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РАЗЛИЧНЫЕ ВИДЫ ВОДОПОДЪЕМНЫХ УСТРОЙСТВ У КАЗАХОВ

Аннотация: Чигирь – водоподъемное устройство в виде колеса с ковшами, подающими воду с нижних уровней на верхние части для орошения земельного поля. Эта ирригационная система издревле была известна на казахской земле. Структура чигиря была сложной, он состоял из нескольких частей и его изготавливали из прочных пород дерева, таких как дуб, джигида. Изготовлением чигирей занимались агашшы – мастера- деревообработчики. Весной, в начале посевного сезона чигири устанавливали, а осенью разбирали. Чигирь занимал важную роль в системе жизнеобеспечения казахов. С середины XX века, с широким развитием и внедрением гидротехники в земледельческое хозяйство, использование чигирей прекратилось.

Ключевые слова: виды чигирей, структура чигиря, земельное поле, ковши чигиря.

Abstract: Chyhir is – a water-lifting device in the form of a wheel with buckets, supplies water from the lower levels to the upper part of the land to irrigate fields. This irrigation system has been known since ancient times at the Kazakh territories. Structure of chyhir was complex, it consists of several parts, and it was made of solid wood such as oak (quercus), elaeagnus. Chyhir was manufactured by agashshy (tree handlers). At the beginning of the planting season in the spring chyhir was created and in the autumn dismantled. Chyhir occupies an important role in the livelihoods of

the Kazakhs. From the middle of the twentieth century, with a wide development and implementation of hydraulic engineering in the agricultural economy, the use of the chyhirs ceased.

Key words: species of the chyhirs, structure of the chyhirs, land field, ladles of the chyhir.

Introduction

Chigir water lifting devices were widely used by kazakhs at banks of the rivers Syrdaria, Nura, Karatal, Terisakkan, Kengir, Sarysu, Ili, Shu, Torgai, theAkkol, Korgalzhyn lakes, and their aryks (irrigation canals). The chigir facilities were well spread for watering fields and gardens located along the middle and lower course of the Syrdaria river.

Types of chigir

In the Syrdaria region,there were three types of chigir: driven by power of wind (*wind chigir*, Fig.1), by power of water usually installed at spots of strong whirlpool (*water chigir*, Fig. 2), and *animal driven chigirs* driven by power of camel, horse, and bull (Fig. 3, 4). These were set up along aryks with high banks and were pulled by the animals. *Atpa*, or *manual chigir*, was made for field aryks with shallow banks. The atpa device, made of robust wood or iron, in a shape of spud, was connected to an under water frame with a long wooden pole; its manual run allowed lifting aryk water up to fields (Fig.5).

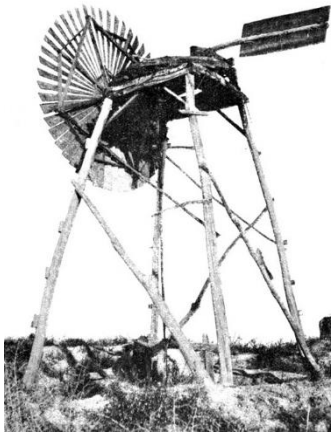

Fig. 1 – The windchigir (a watering device driven by wind), the Perovsky county, October 1910 [4].

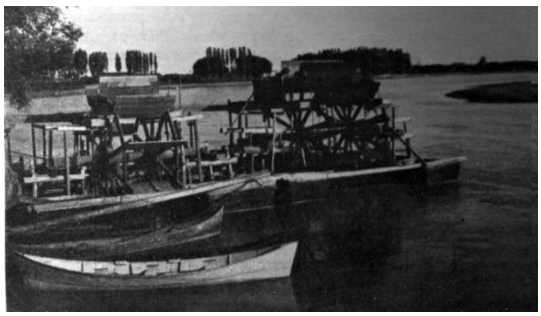

Fig. 2 – The water chigir at the Syrdaria river. Kazalinsk county. [1, II].

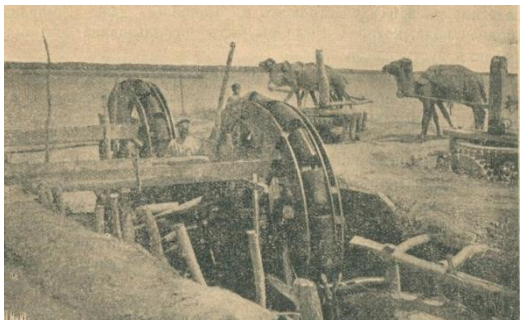

Fig. 3 – The camel chigir. The right bank of Syrdaria, end of XIX c.
Photo by M.Diakov [2,p.19].

