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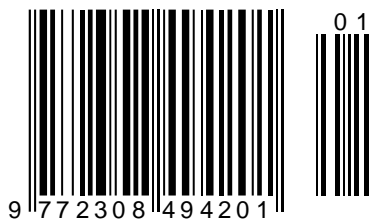
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BAKHOUDDIN NAKSHBANDS AND AMIR TEMUR

Abstract: This article tells about relationships among Bakhouddin Nakshband - Amir Temur. There are also some scientific information which prove that these men had close relationships - like a pupil and a teacher.

Key words: The teaching of Sufism, Buxara, Bakhouddin Nakshband, Amir Temur, teacher-apprentice, "Chronological lineage", ornamental order.

Language: English

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Introduction

Independence is one of the great transformations in the history of our nation, and it has provided ample opportunity for self-realization, restoration of our values and enjoyment of our spiritual wealth. During the years of independence, a lot has been done to study the ancient traditions of our people and to develop a sense of patriotism. One of the things that has been accomplished so well is the reforms and changes that are being made in the spiritual realm.

In all the countries of the past and present, education has become a central theme in the system of education. In particular, the issue of upbringing harmoniously developed and spiritually mature people in our country is one of the most pressing social issues.

In the past, various religious and secular ideas and doctrines have been created in the education system. One of the oldest centers of world science and culture, Turonzamin, has also been founded on the theory of education, which deals with the study of the education of perfect human beings.

As the President of the Republic of Uzbekistan Shavkat Mirziyoev noted: "Using the favorable conditions created in the country for entrepreneurship and encouraging young people to start their own business is one of the best practices of our religion.

If we say that your heart is in God and your hand is at work, it is for this purpose that our great grandfather Bakhouddin Naqshband said it would be a mistake [1, p.3].

Formation of the ideology of national independence and upbringing of the perfect person is one of the important scientific, historical and social issues, and requires comprehensive study of the spiritual and philosophical heritage of our people, including mystical values.

Materials and Methods

One of the tools of ideological struggle against the existing maladies is to study the mystic ideas, the lives and legacy of the great thinkers, their ideals of goodness, justice, self-consciousness and patriotism. think it will.

There are notions of syllabus, syllables, pirumurshid that make up the structure of mysticism.

The concept of tree is an Arabic word meaning "tree". In mysticism it is used instead of the word "rings". The only difference is that "genealogy" is often used as a reference to the genealogical concept, while "sets" are often used as words that reflect the system of pirates.

The concept of the chain is Arabic, which means "ring", "chain", "chain". In mysticism, the series is said to have two relative links of the methods of teaching:

The first is to give each Sheikh the name of his pirate teacher and mentor in the same order until Muhammad (peace be upon him). For example, Sayyid Amir Kulol, the elder of Bahouddin Naqshband, his elder Muhammad Samosi, his elder Mahmud Anjir Fagnavi and so on.

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The second is that each of the sheikhs is a genealogy that proves who their ancestors were and who the famous breed was. For example, Bahauddin Naqshband bin Jalaluddin ibn Burhanuddin ibn Abdullah to Ali ibn Abi Talib.

Genealogy, in scientific terms, is a field of history with a long history of genealogy. Various genealogies have been written and created throughout history. Especially the genealogy focuses on the science of mysticism. During the years of independence, national science has gained a foothold in our country.

In this case, it is about a pear or murshid.

Pir is Persian and sheikh is an Arabic word, both meaning "old", "elder".

Murid (Arabic means "student", "wanting", "pupil", "learner") is a person who, according to the etiquette of the teaching, is bound to a particular Sheikh, submitting his will to the absolute will of God and holds a noble rank. Muridism is a degree that comes after love.

A murshid (Arabic means "guide", "guide") is a leader of the teaching, a guide and a guide.

Piru comes in two ways in the murshid literature. In the first case, mentor, teacher, master, teacher, in the second case, muritu-murshid, teacher-apprentice, teacher-student relationship. The correct interpretation is a murid.

The Central Asian indigenous population, including the Uzbek people, has a strong belief in the peoples of the world. We can point out that a number of religions, such as Buddhism, Zoroastrianism, Christianity, Judaism and Islam, are situated within the borders of this region. Faithfulness is one of the positive qualities of our nation like hospitality, tolerance, childhood and hard work. This belief of Uzbeks has its ancient historical roots. Not only representatives of the great religion and mysticism of our people, but also representatives of science: Khorezmi, Ferghani, Farabi, Beruni, Ibn Sina, Ulugbek; representatives of the kingdom: Jaloliddin Manguberdi, Amir Temur, Mirzo Babur, Shaybaniyon, Abulgazihan, Amir Olimkhan; Literary representatives: Mahmud Kashgari, Yusuf Hos Hajib, Ahmad Yugnaki, Alisher Navoi, Zahiriddin Bobur and others were also believers.

Bahauddin Naqshband is known throughout the Islamic world with such honorable names as "Bahouddin Balogardon", "Hazrat Bahouddin", "Shahi Naqshband", "Hoja Bahaudin", "Hojai ul-Haq and Religion". In the sources, the name of Bahouddin Naqshband is mentioned with different names. Alisher Navoi writes: "Their name is Muhammad bin Muhammad Bukhari" [2, p.261]. Its founder is Bahouddin Muhammad ibn Burhanuddin Muhammad al-Bukhari. The family of Burhanuddin Muhammad and Bibi Arifs lived in the main cities of Southwest Turkestan in the beginning of the 14th century in Bukhara - "Qasri Hinduvon", later "Qasri Orifon",

Karshi, Zangirsaroy, Kesh (Shahrisabz) and lived in agriculture and chemistry. The honorary title of Burhanuddin Muhammad of Bahauddin padari is the basis for concluding that he was an educated, enlightened and extremely pious person of the time, in a circle of Sufi orifs, dervishes, including Babayi Samosi and Amir Sayyid Kulol.

At the same time, some reliable information in the work of Maqomoti Hoja Bahauddin, authored by Muhammad Baqir, was the name of Bahauddin's father, Burhanuddin Muhammad. Thus, the active involvement of Bahauddin Naqshband in political life, between 1335-1347, was not accidental but necessary and natural.

Sayyid Muhammad Bahauddin Naqshband was born in the village of Qasri Hinduvan, 12 km from Bukhara in the year 718 Hijri (August-September 13 CE). Later, the tomb of Bahauddin's mother on the outskirts of the village and the mosque next to it and the surrounding village castle were named after Orifon [3, p. 2].

"Bahauddin" is the name of his name and was given by the people for his achievements in religion, which means "the light of the religion", "the enlightenment of the religion." Throughout his entire life, through his prophethood and prayers, the people honored him as "Bahauddin Balogardon" (Bahauddin, the Baptist). Bahouddin Balogardon is the most popular among the above-mentioned names.

It is worth noting the following statement by the first President Islam Karimov. "It is profound that our ancestors sincerely adhere to the great saint Bakhouddin Naqshband and describe him as "Bahauddin Balogardon ". His life-saving wisdom, "May thy heart be with God, and thy work to work," vividly illustrates the noble essence of our religion, as it is today. "[4, p. 40].

Khoja's "Nakshband" day is made up of a combination of the Arabic words "ornament" and the Persian word "band", which means "painter".

First of all, the name Naqshband is derived from the occupation of Hazrat. He was born in a family of craftsmen, and he was a craftsman. Alisher Navoi writes in his book Nasoim-ul-mahabbat: "They are famous for the embroidery of the embroidery.

In addition, a number (for example, Izzat Sultan, Arif Usman, Sadridin Salim Bukhari, etc.), according to orientologists, Islamic scholars, literary historians and historians, think that the name of the embroidery is "a pattern ornament." Hence, the meaning of the word "ornament" means to engrave, place, ornament the name of Allah in the heart and in the heart.

Despite the differences in genealogical and sectarian differences, both the noble and the noble, the "chainsaw nasab" and the "chainsaw" (the golden chain), are linked to the Prophet Muhammad in spite of various elements.

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The Anis-ut-Talibin manuscript of Salah ibn Mubarak al-Bukhari, 5, p. 6-7, in the manuscript treasure of the Abu Raykhan Beruni Institute of Oriental Studies under the Academy of Sciences of the Republic of Uzbekistan [5, pp.6-7], by Jami's Nafahot-ul-uns. .. "and also in the manuscripts of Muhammad Baqir in the manuscripts of Hodja Buzruk (№ 9519) and in the Tuhfat-ul-ansobi Alawi (№ 1459) by Hodja Abdurahim bin Hoja Abdurahman Hissari and other sources. descendants, Sayidzoda Arda is the basis of the documents mentioned in [6].

Muhammad Baqir, the son of Bahouddin Muhammad, has two sons. One of the noble travelers said: Our Lord said: We also had a son and we will sacrifice him. The dervishes who were with them wrote the date. When they returned to Bukhara, it was reported that the sons of the Prophet died on the day that they came out of his blessed mouth [7, p.124].

Currently, scientific circles have different views on the relationship between Bahouddin Naqshband and Amir Temur. In the first group, they say that they have no relationship, and in the second group they say that they are in a relationship. So what are their fundamentals? In our opinion, the following is the reason for the decision of the first group:

- First, the existing Timurist historians have not touched on the relationship between Bahouddin Nakshband and Amir Temur in his works. For example, we see this in the works of Ali Yazdi's "Victory" and Ibi Arashah's "Wonders of Temur History";

- Secondly, the above-mentioned historians have focused more on Amir Temur's relationship with such pirates as Sayyid Baraka, Zainuddin Tayobod, Shamsuddnn Kulol;

- Thirdly, there is no information about the relationship between the two individuals in the "Autobiography"[8] and "Temur's tracts" relating to Amir Temur;

- Fourth, the geographical area in which these great breeds are inhabited contributes to their relative separation, which operated around Amir Temur Kesh, around Bahouddin Nakshband Bukhara;

- Fifth, they are relatively few in their contemporaneous years, a period of history that may have led to the conclusion that they were not related. We know that Amir Temur came to the political scene in 1370. Hazrat Bahouddin Nakshband died in 1389. The interval between them is 19-20 years. In that time, the two great men had not yet reached their peak of perfection. During this period Amir Temur's activities had not yet gained international significance, and the perfection of Hazrat Bahouddin Nakshband was manifested in the last and the last decades of his life.

People in the second group see the following as the basis for their views:

- Firstly, Amir Temur connects to Bahouddin Naqshband through Sayyed Mir Kulol, a prominent figure in the Nakshbandi teaching. This is mentioned

in several places in the Temur Regiment. For example: "I went to Amir Kulol. They advised me to go to Khorezm. If I win over the Uzbeks, I have decided to dedicate one year to Samarkand." [9, p.21];

- Secondly, Bahouddin Naqshband and Amir Temur are a contemporary person, both of whom were known in Turkestan and in the neighboring Kesh and Bukhara regions during the last 15-20 years. Only 150-200 km separated the area where they were active. At the same time, they were gaining in popularity. This does not allow us to conclude that they were not acquainted with each other. Because Amir Temur connects with Bahouddin Naqshband with contemporary and predecessors such as Kamal Khojandi (1318-1400), Sa'duddin Taftazani (1322-1389), Muhammad Parso (1345-1419);

- Thirdly, the kingdoms of Kesh, Samarkand and Bukhara played an important role in the development of Amir Temur, and in the second half of the XIV century, these lands were almost completely subdued by the doctrine of embroidery. There are people associated with the life of Amir Temur: his grandfather Ubaydullah, his mother Teginabegim, and local governor Bayonkulikhan, who are from the Bukhara province. This will allow us to agree with Amir Temur that Bahouddin Naqshband is familiar with him;

- Fourth, Amir Temur notes in his notes that Bahouddin Naqshband and patterned slogans follow, which is an important indication of the relationship between them. Amir Temur, in one of his sermons, followed the advice of the noble Sheikh Bahouddin Naqshbandi: "Eat, sleep, speak poorly".

I have to say to the government and to all the officials: "You shall live in prosperity, you shall not prosper, and you shall speak little, but you shall be wise" [10, p.58].

In the book by academician I.Muminov about Amir Temur, quoted by Sharofiddin Ali Yazdi, from Temur: "Gambling and Mystery in the language - belt and tongue in the belly" [11, p. 47], by Bahouddin Nakshband - In heart - Allah, in harmony with the motto of hands - this shows us that Amir Temur adhered to the motto.

- Fifthly, in the fifteenth century the pattern of emancipation reached the level of ideology in the state of Temurids, which was certainly laid by Amir Temur himself. Professors G. Navruzova and E. Karimov commented on this.

- Sixth, the book "Temuroma" by Salahiddin Toshkandi provides a number of, although not legible, relations between Bahouddin Naqshband and Amir Temur.

Conclusion

Compared to the above, we can conclude that there was a relationship between Bahouddin Nakshband and Amir Temur.

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To summarize, the development of the ornamental order is directly and indirectly connected with the development of Amir Temur and the Temurids state in the early days. Our grandfather Amir Temur has always followed the teachings of his teachers and elders, including the words of Hazrat

Bahauddin Naqshband, "Eat poor, sleep less, speak poorly" and treat all his teachers with respect. It is possible that Amir Temur wrote his glorious name in the history of our country and world in gold letters. Undoubtedly, he has a special role and role in the process of his spiritual masters and pirates.

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NONLINEAR VIBRATIONS OF A CURRENT-CARRYING ANISOTROPIC CYLINDRICAL SHELL IN A MAGNETIC FIELD

Abstract: A nonlinear two-dimensional model of magnetoelasticity of a current-carrying cylindrical shell is constructed in the paper with account for anisotropy of conductive properties. It is assumed that the main directions of the anisotropy of shell material properties coincide with the directions of the corresponding coordinate axes, and it is believed that an anisotropic body is linear with respect to magnetic and electrical properties. A coupled system of nonlinear differential equations is obtained that describes the stress-strain state of flexible current-carrying cylindrical shells with anisotropy of conductive properties, under unsteady-state power and electromagnetic loads; a boundary-value problem is formulated.

Key words: shell, magnetic field, magneto elasticity.

Language: English

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Introduction

The study of continuous medium motion with account for electromagnetic effects presents an important field in the mechanics of conjugate fields. Studies on the mechanics of coupled fields in deformable bodies have both fundamental and applied importance, which makes them especially relevant. These issues were studied in [1,2,3,5,7,8,11,18,19,22,23,24,25,26]. In modern technology, structural materials are used that are anisotropic in the undeformed state, and the anisotropy of the properties of such materials arises as a result of application of various technological processes. The nature of the shell material anisotropy is not determined entirely by

its behavior as an elastic body and the anisotropy of the material can manifest itself in relation to its other physical properties, for example magnetic and dielectric permeability and electrical conductivity. Some of the most important anisotropic materials have a crystalline structure. The most characteristic feature of crystals physical properties is their anisotropy and symmetry. Due to the periodicity, regularity, and symmetry of internal structure, a number of properties are discovered in crystals that are impossible to find in isotropic bodies. The anisotropic physical properties of crystals are extremely sensitive to external influences. Therefore, selecting and combining these effects, we may create the materials

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with unique, unusual properties that are used in modern technology.

Problems interaction between electro-magnetic field and deformed bodies are frequent in advanced technology.

I. MAGNETOELASTIC EQUATIONS.

Let the body be in a magnetic field generated by an electric current in the body itself and by a source located far from the body. Assume that the body serves as a conductor of electric current (current-carrying body), which is supplied to the ends of the body from an external source. It is assumed that an external electric current in an unperturbed state is uniformly distributed over the body (the current density does not depend on the coordinates). The body has finite anisotropic electrical conductivity and does not possess the property of unauthorized polarization and magnetization. Determine the values and write down the equations that characterize the properties of electromagnetic fields. Let the electromagnetic field of the body in the Eulerian coordinate system be characterized by electric field vector \vec{e} , magnetic field vector \vec{h} , electric induction vector \vec{d} and magnetic induction vector \vec{b} , and in the Lagrangian coordinate system by $\vec{E}, \vec{H}, \vec{D}$ and \vec{B} , respectively. The analysis of electromagnetic effects is possible on the basis of the Maxwell system of equations, together with constitutive equations connecting the vectors \vec{d} and \vec{e} , \vec{b} and \vec{h} , \vec{j} and \vec{e} , which in the case of linear isotropic medium have the form [12]:

$$\vec{d} = \varepsilon_\alpha \vec{e}, \quad \vec{b} = \mu_\alpha \vec{h}, \quad \vec{j} = \sigma \vec{e}$$

where $\varepsilon_\alpha, \mu_\alpha$ - are called electric and magnetic permeabilities, respectively, σ - electrical conductivity of the medium.

The properties of the media are characterized by parameters $\varepsilon_\alpha, \mu_\alpha$ and σ . Depending on the properties of parameters $\varepsilon_\alpha, \mu_\alpha$ and σ , the following media are distinguished: linear one, in which parameters $\varepsilon_\alpha, \mu_\alpha$ and σ do not depend on the magnitude of electric and magnetic fields, and nonlinear one, in which the parameters $\varepsilon_\alpha, \mu_\alpha$ and σ (or at least one of them) depend on the magnitude of electric or magnetic field. All real media are in essence non-linear ones. However, in weak fields, in many cases, the dependence $\varepsilon_\alpha, \mu_\alpha$ and σ on the magnitude of electric and magnetic fields can be neglected and the medium can be taken as a linear one. In turn, linear media are divided into homogeneous and inhomogeneous, isotropic and anisotropic ones.

The media are homogeneous when their parameters $\varepsilon_\alpha, \mu_\alpha$ and σ are independent of

coordinates, i.e. the properties of the medium are similar at all points. Media in which at least one of the parameters $\varepsilon_\alpha, \mu_\alpha$ and σ is a function of coordinates is called inhomogeneous. If the properties of the medium are the same in different directions, then the medium is called isotropic. Accordingly, media whose properties are different in different directions are called anisotropic. In isotropic media, vectors \vec{d} and \vec{e} , and \vec{b} and \vec{h} are parallel, in anisotropic media, they may not be parallel. In isotropic media, parameters $\varepsilon_\alpha, \mu_\alpha$ and σ - are the scalar quantities. In anisotropic media, at least one of these parameters is a tensor. Note that the determination of the relationships between the quantities \vec{e} and \vec{d} , and \vec{h} and \vec{b} concretizes the model of the medium. Elastic media are the media in which initial relative positions of the particles affect the internal forces (both mechanical and magnetic) everywhere in the body at later times. Therefore, in the study of such objects, it is convenient to use the initial coordinates of each particle, i.e. Lagrangian coordinates. The transition from the Eulerian coordinate system to the Lagrangian one is done using the dependencies [3,11]:

$$\begin{aligned} \varepsilon_{ijk} \frac{\partial h_k}{\partial \xi_p} \frac{\partial \xi_p}{\partial x_j} &= j_i + \frac{\partial d_i}{\partial t}; \\ \varepsilon_{ijk} \frac{\partial e_k}{\partial \xi_p} \frac{\partial \xi_p}{\partial x_j} &= -\frac{\partial b_i}{\partial t}; \\ \frac{\partial b_i}{\partial \xi_p} \frac{\partial \xi_p}{\partial x_i} &= 0; \quad \frac{\partial d_i}{\partial \xi_p} \frac{\partial \xi_p}{\partial x_i} = \rho_e \end{aligned} \quad (1)$$

where ρ_e - is the volume density of electric charges. Omitting the intermediate transforms, Maxwell's equations in Lagrangian variables take the form:

$$\begin{aligned} \varepsilon_{ijm} \frac{\partial H_m}{\partial \xi_p} &= J_p + \frac{\partial D_r}{\partial t}; \\ \varepsilon_{ijm} \frac{\partial E_m}{\partial \xi_p} &= -\frac{\partial B_p}{\partial t}; \\ \frac{\partial B_p}{\partial \xi_p} &= 0; \quad \frac{\partial D_p}{\partial \xi_p} = R_e, \end{aligned} \quad (2)$$

$$\begin{aligned} \text{where } H_m &= h_k \frac{\partial x_k}{\partial \xi_m}; \quad E_m = e_k \frac{\partial x_k}{\partial \xi_m}; \\ B_p &= \Gamma b_i \frac{\partial \xi_p}{\partial x_i}; \quad D_r = \Gamma d_i \frac{\partial \xi_r}{\partial x_i}; \\ J_r &= \Gamma j_i \frac{\partial \xi_r}{\partial x_i}; \quad R_e = \Gamma \rho_e; \quad \Gamma = \det \left| \frac{\partial x_i}{\partial \xi_j} \right|. \end{aligned} \quad (3)$$

The equations of motion of a material body, which describe their interaction with an electromagnetic field, have the form [11]:

$$\frac{\partial}{\partial \xi_k} \left(\Gamma t_{ij} \frac{\partial \xi_k}{\partial x_j} \right) + \rho_0 (F_i + F_i^\wedge) = \rho_0 \frac{\partial^2 u_i}{\partial t^2}, \quad (4)$$

where t_{ij} – are the components of the Euler stress tensor; $\rho_0 = \Gamma \rho$ – is the density of the material in an undeformed state. Using the Lagrange stress tensor

$$T_{ik}^0 = \Gamma t_{ji} \frac{\partial \xi_k}{\partial x_j}, \quad (5)$$

the equations of motion is written in the form

$$\frac{\partial T_{ik}^0}{\partial \xi_k} + \rho_0 (F_i + F_i^\wedge) = \rho_0 \frac{\partial^2 u_i}{\partial t^2}. \quad (6)$$

Later, equation (10) can be presented as

$$S_{ij,j} + \rho_0 (F_i + F_i^\wedge) = \rho_0 \frac{\partial^2 u_i}{\partial t^2}. \quad (7)$$

where \hat{S} – is the stress tensor introduced by V.V. Novozhilov [2,3]. In a vector form, the equations of magnetoelasticity have the form [2,3,5,11]:

$$\begin{aligned} \operatorname{div} \hat{S} + \rho_0 (\vec{F} + \vec{F}^\wedge) &= \rho_0 \frac{\partial^2 \vec{u}}{\partial t^2}, \\ \operatorname{rot} \vec{E} &= -\frac{\partial \vec{B}}{\partial t}, \operatorname{rot} \vec{H} = \vec{J} - \frac{\partial \vec{D}}{\partial t}; \\ \operatorname{div} \vec{B} &= 0; \operatorname{div} \vec{D} = R_e \end{aligned} \quad (8)$$

Relations (3) are written in the vector form as follows:

$$\begin{aligned} \vec{H} &= \vec{h} F^T; \vec{E} = \vec{e} F^T; \vec{B} = \Gamma \vec{b} F^{-1}; \\ \vec{D} &= \Gamma \vec{d} F^{-1}; \vec{J} = \Gamma \vec{j} F^{-1}, \end{aligned} \quad (9)$$

where $F = \frac{\partial x_i}{\partial \xi_j}$ ($i, j = 1, 2, 3$).

