karakengir, Sherubai-Nura, Shagalaly, Kalkutan, Kusak, Tundik, Itchysu*, lakes, *Karagenuka, Karaysor Meshkeisor, Shoshkakol, Kozhakol, Sholak, Burabay, Shortandy, Bolshoye Chebachye, Maloye Chebachye*, microhydronyms (names of springs, wells) of water sources of the economy also found special reflection in local toponyms.

Soil and vegetation cover. The soil and vegetation cover of Saryarka consists of the main zones: arid forb-feather grass steppes of the temperate zone on ordinary chernozems; arid herb-feather-grass steppes on southern chernozems; arid feather-grass-fescue steppes on dark chestnut soils and xerophytic-forb fescue-feather grass steppes on chestnut soils; cereal-wormwood semi-deserts on brown and light brown soils; wormwood-saline deserts on light brown saline soils.

Three natural zones pass along the territory of Saryarka in the latitudinal direction. These are: steppe, semi-desert and desert zones. In the northern part and on the chernozems of the southern territory (the vicinity of Kokshetau, Atbasar, along the Esil River), various herbs of wormwood-feather grass steppes grow. These lands are used as cultivated areas. Vegetation rarely grows on gravelly soils of hills. In the valleys between the hills, birch and aspen grow, and there are bushes. Birch and pine grow on the northern slopes of low-mountain massifs. Kokshetau, Niyaz, Ereimentau and other low mountains folded by granite are covered with a belt of birch-pine forests. On the plains and hummocks of the Saryarka, starting from the Teniz-Kurgaldzhin depression and further east to the valley of the Tundik river, sour-carbonate red earth soils have formed. They are covered with fescue-feather grass steppes. The Teniz and Sarysu plains, together with the southern part of the steppe zone, Ulytau, Karkaraly, the foot of Shyngystau belong to the semi-desert zone. The climate of this zone is arid, on dark brown, red-brown soils, wormwood, fescue-feather grass vegetation, feather grass-hairy are widespread. Hay meadows, poplar, birch, pine, juniper, willow grow along the rivers. The desert area is favorable for grazing land. Birch and pine groves grow on the low-mountain slopes of Bayanaul, Karkaraly. In the west, east of the Sarysu valley to the Ayagoz river valley, there is a real gravelly semi-desert. Grass-wormwood vegetation dominates on the red-brown soils of the plains. On the northern slopes of the hills, feather-grass-fescue steppes have formed, in the south there are rare wormwood steppes, and in the gorges there are bushes. In mountain gorges, birch, wild rose, bird cherry, hawthorn, meadowsweet grow. Pine and juniper (juniper) are found on the tops of the mountains. The desert zone covers the southern part of Ulytau and the vicinity of Zhezkazgan, the North Balkhash coast. Here, on brown gray-brown soils of deserts, desert plants grow - meadowsweet, karagannik, feather grass, fescue, white feather grass, biyurgun, light brown wormwood, gray wormwood, white quinoa, bayalych [20].

Place names associated with the vegetation cover help to restore the former and modern names of plant species and the appearance of landscapes of the historical past. The features of the zonal distribution of vegetation cover form the seasonal nature of their use. Toponymic studies in relation to changes in the landscape are reflected in the problems of studying the

areas of distribution of phytonyms. This is due to the fact that the vegetation cover as an active component can be a specific orienting object in paleoclimatic and paleogeographic studies. The first studies (on the basis of maps, tables) of the reflection of the vegetation cover in toponyms, the relationship with natural conditions, the territory of distribution were carried out in the studies of D. Kaimuldinova, A.S. Omarbekova, A.U. Makanova, K.T. Saparov [21].

Animal world. The fauna of Saryarka is distinguished by a rich species composition of animals that live in the steppes and low-mountain regions, as well as in permanent and temporary water bodies - rivers and lakes. The fauna was formed in connection with the peculiarities of the steppe, semi-desert and desert zones. In the forest-steppe regions, various types of rodents are widespread, from predators lynx, fox, wolf; white hare and gray hare; from ungulates roe deer, elk. Among the birds of hunting and commercial importance are often hazel grouse, partridge, chicken species, hawks and golden eagles from birds of prey.

In the steppe belt of Saryarka, rodents are found: hamsters, ground squirrels, marmots, jerboas, chipmunks, steppe whistlers; from predators wolves, foxes, steppe foxes, ferrets. Among the birds are several species of larks (steppe, crested, white-winged, black), from large birds - crane, heron, bittern; among the waterfowl are ducks, gray geese, several species of swans. Pikes, ideo, bream and many other types of fish are found in rivers and lakes. There are many birds on the lakes. A specially protected bird is the pink flamingo, the number of which has recently been decreasing. In the south of Saryarka, sand mice and jerboas, a semi-desert wolf and a semi-desert ermine are widespread, especially a lot of reptiles - the gray gecko, steppe agama, fast lizard and other species of semi-desert and desert representatives of the animal world. In the pine and birch-pine groves of low-mountain areas, there are forest species of animals: elk, roe deer and many species of birds. In the mountains Ereimentau, Karkaraly, Kyzylaraly, Ulytau, argali survived [22].