Fig. 4 – The horse chigir, XIX c. The RK Central State archive of cinema-, photo-documents and audio records.

Fig. 5 – Atpa (wood en bucket) [5].

Configuration

Chigir consists of arrow, “navel”, upper and lower wheels, kegey, kasenek, buckets, pan and other wooden parts. The main body of chigiris called *oq (“arrow”)*and represented by a hacked thick log 6-7 meters long: one of it sends was a square bar to fit into lower wheel’s pad eye, the other end was sharpened and connected via socket to a thick log, set opposite to the water pool. In total, 10-12 sockets were connected to square *kegeys* 4-12 spans long. The kegey’s spike entered an *ear* about 2 spans long; both ear ends were fixed by a rod and *willow shrub s*and banded by cords made of tawed camel neck skin. Thus, interfastening of kegey’s end sled to formation of a single circle for setting up *kasenek* buckets.

The lower wheel on the second end of the arrow was hooked to the upper wheel by teeth gearing, and the upper wheel rim was thread into the navel. Navel was set vertically, both of its ends were sharpened, the lower part contained a log fixed under the wheel, the upper part had restrictive props human height long. Each prop was seated at the center of the prop. Periodically the seat was greesed from within. A *water pool* was dug out near the chigir; to extract water outside, a wooden pole between the shaft and the pool was interfastened. A knee-high aryk was dug out between the earth centre of the pool and the lower wheel. Aryk water that filled in the chigir was further poured out directly into the pool. The arrow was laid on the aryk and covered by a wooden board. As soon the animal (horse, camel, bull, donkey) harnessed on kalzhuyr (a small object for dragging on the ground), ropped up to the lower part of the navel, started moving, the upper wheel drove the lower wheel, which, in its turn, drove the lower arrow. Kasenek on the other end of the moving arrow, half-immersing in the water, at once filled in 6-7 buckets. Then, this water poured out into a pan and flowed to fields. The wheelwas called also upper rim or lowerrim *(togyn)*. Usually, it was upholstered with tanned skin. The wheel teeth longer than1span normally were made of birch poles. Fresh whips were also used to properly bind together the chigir tails. Water pools were 4,5-5 m long, 2-2,5 m wide, and 2,5-3 m deep. Peasants (*dehkan*) worked to connect them to rivers and lakes through narrow shallow canals (*aryk*).

Owners of aryks, men of age (*aksakal*, “white beard”), controlled the movement of the chigir device and its water level: too much water would overload the draught animals. When building a pool and installing a chigir device, the water regime of supporting river or lake was taken into account: high in spring and low by autumn. Therefore, to increase the water level, the pool had to be deepened, and the kegey would be prolonged to 4-12 spans. During one summer season, one chigir device was feeding 3-4 times a field of 2,5-3 ha (FAEM).

Chigir jars made of wood were called *shelek* (bucket). The wood was taken from round timber, specially dried during several years and its core part chiselled out. A variant would be to split the wood trunk in two, cut out the core, and glue back the parts together; another way was to use whips to nail the bucket parts in special wholes, and this connection was tightened with swelled wet nails. Wooden buckets, made of robust trees like jojoba, mulberry, and oak, contained about 2 litresof water. Tin buckets were made by smiths. Number of buckets varied from 40 to 60 they were placed obliquely, vertically [6, p.80].

Fig. 6 – Chigir, the Perovsky county, 1910 [6, p.80].

Chigir buckets were also made of skin. Clay bucket was called *kumyr («jar»)* and contained 3 liters of water. In the Syrdaria region, chigir was made of oak tree, transported from SaryArka on araba cart. Oak has the property of withstanding the water (МЭА). All chigir parts were manufactured by local *carpenters*; men skilful in assemblage and installation of chigirs were called *chigir men*. Prior to installation, a Koran prayer was read and donations given in the name of Ali Chinar the Protector. The installation took 15-20 days. In terms of money, chigir cost from 9-11 to 30

rubbles [8, p.104]. The chigir was assembled by the end of October (FAEM).