Ohm's generalized law is

$$\vec{J} = \sigma \Gamma F^T F^{-1} [\vec{E} + \vec{V} \times \vec{B}] + R_e \vec{V}, \quad (10)$$

and the expression for the ponderomotive Lorentz force in constitutive variables is written as

$$\rho_0 \vec{F}^\wedge = \sigma \Gamma^{-1} F^{-1} [(\vec{E} + \vec{V} \times \vec{B}) \times \vec{B}] + \Gamma^{-1} R_e \vec{V}. \quad (11)$$

Thus, in the final form, the equations of magnetoelasticity are written as follows:

$$\begin{aligned} \operatorname{div} \hat{S} + \rho_0 (\vec{F} + \vec{F}^\wedge) &= \rho_0 \frac{\partial^2 \vec{u}}{\partial t^2}, \\ \operatorname{rot} \vec{E} &= -\frac{\partial \vec{B}}{\partial t}, \operatorname{rot} \vec{H} = \vec{J}, \\ \operatorname{div} \vec{B} &= 0; \operatorname{div} \vec{D} = 0; \\ \rho_0 \vec{F}^\wedge &= \sigma \Gamma^{-1} F^{-1} [(\vec{E} + \vec{V} \times \vec{B}) \times \vec{B}]; \\ \vec{J} &= \sigma \Gamma F^T F^{-1} [\vec{E} + \vec{V} \times \vec{B}] \end{aligned} \quad (12)$$

The system of equations (12) should be completed with initial conditions, boundary conditions, and conditions at infinity [1,3].

Note that *div* and *rot* – are the divergence operators of the rotor in relation to the fixed Cartesian basis; σ is the electrical conductivity.

The system of equations of magnetoelasticity must be closed by relations connecting the intensity and induction vectors of electromagnetic field, and by Ohm's laws, which determine the density of the conduction current in a moving medium. If the anisotropic body is linear with respect to magnetic and electrical properties, then the governing equations for the electromagnetic characteristics of the field and the kinematic equations for electrical conductivity, and the expressions for the Lorentz force, taking into account the external current \vec{J}_{cm} in the Lagrange variables, are written in the form [3, 11]:

$$\begin{aligned} \vec{B} &= \mu_{ij} \vec{H}, \quad \vec{D} = \varepsilon_{ij} \vec{E}, \\ \vec{J} &= \sigma_{ij} \Gamma F^T F^{-1} [\vec{J}_{cm} + \vec{E} + \vec{v} \times \vec{B}], \\ \rho_0 \vec{F}^\wedge &= \Gamma^{-1} F^{-1} [\vec{J}_{cm} \times \vec{B} + \sigma_{ij} (\vec{E} + \vec{v} \times \vec{B}) \times \vec{B}]. \end{aligned} \quad (13)$$

Note that in the Maxwell equations the bias currents, the vector of electric induction and the volume density of electric charges (quasistatic field) are neglected; $\sigma_{ij}, \varepsilon_{ij}, \mu_{ij}$ are the tensors of electrical conductivity, dielectric and magnetic permeability, respectively. For homogeneous anisotropic media, they are symmetric tensors of the second rank [1,4,6,21].

II. NONLINEAR MODEL OF MAGNETO-ELASTICITY OF THE CURRENT-CARRYING SHELLS.

When constructing two-dimensional equations of the internal problem of magnetoelasticity of anisotropic shells in a geometrically nonlinear statement, the Kirchhoff–Love hypothesis and the electromagnetic hypotheses adequate to it are used [1,2,3,5].

The proposed two-dimensional model of magnetoelasticity for problems of the theory of anisotropic shells is constructed in the quadratic approximation; cubic nonlinearity is taken into account in the terms for the Lorentz forces.

This is due to the fact that in this statement, the interaction of the electromagnetic field with the strain field is carried out due to these forces only.

When studying the electrodynamic equations of motion of the theory of anisotropic shells, a system of curvilinear coordinates θ^i ($i = 1, 2, 3$) in relative configuration of the body is used.

Considering a finite three-dimensional anisotropic shell in three-dimensional Euclidean

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space, we assign coordinates θ^i to each material point of the body.

Let \vec{r} be the radius vector of a characteristic particle in a given configuration of the body at t , and similarly, denote by \vec{R} the radius vector in a fixed relative configuration, which is the initial one.

In this case, in the framework of three-dimensional theory, kinematic relations are represented as follows:

$$\begin{aligned} \vec{R} &= \vec{R}(\theta^i); \quad \vec{r} = \vec{r}(\theta^i, t); \\ \vec{G} &= \frac{\partial \vec{R}}{\partial \theta^i}; \quad \vec{g}_i = \frac{\partial \vec{r}}{\partial \theta^i}; \quad \vec{G}^i \cdot \vec{G}^j = \delta_j^i; \\ \vec{g}^i \cdot \vec{g}_j &= \delta_j^i; \\ G_{ij} &= \vec{G}_i \cdot \vec{G}_j; \quad G^{ij} = \vec{G}^i \cdot \vec{G}^j; \\ g_{ij} &= \vec{g}_i \cdot \vec{g}_j; \quad g^{ij} = \vec{g}^i \cdot \vec{g}^j; \quad F = \vec{g}_i \otimes \vec{G}^i; \\ \vec{g}_i &= F \vec{G}_i; \quad \vec{G}^i = F^T \vec{g}^i; \\ \Gamma &= \det F = \sqrt{g/G}; \end{aligned} \quad (14)$$

$$\begin{aligned} \sqrt{g} &= \vec{g}_1 \cdot (\vec{g}_2 \times \vec{g}_3); \\ \sqrt{G} &= \vec{G}_1 \cdot (\vec{G}_2 \times \vec{G}_3), \end{aligned}$$

where: \vec{g}_i, \vec{g}^i – covariant and contravariant base vectors, respectively; g_{ij}, g^{ij} covariant and contravariant metric configuration tensors at a time t ; $\vec{G}^i, \vec{G}_i, G_{ij}, G^{ij}$ – appropriate values for the initial configuration; δ_j^i – the Kronecker delta; symbol \otimes – stands for tensor of the procedure. Einstein summation convention is not performed.

Considering (14), the vectors of electromagnetic quantities can be represented by the following relationships:

$$\begin{aligned} \vec{e} &= e_i \vec{g}^i; \quad \vec{h} = h_i \vec{g}^i; \quad \vec{b} = b^i \vec{g}_i, \\ \vec{j} &= j^i \vec{g}_i; \quad \vec{E} = E_i \vec{G}^i; \quad \vec{H} = H_i \vec{G}^i; \\ \vec{B} &= B^i \vec{G}_i; \quad \vec{j} = j^i \vec{G}_i \end{aligned} \quad (15)$$

With (1) and (14), we obtain

$$\begin{aligned} E_i &= e_i; \quad H_i = h_i; \quad G^{1/2} B^i = g^{1/2} b^i; \\ G^{1/2} j^i &= g^{1/2} j^i, \quad (i = 1, 2, 3). \end{aligned} \quad (16)$$

Expressions (16) establish the relationship between electromagnetic quantities in the Lagrangian and Euler coordinate systems through the metric of the initial and current configurations. When constructing the two-dimensional theory of thin shells in a geometrically nonlinear statement, the equations and relations of the theory of flexible shells are used in quadratic approximation, using the classical model of

undeformable normals and hypotheses in electrodynamics [1,2,3,5].

For the case of quadratic nonlinearity [2,3,5] under consideration, the strains and rotation angles are small, but the latter are significantly superior to the former. The selected infinitely small volume element under strain changes its position in space (due to displacement and rotation) and, in addition, changes its size and form. An account for the elongation smallness and neglect of the shifts compared with the angles of rotation allows us to make no differences between the dimensions of the volume element before and after strain. This makes it possible to present the volume element after strain as equal to the volume element before strain with the only difference (geometrical) in its position in space. The above allows us to accept that

$$S_i^* / S_i \approx 1 \quad \text{и} \quad V^* / V \approx 1, \quad (i = 1, 2, 3)$$

Here S_i – is the elementary areas with the normals \vec{n}_i before strain, S_i^* – the same area after strain; V и V^* are the volumes of the elementary element before and after strain. This approach allows nonlinearity to be taken into account in relations for strains, curvatures and torsion. In this case, the shell metric remains practically undeformed, since the radii of curvature and the Lamé parameters correspond to the undeformed state of the shell. Note that, based on these considerations, relations (6) are reduced to

$$\begin{aligned} E_i &= e_i; \quad H_i = h_i; \quad B^i = b^i; \\ j^i &= j^i, \quad (i = 1, 2, 3) \end{aligned} \quad (18)$$

Let us consider a thin current-carrying circular cylindrical shell under unsteady electromagnetic and mechanical loads, neglecting the effect of polarization and magnetization processes, and thermal stresses. Assume that an alternating electric current from an external source is supplied to the shell end.

The elastic properties of shell material are considered orthotropic, the main directions of elasticity coincide with the directions of the corresponding coordinate lines, the electromagnetic properties of the material are characterized by tensors of electrical conductivity σ_{ij} , magnetic permeability μ_{ij} , and dielectric permittivity ε_{ij} ($i, j = 1, 2, 3$).

Based on the physics of crystals [4] and form [3,11, 21], it is assumed that the tensors σ_{ij} , μ_{ij} , ε_{ij} take a diagonal form for the considered class of conducting orthotropic media with a rhombic crystal structure.

According to the results of [8-17], and considering the geometry of the shell, a complete system of equations in a curvilinear orthogonal coordinate system is derived; it allows mathematical description of a nonlinear two-dimensional model of

magnetoelasticity of orthotropic cylindrical shells; it consists of:

equations of motion

$$\begin{aligned} \frac{\partial}{\partial s}(RN_s) + \frac{\partial S}{\partial \theta} + R(p_s + \rho F_s^\wedge) &= R\rho h \frac{\partial^2 u}{\partial t^2}; \\ \frac{\partial N_\theta}{\partial \theta} + \frac{1}{R} \frac{\partial}{\partial s}(R^2 S) + \frac{\partial H}{\partial s} + Q_\theta + \\ + (p_\theta + \rho F_\theta^\wedge) &= R\rho h \frac{\partial^2 v}{\partial t^2} \end{aligned} \quad (19)$$

$$\begin{aligned} \frac{\partial}{\partial s}(RQ_s) + \frac{\partial Q_\theta}{\partial \theta} - N_\theta + R(p_z + \rho F_z^\wedge) &= R\rho h \frac{\partial^2 w}{\partial t^2}; \\ \frac{\partial H}{\partial \theta} + \frac{\partial}{\partial s}(RM_s) - RQ_s - R + \end{aligned}$$

$$\left(N_s - \frac{M_\theta}{R}\right) \mathcal{G}_s - RS \mathcal{G}_\theta = 0;$$

$$\frac{1}{R} \frac{\partial}{\partial s}(R^2 H) + \frac{\partial M_\theta}{\partial \theta} - RQ_\theta - RN_\theta \mathcal{G}_\theta - RS \mathcal{G}_s = 0;$$

$$\left(S = N_{\theta s} = N_{s\theta} - \frac{1}{R} M_{\theta s}, H = M_{s\theta} = M_{\theta s}\right)$$

Maxwell equations

$$-\frac{\partial B_z}{\partial t} = \frac{1}{R} \left(\frac{\partial (RE_\theta)}{\partial s} - \frac{\partial E_s}{\partial \theta} \right);$$

$$\begin{aligned} \sigma_1 \left[E_s - \frac{\partial v}{\partial t} B_z - 0,5 \frac{\partial w}{\partial t} (B_\theta^+ + B_\theta^-) \right] &= \\ = \frac{1}{R} \left(\frac{\partial H_z}{\partial \theta} - \frac{R(H_\theta^+ - H_\theta^-)}{h} \right); \end{aligned} \quad (20)$$

$$\begin{aligned} \sigma_2 \left[E_\theta - \frac{\partial u}{\partial t} B_z + 0,5 \frac{\partial w}{\partial t} (B_s^+ + B_s^-) \right] &= \\ = \left(-\frac{\partial H_z}{\partial s} + \frac{(H_s^+ - H_s^-)}{h} \right), \end{aligned}$$

strain relationships

$$\varepsilon_s = \frac{\partial u}{\partial s} + \frac{1}{2} \theta_s^2; \quad \varepsilon_\theta = \frac{1}{R} \frac{\partial v}{\partial \theta} + \frac{1}{R} w + \frac{1}{2} \theta_\theta^2;$$

$$\varepsilon_{s\theta} = \frac{1}{R} \frac{\partial u}{\partial \theta} + R \frac{\partial}{\partial s} \left(\frac{v}{R} \right) + \mathcal{G}_s \mathcal{G}_\theta;$$

$$\chi_s = \frac{\partial \theta}{\partial s}; \quad \chi_\theta = \frac{1}{R} \frac{\partial \mathcal{G}_\theta}{\partial \theta};$$

$$2\chi_{s\theta} = \frac{\partial \mathcal{G}_\theta}{\partial s} + \frac{1}{R} \frac{\partial \mathcal{G}_s}{\partial \theta} + \frac{1}{R} \frac{\partial v}{\partial s}; \quad (21)$$

where

$$\mathcal{G}_s = -\frac{\partial w}{\partial s}; \quad \mathcal{G}_\theta = -\frac{1}{R} \frac{\partial w}{\partial \theta} + \frac{v}{R}. \quad (22)$$

elasticity relationships

$$N_s = \frac{e_s h}{1 - \nu_s \nu_\theta} (\varepsilon_s + \nu_\theta \varepsilon_\theta);$$

$$N_\theta = \frac{e_\theta h}{1 - \nu_s \nu_\theta} (\varepsilon_\theta + \nu_s \varepsilon_s); \quad S = g_{s\theta} h \varepsilon_{s\theta};$$

$$M_s = \frac{e_s h^3}{12(1 - \nu_s \nu_\theta)} (\chi_s + \nu_\theta \chi_\theta); \quad (23)$$

$$M_\theta = \frac{e_\theta h^3}{12(1 - \nu_s \nu_\theta)} (\chi_\theta + \nu_s \chi_s);$$

$$H = g_{s\theta} \frac{h^3}{12} \chi_{s\theta}$$

Here $\nu_s = \nu_{\theta s}$; $\nu_\theta = \nu_{s\theta}$; $e_s \nu_\theta = e_\theta \nu_s$.

The components of the ponderomotive force are:

$$\rho F_s^\wedge = -h J_{\theta cm} B_z +$$

$$\sigma h \left[E_\theta B_z - \frac{\partial u}{\partial t} B_z^2 + 0,5 \frac{\partial w}{\partial t} (B_s^+ + B_s^-) B_z \right] +$$

$$+ \sigma h \frac{\partial v}{\partial t} (0,25 (B_s^+ + B_s^-) (B_\theta^+ + B_\theta^-) +$$

$$+ \frac{1}{12} (B_s^+ - B_s^-) (B_\theta^+ - B_\theta^-) - \frac{1}{12} (B_\theta^+ + B_\theta^-) B_z)$$

$$\rho F_\theta^\wedge = h J_{s cm} B_z -$$

$$\sigma h \left(\frac{\mu}{\sigma R} \left(\frac{\partial B_z}{\partial \theta} - \frac{R(B_\theta^+ - B_\theta^-)}{h} \right) - \frac{\partial v}{\partial t} B_z +$$

$$+ 0,5 \frac{\partial w}{\partial t} (B_\theta^+ + B_\theta^-) \right) B_z +$$

$$+ \sigma h 0,5 \frac{\partial w}{\partial t} (B_\theta^+ + B_\theta^-) B_z - \sigma h \frac{\partial v}{\partial t} B_z^2 -$$

$$\sigma h \frac{\partial v}{\partial t} \left(0,25 (B_\theta^+ + B_\theta^-)^2 + \frac{1}{12} (B_\theta^+ - B_\theta^-)^2 - 0,5 (B_s^+ + B_s^-) B_z \right)$$

$$\rho F_z^\wedge = 0,5 h \left[-J_{s cm} (B_\theta^+ + B_\theta^-) + J_{\theta cm} (B_s^+ + B_s^-) \right] +$$

$$+ 0,5 \sigma h \left(\frac{\mu}{\sigma R} \left(\frac{\partial B_z}{\partial \theta} - \frac{R(B_\theta^+ - B_\theta^-)}{h} \right) - \frac{\partial v}{\partial t} B_z +$$

$$+ 0,5 \frac{\partial w}{\partial t} (B_\theta^+ + B_\theta^-) \right) (B_\theta^+ + B_\theta^-) -$$

$$- \sigma h 0,5 E_\theta (B_s^+ + B_s^-) + \sigma h 0,5 \frac{\partial u}{\partial t} (B_s^+ + B_s^-) B_z +$$

$$+ \sigma h 0,5 \frac{\partial v}{\partial t} (B_\theta^+ + B_\theta^-) B_z -$$

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$$-\sigma h \frac{\partial w}{\partial t} [0,25(B_{\theta}^{+} + B_{\theta}^{-})^2 + 0,25(B_s^{+} + B_s^{-})^2 + \\ + \frac{1}{12}(B_{\theta}^{+} - B_{\theta}^{-})^2 + \frac{1}{12}(B_s^{+} - B_s^{-})^2]$$

Here N_s, N_{θ} are the normal tangential efforts; S - shear force; Q_s, Q_{θ} - transverse forces; M_s, M_{θ}, H - bending and torsional moments, respectively; u, v, w - components of displacements; E_s, E_{θ} - components of the electric field strength; B_z - normal component of magnetic induction; B_s^{+}, B_s^{-} - known components of magnetic induction from the shell surface. $J_{s\,cm}, J_{\theta\,cm}$ - components of the density of electric current from an external source; σ - electrical conductivity; $h = h(s, \theta)$ - shell thickness; E - Young's modulus; ν - Poisson's ratio. The above equations correspond to the quadratic theory of shells [2,3,5,20]. The component of Lorentz forces take into account the strain rate of the shell, the external magnetic field, the magnitude and intensity of the conduction current relative to external magnetic field. The inclusion of nonlinearity in the equations of

motion causes nonlinearity in the ponderomotive force.

III. CONCLUSION.

Dielectric and magnetic properties of a rigid body change under both the change in density, and under strains (shears), when the density remains the same. As a result of strain, the dielectric and magnetic properties of the body become anisotropic, and the scalar dielectric and magnetic permeability is replaced by tensors of the second rank. Based on the equations obtained, using the proposed technique, we are able to take into account both the anisotropy of material and the anisotropy of internal electromagnetic field of the shell, as well as the effect of strains on the electromagnetic properties of the body.

Such problems of electromagnetoelasticity are very relevant from the point of view of their applications. In the case of thin anisotropic or isotropic bodies with anisotropic electrical conductivity, it is possible to pose and solve optimal problems of magnetoelasticity by varying physicommechanical parameters of the body material. In particular, under constant mechanical and geometric parameters of the problem, by changing the anisotropic electrodynamic parameters, one can obtain structural elements with a qualitatively new mechanical behavior.

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COMPARATIVE ANALYSIS OF THE STORIES ABOUT “ALANKUVO”

Abstract: This article explores the history of Alawuqa by comparative sources. It is scientifically proved that the legend of Alankuko has become an important artistic figure, not only in historical themes, in the determination of the origin of historical figures, but also in the pure artistic works of the protagonist.

"The Wonderful Story of Alankuvo", in "Shajarai Turk" of Abulghazi Bakhodirhon by Rashiddin's "Jome-ut-tavorih", "Oguznoma" by unknown author - "Nusratnoma", "Zafarnoma" of Sharafiddin Ali Yazdi, "Abdullanoma" of Hafiz Bukhari, A comparative analysis of the stories of Mirzo Ulugbek "Alankuvo" in the "History of the four nations" and "History of Rashidiy" by Muhammad Haydar Mirza.

The views that the image of Alankuvo resembles the Virgin Mary are highlighted by the analysis. The fact that the folklore was divinely inspired and legendary in its literary work is traditionally reported in literary and historical works written by Turkic peoples.

Key words: Alankuvo, historical person, historical source, niruns (emanating from light), myth, story, comparative analysis.

Language: English

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Introduction

There are many examples of historical prose that can be drawn from the stories they tell us to think about. One of them is the legend of "Alankuvo".

A unique example of the historical and artistic prose was the impetus for us to explore this topic by the wonderful story of Alankuvo in the book "Shajarai Turk" of Abulghazi Bakhodirhon.

There are two small stories about Alankuvo in "Shajarai Turk". The first one is called "The Wonderful Story of Alankuvo," and the second is called "The Remembrance of Alankuvo's Children."

In the first story, Abulghazi says that he had a grand wedding with his two grandchildren, Dubunbayon and Alankuvo, who had two sons of Yulduzhon. His grandson succeeds Dubunbayon to the throne. However, Dubunbayon died before he was 30 years old. He has two sons. One is known as Bilga (7 years old) and the other is Bekchy (Bilmout - as is said in some books - MA), (6 years). Then he tells the story of Alankuvo and says that after the death of

Dubunbayon Yulduz's brothers, sons, kings and soldiers wished him well. However, Alankuvo does not agree. "I am not going to be here on earth. I was the leader of the people until my boys were young. Then I'll hand it over to my boys." - [Abulghazi Bakhodirhon. "Shajarai Turk". 1990: 44.] he said.

Alankuvo will rule the throne without ever getting married again. Years later, something happened. One night, Alankuvo slept and woke up in the morning; a bright light came through the hole. In this light a man's face can be seen. It was white and yellow. At this, Alankuvo screams, trying to awaken his weak. But he does not speak, his tongue stops. His hands and feet were lifeless as he tried to get up. But the mind is right. The man in the light gently comes in and mates with him. He also leaves the hole. Alankuvo did not tell anyone that if he told this story no one would believe it. Five or six days later, he will come again. This situation will continue. Alankuvo becomes pregnant. After 4-5 months, the relatives ask her how she became pregnant. Alankuvo tells it all. "I wouldn't

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go if I needed a husband. No matter how weak I am, many people make me king. Am I disgracing myself, the people and my two sons, and will I do such a thing?" [Abulghazi Bahodirhan. "Shajarai Turk", 1990:44.]. If you don't believe me, go to bed at night in front of my house. If God does not want to put me to shame, He will show it to you. When you have a baby in my womb, you see, it's not like any other person. In this there is the wisdom of Allah. After that, they all believed what he said. Nevertheless, many lay around his house. They woke up in turn. A few days later, at the time of sacrificial light, a light appears from above. Seeing this, he woke up. The light went through the hole and into Alankuvo's house. After a while he came back. He saw that the people who were lying there had come. Everyone saw that he was gone. But they could not see the picture in the light. After that, everyone believed and knew the truth. This is how the first story of Alankuvo comes to an end.

The second story tells of Alankuvo's sons. Alankuvo had three sons. "The former horse's name is Bukun Reppression. All of the repressed lands are his offspring. The second name is Busqun Chalchi. The descendants of Chalchi are descended. The name of the pilot is Budanjir Munqaq. Aikhan was raised. Many Chingizkhan and Mongolian offspring are descended. The nations that have these three sons are all called Nirun ... How many people say that the light of the Mongol fetus has come to light. " [Abulghazi Bahodirhan. "Shajarai Turk", 1990: 45.]

As you can see, the information in the work requires a deeper study of the image of the "Alankuvo", which is often found in the historical and artistic prose.

It is known that Abulgazi used many historical books (18 historical sources – A.M) to write Shajarai Turk. What other works do you see in the story of Alankuvo by Abulgazi Bakhodirhan?

LITERATURE REVIEW:

Our observations have shown that stories on this subject include Rashiduddin's Jome'-ut-tavorih, "Oguznoma", the author of "Tavorikhi Guzu" - "Nusratnoma", "Zafarnoma" by Sharafiddin Ali Yazdi, "Abdullanoma" by Hafiz Bukhari, "The History of Mirzo Ulugbek", In the "History Rashidiy" by Muhammad Heydar Mirza.