In the restoration of the landscapes of the past and the formation of modern landscapes, the names of animals found in the names of rivers, lakes, tracts, orographic objects on the geographical maps of Kazakhstan play an important role. *Kulanotpes, Kulanshat, Shoshkaly, Shortandy, Maitaban, Shabakty, Kargaly, Sonaly* and other similar names of rivers and lakes, names of animals and birds in the names of orographic objects, such as *Ayuly, Bugyly, Kiikti, Sarykulzha, Arkarly, Kulantobe, Borioynak, Tulkili, Kundyzydy, Koyandy, Zhylandy, Burkitti* and others complement the characteristics of geographic objects. The influence of climatic conditions and vegetation cover on the territorial distribution of fauna is traced. In the process of collecting material, toponyms were determined, formed with the participation of the names *ayu, kulan, bugy, maral, boken, kiik, kulzha, shoshka, kundyzy, arhar*. The toponyms formed using the names of these animals provide information about their distribution in this area earlier and great opportunities for paleoecological research by providing information about the geoecological conditions of their habitat. The variety of natural conditions of the study area has influenced their development since ancient times, and the degree of development has formed a very complex system of geographical names [23].

As a result of the analysis of toponyms based on physical and geographical conditions (oronyms, hydronyms, oikonoms, phytonyms, zoonoms, ethnonyms and genonyms, comonyms, necronyms, etc.), a regularity of their concentration in the conditions of certain landscapes was revealed (Figure 3). As can be seen from the figure, more than half of the geographical names of the territory were nominated by landscape features.