Use ofchigirin the Syrdaria region

In 1870, the Turkestan Statistics Committee took into account of 1,034 chigir devices located in districts of the Perovsky county. The chigirs lifted 60 buckets per hour and 75,000 buckets per 24 hours. One chigir allowed the neighbouring karakalpaks to get water from the average depth of three arshyns. 6-10 tanaps of land, or about 1,6 ha, could be watered during 24 hours [7, p.119]. Good quality chigirs lifted 5 cubic pound of water per second [10, p.167]. The natural water sources were rivers of Kuandaria and Zhanadaria. The most effective facility of the irrigated agriculture was the *chigir* device. This watering method was especially popular in the Syrdaria region. The lower flood plains of Syrdaria were located higher than the river bed and were dry, which explains necessity in chigir [9, p.207].

Cultivated areas along the Syrdaria river bed were irrigated from lakes, which collected water from main Syrdaria canals. The Syrdaria water level was full and high only during the periods tarting from ice melting to the end of July. Since the southeast part of the Perovsky county was located above the river water level, the use of chigir was possible every where [FAEM]. At the Syrdaria river, chigir devices were set in places of strong current necessary for its movement [5, p.41].

In the Kazalinsk county, much of the crop lands were watered using chigirs and atpa (wooden bucket for lifting up the irrigation water). The horse chigirs and manual chigirs were also in wide use in the west part of the Kazalinsk county, adjacent to Syrdaria and the Aral lake. The agronomist N.N. Aleksandr noted that the chigir facilities had developed as priority not only in the Amudaria area of the Syrdaria region, but also in the Perovsky и Kazalinsk counties [2, p.15].

On the slopes of the Karatau mountains, in the southeast part of the Perovsky county, water reserve was constructed for the irrigation purpose. A similar one existed near the Sauran station [10, p.167].

A report kept in the Central Archive of the Republic of Uzbekistan, written by an old man of the Zhanadaria river canal and addressed to the head of the Perovsky county, contains the following paragraph: “In the times of Karakalpaks and Kokands,

the crop lands along the Syrdaria river were irrigated with use of dozens of dams, not one. Currently, the Perovsky kazakhs irrigate their lands using a chigir device, with two of them just built up at the river last year [13]. This is witness of the fact that till the end of XIX century the river was extensively built up with dams. The present use of chigirs by the end of XIX century was conditioned by the river's diminished level.

V.V. Radlov, based on the data of A. Maksheev, wrote that 4,000 families in the Kazalinsk county and 6,000 families in the Perovsky county were used in agriculture [12, p.115]. Here, Radlov refers to 1868. In Perovsky and Kazalinsk counties, 202 canals (aryks) were during the period from 1860 to 1890, and 280 aryks from 1890 to 1915. Lands between Kazalinsk and Zhanadaria, as well as in the valley of the Dalakol and Koksulakes were mastered by farmers. In 1916, there were 144 chigirs on the Shirkeily canal, which fed with water 259 dessiatines of land [3, p.26].

The book titled "Russia. Complete geographic description of our homeland" ("Rossia. Polnoe geographicheskoe opisanie nashego otechestva"), chapter "Perovsky", states the following: "In the Syrdaria region, the crop lands are irrigated through canals, extended from the river by chigirs, so that some flooded and dried up patches are now sown. The local kazakhs say "to sow the playful land". Also it is noted that the agriculture occupies 700 persons, and the area under crops managed by settled tribes of the Perovsky county is 40,500 dessiatines [14, p.597]. In spring, the river over flows and in summer lowers. There fore, chigirs were used in this period of year.

Along the lower course of Syrdaria, the areas under crops were considered differently, depending from their irrigation method: attached to lacustrine areas, the areas fed by canalsand those depending on chigirs. Chigirs were used also for watering fruit/vegetable gardens [11, p.49]. In the Aralsk and Kazalinsk regions, a device for keeping the fish net was also called *chigir*.

As it was stated above, while in Mangystau and Kyzylkums, chigir devices were used for extracting water from deep wells, in Syrdaria for shallow wells too.

Conclusion

To sum up the above said, chigir is a complex device that played an important role in providing the life and activities of kazakhs. The chigir facilities were in use during the II World War and in the post-war reconstruction period. In other words, they were in demand up to the middle of the XX century. With introduction of industrial methods, chigirs became obsolete and went out of use. Nowadays, to great pity, there are no true exemplars of chigirs left in the kazakh land. Local history museums possess only theirs parts: buckets, jars and wheels.

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