According to Rashiduddin, Alankuvo was a wise woman and was of the tribe of Kuralas. All the Mongol tribes descended from Dubunbayon and his wife, Alankuvo.

According to some sources, Alanooko Hurilartoy was the daughter of a sniper. According to Abulgazi, Mongolian khan was the grandson of Yulduzkhan.

There is also a story about Alankuvo in his book "Nusratnoma" in "Tavorikhi Guzu". The story tells us that Alankuvo was a widow of a wall, legend has it

that she had a child because of a light, had three sons and that their offspring were called Niruns.

Academician A. Kayumov examines the book "Nusratnoma" in "Tavorikhi Guzu" and notes that there are stories related to the history of the Uzbek people. He also analyzes fiction stories about Oguzkhan and Alankuvo. [A. Kayumov. 2010: Collection of Works, Volume 6. 102-114.]

Hafiz Tanish Bukhari's book "Abdullanoma" has a similar story to "Alankuvo's wonderful story." According to tradition, Hafiz Bukhari began his work "Abdullanoma" with the stories of Noah, Yafas and Oguzkhan. It also tells the story of Alankuvo.

Hafiz Bukhari works on the story of "Abdullanoma" of Alankuvo and gives a variety of information based on several historical books. The beautiful storytelling and artistic pages show the author's storytelling skills. The work first speaks about the origin and distribution of seeds and tribes, and states the second allegation about Alankuvo: "The second sect is the people from the Peninsula. They are called Niruns."

"They are the descendants of three sons born without a father after the death of Alankuvo's husband Dibun Boyon. According to the Mongols, the substance of their bodies was light and (Alankuvo) conceived of them. For example, Maryam (Mary), the husband of the Virgin Mary may Allah have mercy on her, was conceived and called her Nirun, that is, a sign of purity and firmness. These groups consist of three parts. The first part of Nirun is a descendant of Alankuvo, the sixth seed of Kabul. They are sixteen tribes..." [Hafiz Tanish Bukhari. 2002: "Abdullanoma," 47.]

Then Hafiz Tanish tells about three branches of the Kabul family, the sixth generation of Al Bukhari. This is the second part, known as the Nirun and Qiat categories.

"Part Three: Nirun Qiat Angle. They say "Angle" and call it a lusty eye. This nation is the head of Chingizkhan's network, and his name is Esugo." [Hafiz Tanish Bukhari. 2002: "Abdullanoma," 47.]

According to Hafiz Bukhari, the main purpose of bringing Alankuvo and his lineage was to inform the network of Alankuvo and how his lineage could be linked to the Mongolian people. In addition, it was to narrate the series of Chingizkhan and his descendants, as well as the genealogies of Abdullah Khan, the "ghosuddavla va-l-khafat" (that is, the cry of the state and the caliphate).

MATERIALS:

In the work, the story of Alankuvo under the title "The Alankuvo's Poet and the Networks of His Children" is presented by the author in a very interesting, artistic and aesthetic way. The story is as follows:

"The story of Alankuvo is one of the greats of the stories and the wonders of the news. If we look

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closely at such events and stories, it is quite possible that similar stories have been in history. The Observer, the Creator (God), will do whatever he wants, whatever he wants. One is the discovery of a son like Adam without a father or mother. The author then quotes from the Koran that "The God does what it wants," noting that Iso Alayhissalom created the Prophet and man without touch. By the will of the God, two messengers (Adam and Iso Alayhissalom) were created without parents and the second without father.

There is wisdom in the birth of a man without a father. Judges say that "if the circle of matrimony corresponds to the circle of I-ul-buruj, and that coincidence falls on an element of wine, and that element is victorious and the other elements are defeated, it cannot be born at that time.

"History has reported that it is the most remote island in the East, where only women live. The reason they are pregnant is because of the water on the island. It has been said that in her pure womb, three children were born without mucus." [Hafiz Tanish Bukhari. 2002: "Abdullanoma," 48.]

She had a husband named Dayun Boyon (in some sources, Dubun Bayon was written - AM), and died early. Alankuvo to his relations "one light, blue green Arabic man's forbid" told that became pregnant.

"Alqissa, from that had three sons, her third son, Buzunjor koon, and the family of Chingizkhan. They say to a man with lustful eyes. Alliance, Esugo is mighty, and most of his offspring are lovable. Alankuvo's story to his family during pregnancy was that at night a light that appeared to me as a person appeared to me and then went away. The man with the yellow and blue eyes and lustrous eyes was his Esugo, the eighth generation of Alankuvo. The truth of this is that most of his offspring are lustful." [Hafiz Tanish Bukhari. 2002: "Abdullanoma," 48.]

This story, unlike Abulgazi, is described in a distinctive way of Hafiz Tanish, in prose and poetry. However, when comparing the two works, there are no significant differences in their content. Hafiz Tanish says in his story that the three sons of Alankuvo came from divine light. Abulgazi points out that only Alankuvo's third son was created from divine light.

Thus, the stories about Alankuvo presented in Abdullanoma differ from other fiction stories. The creative interpretation of the historical reality by the artist, the consistency of the content and the aesthetic appeal of the reader are not boring. Particularly, the scenes with the portrait of Alankuvo in the story show the subtlety of the magic of the classic artistic word. These exquisite illustrations and descriptions show Hafiz Tanish's unique artistic skills. Although the story is compact, the author is able to present the opinions of the scholars in the narrative detail, and, when appropriate, to relate the events of the Alankuvo story with similar stories. Hafiz Tanish, although he

aims to write a historical work, uses his unique artistic means to increase the artistic value of his work.

In the course of our observations, we read some interesting information in the journal version of the book of "Oguznoma" translated by Nasimkhon Rakhmonov.

We have also learned about the myths and stories about Alankuvo getting pregnant from Divine Light in the historical works of "Shajarai turk", "Nusratnoma" and "Abdullanoma". In the "Oguznoma" we see two stories related to the Divine Light (blue light) in the stories about Oguzkhan.

The first of these stories is about Oguzkhan. "One day Oguz was praying to God somewhere. It was dark. A blue light came from the sky. It was brighter than the sun, brighter than the moon. An arrow went to him, and he saw a girl in the light. He had a fiery light on his head, like a Gold Pile star. The girl was so beautiful that when she laughed, the blue sky was blue, and the cry was blue. The Oguz king saw him and left him, fell in love, took it, lay with him, and satisfied his wishes. She became pregnant. Days and nights passed, and her three sons gave birth. They put the first horse on the day, the moon on the second and the Star on the third.

ANALYSIS:

Reading this story, it is not hard to see that the historical roots of the Alankuvo legend have had its impact on later times. Therefore, the historical depictions of the "blue light" and "blue wolf" in the "Oguznoma" are deeply rooted in the legendary ancestors of the Mongols.

The second story in the "Oguznoma" is as follows:... On the left was a hog called Urum. There was a great army. That Urum did not acknowledge the mark of the Oguz Hakan ... Oguz threatened to attack the Haggai and went out with his troops and carried off. Forty days later, he reached the summit of Ice Mountain. He lowered his troops and stopped. In the morning a light like a bird came to the Oguz king's residence. Out of the light there appeared a large male wolf with blue hair and blue hair. The wolf sent a message to Oguz: "E Oguz... [Oguznoma. Star of the East. 1989: No. 4. 165-171.]. Then the blue-haired, blue-haired wolf marches on the head of the Oguzkhan army and gives him victories.

It is clear from the "Oguznoma" that Oguzkhan believed in the doctrine of the God of the heavens. That is why the author of the "Oguznoma" inspired the story of Oguzkhan and included events related to the blue light and the blue wolf. Undoubtedly, the artistic skill of the author plays an important role in this. In the second story, the wolf rises to the core of the character's plot. In this book, Oguzkhan is described as a supportive, caring, and protective image of the people.

It is clear from the plot of the two stories that the views of the blue light and the blue wolf in the

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"Oguznoma" are expressed by the artist in the artistic narratives of the past. There is no doubt that the creation of such artistic images is influenced by the legend of the "Alankuvo".

We also read about Alankuvo in the book "History Rashidiy" by Muhammad Heydar Mirza, translated by V.Rahmonov and Y.Egamova. The book is dedicated to Toghluk Temurkhan and contains many historical and artistic stories. The author tells the story of Temurkhan Tuguk in the first part of his work and says that he goes back to Alankuvo. In particular, the work reads:

"Tugluk Temurkhan is the son of Esan Bogahan. Here is the genealogy of Esan Bogahan ibn Duvajihan ibn Barak Khan ibn Qaro Isu bin Motukan ibn Chigatay bin Chingizhan ibn Yasukai bin Birtan bin Kabul bin Tumana bin Baisangar bin Kaud ibn Dumanin Baqo bin Buzanjirhan, the son of Alankuvo Karklukhan. She was a very pure woman. It is reported in the Zafarnoma: "A light was shining through the hole in his house, and he entered the mouth of Alankuvo and then he realized that she was pregnant. It was as if a baby had been conceived by Mary's daughter Mary."

Fard:

*When you hear the story of Mary
You will understand your heart*

The purpose of this book - these stories - is that Buzanjirhan was born to a mother without a father. As for his mother, Alankuvo, his name is mentioned in all the historical texts and goes back to the son of Noah's son Yofas (whose spirits rejoice). Each of the grandfathers of Alankuvo's history has been mentioned in history and we will not stop here to keep our story going." ["History Rashidiy". V.Rahmonov, Ya.Gamamova, the master of the East. 2007: 12.] - the author writes that. This information about Alankuvo by Haydar Mirza is brief and concise. The author fills the main plot point of the Alankuvo story with the information in the "Zafarnoma". And He brings two doubles. He said that the story of Alankuvo is similar to the story of Mary, which is mentioned in all sources.

The second chapter of the book "History of the Four Nations" (v. 306 - 376), published by Buriboy Akhmedov's introduction, commentary and editorial by legendary mother of Turkic-Mongol peoples Alankuvo and his descendants, namely kings (Buzunyor khan, Bukakhan, Dutuminhan, Includes the story of Kabul Khan, Baysunkurhan, Borton Badir, Yasugay Badir). This chapter also contains important information for science. The fact that the Turkic-Mongolian people have lived and worked together is one of the most important information about the position of the Turkic country and its other tribes. [Mirzo Ulugbek. "The History of the Four Nations" 1994: 5].

There are different views on the origin of the Uzbek nation. One of these is related to the narrative

of Alankuvo. Alankuvo becomes king after her husband dies. A man with white eyes, almond pumpkin, and narrow-eyed, arrives at his room and meets Alankuvo, who is pregnant. In 718, Alankuvo had three sons from the "Nur-Man". (Some books say they give birth to their third son, and some say they have three sons. We believe that Alankuvo gives birth to a third child from the Divine Light. His third son, Budanjir Munqaq, is enthroned. Her fifth generation is Tumanakhon (written by Tumnakhon - "Shajarai Turk") and the son of A.Temur in Chapter 9. The origin of the Uzbek term is connected with the name of Muhammad Uzbekkhan (grandson of Chingizkhan) of the Golden Horde.

We also got some interesting information from the Internet [Mozzoley Gur-i Emir. <http://e-samarkand.narod.ru/Guri-i-Emir.htm>]. This article about the tomb of Amir Temur mentions the tomb of Amir Temur and his tomb. It is said that Ulugbek brought two nephrite stones from China in the fight against the Mongols in 1425. This stone was very heavy and precious. Nephritis is believed to have divine power. In 1740, the king of Iran, Nadirshah, invaded the Bukhara khanate and took away the tomb of Temur from Samarkand, which is part of the khanate, into Mashhad. It is going to be used to repair the holy buildings in Iran. According to historians at Nadirshah's palace, Sayid Baraka, the elder of Amir Temur, came to his dream and told him to return the stone to its place. Fearing this, Nodirshah ordered that the nephritic stone be returned to Samarkand. When taken, it falls into the river and is split into two. However, when he arrived in Samarkand, the masters skillfully returned to their original state. Then in June 1941 a special commission headed by Mikhail Gerasimov opened the tomb of Amir Temur.

There is information about Timur's genealogy on the tomb of Amir Temur, from Chingizkhan genealogy to Buzanjir (son of Alankuvo) and how he was conceived by light, and the date of his death. Here is an excerpt from the article:

"This is the tomb of the great sultan, gracious hakan Amir Temur guragan, son of Emir Taragai, son of Emir Barkal, son of Emir Ilongir, son of Emir Ijal, son of Karachar Noyon, son of Emir Suku Sichan, son of Emir Irumqi Barlas, son of Emir Kachuli, son of Tuman Tumanai . This is the ninth generation. Genghis Khan comes from the same family from which the ancestors of the venerable sultan buried in this sacred and beautiful tomb. Hakan Chingiz is the son of Emir Yesugai Bahadur, the son of Emir Bartan Bahadur, the son of Kabul Khan, the son of the aforementioned Tumanai Khan, the son of Emir Baysunkar, the son of Haidu Khan, the son of Emir Dutam, the son of Emir Buki, the son of Emir Buzanjir. Whoever wants to know further, let it be known: the mother of the latter was called Alankuvo, who was distinguished by honesty and her impeccable truthfulness. She once suffered from a ray of light that

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appeared to her in the opening of the house and taking on the image of a man, announced that he was a descendant of the ruler of the faithful, Ali, the son of Abu Talib. This testimony given by her is taken for truth. Her honored descendants will rule the world for centuries. ” [Mausoleum of Gur-i Emir. [http:// e-samarkand.narod.ru/Guri-i-Emir.htm](http://e-samarkand.narod.ru/Guri-i-Emir.htm)].

Let anyone who knows, the mother of the last emir, is Alanuqa'. She was dirty, pure, and honest. She had a baby through the hole of the house one night and then a man-made light. He introduced himself as the son of Abu Talib. What he said was true. The praiseworthy generation of Alankuvo has owned the world for centuries.

Sharafiddin Ali Yazdi's book "Zafarnoma" written by Timur tells the story of Alankuvo. However, we did not have access to this story since Muhammad Ali dropped 82 pages in the Persian text of the Zafarnoma about the origins of Turkic-Mongol peoples. This is the case with the Zafarnoma by Nizomiddin Shami. [Sharafiddin Ali Yazdiy. Zafarnoma, 1997: 384.]

As we know, Navoi aims to write the history of the Hussein Baykaro. Navoi intends to write a story called Hussein Baykaro in the book Muhokamat ul-lugatayn and to write a book called "Zubdat ut-tavorih".

According to the academic A. Kayumov, the works of Navoi "Tarihi anbio and hukamo", "Tarihi muluki Ajam" can be the starting parts of "Zubdat ut-tavorix". [A. Kayumov. Works, Volume 4. 46.] From this point of view, it is not difficult to imagine that the work of Navoi "Zubdat ut-tavorih" on the history of Hussein Baykaro was created in accordance with traditional historical rules.

"Tarihi anbio and hukamo" begins with the Prophet Adam and provides information about the prophets and judges. "Tarihi Muluki Ajam" provides historical information about the four classes of Iranian kings (Peshdodians, Kayaans, Ashkanians, and Sesonians).

Consequently, Navoi's "Tarihi anbio and hukamo" is traditionally originated from Adam. This traditional case is also typical of Abulgazi's "Shajarai Turk". A. Navoi's "Tarihi anbio and hukamo", and "Tarihi Muluki Ajam" [Alisher Navoi. Complete set of works. Volume seven. Khamsa. Sab'ai sayyor. - T.: 2013.] In reviewing his works, we did not find a story about Alankuvo. Interestingly, the story of Alankuvo, written in the history books of dozens of kings and dynasties, does not appear in the works of Navoi? In order to spread the suspicion, we went through the great Hamsa scan.

Thankfully, this question has been resolved. We are convinced once again that Khamsa is a great treasure. When I read the fourth poem of Khamsa, "Saba'i sayyor," chapter 9 of the poem introduces Navoi with "The Sacred Heart of the Kingdom of Salt and the Curse of Caliphate. Harness the property of

Sultanah and the Sultan and let the particle fall in the sun. ” to glorify Sultan Hussain Baykaro, a man of wealth, property and authority, and to miss the sun with this excuse [Alisher Navoi: Complete Works. Seventh.], - praises Sultan Hussain Baykaro, including:

Shoh Sulton, Husayn bin Mansur,
Kim berib nusрати jahonga surur.

Xonlar uzra yetib atosi aning,
Xon bin xon ato atosi aning.

Ham ato xonu ham anga ano xon,
Yo'q jahonda aning kibi yana xon.

Anga Chingiz ulug' ato kelgan,
Anosi xud Alanquvo kelgan.
Faxr yoq anga saltanat oti,

The kingdom of the Great Country. [Alisher Navoi. Complete set of works. Volume seven. Khamsa. Sab'ai sayyor. - T: 2013.322.]

In these poems, Navoi praises Hussein Baykaro and emphasizes that his triumphs bring joy to the whole world, that he is a great bounty, that his father and mother are king, that he connects with Chingizkhan and his mother Alankuvo.

It is worth noting the two passages in the "Sab'ai sayyor."

*The great gift from Chingiz came
He came from his mother Alankuvo.*

The word Alankuvo in this verse is described in ten volumes of Navoi's works. "Alankuvo is the protagonist of the ancient Mongol and Altai peoples: Alisher Navoi likens Hussein Baykara's mother to that legendary woman and father to Chingizkhan" [Alisher Navoi. Complete set of works. Volume seven. Khamsa. It's a traveling planet. - T.: 2013.670.] Is it really so? Did Navoi look like Husain Baykaro's mother like Alankuvo? When interpreting the meaning of this byte, based on the content of the preceding bytes, Navoi Hussein suggests that the ancestors of Baykaro's ancestry go back to Chingizkhan, while their ancestors go back to Alaniko. This is the same with verbal analysis of a site. The above explanation, however, is not misleading. It is wrong to say that if the word "god" in a byte is interpreted to mean "like". The word Navoi has several meanings in the dictionary. "Hood" in Persian means a large brass hood. The second meaning of the word "hood" is used in the phrase, instead of: 1) indeed: 2) means alone, alone, or the like." [Porso Shamsiev. Dictionary of Navoi works. Publishing House named after G. Gulam. 1973.665.]

It is also worth noting that Alankuvo was inspired by folklore and was given legendary proportions. In fact, literary and historical works written with the genealogy of Turkic nations traditionally tell about it. Given that, Alankuvo is a

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historical figure who lived in the year 718 BC. Nurins are his descendants.

In the course of our observations on this subject, we saw an article in the newspaper "Literature and Art of Uzbekistan" by Abdukadir Hayitmetov, published on February 10, 1984, entitled "The Legend of Navoi and Alankuvo."

This article emphasizes the importance of ancient Turkic literature in the creative development of Alisher Navoi, and in particular, the emergence of Hamsa. A. Hayitmetov said that Navoi's attitude to ancient Turkic myths and legends is very important, and he recalls the legends of the Mongolian mythology named after Alankuvo. In particular, the poem "Sabayi Sayor" is dedicated to the Sultan Hussain Baykaro of Navoi

It was a great gift from Chingizkhan.

His mother Alankuvo came from - quoted and interpreted from the literary point of view. At this point, we would like to quote exactly the part of the article related to Alankuvo.

"... (Alankuvo) There is valuable information about this legend in the works of such great historians as Rashididdin and Mirhond. The Ravzat us-safo section of Muhammad Yusuf Raji's translation contains a section titled "Alanuqa wife's zikr and description of birthdays." We will read the following. "Alankuvo was the grandson of the star. And then Bonuyi was an imposing sanctuary. At the height of Face and Beauty, the sun shone on the face of the beard and the rhinestone of the emerald.

They referred to Alankuvo, the cousin, to his cousin. Ersa had two sons. The name of one is Elkadi. One of them was Elkadi. And that grandfather died. And then Alankuvo began to look after the people in government and their children. And in this essay, I was staying at the Bonbuyi's lounge one night, and a light from the window of the house shone, and the dark house became clear. And that light went into his throat, and he was pregnant, and that was the case. I gave a son to the Barqoon Horseshoe, and the tribe of the rabbit was on fire. And together they named Yusikin Solchi. He is a descendant of the Salih people. One of the descendants of the Mongol khans of Bozbakhri is my family. And for these three generations of Mongols, the Mongol people call it "nirun", and the "two" warriors of the Ummah have "thrown" into the zoo and the two segments are in the foreground. And the appearance of Bozbakhr was on the verge of an attack by Abomuslim Marvozi." [A. Hayitmetov. The legend of Navoi and Alankuvo. Literature and Art of Uzbekistan. 1984. Issue of February 10]

At the end of the article, A. Khaitmetov also has a section entitled "Kuo" in place of "Alankuvo" in the original Persian copy of Ravzat us safo. "Kuo" in Chinese Mongolian means "flower."-emphasized.

In the famous epic heroic epic "Olonhu", it is possible to find the names of several female characters

with the "coyote" attribute. The researcher of the Olonhu poem IV Pukhov writes about the emergence of the divine in most of the main characters in this work: In Olonhu, the only person with a divine origin is a real man. It was created for fictitious, "high" behavior.

The author summarizes his analysis: "The Ravzat us-safo, which gave us valuable information about the Alankuvo myth, was created by the poet's library in Herat, under the direction of Navoi. The legendary heroine's pregnancy with the divine power resembles the life of superheroes. There are many other similarities between the Olonhu and the Alankuvo legend. These facts show that Navoi relied on the traditions of the ancient Turkic epics in the Altai and Mongolia regions, and took their colors and meanings from his works, particularly the Khamsa epics." [A. Hayitmetov. The legend of Navoi and Alankuvo. Literature and Art of Uzbekistan. 1984. Issue February 10.]

From this article and the information from Mirhond's Ravzat us safo, we can conclude that the legend of Alancuko is an important artistic figure not only in historical works, but also in pure artistic works, as well as in the pure artistic work of the protagonist.

Alancuko is mentioned with particular recognition in the writings on the historical subject we mentioned above. The authors of the work appealed directly to Alankuvo in identifying and praising kings. In each of the works, the information about Alankuvo is presented by the authors in their own artistic style - myth, story, story. Significantly, the Mongolian king Alankuvo is the ancestor of all Turkic and Mongolian peoples. It is unique not only in historical matters, but also in fiction. In conclusion, the historical figure who rose to the level of the legendary king of the Mongols, Alankuvo, formed an artistic image in the literary process and became an important artistic symbol in Uzbek classical literature.

MARYAM AND ALANKUVO

Navoi's work on the historical theme does not contain the story of Alankuvo in the "Tarihi anbiyo and hukamo", but tells the "story of Jesus" related to divine power and writes about Mary:

"Jesus, the son of Maryam, is the third ulama of the Prophet (pbuh). Forty years ago, that antibiotic never had that nose. But he was a prophet of moderation. And I predicted Maryam, the god of validate, "to send her son Maryam and her son, Jesus the son of Mary and his mother, and the ministration and the minaret of the world." [Alisher Navoi. Complete set of works. Volume Eight. Historical Prophets and Judges. - T.: 2013. 588.] In this passage, Navoi emphasizes Mary's mother as a prophet. Navoi's confession to Mary is not found in other historical prose examples.

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Navoi points out that there is much information about Jesus (pbuh) and about his birth. The match is special in this regard” (note A.Kayumov).

