

DEVELOPING OF GRAPHICAL GEOMETRY AND ENGINEERING GRAPHIC IN KAZAKHSTAN

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Studying graphical geometry and engineering graphic are necessary to acquire knowledge, which permit make up and read technical sketches and also for developing engineering imagination. The Description building method is a common for graphical geometry and engineering graphic. Graphical geometry studies theoretical basis of that method, in engineering graphic- it's practical using.

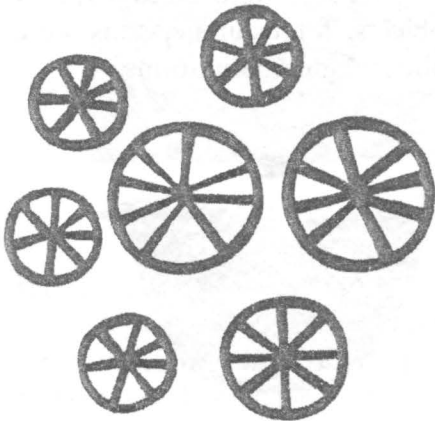


Figure 1 – Wheels

Graphical descriptions were created at the first steps of kazakh people's nomadic life. The certificates of this are rock drawings, which stayed until this time. We consider that the history of graphic and geometry starts from primitive people productions. Descriptions on the productions, which

were made 10 thousand years B.C. are certificates it. The main elements on all of descriptions are round forms. Historians consider that describing the circle is a big reaching of humankind. The transport systems were created (4 thousand years B.C.) by perfecting this round forms. Basically it is simple carts and carts yoked of oxen.



Figure 2 – Vehicle and two-wheeled chariot

It was the basis for engineering graphic and graphical geometry, because the circle is a theoretical basis of graphical geometry, and applied engineering graphic.

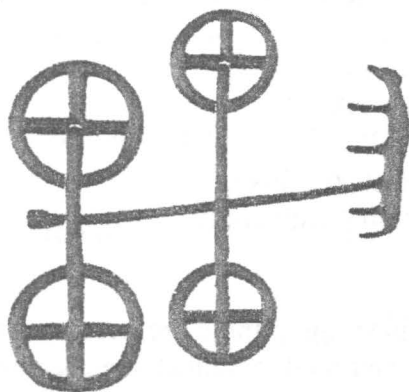


Figure 3 – Vehicle and two-wheeled chariot

Gradually nomadic people, who lived in the present Kazakhstan territory partly moved to settled life. Nomads started to habituate wild animals, husbandry, build dwellings and towns. Cities Otyrar, Taraz, Balasagyn, Tukistan etc. certificate it.

The elements of graphical geometry and engineering graphic were presence in life of nomads. Geometry figures were a prototype of state objects, for example, pans were parabolic and giperbolic forms.

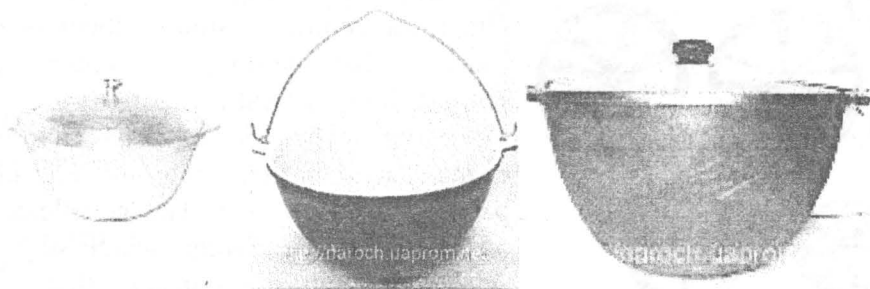


Figure 4 – The ware form

Yurt- house of nomads is a fold construction. The top part of yurt reminds parabolic, lower part reminds one lined giperbolic type. Yurt's wood framework coverage is modeled by "unfold" lows. "Unfold" is a main subject at graphical geometry and engineering graphic.