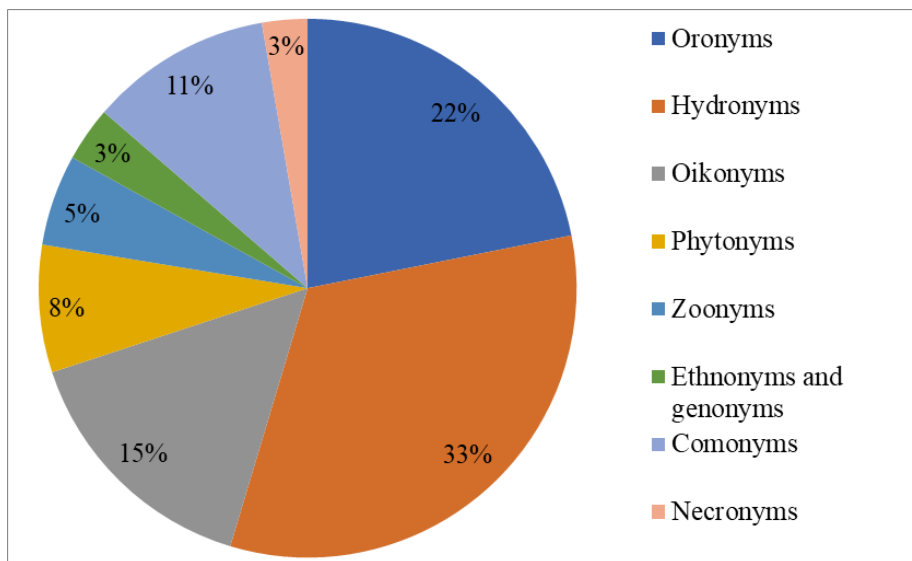


Figure 3 – Toponymic system of Saryarka

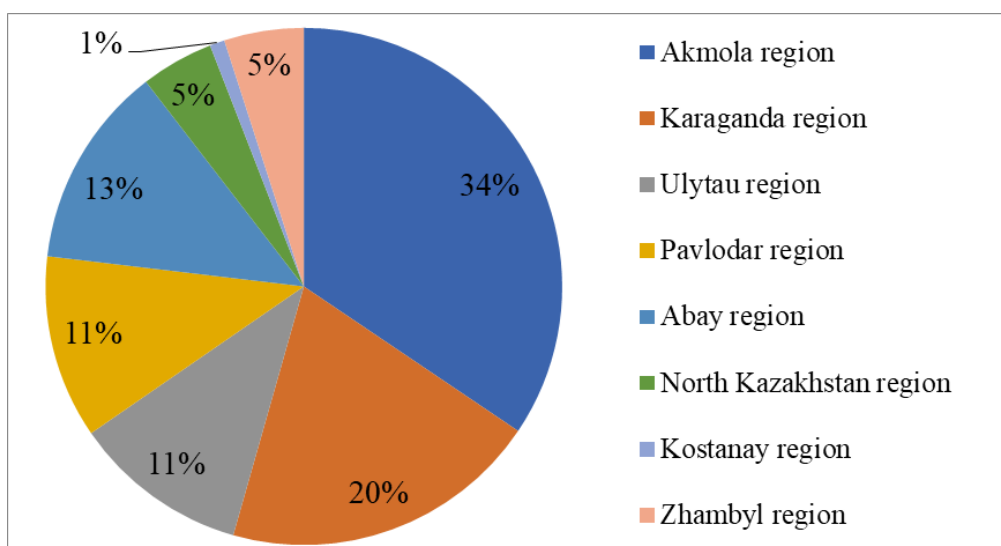


Figure 4 – Space of the toponymic system of regions on the territory of Saryarka

In the course of our research, systems of more than 9000 toponyms were identified, formed in connection with physical and geographical features, based on the State catalog of geographical names of the Republic of Kazakhstan (Akmola, Karaganda, Ulytau, Pavlodar, Kostanay, Zhambyl, Abay, North Kazakhstan region, 2004-2010) [24], and are depicted in the form of diagrams (Figure 4). In the future, it is planned to continue work on geographical, etymological studies in the system of landscape toponyms.

Conclusion. During the analysis of the system of toponyms of Saryarka, it was found that almost half of the names are named depending on the physical and geographical features of the region, among the names of the territory there are toponyms characterizing climatic, hydrographic, geological features, soil cover, flora and fauna. Toponyms can be called the language of the landscape, that is, its oral representation. Thus, through toponyms, you

can get information about the landscape, its history, dynamics and features. Geographical names and terms make it possible to identify and explore the components of the natural landscape and are used in the restoration of geographical conditions of the past. Therefore, the definition of geographical factors in the nominations of toponyms is important.

Currently, geographical names, their meaning, origin, and history are of great interest. The proof of this is the published toponymic dictionaries and works of fundamental and applied research. Also, elective disciplines on toponymy are being introduced into geographical specialties at universities. Recently, the relevance of the study of toponyms by territory and region has been increasing. However, such studies have a historical and linguistic direction. Studies of the toponymy of Saryarka in the geographical aspect are insufficient. It can also be noted that today there are few real studies in the areas of hydronymy, oronymy.

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Сарыарқа топонимдері қалыптасуының географиялық негіздері

Аңдатпа. Мақалада Сарыарқаның физикалық-географиялық жағдайы (жер бедері, климат, гидрография, топырақ), флорасы мен фаунасы және олардың жергілікті жер атауларында бейнелену ерекшеліктерінің географиялық негіздері қарастырылады. Сарыарқа – Қазақстанның ірі физикалық-географиялық және табиғи-тарихи аймақтарының бірі. Солтүстігінде Батыс Сібір жазығымен ұштасып, оңтүстігінде Балқаш көліне дейін, шығысында Қалба және Тарбағатай жоталарымен шектесіп, батысында Торғай қолатына дейін созылған.

Сарыарқа аумағы Орталық Қазақстандағы жер бедерінің күрделілігімен сипатталады. Жер бедерінің ерекшеліктеріне оның геологиялық құрылымы мен жер бедерін құраушы факторлары әсер етеді. Аумақтың географиялық орналасуына байланысты күрт континентальды климат, су ресурстарының жетіспеушілігі және олардың біркелкі таралмауы, аридті ландшафт түрлері байқалады. Бұл табиғи ерекшеліктер аумақтың топонимдерінде көрініс тапқан. Географиялық атауларды жіктеу және топонимдердің түрлерін топтастыру жұмыстары кезінде аймақтың физикалық-географиялық жағдайларына байланысты басым атаулар анықталды.

Түйін сөздер: Сарыарқа, топонимдер, жер бедері, климат, гидронимдер, өсімдіктер.

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Географические основы формирования топонимов Сарыарки

Аннотация. В статье рассматриваются физико-географические условия (рельеф, климат, гидрография, почвы), флора и фауна Сарыарки и географические основы особенностей отображения их в местных топонимах. Сарыарка - один из крупных физико-географических и природно-исторических регионов Казахстана. Сарыарка граничит на севере с Западной Сибирью, на юге достигает озера Балхаш, на востоке Калбинского хребта и Тарбагатая, на западе Торгайского плато.

Территория Сарыарки характеризуется сложностью рельефа в Центральном Казахстане. На особенности рельефа влияют его геологическое строение и рельефообразующие факторы. Из-за географического расположения территории наблюдается резкоконтинентальный климат, нехватка водных ресурсов и их неравномерное распределение, засушливые ландшафты. Эти природные особенности отражены в топонимах территории. Во время работы по классификации географических названий и группировки видов топонимов были определены доминирующие названия, связанные с физико-географическими условиями региона.

Ключевые слова: Сарыарка, топонимы, рельеф, климат, гидронимы, растительность.

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