He cites what he considers reliable. In the narrative of the event, Mary says: “Jesus has no father. Mary conceived by the will of Gabriel, and at the time of childbirth she came out and delivered her body to the shore. When the people heard this, they went and saw it and began to speak aloud. In addition, Jesus answered a few questions. Then the people were amazed and returned without saying a word. Mary, who was Mary's grandson, Habib Najjorkim, went to Damascus with Jesus. Jesus was paid at the age of thirteen. At the same time, the miracle of Jesus was revealed. " [Alisher Navoi. Complete set of works. Volume Eight. Historical Prophets and Judges. - T.: 2013. 588.]

Navoi tells us that Jesus was born without a father and that Jesus was born far away from Bethlehem when the time came for the mother to break free. It skillfully tells the story in a unique art style. The miraculous power that God bestowed on Jesus Christ is also about the features that give life to the dead. Overall, the story provides a detailed account of Navoi's birth and his ascension to heaven.

At the end of the story “... Some call Mary, that Jesus died before his death. Some say that six months later ... [Alisher Navoi. Complete set of works. Volume Eight. Historical Prophets and Judges. - T.: 2013. 591.]”.

After reading Navoi's story about Mary and Jesus, we inadvertently mentioned Surah Maryam in the Qur'an. [See: Abdulaziz Mansur. Translation and Interpretation of the meanings of the Holy Quran. Tashkent. East 2004. 305.] From verse 16 of Surah Maryam to verse 36, the birth of Jesus (pbuh) is mentioned one by one. Gabriel appeared to Mary in the form of a true man by the judgment of Allah. By God's grace, he is given a clean son. By the divine command and power Jesus (pbuh) was born without a father. We are well aware that Adam was the first Prophet to be created by Allah's power. Jesus is the second prophet created by the divine miracle of God.

Consequently, Navoi relates the "story of Mary and Jesus" in the book "Historical Antiquities and

Judas" based on the Quranic verses. The first part of this work also provides information about the Prophets (prophets) based on the Quran, in impressive artistic imagery. To sum it up, Navoi has been profoundly studying the verses of the Qur'an and acknowledging them as true historical events. And conveyed it to the reader at a high aesthetic level.

So what is the connection between Alankuvo and Mary?

Mary is the daughter of Imran. She conceived by divine power and gave birth to Jesus. In Christianity, the goddess is a symbol. The mother of Jesus. The prophet Mary was inspired as a mother.

Alankuvo is the daughter of Hurilartoy Mergan. Grandson of the Yulduzkhon. Wife of Dubunbayon. A widow with two sons. She became pregnant by divine light and gave birth to her third child, Budanjir. The descendants of Alankuvo (Bukun Qataghan, Busqun Chalchi, Budanjir Munqaq) were called Nuruns and lived in 718 AD.

The name of Mary and information about her are mentioned in the Qur'an, which was revealed to Prophet Muhammad from 610 BC.

CONCLUSION:

It is clear that Mary and her related information (including myths and legends) existed before the time of Alankuvo. Later, the Mongol king, Alankuvo, began to be associated with Mary. Different myths and legends about Alankuvo have been created in folklore. As a result, Alankuvo has a legendary figure in fiction. The formation of this image was influenced by the scriptures of Mary and the teachings of the God of Heaven.

In short, Alankuvo was a righteous, faith-based, courageous female king of the Mongol tribes. These qualities made him famous, glorifying his name and generation, creating a legendary artistic image. Thus, this image (that is, the historical person Alankuvo) plays an important role in the history and is specifically mentioned in the historical books (books) on the genealogy of Turkic nations, including the Uzbek people. As a result, this historical figure has formed as an important artistic figure in literary and fiction literature.

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NOVELTIES IN POETICS OF TALES

Abstract: *As the storytelling genre portrays a stage in the life of a hero, the work emphasizes the character of the person based on the events that take place. The scientific study of the nature of the genre of tales is instrumental in enriching artistic thinking. The study of the problem of the genre formation, development, description - allows to research the literary process, the individual style and skill of the author. Each writer strives to convey the essence of the story in a more emotional and emotional way. In this context, the study of the poetry of the genre of poetry and the principles of development in Uzbek literature shows the importance of the issue. The classification and description of the narratives clarify their content, their differences in expression. Emphasis on such aspects as nationalism, nationalism and philosophy in the work of the writers, and the research of the theoretical and theoretical aspects of the work demonstrates the urgency of the work.*

Key words: *tale, genre, style, poetics, text, content, essence, nation, expression, image.*

Language: English

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Introduction

The literary, artistic and aesthetic significance of certain writers' works and tales is an ongoing topic of discussion in Uzbek literary studies. The generalizations related to the problems of traditional narrative and modern narrative poetry provide a clear picture of the development of the genre. The tales have been collected, but they have not been sufficiently researched from the standpoints of comparative typology and scientific - theoretics. Their formation and development tendencies need to be explored specifically.

The article examines the history of Uzbek tales and draws attention to the changes in their nature (poetry, meaning), analyzes the skill of writers and their relation to life, and examines the role of methodological uniqueness in the genre's renewal through the analysis and interpretation of certain works.

The classification and description of the narrative focuses on the content and theme. The process of acquiring and synthesizing approaches to world literary studies has accelerated over the years of independence. The writer has expanded the figurative,

symbolic modus, and tends to focus more on the descriptions of the personages rather than classifying them. The satirical, dramatic, tragic moduses have become evident in the study of artistic poetics.

Literature review

It is known that the researcher have looked into the problems of an artistic-aesthetics in the works of such researchers as Russian literary scholar M. Bakhtin, Yu. Borev, M. Khrapchenko, L. Chernets, A. Kuzmin, G. Pospelov, V. Khalizev and others. Such scientific problems as poetics, prose, style are covered in the researches of I.Sulton, M.Kushjonov, O.Sharafiddinov, U.Normatov, A.Rasulov, B.Nazarov, D.Kuronov, B.Karimov, and others. The origins and development of national tales, their themes, heroes, issues of the plot have been covered within the researches of A.Abrorov, A.Rashidov, A.Rasulov, A.Ulugov, A.Kolmurodov, K.Tagmatov, G.Tashpulatov, S.Zahidova, M.Tenglashev, It was observed in studies such as K.Kobaev, Kholdorov D, and Rustamova M.

The history of the research in the genre of tales in Uzbek literature is analyzed in a new way. The role,

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significance and character of the story in contemporary Uzbek prose are researched. Tales define the aesthetic factor of traditional symbols. There is a process of genre modification in the tales written during the years of independence. The role of personality, time and ethical factors in Uzbek narratives are revealed. Changes in the nature of tales (in the literary sense) are investigated. Updates in the art modularities of contemporary narratives are revealed.

The research involves looking into the way of thinking, creative harmony, the shared state of human values, and the literary-aesthetic view of the author as reflected in the poetics of Uzbek tales covered by the scope of the research.

The diversity of poetic expression in the artistic interpretation of human fate clearly illustrates the author's concept. Realities mixed up with real life and imaginary situations add to the degree of mystery and the supernatural character of stories. Sometimes the comparison of boundaries of space and time are organized figuratively. At the same time, the harmony of colors in the nature, the rhythm of the tones, the aroma of the plants make the scene more vivid. When the meaning is vibrant and multi-layered in the artistic provision of the work it establishes poetic integrity.

"Poetics is the science studying the oldest rules of literary criticism, the language and system of expression of artwork" [1, 1987. –P. 295].

In fact, poetry uses the expression system to determine the depth of image, the combination of form and content, and the complexity of the word. Composition elements are important in the realization of the author's artistic intentions. In the spirit of such stories as " Tales from the Past", "Childhood", "Bad Boy", the concept of time is interpreted to some extent. Basically, through childhood memories, space and time are discussed. Topologies, climates and social environments of Ferghana Valley come alive in Abdullah Kahhor's memories. Life scenes depicted through the prism of the writer's thinking, obtain artistic features across different destinies. From one independent tale system to another the qualities and faults of people become clearer and clearer. Father, mother, and child the heroes are given the status of observers of spiritual image of the heroes of various ages, occupations, family backgrounds within the same environment. When organizing the plot, the writer combined the culmination scenes through demonstrating early deaths of such heroes as Babar, Savriniso, who had an unjust death. The events in the books by Gafur Ghulam and Oybek are organized mainly in the Tashkent location. The colors become clearer and resonate with the changes in the mood of characters in the landscape of such places as markets, mosques, teahouses, gardens and rivers. The humorous motives in the work are sometimes synthesized with ironic tone. The pure feelings in the

hearts of children are contrasted with the feelingless state of adults.

"Personal fate of the artist functions as the key in interpreting his heritage" [Borev,]1981. –P. 56.

Biographic components of Gafur Gulom's, Oybek's, and Abdulla Kahhor's books make the principles characterizing their time brighter. The true scenes from the layer of childhood memories etch themselves into the story plot. Complex situations in psychology of the writers become explicit in the series of storms going on in the hearts of the heroes. The names of every single detail and object brings the stories about historical situation and real life stories to the centre

The fact that the writer interweaves the elements of dramatism in the text of his stories like "Qadrim" (My value), "Erk" (Freedom), "Muqaddas" (Sacred) expands the method of expression. Turning points in the life of young people become real in monologues and dialogues of the heroes. The process of understanding the feelings of misery and freedom in the portrait of the character proceeds through collisions. The moments of testing on the way to achieve awareness brings tension to the events in the plot of the story. The concepts of justice, duty, bravery are generalized in the system of the trinity of lover-beloved-rival. The writers interweave scenes related to various spheres and professions while commenting on the faults and injustice in the society.

This method is presented simultaneously with the changes in heroic thinking. Some of the lyrical passages in the text narrate impressively on the emotional hesitation. The synthesis of lyricism and dramatic imagery in an epic scene makes the artistic system more complex.

In "Galatepaga qaytish" (The Return to Galatea), the author advocates philosophical views on the compatibility of mind and heart. He portrays the active lifestyle of Murad Muhammad Dost devoted to science and research through the retrospective plot. The fact that people lose their social face in the pursuit of high achievements accelerates the events. The loss of the bond with the birthplace, the fatherland leads to the loss of their values. In the book, the reflection of certain moral laws in the destiny of people is demonstrated from various angles. In the education of generations, the teachings of father and teacher, the influence of the environment on the future is sustained in the framework of the concepts of eternity.

The event of a person losing his or her spirituality in the pursuit of high achievement will accelerate the event. The loss of the birthplace, the love affair of the fatherland, causes the loss of value. In the work, the reflection of certain moral laws in the case of people is shown in various angles. In the education of generations, the father, the teacher, the influence of the environment on the future of the scientist is eternal and will be sustained within the concept of eternity.

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In the stories of “Alvido bolalik” (Farewell to the childhood), “Shurodan qolgan odamlar” (People of the Soviet times) there are scenes which are contrary to the general ethics and aesthetics. It is known that in childhood people tend to like spring, and the feelings of love for life and excitement sprout. Deprivation of parental love and care devastate the pure souls of youngsters. Tohir Malik presents the generalized image of heartless parents who brings the purity and greenery in the hearts of orphans to the frost. The concept of honesty and haram are shaped through the rage and sufferings of little children. The children deprived of mercy and care grow up in anger and hatred. The author organizes the process of conquering the good by the evil in the midst of internal conflict and rebellion. Victims of lust who are masked in love cannot get rid of the hatred and revenge of their children. The pathos of the book is exaggerated by the combination of images and the agony of conscience. In the work by Shoim Butaev, the Guardian is considered to be the main accused for turning his son into Tashmurod. The violation of the norms in father’s and child’s duties brings about the game of the destiny. The retrospective plot in the story gradually uncovers the events. As the blind heart does not comprehend the wisdom of life, it breaks the norms of neighboring, cuts off the bonds of kinship and gives birth to hatred. The poetics of the stories reveals that the process of changing the traditions of artistic thinking in the social and cultural strata is emerging.

“Structure is the essence, the reflection of the object. It is a directed, beneficial reflection. A person in structured activity extracts and divides the reality, then re-integrates the pieces and writes his/her ideas” [Bart, 1989. –P. 256].

The components of the work make you feel the power of the word. Writers strive to convey the idea through the headline and to hint at the main essence. In the headlines like “The Black Book” and “The Black Day,” there is a sense of discomfort and anxiety based on the word black. The impression goes on as people think of the good in white and the evil in the black. The secret of the spiritual layer in the structure of the work, its charm becomes obvious in the process of reading. In the “Black Day,” the scenes related to the images of an elderly man, a hairdresser, a miller, a baker, an uncle, a fortune teller, and a mad girl gradually provide grounds for logics. The writer does not give names to his heroes. The chronotope is not clearly marked, and the information regarding the place of the events described is clarified through the character’s speech. The structure provides an organic combination of artistic components. The structure determines the layout of the content of the book in the text, the manifestation of the aesthetic power. The composition of the work begins with the node. The disappearance of the coffin in the courtyard of the mosque makes the event tense and the artistic

intentions become more obvious when the whole piece is created by adding different parts to it. The story evaluates the number of people who have lost their way in life from different angles. Such people as a miller who has got accustomed to lying by mixing linseed oil with cotton seed oil, the baker who gets pleasure from baking samosa from haram meat, the uncle who is not ashamed of raping his insane niece, and the naughty boys who play with the dead body reveal the malice and disgrace. The muazzin, the hairdresser, the master and the two strangers are among those who strive to provide fresh air to the stinky atmosphere of that place.

The author openly expresses the poetic essence: “I have heard of whole villages devastated by the plague, the flood, the famine, but I have never heard of the nation that have lost their coffins. It is only God who can cause such troubles upon his servants who have lost their faith. All of us have sinned so much that we are facing this tragedy” [Hamroyev, 2016. –P. 91].

The history of mankind has proved that the burden of sin is very heavy. The holy word and other religious sources clearly explain the consequences of mankind’s loss of faith and justice. Those who lack the mercy of the faithful are now exposed to Satanic evil. The sapient creatures who have lost their ability to cognate cannot distinguish with their blind soul the clear path. The author provides facts as the confirmation of the fault in the nature of the young and the old. The ignorant who imagine the life to be eternal will forget to get ready for their last day. It becomes obvious that every single of them has a small (micro) defect, which grows and becomes macro. The coffin like a cart symbolizes the means of transporting them to the world of the dead. By applying one detail, the meaning bearing layer is perfected, a person with many sins is deprived of the mercy of the Creator. The villagers, who have forgotten that one has to pay for everything, are reluctant to move to another place, but they cannot escape their destiny. The heroes must realize that should examine themselves and find their faults before examining their place. In the story, the scenes of crowds are exaggerated in the series of tragedies.

RESULTS

Structure is an emotional expression of an aesthetic integrity. Understanding the underlying meaning of words allows you to understand the true essence of the book. There are examples of world literature that are also based on the idea of the crash of the supreme creatures. In Gabriel García Marquez’s “Falling Leaves” the meaningless life is compared to a leave. An insensitive, irresponsible doctor loses the respect of the people of Macondo and is condemned to be lonely. The writer intensifies the features peculiar to the character of the doctor through the speech of such characters as Colonel, Adelaide, his

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daughter, Meme, and the child. The colours get darker when describing a person indifferent to the pain and suffering of the sick people, and his cold eyes and evil thoughts make the plot tense. Doctors who help people get rid of their pains and illnesses have always been esteemed by them. In the story, the body of the doctor who faces public hatred is left uncared. No one wants to take it to its final destination. The core of the essence is concentrated on the scene where people refusing to attend his funeral. The decaying body, the decomposition of the soul intensifies the symbolism and the body and soul are wrapped in evil. The old colonel undertakes the duty of placing the body of the doctor, who committed a suicide by hanging himself, into the coffin and burying him. The state of turning into a mankurt is the result of the curse and the spell. In the world, ignorance and violence will not go unpunished. This way the author proves that those people who are not worthy to be called humans are alistrangers even to their homeland. The composition of the work is enriched with the mood of patients, pain and agony of mothers and their children.

These stories narrate on spiritual degradation, the emptiness of the heart, and the warn against ignorance and misbehavior. Time tastes people by many various ways, and only those who choose the right path are blessed with eternal and never-ending happiness. Associational imaginary in the Uzbek story "Black Day" and the world example "Falling Leaves" is deepened in its essence. The commonality between the two stories is in the details of the coffin. In one of them a sinful person was deprived of the last trip, and in the other, the people are reluctant to place the body of the evil doctor into coffin and bury him. Images based on associative thinking present a new shape of death. Symbolic, figurative symbols enhance the philosophical generalization of shame and disgust.

In creative process, real and unreal units of time encourage comprehending reality by means of the language of symbols. In his work "The Wedding of the Poet" Erkin Agzam tries to portray an artistic poet, educated person, and the ugly atmosphere of office holders, the intellectual, the officials. The leitmotif seems to be exaggerated in a cynical way with the help of irony and hints. The heart of the poet embraces the universal value and conquers wide land with excitement. The tragedy of the poet going along the path of justice lies in the background of the former regime. The author accomplishes his artistic intention through metaphorical images. Each name performs a specific function, and their multi-layered nature evolves. The man may seem to be right to others, but the true evil nature hidden inside may become noticeable when compared to those who have false faith. One can clearly feel the note of irony in such names as Mafkuraxonim, Ma'shuqaxonim, and Jiyanbek.

These images seek to mislead the public through the false conspiracies regarding the poet. The name

Otashqalb (burning heart) demonstrates the ideal of the author. The central scene of the plot describes the ruthless fight between the two poles. The mystery of authenticity and artificiality of human beings calls into question. The elderly man can do anything for the sake of a wonderful teacher. Prevalence of cruel irony in the fight between the truth and the false and a high degree of artistic modus can be traced. The chronotype of the luxurious house symbolizes a cage, and arrogant, hypocritical personages make a similar impression as the rich home. The cunning scouts do not give up on the way to obtain higher offices. Filled with the dense air of a well-established system blind hearts do not feel helpless. Though the poet is the victim of injustice, he attains the highest status with his pure heart and lives forever in the hearts of the people. The writer presents the image of people devoted to the nation through the mythology of the image of the poet. Freedom in the world of spirits is considered greater than the captivity in the world of livings, and the two layers of mystery are placed around the fate. This approach does not limit the scope of time and space, and also provides a basis for a person to look at the state of eternity through the eyes of symbolic truth.

"Genre is revived and renewed at every stage of the evolution of literature and in every book written in this genre" [Baxtin, 1963. –P. 142].

As the genre improves, the choice of themes expands and the system of characters changes. Problems in society influence the world of heroes and renew their philosophical and aesthetic views. In the context of globalization, the changes in the human world are reflected in artistic patterns and add up metaphorical meaning. In the form of poetic expression, the significance of symbols, images is directed at effective expression of the events. Colors make the scenes more vivid and hint at certain objects or phenomena. Choosing names for heroes results from the negative or positive feature of the hero. Changes in the poetics of tales make it possible to use new interpretations.

CONCLUSION

Historical, classifiable, descriptive factors of Uzbek stories were studied in theory;

the trends of the genre of narrative tales have been researched as regards Uzbek literature;

evaluation of the writers' skillfulness and his attitude to life, philosophical generalization on the basis of the literary text contributed to identify the conceptual depth;

the fact that poetics of tales is refined with metaphorical images and descriptions was assessed as a creative achievement;

it was noted that national and universal ideas are the product of creative thinking of the writer;

the impact of the renewal of artistic thinking on the development of the genre was stated;

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theoretical generalizations on the scope of poetic skillfulness, the extent of changes in expressive means were provided.

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FROM THE HISTORY OF MILITARY ART OF UZBEKISTAN

Abstract: This article highlights the military history of Uzbekistan from ancient times to the XIX century. In particular, information about weapons, fortifications, features of military strategy and tactics, their evolution. Particular attention is paid to coverage of the heroic struggle of the Uzbek people for the freedom and independence of their homeland.

Key words: Weapons, strategy, military, structures, tactics, hero, fight, freedom, history.

Language: Russian

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ИЗ ИСТОРИИ ВОЕННОГО ИСКУССТВА УЗБЕКИСТАНА

Аннотация: В данной статье освещена военной истории Узбекистана с древнейших времен по XIX век. В частности, сведения об оружии, крепостных сооружениях, особенностях военной стратегии и тактики, их эволюции. Особое внимание уделено освещению героической борьбы узбекского народа за свободу и независимость своей Родины.

Ключевые слова: Оружия, стратегия, военной, сооружения, тактика, герой, борьба, свобода, история.

Введение

Исторический опыт прошлых войн позволяет глубже вскрывать закономерности и тенденции развития военного дела.

Уже на заре человечества каждый род имел свою территорию, охраняемую от посягательств со стороны других племен. Перемещение или расширение родовых общин, кровная месть служили причиной их столкновений между собой. Оружием служили орудия охоты - копье, бумеранг, лук и стрелы. Судя по наскальным изображениям, лук и стрелы появились уже в эпоху неолита (12 – 5 тыс. лет до н.э.). Кремневые наконечники стрел были найдены археологами на стоянках каменного века на всей территории Узбекистана. Они изготовлены из узких тонких или толстых пластин при помощи двухсторонней и односторонней отжимной техники. Наконечники стрел – плоские, черешковые, с листовидным пером, а также листовидные, втульчатые, с выступающей втулкой. Найдены

также каменные булавы сфероконической формы с двухсторонним сверлением отверстия. Другим оружием могли служить круглые гранитные гальки, также встреченные на стоянках древнего человека. Одной из разновидностей оружия служили каменные ножи из массивных пластин.

В поисках кремния и других прочных пород камня древний человек, несомненно, наталкивался на самородное золото и медь. В конце III тыс. до н. э. из меди начинают изготавливать ножи, шила, иглы, украшения, а также наконечники стрел. Однако камень продолжал занимать преобладающее место в первобытной технике изготовления оружия.

С открытием бронзы – сплава меди с оловом – начался новый важный этап, знаменующий огромные технические и культурные достижения. Из бронзы изготавливаются наконечники стрел, копий, ножи.

Интенсивное развитие пашенного земледелия, основанного на искусственном

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орошении, и отгонного скотоводства в эпоху бронзы, значительно подняло благосостояние общин. К этому времени относится приручение лошади и превращение ее в незаменимое ездовое животное как в быту, так и во время военных действий. Необходимость охраны имущества оседлых земледельцев и скотоводов привела к образованию военных племенных союзов. Родовые вожди и воины стали во главе общественной и экономической жизни родовых общин.

Военные действия разделяются на оборонительные и наступательные. Нападения на соседние племена или оборону своего племени осуществляли отряды добровольцев, которые формировались из отдельных способных воинов. Воины пользовались большим почетом. Практиковались внезапные нападения, обычно на рассвете.

Густонаселенные оазисы с развитым интенсивным земледелием, кустарным ремеслом и торговлей послужили экономической основой для зарождения и формирования укрепленных поселений, что свидетельствует об усилении вооруженных столкновений между племенами оседлых земледельцев и подвижных скотоводов иной культуры.

Археологи установили, что укрепленные поселения представляли собой овал или круг с двойными стенами из врытых в землю столбов или деревянного каркаса, укрепленного глиной. Снаружи крепость была окружена рвом, в ее центре находилась площадь – загон для скота.

При раскопках оседлоземледельческого поселения Сапаллитепа (1750-1500 до н.э.) в Сурхандарьинской области, было установлено, что центральная часть поселения была укрепленной и ее общая площадь достигала 1 га. Она была обнесена тремя рядами обводных стен, между которыми располагались два ряда обводных коридоров, Т-образная форма которых решала проблему обороны.