Being under Russia empire force, at the present Kazakhstan territory metallic bridges, railways started to build. It supported the developing of the engineering graphic. After, at USSR were built cities, region centers and factories. There were opened universities, where engineering studied graphical geometry and engineering graphic. In 1958 the candidate of mathematical science, docent Isakov wrote first 2 tomes book "Проективтік

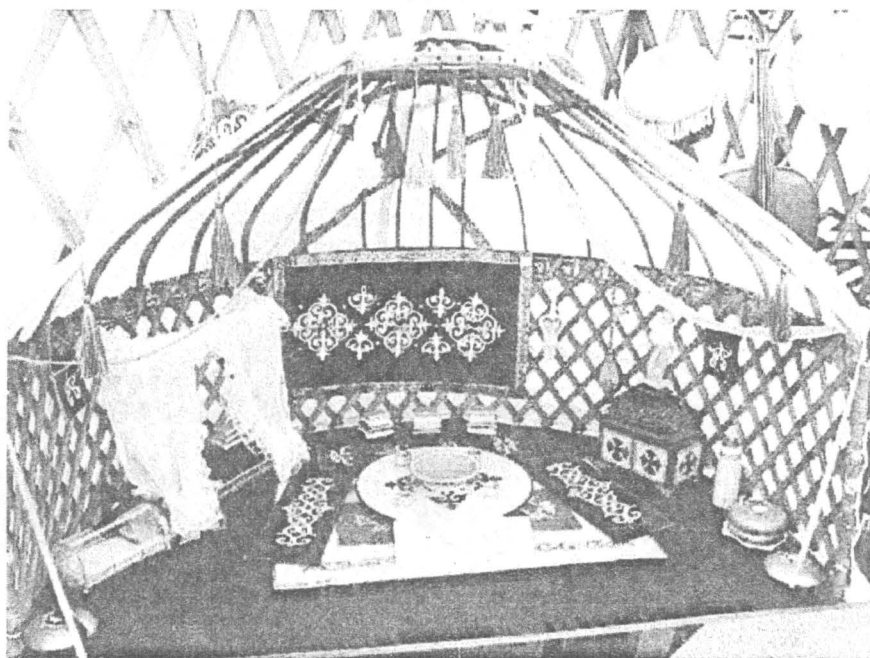


Figure 5 – The spherical form of dwelling of ancient nomads

геометрия” on kazakh language, second tome was devoted to graphical geometry. Teachers used this book, when they gave lessons at universities. Later in 1968 was written “Сызба геометрия” on kazakh language, the authors are Esmuhanov Zh. M., Konakbaev K.K. This accompanied the creator of graphical geometry and engineering graphic.

The contribution of Kazakhstan scientific in graphical geometry and engineering graphic is very great. It’s basis on science schools pulpit “Practical geometry” Moscow aviation university and pulpit “Graphical geometry and engineering graphic” Kiev’s technical university of construct and architecture.

At Moscow school learned 15 candidates, 2 doctors and at Kiev school 12 candidates of science.

At 1993 first aspirant from Kazakhstan, who defended candidate dissertation was Esmuhanov. At this time 40 candidates and 4 doctors dissertation were defended, among them 24 candidates dissertation in USSR, and 16 candidate and 4 doctor dissertations in independent

Kazakhstan. It shows the developing of kazakh school graphical geometry and engineering graphic. In our days there are 3 schools in Kazakhstan: Almaty, Astana and Shymkent.



Figure 6 – The spherical form of dwelling of ancient nomads

The developing took 4 science directions in Kazakh schools:

- cultivation geometrical models of expanse of new methods taking new methods. (Nurmanov B.N.)
- cultivation of the theory construction shortest links and it's adaptation.(Esmuhanov Zh.M.)

Our scientists come on the world's standards, establish in foreign magazines, they are Whole world Geometry and graphic units members.

Dynamic developing of constructions and industry in our country need high qualified employs. The roll of graphical geometry and engineering graphic grew up in industry, the main graphical activity, which has espadic meaning, in conditions of robots techniques, programs. Studying preparation of graphical part contracture documents in AutoCAD, ArhiCAD, Compass and other graphical programs, developing and perfection logical thinking connect computer graphic with graphical geometry theory.