Самые ранние оборонительные сооружения, датируемые в памятниках древнеземледельческой Чустской культуры (X-VIII вв. до н. э.) представляли собой стены без башен, состоявшие из земляного вала, облицованного сырцовым кирпичом или сложенные из сырцового кирпича и пахсовых блоков. При этом Чустское поселение (площадь 4 га) было окружено стеной только в северо-западной части, а Дальверзин (25 га) полностью. В обоих поселениях выделяется укрепленная часть- цитадель.

Значительный рост техники, связанный с улучшением обработки металлов, переход к кузнечному меху позволили усовершенствовать производство оружия и защитного снаряжения. В I тыс. до н. э. люди осваивают выплавку железа,

которое находит широкое применение в военном деле.

Об освоении железа и разновидностях применявшегося оружия в I тыс. до н. э. свидетельствуют следующие строки из «священной книги» зороастризма «Авесты» (Средняя Азия, IX в. до н. э. – III в. н. э.): «Митра мечет с колесницы из искусно сделанного костяного лука, с тетивой из бычьих шкур, тысячи стрел. С быстротой мысли улетают они, с быстротой мысли обрушиваются на головы дэвов. Мечет Митра с колесницы стрелы с орлиными перьями, с золотыми наконечниками, с древком из рога и железа, прекрасно сделанными. С быстротой мысли улетают они, с быстротой мысли обрушиваются на головы дэвов. Митра поднимает сверкающую палицу, удобную для метания, со ста наверхиями, со ста шипами, падающую быстро, дробящую людей, палицу из сверкающего железа, покрытую массивным золотом, самое мощное оружие всепобеждающее. С быстротой мысли улетают они, с быстротой мысли обрушиваются на головы дэвов...»

В период разложения родового строя вооруженные столкновения превратились в войну. Для ведения войны выделялись отдельные группы, которые обычно жили в стороне от остальных членов племени. Это были уже профессиональные воины, весь суровый уклад жизни которых имел целью выработать необходимые боевые качества и навыки. Были созданы начальные формы организации армии: объединения по родам и племенам и вождями, воздействовавшими на воинов личным примером. Построение по родам и племенам явилось предпосылкой возникновения боевого порядка. Тактическим приемом этого времени было фронтальное столкновение. Появились оборонительная и наступательная тактика ведения боя, зарождалась служба охранения и разведки. Но все эти формы военного искусства еще не имели постоянных устойчивых форм.

Военное искусство народов Узбекистана в VII–IV вв до н.э. По сообщениям древнегреческих историков, все кочевые и оседлые племена и народы негреческого происхождения, жившие в Причерноморье, Прикаспийских степях, в Казахстане и в Средней Азии до пределов Алтая, назывались общим собирательным именем скифы. Известно, что скифы (в персидских источниках саки) именовались по-разному в зависимости от той территории, на которой они жили, и говорили на разных языках. Всю Закаспийскую равнину заселяли массагеты. К востоку от них жили саки. Оседлоземледельческое население называлось обычно по имени местности: хорезмийцы, согдийцы, бактрийцы, жители Маргианы и т.д.

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На лестнице дворца приемов Дария II в Персеполе недалеко от Шираза на юго-западе Ирана члены сакской (скифской) делегации изображены в остроконечных «скифских» головных уборах. На них одежда всадников, доходящая до колен, и узкие штаны. На левом плече их предводителя – лук в колчане, на правом боку висит меч. Такая же одежда и на других членах делегации. Среди даров, которые они несут – оружие (меч, боевые топоры). В древних народных сказаниях говорилось о том, что воинственный скифский народ поклоняется мечу, как арабы камню или персы реке.

По сообщениям греческих источников, у скифов все мужчины были воинами. Скифы отличались свободолюбием, храбростью и упорством. По словам древнеримского историка Юстина: «Это был народ в трудах неутомимый, в войнах неукротимый, а крепость телесных тел его была чрезвычайная. Они ничего не приобрели, что можно было бы потерять, в победах не искали ничего, кроме одной славы».

Особым почитанием пользовался бог войны, которому приносились большие жертвы. Главным родом войск у саков была конница. Основным оружием саков были лук, длинное копьё, кинжал и секира. Сакский воин – это конный лучник. Сила его, по словам Овидия, заключалась «в стреле, в полном колчане и в быстром, не знающем усталости, коне». Хорошо известны случаи обнаружения в колчанах при погребении скифо-сарматского времени по множеству десятков и даже по несколько сотен стрел. Лук состоял из двух серповидных частей, вероятно, из двух рогов, соединенных прямой смычкой. Геродот говорит, что скифы натягивали тетиву лука не к груди, а к плечу и искусно стреляли как с правого, так и с левого плеча. Наконечники стрел делали различной формы, часто их пропитывали змеиным ядом, «дабы смертельную рану сделать вдвое смертельнее». Кроме лука и копья саки хорошо владели также мечом и арканом. Бронзовые наконечники стрел, а также боевые топоры и кинжалы были обнаружены при раскопках сакских могильников УП-У1 вв. до н.э.

Защитное вооружение сака составляли щит, чешуйчатый панцирь и шлем. Щит был небольшим и делался из кожи. Панцирь состоял из медных, впоследствии из железных пластин, которые нашивались на кожу так, что пластины одного ряда закрывали до половины пластины другого ряда. Такой панцирь плотно прилегал к телу и не стеснял движений.

В 1953 г. у протекающего близ городища Афрасиаб арыка Сиаб был найден бронзовый литой шлем (VI в. до н.э.) который ныне хранится в Самаркандском музее истории культуры и искусства. Массивный, цельнометаллический, горшковидной формы с чуть сжатыми боковыми

стенками, почти вертикальный сзади и более отлогий спереди, с вырезали надглазных дуг, он имеет расположенный над переносьем прямо стоящий волнистый гребень; по бокам к шлему прикреплялись кожаные нащечники и оплечья. Шлем, как выяснили ученые, имеет сакское происхождение и повторяет в бронзе сако-скифские колпаки.

Геродот в своей «Истории» упоминает также о медных нагрудных панцирях для лошадей. Оружие знатных воинов нередко украшалось золотом, серебром, драгоценными камнями. Описания драгоценного оружия часто встречаются произведениях среднеазиатского героического эпоса «Алпымыш», «Кырк-Кыз».

Военное искусство саков имело свои особенности. Их главное преимущество заключалось в подвижности и искусстве маневрирования. Саки первыми разделили войско на два взаимодействующих отряда: один находился перед фронтом наступающего врага, другой – в постоянной готовности нанести удар во фланг и тыл врага, если тот начинал отступать.

Боевой порядок саков состоял из отдельных ватаг (родовых отрядов), которые выстраивались в одну линию. Несколько отрядов высылались вперед для засад и в резерв для поддержания частей боевого порядка, теснимых противником. Глубина боевого порядка была неопределенной, большое внимание уделялось равнению по фронту и сомкнутости строя, часто имевшего форму клина. Бой вели в конном строю и никогда не спешивались.

Широко применялись такие методы, которые древние греческие и римские авторы называли «малой войной». Саки устраивали засады, заманивали врага, внезапно нападали на него днем и ночью и быстро исчезали. Мелкими неожиданными нападениями они постоянно держали в напряжении все вражеское войско, а сами были неуловимы. Саки одними из первых применили стратегическое отступление для изменения соотношения сил в свою пользу.

Особенностью Средней Азии являлось то, что ее ландшафт состоял из оазисов, где только и возможна была жизнь в бескрайней степи, их окружавшей, лишенной естественных границ и населенной воинственными кочевыми племенами, ежеминутно угрожавшими оседлому населению оазисов. Единственной гарантией развития оседлой культуры была сильная верховная власть, способная защитить население оазисов и городов.

В древних исторических сочинениях упоминаются крупнейшие области на территории современного Узбекистана: Бактрия или Тохаристан (по обе стороны течения Амударьи), Согд или Согдиана (оазисы рек Зарафшана и Кашкадарьи), Хоразмия (Хорезм), Паркана (Фергана) и другие менее значительные.

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Физико-географически Согд состоял из четырех основных оазисов: Самарканд и Кеш в верхних водосборных бассейнах Зарафшана и Кашкадарьи; Бухара и Карши в нижних дельтовых частях этих рек.

К VIII-V вв. до н.э. относится появление крупных древних городов по всей Средней Азии: Еркургана в Каршинском оазисе, Самарканда на городище Афрасиаб, Бактры, Емшидепе и Алтын-Диляр в Бактрии, Эйлатан в Ферганской долине и Кюзелигыр в Хорезме, Коктепа в 30 км западнее Самарканда. Эти города являлись укрепленными военно-политическими и административными центрами оазисов, являлись одновременно крепостью и арсеналом, где в случае опасности могло укрыться население оазиса, здесь же хранились все необходимые припасы. На основе высокоразвитого искусства возникают фортификационные устройства. Наличие оборонительных сооружений говорит о сложившейся государственности.

В городах уже четко выделен военно-административный отдел, предназначенный для пребывания воинского контингента и органов власти. Оборонительные стены имели внутренние стрелковые казематы и соединительные коридоры. Толщина стен у основания достигает до 6 м, вверху, где пробиты бойницы для стрелков - до 1 м. Стены фланкированы полукруглыми башнями со стрелковыми камерами с радиально расположенными бойницами. Поток стрел мог поражать врага и у стен, и в межстенном пространстве. Доступ к стенам затруднял также довольно глубокий ров.

Традиция строительства оборонительных стен, укрепленных башнями, была продолжена и развита на новой основе в последующее время.

Мечь царицы Тумарис. В середине VI в. до н.э. на историческую арену в качестве могучей деспотической державы выходит Персидское государство. Владычество Ахеменидов над рядом областей Средней Азии продолжалось около двух веков. Ктесий и Ксенофонт сообщают, что Кир, создатель Персидской державы, подчинил сначала бактрийцев, а затем и Согд. Ктесий сохранил имя сакского царя Аморга, которого Кир взял в плен, и имя его жены Спарерты. Спарерта, по свидетельству Ктесия, собрала войско из мужчин и женщин, разбила в бою Кира и освободила Аморга.

Согласно сообщению Геродота, Кир, подчинив Мидию и Вавилон, направился на равнины к востоку от Каспийского моря, где обитали массагеты. Массагетами тогда правила царица Тумарис. В борьбе с ними, Кир, углубившийся в степи за Амударьей и оторванный от своего тыла, потерпел поражение и погиб в бою. Геродот сохранил нам детали этого похода. Прежде, чем сразиться с Киrom, Тумарис

обратилась к нему с посланием: «Ты не знаешь, принесет ли тебе то дело, которое ты намерен осуществить, благо или нет. Брось! Будь царем надо всем, что является твоим и позволь нам царствовать над тем, что является нашим». «Но поскольку Кир не последовал ее совету, Тумарис собрала все свое войско и выступила против него... Долгое время шла битва с переменным успехом и никто не хотел уступать. Наконец победили массагеты. Большая часть персидского войска была уничтожена и Кир также нашел свою смерть, процарствовав в целом двадцать девять лет». Геродот описал и сам ход боя: "Вначале оба войска обстреливали друг друга из луков на значительном расстоянии, потом, когда стрелы были истощены, перешли врукопашную и бились копьями и мечами". Геродот сообщил и о тактическом приеме, использованный Тумарис. Когда в 529 г. до н.э. персидское войско форсировало р. Окс (Амударья) Тумарис приказала войску отступить. Преследуя массагетов персы были завлечены в ущелье, заранее выбранное в качестве ловушки.

Греческий историк Полиэн (II в.н.э.) приводит рассказ о подвиге Ширика, заимствованный, вероятно, из эпоса саков, который, изрезав себе лицо ножом, представился перебежчиком и взялся провести персов через безводную пустыню. Он завел их в непроходимые места, где враги и погибли. Был убит персами и сам Ширик.

В 521 г. до н.э. в Персии воцарился Дарий. В честь своих побед Дарий приказал высечь надпись на скале Бехистун, мимо которой проходила дорога, соединяющая Вавилон с Эктабаной. В последней части надписи сообщается: «Пошел я против саков-тиграхауда... к большой реке... перешел... убил, другого схватили и связанного привели ко мне. Я судил его... Скунху по имени, его схватили. Там я другого главою поставил, согласно моей воле, после этого страна моею стала».

Бесстрашный словно леопард. Конец владычеству Ахеменидов над народами Средней Азии положила битва при Гавгамелах в 331 г. до н.э., когда последний Ахеменид Дарий III был разбит Александром Македонским. Македонский полководец появился на территории Средней Азии весной 329 г. до н.э. Бактрия была завоевана им без особого труда. Сатрап Бактрии и Согда Бесс, перс из рода Ахеменидов, участвовал в убийстве бежавшего на Восток царя Дария III, своего родственника, и принял затем царский титул под именем Артаксеркса. Узнав о приближении Александра, Бесс ушел за Амударью, на территорию Согда в местность Наутака. В погоне за Бессом Александр двинулся к Амударье и переправил свое войско через реку, используя в качестве плотов превращенные в

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мешки наметы палаток, крепко сшитые и набитые соломой. В Наутаке посланному им полководцу Птолемею Лагу был выдан местными вождями Бесс.

Македоняне заняли Мараканду (Самарканд), главный город сатрапии. Оставив в нем небольшой гарнизон, Александр с главными силами двинулся к р.Яксарт (Сырдарья) или Танаису, к берегам которой он вышел, вероятно, в районе Худжанта (Ходжент), по пути он жестоко расправился с горцами Уструшаны, пытавшимися остановить его в горах.

Сначала местное население увидело в Александре освободителя от персидского ига, но расправа с горцами Уструшаны, истребление жителей открыла населению глаза на то, что молодой македонский царь принес ему новое рабство. Согд охватило широкое народное восстание, которое возглавил Спитамен – талантливый военачальник Согдианы, опиравшийся на союз с саками – тиграхауда, жившими за Сырдарьей, на ее правом берегу.

Восставшие нападали на отряды македонян, их фуражиров, небольшие гарнизоны. Были уничтожены македонские укрепления в семи городах. Спитамен осадил македонский гарнизон в Мараканде. Он постоянно нападал на македонян, притворяясь бегущим, заманивал в степь, обстреливал с флангов своих преследователей. Ему удалось окружить и уничтожить один из македонских отрядов, перешедший реку Политамет (Зарафшан). Все это заставило Александра прекратить дальнейшее движение в глубь среднеазиатских территорий и броситься в погоню за Спитаменом. Согласно Арриану, Александр "прошел всю область, орошаемую рекой Политаметом". В пески за Спитаменом Александр не последовал, повернул назад и начал жечь поселения, опустошать поля и сады, перебил более 120 тыс. жителей области.

Существует версия рассказа о смерти Спитамена, которую передал Курций Руф.

Согласно ей Спитамен погиб от руки своей любимой жены, которая лично отнесла голову мужа в лагерь Александра. После гибели Спитамена отряды Александра еще раз прошли по Согду вдоль и поперек, отмечая свой путь потоками крови. Изложение деяний Спитамена в трудах Арриана, Курция Руфа, Страбона, Диодора и других авторов позволяет воссоздать яркий образ народного героя, боровшегося за свободу и независимость своей родины.

Античные авторы поразились стойкости и силе воли согдийцев, их свободолюбивому нраву. Квинт Курций Руф писал, что, когда к Александру Македонскому: «привели тридцать знатнейших, могучих телом согдийцев, то они, узнав, что их поведут на казнь, запели песнь и всячески выказывали радость... они ожидают чести смерти, которая вернет их предкам, на которую надеются, по обету, все сильные мужи».

В войне с воинственными и свободолюбивыми народами, жившими на территории нашей страны, македонская армия понесла большие потери. Но все же Александру удалось укрепиться в Бактрии и Согдиане – узле торговых путей. Его успеху способствовал разрозненный характер сопротивления.

На всем протяжении власти греко-македонян они большое внимание уделяют обороне. Имеются сведения Страбона об основании Александром в Согде и Бактрии восьми городов и Юстина – двенадцати городов, которые заселяли греческими наемниками, а также непригодными больше к войне македонянами и местными жителями – пленниками. Диодор об этом периоде пишет так: «Он (Александр) наказывает бактрийцев и строит в нужных местах города, чтобы держать восставших в повиновении».

Таким образом греко-македонское завоевание Средней Азии оказалось очень непрочным.

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CALCULATION OF STRUCTURALLY INHOMOGENEOUS, PARTIALLY FILLED WITH LIQUID, SHELL DESIGNS

Abstract: A method for solving the static problems of multi-connected structurally heterogeneous shell structures, which are an arbitrary composition of multilayer shells, is proposed in the paper. Equations of equilibrium are obtained on the basis of the Lagrange variation principle. As an example, the matrix of complex stiffness values for a four-layer rectangular plate with different number of points of orthogonalization is calculated.

Key words: structural heterogeneity, multi-connectivity, shell, plate, variation principle, interactions, deformability, equations, matrix.

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РАСЧЕТ СТРУКТУРНО-НЕОДНОРОДНЫХ, ЧАСТИЧНО ЗАПОЛНЕННЫХ ЖИДКОСТЬЮ, ОБОЛОЧЕЧНЫХ КОНСТРУКЦИИ

Аннотация: В работе предлагается метод решения задач статики многосвязных структурно-неоднородных оболочечных конструкций, представляющих собой произвольную композицию из многослойных оболочек. На основе вариационного принципа Лагранжа получены уравнения равновесия. В качестве примера вычислена обобщенные перемещения цилиндрических оболочек, частично заполненной жидкостью.

Ключевые слова: структурно-неоднородность, многосвязность, оболочка, пластина, вариационный принцип, взаимодействия, деформируемость, уравнения, жидкость.

Введение

Разработка единого подхода к решению задач динамики и взаимодействия, многосвязных структурно-неоднородных оболочечных конструкций, представляющих собой произвольную композицию из многослойных оболочек вращения и круговых шпангоутов, а также структурно-неоднородных призматических конструкций, представляющих собой также произвольную композицию из многослойных

цилиндрических оболочек некругового сечения и прямолинейных стрингеров, создание и внедрение соответствующего программного комплекса с высоким уровнем автоматизации всех этапов вычислений, ориентированных на ЭВМ, значительно повышают эффективность проектирования и являются крупной научной проблемой, имеющей большое народно-хозяйственное значение. Решению этой проблемы посвящено настоящее исследование.

Рассмотрим произвольную структурно-неоднородную оболочечную конструкцию. Пусть на каждый оболочечный элемент рассматриваемой конструкции действует распределенные по координатной поверхности нагрузки q_1^p, q_2^p, q_3^p . Предположим также, что к каждому кольцевому элементу рассматриваемой конструкции приложены приведенные к срединной линии этого элемента внешние нагрузки

Для получения уравнений равновесия конструкции воспользуемся вариационным уравнением Лагранжа:

$$\sum_{p=1}^{N_s} \delta \mathcal{E}_p + \sum_{i=1}^{N_r} \delta \mathcal{E}_i + \sum_{e=1}^{N_e} \delta \mathcal{E}_e - \sum_{p=1}^{N_s} \delta A_p - \sum_{i=1}^{N_r} \delta A_i = 0, \quad (1)$$

где $\delta \mathcal{E}_p$ - вариация потенциальной энергии деформации p -го оболочечного элемента; $\delta \mathcal{E}_i$ - вариация потенциальной деформации i -го кольцевого элемента; $\delta \mathcal{E}_e$ - вариация потенциальной деформации e -й вязкоупругой связи; δA_p - элементарная работа внешних нагрузок, приложенных к p -ому оболочечному элементу; δA_i - элементарная работа внешних нагрузок, приложенных к i -му кольцевому элементу.

Введем вектор перемещений $\vec{U}_p = [u_p, v_p, w_p]$, компонентами которого являются перемещения точек координатной поверхности p -го оболочечного элемента в направлениях α_1, α_2 и Z соответственно, вектор $\vec{U}_i = [u_i, v_i, w_i, \varphi_i, \varphi_{xi}, \varphi_{zi}]^T$, обобщенных перемещений срединной линии кольцевого элемента, а также векторы

$$\begin{aligned} V_{He} &= [u_{He} v_{He} \theta_{He} v_{He}]^T, \\ V_{ke} &= [u_{ke} v_{ke} \theta_{ke} v_{ke}]^T \end{aligned} \quad (2)$$

обобщенных перемещений начала и конца вязкоупругой связи с порядковым номером e .

Тогда согласно [1], после некоторых математических преобразований при независимых вариациях δU_p в координатной поверхности p -го оболочечного элемента и независимых вариациях $\delta \Delta_i$ в срединной линии i -го кольцевого элемента получаем из вариационного уравнения Лагранжа с комплексными коэффициентами систему связанных между собой уравнений равновесия структурно-неоднородных оболочечных конструкций

$$\begin{aligned} L_p + q_p &= 0, \quad (p = 1, 2, \dots, N_s), \quad (i=1, 2, \dots, N_r) \\ L_r^i + \|\theta_i\| f_i \sum_j \sum_s (\xi_{ci}^{ijs} [\bar{\eta}_i^{ijs}] Q_i^{ijs}, \delta \Delta_i) + \\ + \sum_j \sum_s (\xi_{ci}^{ijs} [\bar{\eta}_{ci}^{ijs}] N_{ci}^{ijs} \sum_j \sum_s (\xi_{ci}^{ijs} [\bar{\eta}_{ci}^{ijs}] N_{ci}^{ijs} &= 0, \end{aligned} \quad (3)$$

описывающих совместно с вышеприведенными соотношениями, а также условиями неразрывности перемещений и вышеприведенными соотношениями линейные деформации многосвязных структурно-неоднородных осесимметричных и призматических оболочечных конструкций. Суммирование в уравнениях (3)

ведется по всем оболочечным элементами, примыкающим к i -ому кольцевому элементу.

В задаче на собственные колебания конструкций решение уравнений (3), ищем в виде

$$U_p = U_p e^{-i\tilde{\omega}\tau}, \quad \Delta_i = \Delta_i e^{-i\tilde{\omega}\tau}$$

Здесь $\tilde{\omega}$ - комплексное значение частоты колебаний, действительная часть которого ω_R представляет частоту собственных колебаний, ω_I - коэффициент демпфирования. Уравнения собственных колебаний конструкций, соответственно, будут иметь вид:

$$\begin{aligned} L_p + q_p + \tilde{\omega}^2 [\bar{\rho}_p] U_p + \Delta p &= 0 \quad (p=1, 2, \dots, N_s), \\ L_r^i + \|\theta_i\| f_{i0} + \tilde{\omega}^2 [G_\omega] \Delta_i + \\ + \sum_j \sum_s (\xi_{ci}^{ijs} [\bar{\eta}_i^{ijs}] Q_i^{ijs} \sum_j \sum_s (\xi_{ci}^{ijs} [\bar{\eta}_{ci}^{ijs}] N_{ci}^{ijs} &= 0 \end{aligned} \quad (4)$$

$(i=1, 2, \dots, N_r)$

Значения $\tilde{\omega}^*$, при которых существует нетривиальное решение системы с комплексными коэффициентами, являются комплексными значениями собственных частот колебаний рассматриваемых структурно-неоднородных оболочечных конструкций.

Для решения поставленной задачи разработан алгоритм и программный комплекс, а также проводится оценка практической сходимости предлагаемых алгоритмов, основанная на сравнении имеющихся в литературе результатов решения тестовых задач и результатов других решений, полученных в рамках разработанных методик, а также с результатами, распространенными на комплексную арифметику.

Для определения давления Δp , входящий в (4) будем использовать линейаризованный интеграл Лагранжа- Коши

$$\Delta p(x, R, \beta, t) = -\rho_0 \left[\frac{\partial^2 \Phi}{\partial t^2} + jx \right], \quad (5)$$

где Φ - потенциал смещений частиц жидкости при ее возмущенном движении; j - ускорение поля массовых сил. Потенциал смещений Φ должен быть решением в следующей краевой задаче:

$$\frac{\partial^2 \Phi}{\partial R^2} + \frac{1}{R} \frac{\partial \Phi}{\partial R} + \frac{\partial^2 \Phi}{\partial x^2} + \frac{1}{R^2} \frac{\partial^2 \Phi}{\partial \beta^2} = 0; \quad (6)$$

$$\frac{\partial \Phi}{\partial R} = w(x, \beta, t) \text{ при } R = R_0, \quad \frac{\partial \Phi}{\partial x} = 0 \text{ при } x = 0 \quad (7)$$

$$\frac{\partial^2 \Phi}{\partial t^2} + j \frac{\partial \Phi}{\partial x} = 0 \text{ при } x = h$$

Здесь Φ - потенциал смещений частиц жидкости; ρ_0 -плотность жидкости.

Для собственных колебаний с частотой ω функции u, v, w и Φ , учитывая условия их периодичности по β , можно представить в форме:

$$\begin{aligned} u(x, \beta, t) &= e^{i\omega t} \sum_{m=0}^{\infty} u_m(x) \cos m\beta; \\ v(x, \beta, t) &= e^{i\omega t} \sum_{m=0}^{\infty} v_m(x) \end{aligned} \quad (8)$$

Введем безразмерные переменные и безразмерные параметры:

$$\begin{aligned} \alpha = \frac{x}{R_0}; \quad r = \frac{R}{R_0}; \quad \tau_1 = \frac{h}{R_0}; \quad \tau = \frac{1}{R_0}; \quad \varepsilon = \frac{h}{l} = \frac{\tau_1}{\tau}; \\ c^2 = \frac{1}{12} \left(\frac{\delta}{R_0} \right)^2; \quad \lambda^2 = \frac{\rho R_0^2 (1-\mu^2)}{E} \omega^2; \quad \eta = \frac{j \rho R_0 (1-\mu^2)}{E}; \end{aligned}$$

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$$a = \frac{\rho_0 R_0}{\rho \delta} \quad (9)$$

А также безразмерные коэффициенты жесткостей β_1 , связанные с исходными значениями жесткостей c_1 соотношениями:

$$c_u = \frac{E}{1-\mu^2} \frac{\delta}{R_0} \frac{\beta_u}{1-\beta_u}; \quad c_v = \frac{E}{2(1+\mu)} \frac{\delta}{R_0} \frac{\beta_v}{1-\beta_v};$$

$$c_w = \frac{E}{12(1-\mu^2)} \left(\frac{\delta}{R_0}\right)^3 \frac{\beta_w}{1-\beta_w};$$

$$c_\psi = \frac{E}{12(1-\mu^2)} \left(\frac{\delta}{R_0}\right)^3 R_0^2 \frac{\beta_\psi}{1-\beta_\psi} \quad (10)$$

Как следует из формул (10), безразмерные коэффициенты жесткостей β_1 могут меняться в пределах $0 \leq \beta_1 \leq 1$, что соответствует переходу до абсолютно жесткого закрепления в рассматриваемом направлении.

$$\Phi_m(\alpha, r) = -R_0 \sum_{n=1}^{\infty} \frac{1}{\varepsilon_{mn}} - \frac{\lambda^2 sh \xi_{mn}(\varepsilon - \alpha) - \eta ch \xi_{mn}(\varepsilon - \alpha)}{\lambda^2 ch \xi_{mn}(\varepsilon) - \eta sh \xi_{mn}(\varepsilon)} Z_{mn}^{(r)} \int_b^1 W_m(s) Z_{mn}(s) ds. \quad (12)$$

Здесь ε_{mn} -корни уравнения

$$J'_m(\xi b) N'_m(\xi) - J'_m(\xi) N'_m(b \xi) = 0. \quad (13)$$

Задача (11) может быть непосредственно решена методом разделения переменных. В результате обычных преобразований уравнения (9) сводится к решению системы обыкновенных дифференциальных уравнений второго порядка

$$\frac{d^2 \Phi_{mn}}{dr^2} + \frac{1}{r} \frac{d \Phi_{mn}}{dr} + \left(1 - \frac{m^2}{r^2}\right) \Phi_{mn} = 0. \quad (14)$$

Первые шесть корней уравнения (13) приведена в таблице 1.

Из теории Бесселевых функций следует, что выражение

После подстановки (8) в (6), (7) с учетом (9) найдем, что функции Φ_m при $m \geq 1$ должны удовлетворять следующим уравнениям и граничным условиям:

$$\frac{\partial^2 \Phi_m}{\partial \kappa^2} + \frac{1}{r} \frac{\partial \Phi_m}{\partial r} + \frac{\partial^2 \Phi_m}{\partial x^2} - \frac{m^2}{r^2} \Phi_m = 0;$$

$$\frac{\partial \Phi_m}{\partial r} = R_0 W_m(\alpha) \text{ при } r=1; \quad \frac{\partial \Phi_m}{\partial \alpha} = 0 \text{ при } \alpha=0; \quad (11)$$

$$-\lambda^2 \Phi_m + \eta \frac{\partial \Phi_m}{\partial \alpha} = 0 \text{ при } \alpha = \tau_1, \text{ где } \lambda^2 = \frac{\rho \delta R_0^4 \omega^2}{D};$$

$$\eta = \frac{\rho \delta R_0^3 j}{D}.$$

После некоторых вычислений получим выражение для $\Phi_m(\alpha, r)$

$$\Phi_{mn} = Z_{mn}(z)$$

является решением поставленной задачи.

При этом функция $Z_v(z)$ означает любую из функции $J_v(z), N_v(z), H_v^{(1)}(z), H_v^{(2)}(z)$ или линейную комбинацию этих функций с постоянными коэффициентами.

В формулах (11) использовались следующее обозначения:

$$Z_{mn}(r) = 0.5 (J_m(\xi_{mn} r) N'_m(\xi_{mn}) H_m(\xi_{mn} r) J'_m(\xi_{mn})) \quad (15)$$

$$N_{mn}^2 = \frac{\pi \xi_{mn} (\xi_{mn}^2 - m^2 - (\xi_{mn}^2 b - m^2) Z_{mn}(b))}{2 \xi_{mn}^2} \quad (16)$$

Таблица №1.

	1	2	3	4	5	6
b=1,2	15,7	31,4	47,12	62,83	78,54	94,25
b=1,5	6,27	12,56	18,84	25,13	31,41	37,70
b=2	3,12	6,27	9,42	12,56	5,7	18,84
b=1,2	15,73	31,42	47,13	62,84	78,54	94,25
b=1,5	6,32	12,59	18,86	25,14	31,42	37,70
b=2	3,19	6,31	9,44	12,58	15,70	18,86
b=1,2	15,81	31,47	47,16	62,86	78,56	94,26
b=1,5	6,47	12,67	18,92	25,18	31,46	37,73
b=2	3,41	6,43	9,52	12,64	15,77	18,90

Следует отметить, что при решении рассматриваемой задачи может быть использована безмоментная теория оболочек. Однако при этом существенных упрощений в решении рассматриваемой задачи приближенной безмоментной теории не дает по сравнению с обычной безмоментной теорией.

Приведем результаты расчетов частот собственных колебаний цилиндрической оболочки, которой отвечают следующие значения безразмерных параметров:

$$\frac{l}{R_0} = 6.06; \quad \frac{R_0}{\delta} = 150 \quad a = 19.2; \quad \eta = 0.12610^{-7};$$

$$\mu = 0.29.$$

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При расчете варьировалась число волн m упругой поверхности оболочки в окружном направлении и глубина жидкости ε .

На рис.1 приведены графики изменения первых четырех безразмерных собственных частот

упругих колебаний, для нескольких чисел m , в зависимости от уровня заполнения ε , при шести уровнях заполнения.

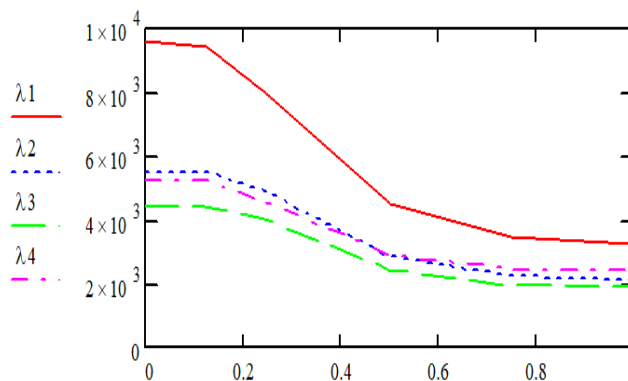


Рис.1. Графики изменения собственных частот (заземленная цилиндрическая оболочка) в зависимости от уровня заполнения ε .

Причем полученные графики отвечает заземленной оболочки. Аналогичные графики

построены, соответственно (рис.2-3) для опертой и консольной цилиндрических оболочек.

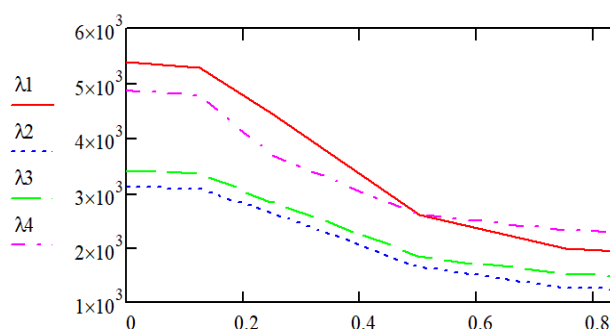


Рис.2. Графики изменения собственных частот (опертая цилиндрическая оболочка) в зависимости от уровня заполнения ε .

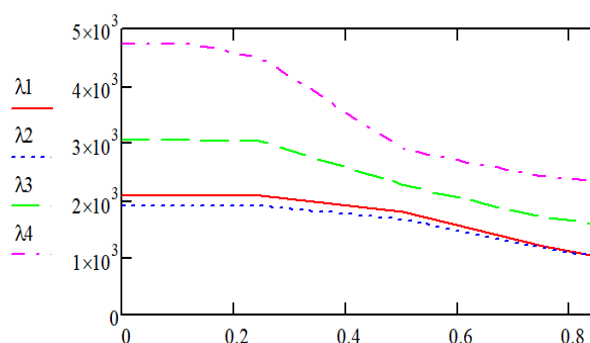


Рис.3. Графики изменения собственных частот (консольная цилиндрическая оболочка) в зависимости от уровня заполнения ε .

Установлено, что при частичном заполнении оболочки с жидкостью для фиксированного значения числа m частоты консольной балки могут быть больше соответствующих частот опертой оболочки. Однако для заполненной целиком оболочки при фиксированном m , также как в

случае оболочки без жидкости всегда выполняется условие

В качестве второго примера рассмотрим собственные колебания сферической оболочки частично заполненной жидкостью.

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Разработка метода расчета динамических характеристик сферических оболочек, широко применяющихся в гидротехнических сооружениях, имеет большое практическое значение.

Рассмотрим достаточно общий метод определения динамических характеристик упругих сферических оболочек, частично заполненных жидкостью, с учетом произвольных граничных условий, переменности толщины стенок и

произвольного уровня заполнения (4). На этом рисунке представлена сферическая оболочка, частично заполненная жидкостью. Обозначим область, занятую жидкостью, через Q , смоченную поверхность оболочки-через S_0 свободную поверхность жидкости-через, а внешнюю нормаль к срединной поверхности оболочки-через n .

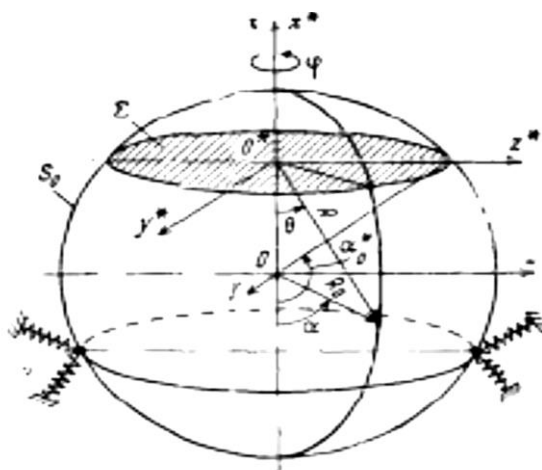


Рис.4. Сферическая оболочка, частично заполненная жидкостью.

Уравнения колебаний сферической оболочки, частично заполненной жидкостью, и соответствующие граничные условия можно получить с учетом возможных перемещений по методике, приведенной в работе [10]:

При этом упрощенные решения задачи о колебаниях сферической, частично заполненной жидкостью, с целью получения приближенных численных результатов может быть достигнуто различными путями. Например:

1. Определение гидродинамические силы из решения приближенных краевых задач.
2. Построение приближенных решений уравнений колебаний оболочки с жидкостью.
3. Использование более простых вариантов теории сферических оболочек.

В качестве давление жидкости на сферическую оболочку примем приближенное выражение, полученное в [10]

$$\Phi = \sum_{k=1}^{\infty} \varphi_k \frac{1}{\chi_k^2} \int w \varphi_k ds \quad (17)$$

В том случае, когда возможно разделения переменных, φ_k , χ_k определяются в явном виде.

$$\varphi_k = \frac{1}{R_0} \sqrt{\frac{1}{\pi h} \frac{I_0(\beta_k r)}{I_0(\beta_k)}}; \quad \chi_k^2 = \beta_k \frac{I_1(\beta_k)}{I_0(\beta_k)}, \quad (18)$$

где $r = R/R_0$; $h = H/R_0$; $\alpha = x/R_0$; $\beta_k = \frac{2k-1}{2h} \pi$; R_0 – радиус срединной поверхности; H – уровень жидкости; I_0, I_1 – функции Бесселя.

В частности, для определения колебаний оболочки, заполненной жидкостью, получим:

$$L_{i1}(u_i) + L_{i2}(u_2) + L_{i3}(w) = \rho \delta \frac{\partial^2 u_i}{\partial t^2} + F_i(\alpha, \beta, t), \quad i = 1, 2;$$

$$L_{31}(u_1) + L_{32}(u_2) + L_{33}(w) = \rho \delta \frac{\partial^2 w}{\partial t^2} + \rho_0 R_0 \sum_{k=1}^{\infty} \varphi_k \frac{1}{\chi_k^2} \left[\frac{\partial^2 w}{\partial t^2} \right] \varphi_k ds + F_3(\alpha, \beta, t), \quad (19)$$

где L_{ij} – известные дифференциальные операторы, используемые в теории оболочек [2]; ρ, ρ_0 – массовые плотности материала оболочки и жидкости; R_0 – характерный размер оболочки; u_i, w – касательные и нормальное перемещения; α, β – ортогональные координаты, определяющие положения произвольной точки на срединной поверхности; n – внешняя нормаль к этой поверхности; F_i, F_3 – внешние силы, действующие на оболочку.

Таким образом, поставленная задача гидроупругости оболочек сводится к интегрированию краевых задач (19) с заданными граничными условиями. Краевая задача решается методом сведения краевой задачи к задачам Коши [1], которые интегрируется численным методом.

Для этого в качестве новых неизвестных введем вектор переменных Y . Тогда уравнение (19) в новых переменных можно записать следующим образом:

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$$\frac{dY}{d\alpha} = \|a_{ij}(\alpha)\|Y + F, \quad i, j = 1, 2, \dots, 8, \quad (20)$$

где Y -матрица столбец из новых переменных; $\|a_{ij}(\alpha)\|$ – квадратная матрица, элементы которой известны, если задано контурное уравнение; F – матрица столбец, ненулевые компоненты которой в нашем случае равны

$$F_6 = -\frac{\lambda^2}{c^2} \frac{A}{R_0} a \frac{\varphi_k}{\chi_k}; \quad c^2 = \frac{\delta^2}{12R_0^3}. \quad (21)$$

Для вычислений, в качестве материала оболочки, был взят сталь, в качестве заполнителя – вода, в качестве характерного размера – радиус оболочки. $\gamma = 3$; $R/\delta = 100$; $\alpha = 109.2$; $\mu = 0.3$; $\alpha = 0.098$; $\bar{p} = 0.01$,

Из анализа полученных численных результатов следует, что форма колебаний сферической оболочки, заполненной жидкостью носит колебательный характер. Амплитуда

колебаний оболочки при изменении уровня ее заполнения возрастают [11,12].

Пусть рассматриваемый элемент гидротехнического сооружения на глубине h заполнена жидкостью с плотностью ρ_0 . Градиент поля массовых сил считается перпендикулярным продольной оси оболочки. Для определения давления Δp будем использовать линеаризованный интеграл Лагранжа-Коши

$$\Delta p(x, R, \beta, t) = -\rho_0 \left[\frac{\partial^2 \Phi}{\partial t^2} + jx \right], \quad (22)$$

где Φ – потенциал смещений частиц жидкости при ее возмущенном движении; j -ускорение поля массовых сил. Далее основные соотношения совпадает с уравнениями для цилиндрической оболочки

На рис.5 дано изменение форм собственных колебаний сферической оболочки, частично заполненной жидкостью.

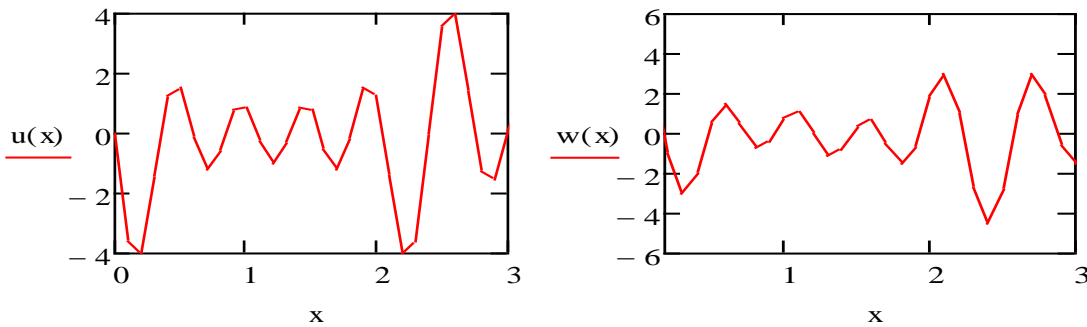


Рис.5. Форма собственных колебаний сферической оболочки, частично заполненной жидкостью.

Введем безразмерные переменные и безразмерные параметры:

$$\alpha = \frac{x}{R_0}; \quad r = \frac{R}{R_0}; \quad \tau_1 = \frac{h}{R_0}; \quad \tau = \frac{1}{R_0}; \quad \varepsilon = \frac{h}{l} = \frac{\tau_1}{\tau};$$

$$c^2 = \frac{1}{12} \left(\frac{\delta}{R_0} \right)^2; \quad \lambda^2 = \frac{\rho R_0^2 (1-\mu^2)}{E} \omega^2; \quad (23)$$

$$\eta = \frac{j\rho R_0 (1-\mu^2)}{E}; \quad a = \frac{\rho_0 R_0}{\rho \delta},$$

А также безразмерные коэффициенты жесткостей β_1 , связанные с исходными значениями жесткостей c_1 соотношениями:

$$c_u = \frac{E \delta \beta_u}{1-\mu^2 R_0 (1-\beta_u)}; \quad c_v = \frac{E \delta \beta_v}{2(1+\mu) R_0 (1-\beta_v)};$$

$$c_w = \frac{E}{12(1-\mu^2)} \left(\frac{\delta}{R_0} \right)^3 \frac{\beta_w}{1-\beta_w};$$

$$c_\psi = \frac{E}{12(1-\mu^2)} \left(\frac{\delta}{R_0} \right)^3 R_0^2 \frac{\beta_\psi}{1-\beta_\psi}. \quad (24)$$

Как следует из формул (24), безразмерные коэффициенты жесткостей β_1 могут меняться в пределах $0 \leq \beta_1 \leq 1$, что соответствует переходу

до абсолютно жесткого закрепления в рассматриваемом направлении.

Определение частот и форм, собственных не осесимметричных колебаний цилиндрической оболочки, частично заполненной жидкостью, свелось к решению вышеприведенной краевой задачи. Число $m \geq 1$ следует рассматривать в качестве параметра. Оно характеризует форму собственных колебаний системы “оболочка-жидкость” в окружном направлении и равно половине числа узловых линий срединной поверхности оболочки, параллельных оси Ox , или числу узловых диаметров свободной поверхности жидкости.

Приведем численные результаты определения собственных частот колебаний и присоединенных масс цилиндрической оболочки, частично заполненной жидкостью. На рис.6 приведены графики изменения первых трех частот колебаний пологой оболочки с параметрами:

$\gamma = 3$; $R/\delta = 100$; $\alpha = 109.2$; $\mu = 0.3$; $\alpha = 0.098$; $\bar{p} = 0.01$.

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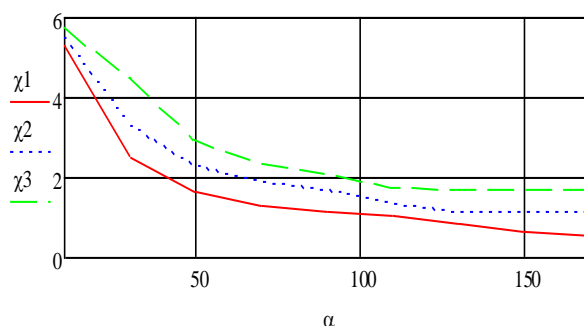


Рис.6. Зависимость значений частот собственных колебаний сферической оболочки от уровня ее заполнения жидкостью

Изменение χ , соответствующего первым трем частотам, в зависимости от уровня заполнения при углах закрепления показано на рис.6. При этом положение места закрепления оболочки значительно влияет на низшую частоту колебаний, в то время как высшие частоты изменяются незначительно.

Таким образом, предложена математическая постановка, методика решения и алгоритмов для определения собственных частот цилиндрической и сферической оболочек, являющимися элементами структурно-неоднородных оболочечных конструкций, широко используемые в гидротехнических сооружениях.

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APPLICATION OF COMPUTER TECHNOLOGIES IN THE EDUCATIONAL PROCESS

Abstract: The purpose of the article is to demonstrate the role and importance of computer information technology in the training of personnel. The main topic of the article is to address the issues of student learning, including computer. The article examines the role and importance of electronic computer technologies and computer technologies in the learning process, with an emphasis on the basic knowledge and skills needed to use computer technology.

Key words: information, information technology, Internet, electronic computer, creative project, technological formation.

Language: English

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Introduction

In the conditions of the modern dynamic development of society, the complexity of the technical and social infrastructure, information becomes the same strategic resource as traditional material and energy resources. During the period of informatization, societies acquire the importance of the ability to collect the necessary data, put forward a hypothesis, draw conclusions and conclusions, use new information technologies to work with information[1].

Modern information technologies that allow you to create, store, process information and provide effective ways of presenting it to the consumer have become an important factor in life. Information

technology is a powerful tool to accelerate progress in all areas of social development, one of the essential factors determining the competitiveness of a country, region, industry and individual organization determine a new lifestyle of society [3].

The ability to use a computer to solve professional and educational problems becomes an essential component of the training of any specialist, therefore, education of any level is faced with the task of preparing specialists for the use of computer technology in future professional activities.

According to experts, by means of computerization of education, the following goals can be achieved:

- improving the quality of education;

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- increase the degree of accessibility of education;

- increasing the economic potential in the country due to the growth of education of the population;

- integration of the national education system in the scientific, industrial, socio-social and cultural information infrastructure of the world community.

The specificity of the education system is that, on the one hand, it is a consumer, and on the other, an active producer of information technology, therefore, the use of information technology in educational systems is the basis for solving the urgent problem at present - identifying new computer capabilities as a means to create personality-developing situation in the learning process.

The study of domestic and foreign experience in the use of new information technologies, in particular computer, for training purposes, as well as theoretical studies in the field of education informatization problems suggest that the inclusion of electronic computer technology in the educational process affects the role of training tools commonly used in the process teaching different disciplines.

Computer programs are used as technical training aids (TCO), which have a set of specific features that are not available to any other TCO to such an extent to enhance students' cognitive and cognitive activity, as a means of communication, a monitoring device, a compact storage method and quick information retrieval [4].

The introduction of new information technologies into the educational sphere allows us to qualitatively change the content, methods and organizational forms of training, to create additional opportunities, namely:

- access to a large amount of educational information;

- figurative visual representation of the studied material;

- support for active teaching methods;

- allows you to replicate the individual components of information technology;

- support of information technology with appropriate scientific and methodological material.

Methodologically new information technologies in education should be worked out with a focus on specific application. Some technologies can support the educational process, for example, lectures and practical classes, other technologies can effectively

support the development of new textbooks and teaching aids, accompany and support project activities. Information technology will also help to effectively organize experimental research work both at school and at a university, and in particular, the Internet can be a good tool for both teachers and students [5].

Information technology is part of the educational field of Technology. Training students in the educational field of "Technology" involves a large amount of practical work, success in this case is facilitated by creativity, new knowledge and skills.

The personal computer begins to occupy a solid place in the education system. Its use can be very different, however, it should always contribute to the achievement of certain pedagogical goals, take into account the individual characteristics of the trainees[7].

Students, learning, master a system of knowledge about the role of computer technology in the learning process, about the capabilities of computer technology (CT), master the system of necessary skills and abilities to work with computer technology, as well as how to use computer technology in the educational process.

Student core skills should include:

✓ the ability to enter the network (e-mail);

✓ the ability to compose and send a letter;

✓ the ability to find information;

✓ structure received letters in a special

directory;

✓ work in the WINDOWS system, using

WORD editors of various modifications;

✓ enter electronic conferences, post your own information there, "pump over" the information available in various conferences;

✓ enter the IP channel;

✓ use remote databases;

✓ use various Internet services.

An important condition for preparing a future teacher for the effective use of computer technology in project activities is the development of software tools that allow you to develop a strategy for the effective use of a computer. Computer technologies, in this case, act not as a subject of study, but as a tool of cognition, for students to represent their knowledge in the subject area during the implementation of projects. The presented approach to the use of computer technology in support of project activities, especially such a course as management, is quite new.

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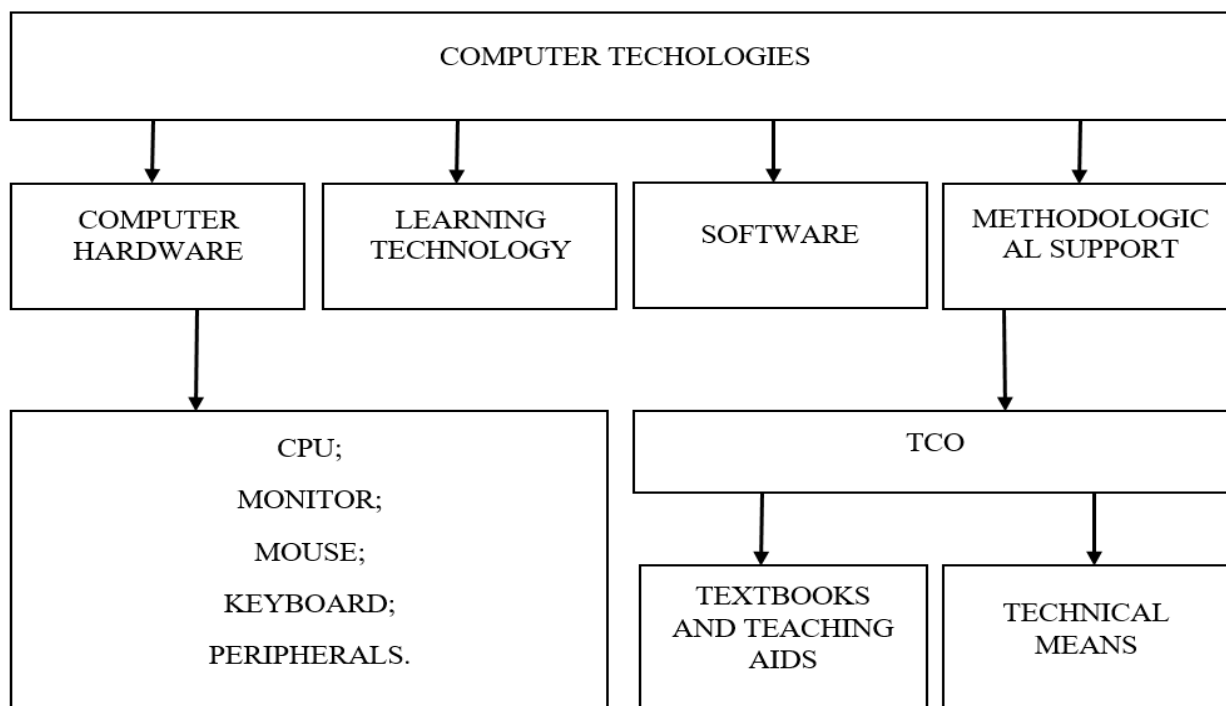


Figure 1 - Computer technology diagram

The experience of design work has shown the effectiveness of using the method. When studying management, there was an increase in interest in the material being studied, mastered through non-traditional methods. Deepening their interest in end result. For the development of projects, various types of software are used, depending on the preparedness of the trainees. A variety of tools allows you to differentiate learning and develop creative abilities.

An important role in this preparation is given to teaching practice, during which students develop and give trial lessons, attend teacher classes, learn to analyze and evaluate each lesson, and manage student projects.

Based on the results of the study, the following conclusions can be made:

- ✓ The results obtained confirm the hypothesis about the positive, significant impact of the project method of training in management on the level of training of the future teacher of technology and entrepreneurship;

- ✓ the use of the project method in the management training process with the aim of enhancing the educational process, allows to increase the level of students' knowledge formation within the limited training time;

- ✓ computer technologies have proven themselves in the implementation of projects and have been used in the following areas: selection of topics and project objects (project bank), selection of

materials and tools (morphological tables), search for technology for manufacturing objects (diagrams, drawings, descriptions, samples), computer design of objects, fast, high-quality and effective design of a planned creative project.

Findings

Internet technologies used at the Pedagogical University, allow you to effectively use the techniques of activating the activities of students and teachers in project activities, namely:

- ✓ pose problematic situations for each student and solve them with different depths and intensities (real solution of economic, technical and pedagogical problems);

- ✓ apply the wide possibilities of control and assessment of knowledge by students and the teacher themselves at any stage of the student's project activity;

- ✓ to form knowledge that activates the search activities of students through various forms of presentation of information;

- ✓ encourage teachers to help solve problem situations.

Project activity is a natural way out for realization of individual interests and creative potential of each student. It can be expected that the integration of all subject-oriented courses focused on students' project activities using information technology can solve the problem of teacher quality training.

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DOGMATIC VIEWS OF NURIDDIN SOBUNIY REFLECTED IN HIS WORK “AL-BIDOYA FI USUL AD-DIN”

Abstract: The work of “Al-Bidoya fi usul ad-din” is based on the kalam science, and it describes the story of Imam Abu Mansur Motouridi who was known as the Imam of the Sunnah Wal Jamaat in Mawarounnahr. The name of Imam Motouridi and some of his reforms in “Tawheed” are provided repeatedly in “Al-Bidoya fi usul ad-din”.

Key words: mutawatir, message awareness, Ahlul Haqq, intelligence, miracle-supported messages, recognition, four natural elements.

Language: English

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Introduction

Imam Sabuni's behavior is no different from Imam Moturidi's school. Specifically, when counting the means of obtaining information, there are three types of it: emotional intelligence, message awareness, and intelligence[1, 30]. This is how Imam Moturidi distributed the means to find out the essence of things[2, 70]. According to Sabuni, if the emotional organs are healthy and each emotional organ is used properly to do its own function, there will not be any mistake. There are two types of knowing the message according to Sabuni: one is the message of mutawatir, which is the case we cannot see with our own eyes and information about the events in history. In order to be sure about reliability of this information, it should be checked carefully. The second is miracle-supported messages from the Prophets, which also helps to form accurate information. However, it is also necessary to use wisdom and evidence to distinguish the prophets from the magicians or the liars who claims to be a prophet. There are two ways of recognition by the use of the mind: artistic and by the search for evidence. According to Sabuni, artistic information is that comes from one mind by just looking at the data

without thinking[1, 30]. For example, the whole body is larger than its constituent. For example, understanding that the whole body is larger than its constituent. In the knowledge by searching for evidence, the information comes after thinking, reasoning and analyzing. In this respect, the reasoning may be mistaken because the degree of intelligence is different and does not always follow the proper conditions of use of the intellect. Therefore, judgments made by the mind are diverse.

Despite the differences in the way of thinking and reasoning, it is possible to recognize the Creator with this level of intelligence. The scholars of Sobuni, Moturidi and other Sunnah wal scholars agree on this point.

Sobuni says of the uniqueness of Allah: Allah is one and He has no partner. This is contrary to Saints, the pagans, the Christians who say that the "four natural elements are gods" and that "the seven heavenly bodies are gods". Subsequently, Sabuniy gives one-by-one denials to all these groups. These provided documents are almost identical to those of Moturidi and Ashari.

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As Sobuni mentions: "If there were two creators, one wants to create one, and the another wants to kill the same, then either the wish of the one or the wish of the another one must be fulfilled. It is impossible to fulfill both of them. Consequently, if one's wish comes true, another one will fail. However, the God never fails ..." [1, 40].

Ash'ari says in his book *Al-Luma*: "A man asked, 'Why you said that the Creator of Things is unique?'" and the reply was "Because the will of the two gods is not operated in the same thing. In this matter whether both or one must be weak. Because if one of the two wants to keep one person alive and the other wants to kill him, then either their wishes can be fulfilled or none of them will be fulfilled or the other's wish will come true. It is impossible to fulfill the wish of both. This is because a body cannot be alive or dead at the same time. If the wishes of both are not met, it means that they are both weak. However, weak can not be God. If either one of the two wishes comes true, then the unfulfilled side becomes weak. But the weak is no God nor old. From this we can see that it is the One who creates all things" [3, 20].

We can also find evidence in a similar manner to this one in Imam Moturidi's book called *Tawhid*: "One of them wants something and the other wants it to disappear. The same is true for eternity and mortality. They are controversial and there are contradictions in these things" [2, 86].

It is provided by the heavenly evidence that it is possible to see Allah Almighty. Believers will see Allah in the Hereafter. Their vision is free from such concepts as clarity, side and comparison. In this concept, Sabuni's views on this matter are almost indistinguishable from Moturidi's vision. However, it is distinguished by the fact that he provides a rational proof for seeing Allah. If Moturidi believes in seeing Allah Almighty without any comment [2, 141], Sabuni cites Ash'ari's argument in this regard. This fact is referred as "evidence of existence" by the scholars of kalam. Sobuni says: "The reason for the possibility of seeing something in existence is the proof of His being. Not anything else. Allah Almighty exists. It is also permissible to see Him. This is evidenced by the fact that the essence of what we see in creation is different. For example, different practices such as ore, body, contrasting colors like white and black, movement and silence. These two practices are in conflict with being black and white. All terrain is contrary to body and ore. There should be a universal quality that covers all of these things. Then one will have the opportunity to see. That quality in them is their existence" [1, 78].

We can see the argument between Fakhriddin Razavi and Sobuni about this data [4, 14], and we can see that Razavi supported Motouridi's view: "Our view on this issue is the way that was selected by Sheikh Abu Mansur Moturidi Samarkandi. We do not prove the existence of Allah Almighty by the mental

evidences. Rather, we will find the verses of the Qur'an and hadith in this regard" [8, 198]. At the same time, Sabuni followed the footsteps of the Ash'ari and the great Ash'ari scholars to prove that it is true to see Allah.

As for spiritual qualities or supernatural qualities the belief of Nuriddin Sabuni does not vary from the beliefs of all Sunnah wa al-Jama'ah, that consist of Mushturids and Ash'ariyyas. According to this belief, Allah has been described with all the attributes that He has credited to Himself: life, knowledge, power, sam'a, basar, will and kalam. All these attributes are everlasting, eternal, and immortal in the essence of Allah. It is neither him nor any other. It does not look like the quality of any creatures. However such qualities as creating, sustenance, resurrecting and killing are, in the sight of Sabuni, an ancient and Allah Almighty's sublime existence. This belief is also considered as the belief of moturidians. For the Ashari's, however, the dispositional qualities are considered as feats are relative attributes. The disagreement between them is spread widely, and the essence of the matter is that representatives of both schools have come up with same idea. For the Moturidians, they were olden and ancient, before the appearance of the dispositional qualities. For Ash'ariys, however, these qualities were very old and ancient, yet the manifestation is not out of sight [5, 51].

Allah Almighty speaks with the words of eternity, and it is an attribute which is in His kalam. It is not of letters and sounds. It can not be divided into parts or sections. Here, like so many other Moturidi and Ash'ariys, Sabuni has distinguished between the concupiscence of words and their expressions, promises and letters. Passionate kalam is the Allah's only attribute that exists from the ancient. Expressions, words and letters are indicative of meaning. From this point of view, the Qur'an, which is collected as a book, can be considered as recent (created by Allah, not existing from the times of existence). On the other hand, the versets, words and phrases that come from human language and are written on paper at the time of the Qur'an's recitation are not ancient.

But the passionate kalam, which is the origin of the words written in the Qur'an, is an eternal attribute of Allah. This is the opinion of the Sunnah and the community of it to concern the distribution of the quality of the word. This is the opinion of the community of the Sunnah concerning the distribution of the quality of the word [6, 137-144].

But there was disagreement as to whether or not the soul could hear the kalam. Nuriddin Sobuni commented on this controversy: The Ahl al-Sunnah disagreed on whether or not the word of Allah could be heard. The Ash'ariyans can see everything that exists. He also chose a way that he could hear. Ibn Fawrak says: What you hear when you read the Koran reciter are two types; the voice of the Koran recite and

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the word of Allah. Abu Bakr Baqilani says: According to customary that it is impossible to hear the word of Allah. However, Allah Most High sends the word to whomever He wills. To these scholars, Moses heard the word of Allah with no means or letters. Abu Ishaq Isfirayini and his followers said: "The word of Allah is never heard." Abu Mansur Motouridi, the imam and chairman of the Sunna Wahl community, also supported the route. They defined a saying of Allah Almighty, "Until you hear the word of Allah", as "By this, until you hear the evidence of Allah's word." It is also said that I heard the science of someone. This means that I have heard what it means to his knowledge. Even when it is said to look at the power of Allah, it also means to look at what it means. For this category of scholars, Moses heard the sound of the word of Allah. But there was no such thing as an angel or a book. That is why Moses was called the word of Allah[1, 66].

There are several points to consider in this sentence:

First, Nuriddin Sabuniy did not pay much attention to this conflict. This is because Imam Moturidi's Tawheed does not include the phrase that refers to the meaning it is impossible to hear the Allah's own word as humans'.

Second, this issue is not a matter of controversy between the Ash'arites and the Moturidians. Probably, this issue is a mutual disagreement between Moturidians. After all, there are some scholars who say it is possible that the Allah's own word can be heard. This is because Allah is able to create the power to perceive and hear the Allah's own word. There are also scholars who say that they cannot hear the Allah's own word. Because it is necessary to have sounds and letters to hear something. According to Nuriddin Sobuni, he got the opinion of those scholars[7, 16].

Thirdly, some of Imam Ash'ari's followers, Imam Abu Ishaq Isfani and his followers, disagreed with Imam Ash'ari on this matter and preached the moturidians' inability to hear their own words. Thirdly, some of Imam Ash'ari's followers, Imam Abu Ishaq Isfani and his followers, disagreed with Imam Ash'ari on this matter and preached the moturidians' opinion about inability to hear the Allah's own word. At the same time, he argues that the differences between the two schools of the Sunnah and the people of the community are in the practical matters.

Allah created man and all of his actions. The first type is the actions created by Allah without human power and will, like the actions of the shaking person. The second type is the actions created by Allah with

the power and will of man, for example, voluntary work. The second type of verbs is called profession. These are the kinds of actions that a person will be questioned, rewarded and punished. This is because when man intends to do evil, Allah gives him the ability to do it.

As a result, a person neglects the power of virtue because he has no intention of doing good. The action between Allah and man is distributed accordingly. If this action is linked to Allah, it is called creation. It is called a profession if it is bound to a person. Nuriddin Sobuni divides creation and occupation and says: "Creation is an action that occurs without any means or is performed by Allah alone. Profession is not an action performed by any means or an action that can only be performed by Allah. Allah creates with no means and He creates with the shortest statement, "Be (Day)." The Arabic word consists of two letters. And this is very powerful in showing the glory of Allah."

A believer does not renounce his faith because of his grave sins. Actions are not part of faith. The truth of faith is to confess with the heart and confess with the tongue. Recognition by the tongue is a sign of faith. Confession is a prerequisite for imposing Islamic rules to that person. This is because confirmation is an internal matter, and judgments cannot be built on it. Accordingly, the same rules are applied to believers in the world with regard to the one who utters the word of testimony and hides disbelief in his heart. But in the Hereafter he becomes a disbeliever in the sight of Allah.

In summary, we can conclude that these are the basic principles of the so-called Sabuni's dogmatic views, but are also important rules for the Moturidi and Moturidi scholars. Among the scholars of the Moturidian doctrine, Abul Muin Nasafi has a special place. Since Sobuni studied kalam science with the help of Abul Muin's book names "Tafsirat al-adilla"¹. Moreover, we should also mention Imam Omar Nasafi, author of the book "Al-Aqeed an-nasafiya", along with Sobuni. Abul Muin Nasafi's "Tafsirat al-adilla", "al-Bidoya" by Nuriddin Sobuni and "al-Aqid an-Nasafi" by Umar Nasafi are the most important sources of Sunnah wal community from land of Mavarounnahr, especially it is considered as the necessary source of the school of moturidism. Although Sabuni studied based on the book "Tafsirat al-Adilla" by Abul Muin Nasafi, he was not opposed to Ahl al-Sunnah's asharii direction. In "al-Bidoya", the words "Ahlul Haqq" and "Ahlus Sunna" can be found in many places. These two words imply asharii and moturidic directions.

¹ Fakhriddin Raziyy. Munozorot Fahriddin ar-Razi fi bilod mawarounnahr. - Beirut: al-Mashriq, B. 23.

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RULES OF CHILDREN'S GAMES IN FOLK PEDAGOGY

Abstract: The article is devoted to the study of children's games of the Karakalpaks that have reached to this day and serve to educate and accumulate the experience and skills necessary in everyday life. The value of games is that they contribute to the education and development of students. The game is one of the means of forming psychological formations - thinking, attention, memory. The article emphasizes the importance of national games as a factor that helps the development of abilities, enriches knowledge, broadens the horizons and promote children's activities.

Key words: game, education, ability, hobbies, interests, horizons, behavior.

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ПРАВИЛА ДЕТСКИХ ИГР В НАРОДНОЙ ПЕДАГОГИКЕ

Аннотация: Статья посвящена изучению детских игр каракалпачков которые дошли до наших дней и служат воспитанию и накоплению опыта и навыков необходимых в повседневной жизни. Ценность игр заключается в том, что они служат воспитанию и развитию учащихся. Игра является одним из средств формирования психологических образований – мышления, внимания, памяти.

В статье подчеркивается важность национальных игр как фактор который помогает развитию способностей, обогащает знания, расширяет кругозор и активизирует деятельность детей.

Ключевые слова: игра, воспитание, способность, увлечения, интересы, кругозор, поведение.

Введение

Игра - одна из основных способов, заставляющих детей думать, так как в каждой игре есть свое правило и свой порядок. Из великого множества игр дети выбирают те игры которые возможны и удобно играть в зависимости от возраста, сезона, места и др.

Игры, особенно подвижные игры начинаются с физических упражнений, бега и прыжками. Дети во время подвижных игр тратят много сил и физически устают. Пассивные игры не требуют особых действий. К таким играм относятся игры, связанные со счётом. Мы хотим привести некоторые сведения о подобных играх.

Влияние детских игр на развитие как физического так и морального формирования

Цели и задачи.

Несомненно, игры имеют воспитательный характер, каждая игра выполняется соответственно определенному порядку, тем самым приучая детей с малых лет к дисциплине. Игры развивают у детей мыслительную способность и сообразительность. Целью данного исследования является изучение влияния детских игр на развитие детей, на основе каракалпачских народных игр. Кругозор у детей, которые с малых лет играют в счётные игры несколько выше по

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сравнению с другими детьми. У них не только повышается способность к счету, хорошо развивается память, мышление и сообразительная способность, но также они быстро принимают самостоятельное решение, находят пути выхода из сложившейся ситуации, вместе с тем у детей формируется свои увлечения.

Материалы и методы. Каракалпакские национальные игры такие, как игра для мальчиков - «шуллик», «ланки», а для девочек «бес тас» - «пять камешек», являются ярким примером к таким развивающим играм. Тут уместно отметить, что эти игры имеют непосредственное влияние на мальчиков для развития у них навыков ремесленничества. Так как средства для вышеперечисленных игр, то есть для игр «ланки» и «шуллик» необходимые палочки для игры мастерят сами дети из местных подручных материалов. В игре «шуллик» необходимы палки для «дастек», «шуллик» используются ветки деревьев «кара тал» - ивы, «жыңғыл» - тамариска. Длина дастека достигает длины руки подростка, (50-60 см.) и готовится из палки с двумя неточеными концами. А палки для «шуллик», по сравнению с «дастек» вырезается из тонкой ветки величиной с палец, имеет две точеные конечности с острым концом.

Игра в «ланки» - любимая игра мальчиков. На каждом этапе этой игры начисляются очки и они накапливаются. Для приготовления ланки используется кусок высушенной овечьей и козьей шкуры величиной четверти ладони мальчиков. Она вырезается в круглой форме и соединяется с расплавленным свинцом такой же формы. Эта игра требует от играющего особой сноровки, навыков. Помимо этого, каждый игрок должен знать и помнить не только свои накопленные очки, но также и очки соперника. В последнее время эту игру родители запретили детям: так как, при этой игре обувь детей быстро изнашивается. В европейских странах есть схожие игры, такие как «кегель», «гольф», для этих игр имеется специальная одежда.

Для игры девочек «бес тас» специально отбираются камешки, они бывают круглые, гладкие, одного размера, небольшие, которые вмятятся на ладони девочек. Чтобы их отделить друг от друга отбираются разноцветные камни естественного цвета. В каждом цвете есть определенное значение и имеет свой особый смысл. Например: если белый цвет означал чистоту, искренность, красный или коричневый цвет означал красоту, величие. Синий цвет означал голубое бескрайнее небо, черный цвет - гору, а серый цвет означал цвет воды и дождя. Эти цвета в процессе игры на каждом этапе на вопросы «қайсы ата»-«кто дед», «қайып ата» - «дед қайып» отвечают по цветам камешек и показывают их.

Результаты. Вышеназванные счетные игры имеют важное место во всестороннем развитии мыслительной способности и расширении кругозора детей. Эти игры помогают детям в приобретении навыков счета в уме и заучиванию наизусть чисел, что является одним из базовых знаний математики. Все это доказывает «ментальная арифметика», которая в последнее время активно популяризуется среди школьников. Дети в процессе игры выполняют наизусть все счетные задания. Также, эти глубоко задуманные игры развивали мыслительную способность детей, особенно способность к счету.

В «ментальной арифметике» детьми младшего возраста выполняются математические задания по правилу от простого к сложному, такие как прибавлять, отнимать, умножать и делить многозначные цифры в уме. Это в свою очередь, являются самыми основными и самыми важными заданиями, развивающими умственные способности детей. Играя в эти игры дети учатся считать, решать простые арифметические действия самостоятельно.

Особенно важно что в процессе игры дети посредством сравнения различных вещей смогут отличать их друг от друга и тем самым развивается интеллектуальные способности детей.

Развитие интеллектуальных способностей детей во время игр могут наблюдаться в двух направлениях:

- ✦ Специальные обучающие игры детей, при которых они играют вместе с родителями или со взрослыми.

- ✦ Самостоятельные игры детей, при этом дети сами руководят игрой.

В каждой детской игре ставятся свои цели и задачи. Например игры «бес тас», «тоғыз кумалақ»-«девять камешек», «шуллик» предназначены к изучению окружающего мира, развитию математических способностей и способности к сложным счётам, вместе с тем и ознакомление с геометрическими формами.

Каракалпакские национальные игры издревле являются важным моральным, интеллектуальным, а также эмоциональным инструментом в воспитании детей. Игры появились в древности во времена совместного труда первобытнообщинного строя, в целях развития способностей абстрактного мышления детей. Наш народ в своих играх старался изучить и знать строение мира, понимать все мелочи жизни, хотели понимать все тайны создания вселенной, окружающую среду и оказали дидактическое влияние на самосознание своих детей.

В народной педагогике родители, чтобы проверить способности своих детей, в семье загадывали и решали «загадки-задачи», таким

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образом выявляли умственную и мыслительную способности детей. При этом в целях изучения схожих свойств вещей, их различия друг от друга загадывались такие загадки, где вещи находились на месте обитания и имелись поблизости – это один из хороших способов обучения сообразительности, абстрактного мышления детей, уметь делать анализ и синтез событий.

Особенно в определении различий вещей, встречающихся в жизни большое значение имеет загадки-задачи, также при сравнении, индукции, дедукции и анализе. По условиям задачи детям даются признаки загаданного предмета, который должен быть найден детьми. Такие загадки обучают детей различать предметы быта, стимулирует познавательную деятельность.

Вопросы, которые требуют определения и решения заданной темы решаются на основе схожих черт близкого и похожего с ним предмета, близости отличительных черт в другом предмете, на основе общей схожести дети находят ответ исходя из сообразительности, быстроты реакции, ловкости, сравнительного анализа, обобщения и другие признаки, все это имеет большое значение. Эти качества являются ведущими способами и признаками умственного развития детей.

В народной педагогике эти загадки-задачи играли роль “весов”, определяющих умственное развитие детей, насколько выше или ниже умственная и мыслительная способности учащихся. Так как, когда начинается каждая загадка-задача проводятся состязания типа “Кто быстрее найдёт?” В результате дети с быстротой и сообразительностью приводят абстрактные знания на мыслительное действие. Таким образом, загадки-задачи используются для определения умственного уровня детей, быструю реакцию на задание и их различия друг от друга, они являются способом определения соответствия игр возрасту детей.

В развитии умственных способностей детей, уровня мышления встречается множество загадок-задач, возникших для ознакомления детей с явлениями природы, соответствия природе животного мира. Также игры связаны с явлениями природы и животным миром. При помощи объяснения и указания отдельных признаков вещей и событий, то есть посредством объяснения разделения частей от целого, учили детей к размышлению, находить и соединять эти части на основе синтеза этих предметов.

Если обратить внимание, в народной педагогике с древнейших времен в целях развития логического мышления, повышения интеллектуального уровня, совершенствования сообразительности создавались множество подобных загадок-задач, посредством этого детям давались знания и понятия о явлениях природы, о мире животных, о быте людей, о растительном

мире, о предметах, использующихся в быту и о других вопросах. Приведем некоторые из них:

❖ 1. Известно, что общее количество имеющихся в хлеве животных 5, а количество ног 14, сколько в хлеве овец и куриц.

❖ 2. Если отцу 40 лет, а сыну 16, то через сколько лет возраст отца будет в два раза больше, чем возраст сына.

❖ 3. Из привезенных 8 арбузов один оказался непригодным и пустым. Нужно будет найти этот пустой арбуз только два раза перевесив весь привезенный арбуз.

❖ 4. На руках у двух мальчиков имеются по несколько яблок. Яблоко у первого мальчика в два раза больше, чем у второго мальчика. Если первый мальчик даст одно яблоко второму мальчику, то тогда у них я+блок будет поровну. Сколько яблок в каждом из них.

❖ 5. Чтобы напоить овец, из колодца потребуется брать четыре литра воды, но имеются посуды емкостью три и пять литров. Каким образом можно получить четыре литра воды.

Решения: 1-способ: 1.



$$2\text{-способ: } \begin{cases} X + Y = 5 \\ 4X + 2Y = 14 \end{cases} \Rightarrow \begin{cases} X = 5 - Y \\ 4(5 - Y) + 2Y = 14 \end{cases} \Rightarrow 20 - 4Y + 2Y = 14 \Rightarrow 2Y = 20 - 14; 2Y = 6; Y = 3 \quad X = 5 - 3 = 2$$

$$\begin{cases} X = 2 & X - \text{овцы} \\ Y = 3 & Y - \text{куры} \end{cases}$$

1. 1-способ:

40+1=41; 41+1=42; 42+1=43; 43+1=44; 44+1=45; 45+1=46; 46+1=47; 47+1=48; 16+1=17; 17+1=18; 18+1=19; 19+1=20; 20+1=21; 21+1=22; 22+1=23; 23+1=24;

2-способ: 40+X=2*X;

$$40 - 32 = 2X - X;$$

$$X = 8;$$

Ответ: через 8 лет возраст отца будет в два раза больше, чем возраст сына.

2. Арбузы ставятся на весы как в рисунке: делим их по три, еще по три и два арбуза. По обе стороны весов ставятся по три арбуза, убирается один из трёх арбузов, который весил легче чем другие, оставшиеся два арбуза вновь ставятся на весы. Если они весят поровну, то тогда остальные два арбуза ставятся на весы, таким образом определяется пустой арбуз.

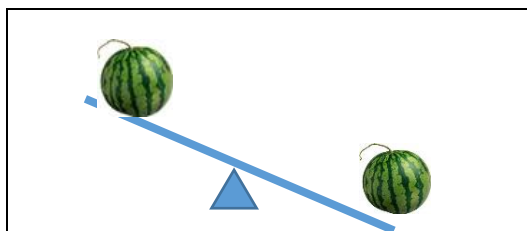


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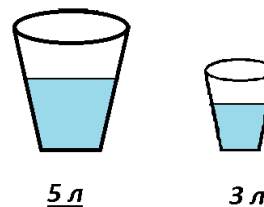
3.

$$\begin{cases} 2X = Y \\ X + 1 = Y - 1 \end{cases}; \quad \begin{cases} 2X = Y \\ X + 1 = 2x - 1 \end{cases};$$
$$\begin{cases} 2X = Y \\ 2 = X \end{cases}; \quad \begin{cases} Y = 4 \\ X = 2 \end{cases}$$

Ответ: У первого мальчика есть четыре яблока, а у второго два яблока.

3. Воду пятилитровой посуды наливаем в трёхлитровую посуду, в результате в пятилитровой посуде остаётся два литра воды.

Освободив трёхлитровую посуду от имеющейся воды, туда наливаем два литра воды с первой посуды. Наполняем водой пятилитровую посуду, оттуда один литр воды наливаем в трёхлитровую посуду. В пятилитровой посуде остаётся четыре литра воды.



Выводы. Подобные загадки-задачи можно привести множество. Принимая во внимание, подобные специфические свойства детских игр народ смог добиться обучения своих детей мастерствам игры, обогащению эстетического вкуса и жизненных ценностей. Игры имеют важное значение со своими специфическими особенностями в воспитании детей.

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PEDAGOGICAL EDUCATION CLUSTER: CONTENT AND FORM

Abstract: The globalization process that is taking place all over the world requires the clustering of education as well as other areas. Globalization has led to a sharp increase in competition in the education services market. In this competitive environment, the cluster is a means of counteracting the power of globalization. The integration of education, science and industry around a common goal increases their potential. The pedagogical education cluster provides this cooperation. The article is based on the scientific view that the provision of competitiveness of subjects in the market of educational services by means of a cluster. The concept of the pedagogical education cluster is described and its needs, mechanisms, principles and directions of implementation are identified. The authors have extensively commented on the goals, objectives, principles and directions of the pedagogical education cluster. The organizational, practical significance and theoretical basis of the implementation of the pedagogical education cluster are described. The authors have sought to base their views on the opinions of Western scholars. Scientific researches of Western scientists on the educational cluster have been analyzed. There are scientific conclusions concerning social, economic, legal, marketing and pedagogical implications of clustering education.

Key words: globalization process, pedagogical education cluster, mimetic method, cluster strategies, goals, objectives, principles and directions of pedagogical education cluster.

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Introduction

At the present stage of civilization, the complex development of society and the emergence of its negative consequences, along with the positive aspects of development, present new challenges to

mankind. It is now impossible to find any region or state fully protected from interaction. The deeper understanding of the phenomenon and its peculiarities are important issues in order to minimize the negative impact and increase the positive impact of the

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currently intensifying globalization process on the world. An in-depth study of the nature and notion of globalization enables us to adapt to it, to change the direction we need, and to use its power 'against itself'. It is obvious that scientific development of mechanisms and mechanisms of positive and creative use of globalization process is one of the actual problems of today. One of the means of using the 'against itself' of the power of globalization is the cluster model. Clusters in the manufacturing sectors of the economy have penetrated Western education for more than a decade. Educational clusters are not analogues of production clusters, but have many similarities. There are some scientific studies on clusters in Kazakhstan in Central Asia. In other countries, however, neither research nor practical work has been done. Chirchik State Pedagogical Institute is creating scientific-theoretical basis for clustering of pedagogical education for a year.

METHODOLOGY OF RESEARCH

In the present study, the method of analysis and synthesis of scientific clusters of pedagogical education, a comprehensive approach to the introduction of innovations in the field of pedagogy, and a comparative analysis method for studying clusters abroad were used.

LITERATURE REVIEW

M. Porter's cluster theory has entered to many spheres, as well as, education during the last decade. It is worth noting the contribution of Russian scientists in this research. Notions, branches of usage and characteristics of education cluster were investigated in their research works.

Studying and analysing researches concerning cluster approach to education gives a chance to gather several viewpoints in it. Thus, cluster approach is:

- Being a separate sphere (education, economics etc.), a mechanism for strengthening organizational forms of sectoral integration that are interested in achieving competitive efficiency [1, pp. 24-25];
- A structure, as an optional component, consisting of several equal parts and keeping its complete functional ability to work [2, p. 253];
- A set of interconnected business entities that are integrated into the structure of an organization based on modernity and regular approach [3, pp. 298-301];
- Combining the needs of production and training programs [4, pp. 7-13];
- A tool for forming support of innovation in the education-science-production system [5, 73-76];
- An innovatively effective way to establish forming human resources potential for the organization's future economy [6, pp. 1-7];
- Reorganizing the education system on the basis of successive principle according to the results of integration of different educational institutions

(kindergarten – school – college – university) [7, pp. 210-212].

The following researches were carried out by Russian scientists to study theoretical bases of formation and development of educational clusters: cluster approach to vocational education (B. Pugacheva, A.V. Leontiev), theory of activity and pedagogical design (V.V. Davydov, V.P. Bepalko, G.I. Ibragimov, B.T. Lednev, M.I. Makhmutov, A.A. Slastenin), The concept of continuous education (B.S. Gershunsky, G.V. Mukhametzyanova, A.M. Novikov), social education in vocational schools research on the problems of partnership and management (P.F. Anisimov, G.V. Mukhametzyanova, G.I. Ibragimov, E.A. Korchagin, V.P. Panasyuk, A.S. Subetto) [9, pp. 75-76].

Seven key cluster strategies are outlined by the same researchers:

- Geographic strategy, types of clusters spreading from small local to global scale;
- A horizontal strategy, an extended form of a cluster consisting of multiple clusters;
- Vertical strategy, uniting one which means uniting several clusters of subjects at the same level;
- Lateral strategy, clusters uniting subjects in different structures which can provide economies of scale, and lead to new combinations;
- Technological strategy, clusters that are visible in a set of structures using the same technology;
- Focused strategy, clusters located around one center;
- The quality strategy, the form of the cluster, which is the focus of how organizations implement cooperation [9, pp. 75-76].

In our view, it is desirable to classify the above cluster strategies mentioned by Russian researchers as cluster forms, because they have a clear view of the form and types of the cluster, rather than its priorities (strategies).

Effective development of the educational cluster is also directly dependent on the following conditions and factors:

- Availability of technologic and scientific infrastructure (D.A. Yalov);
- Mental readiness of the participants to cooperate (D.A. Yalov, V.P. Tretyak);
- Existing of a strong regional strategy focused on cluster development;
- The ability to successfully apply management techniques of a project;
- High information technology that facilitates the exchange of information between cluster entities [8].

Therefore, it is necessary to successful implement scientific and practical activities related to clustering of pedagogical education, to adapt existing technological and scientific infrastructure to achieve efficiency in them, to achieve full understanding of this innovative process through the implementation of propaganda activities in the subjects, to create

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opportunity to realize that cooperation brings many benefits, to develop well-thought-out cluster development strategies, ways and means of successful project management, and to enable rapid exchange of information between the participants. This is an extensive organizational process that requires time and well-targeted activity. However, the content of these organizational processes is not inseparable from our activities. Indeed, according to notes of the Russian scientists involved in the clustering of pedagogical education such as N.N. Davydova, B.M. Igoshev, A.A. Simonova, S.L. Fomenko the real effects of the cluster development will be apparent in 5-7 years [8].

RESULTS AND DISCUSSION

A. Description and Details of Pedagogical Education Cluster

Based on the cluster concepts in the scientific literature, the concept of a cluster of pedagogical education can be defined as follows: a pedagogical education cluster is a strengthening mechanism of an integration of equal entities, technologies and human resources in close contact with each other to meet the needs of a competitive pedagogue of certain geographical area.

The cluster of pedagogical education is a mimetic (a Greek word *mimiomai* which means imitation) method, which involves the creative implementation of a model that has led to economic development in the education system. The pedagogical education cluster forms the following innovation chain "education - science - educational tools - technology - management - business", and its scientific research is one of the most important tasks for today's pedagogy. It is becoming increasingly necessary to maintain the natural connection between the links that make up the educational complex, from the point of view of interest and efficiency, based on the socio-economic conditions and needs of a particular region.

The main product of the training complex is the competitive staff and educational services. The ultimate goal of the Education Cluster is to improve educational and scientific processes. This requires significant organizational and structural changes in the education system, along with considerable changes in management, structure and quality in the training system. At the same time, there is a need to search for new forms and methods at all stages of the work, to strengthen the relations between all types of education on the commonality of purpose and the ownership of interests, and to promote integration.

When appropriate educational approaches are established in the management structure of educational institutions, it will be possible to evaluate the current situation, to accurately predict outcomes, to take timely actions and to make adjustments to organizational management. The cluster of education

system provides the correct approach to address such issues. After all, the processes of cluster integration are considered to be the most powerful because they involve all the resources in the material, financial, technological, information, methodological and human resources. The cluster flexibly enables to create management system for their structures and to predict true development to ensure mutual trust [8]. Existing qualitative changes in the components of the education system, meaningful activities, general and special management functions, programs, technologies and methods, and the processes related to the development of the human resources of the participants enable the creation of a cluster environment.

The cluster model of pedagogical education develops in the general areas related to teaching, creating educational literature, improving the scientific potential of pedagogical staff, continuity of education and training. This shows the general methodological nature of the problem. At the same time, these general areas are privatized in such areas as management and organization of education, types and areas of education, continuity and integration, teaching methods and tools.

B. Aims and Objectives of Pedagogical Education Cluster

The main objectives of the Pedagogical Education Cluster are:

To ensure effective succession in the field of pedagogy and promoting the best students in the teaching profession;

To create an environment for future training of professionals based on innovative practices;

To reduce the period of acquiring professional skills for young professionals;

To create of a new generation of educational, educational and methodical, scientific literature, tools and didactic materials in pedagogical education;

To improve scientific, scientific and pedagogical potential of pedagogical education;

To accumulate and integrate intellectual resources around actual issues of pedagogical education development;

To find and apply different forms of education, science and pedagogical practice;

To improve mechanisms ensuring continuity of education and upbringing;

To provide the opportunity for quick contact with preschool, secondary education and higher education institutions and other applicants in the preparation of pedagogical staff;

To scientifically justify the need for association, interdependence and collaboration between the educational units.

To this end, the Innovation Cluster of Pedagogical Education has the following objectives:

Effective use of innovative pedagogical technologies to improve the quality of education;

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Consistent organization of scientific activity in the field of pedagogy;

Providing continuity of the content of the basic and auxiliary education tools at the stages of education;

Organization of training courses for teachers of educational institutions in the region to fill the gaps in their knowledge;

Organization of scientific-practical seminars with the aim of eliminating the problems related to teaching subjects in secondary schools;

Strengthening scientific cooperation with research institutes, research centers and higher education institutions in order to enhance the scientific potential of the institute;

Attracting teachers, who are able to do research, to investigative activities in secondary schools;

Internship in the leading foreign universities in order to obtain the best international practices in the field of pedagogy.

The cluster of pedagogical education provides an opportunity to identify problems in the system, which in turn can identify its strengths and weaknesses. It is important that information about the state of affairs in the cluster is very objective. With the help of a cluster, the government and education authorities will be able to effectively apply the experience and research results of the development of education in the cluster region. The cluster approach to education enables governments to provide specific tools for effective interaction within the system, to better understand problems, and to plan the scientific basis for development in the region.

All of above-mentioned statements conclude:

Firstly, they confirm the idea that the educational cluster is of great scientific and practical significance, which allows the system to achieve new synergistic quality through integration;

Secondly, they create the environment and conditions that make the system competitive;

Finally, they have political, economic and social significance.

The whole set of activities in this process is aimed at enhancing the competitiveness of education, which is the cornerstone of training scientific and professional personnel. However, it is important to remember that not all entities combined within a cluster can produce real results immediately.

The importance of the pedagogical education cluster can be categorized and be available as follows: in the economic field: in the formation of an effective market for educational services; in social sphere: employment of graduates of pedagogical educational institutions; in the field of marketing: promotion of innovative educational technologies, new opportunities in educational and upbringing affairs of educational institutions; in the legal field: Creation of the legal framework for cooperation within the cluster, as well as the transition to new forms of management

of educational institutions; in the field of pedagogy: co-design of teaching staff in the system of continuous education.

C. Principles of Pedagogical Education Cluster

It is necessary to clearly define the goals and objectives of the innovation cluster of pedagogical education and to determine what principles it should follow in order to foresee the horizons of its activities. These are:

► Natural relevance, cooperation between cluster subjects, naturalness of the issue relevance, i.e. territorial, sectoral or functional objectives of the issue of dependency. Researchers argue that clusters cannot be artificially formed. Consequently, the cluster is a product of natural relevance resulted from personal interest, and its primary purpose is to maintain competitiveness, quality and result. Clusters are the best and most effective ways to strengthen existing natural links, direct dispersal potential towards specific goals, create and strengthen the legal framework, and accelerate the exchange of information and innovation. As a condition for providing naturalness in relevance, the following can be considered:

- Geographical proximity;
- Dynamics of education quality (progress);
- Strengthening capacity of teachers;
- Rational use of scientific potential of universities and research institutions;
- Improving the quality of teaching tools;
- Common goal setting, etc.;

► Inseparability and continuity are creating a chain of interconnection by the cluster subjects, having specific function of each section that forms the chain, and not allowing to gaps in the continuity chain. It should be noted here that inseparability is a phenomenon of meaning, while continuity is that of form. That means providing the natural sequence of the content of education and considering the age and physiological features of the trainees supply inseparability. Inseparability can be observed both within a particular type of education and between different types of education. And continuity occurs when there are no gaps in the sequence (or in the explanation of a particular subject) of learning. Consequently, inseparability and continuity are interdependent, common, and at the same time separate processes that should be directly linked to the quality of education and between the types of education. The discussion of the pedagogical education cluster around this phenomenon justifies the importance of inseparability and continuity.

As a condition for providing inseparability and continuity, the following can be stated:

- Development of the curricula of the subjects based on the principle of interconnection;

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- Working on repeated syllabuses in all types of education based on the principle of top-down, with no gaps in it;

► Succession is the positioning of the cluster subjects in a vertical single line, followed by a gradual movement from bottom to top, from simple to complex. Succession is a phenomenon of both form and content, which means the distribution of form and content of education between types of education. This distribution should take into account the specifics and objectives of the types of education, state educational standards, and requirements for alumni. Succession is a key prerequisite for learning content. It can occur both within a particular type of education and between different types of education. This inter-disciplinary sequence is a phenomenon related to the pedagogical cluster, and the processes associated with its provision correspond to the problems that need to be addressed within the cluster. This theoretically justifies succession as an important principle of the pedagogical cluster.

As a prerequisite for providing succession, the following can be specified:

- Development of normative documents, tools, forms and technologies related to education and upbringing on the principle of bottom-up, from simple to complex;

- Development of normative documents, tools, forms and technologies related to education and upbringing, taking into account age and physiological features of pupils and students;

► Inheritance is achievement of systematic needs of qualified teachers as a result of cluster role in generational exchange, tutorship activity, clustering of pedagogical education. Inheritance is a process that is associated with the increasing prestige of the teaching profession in the community. One of the pedagogical education clusters' mission is to explore the issues of social protection of teachers, and to address issues related to teacher respect in the community.

As a prerequisite for inheritance it is possible to:

- Strengthen the outreach activities to improve the status and status of teaching profession in the society;

- Establish targeted training of gifted students for teaching and pedagogical profession;

- Rational selection;

► Modernization is the establishment of modern scientific achievements in the field, the use of the best international practices, and the rational use of information and communication technologies. The principle of modernity can be understood in two ways: first, modernization of production processes (problems related to education, science and establishment of modern science achievements in production), and secondly, whether the productions (graduates) stand for the modern requirements. It is well-known that it is impossible to produce

competitive, high-quality products without modernizing the production processes. This requires an innovative approach to the content of education, its processes and tools, technologies. The absence of a cluster without innovation is theoretically justified by promoting modernity as a cluster of pedagogical education.

As a condition of modernity it is possible to point out:

- Continuously updating of establishment of modern information and communication technologies in the process of pedagogical education;

- Creation of a functioning mechanism for integrating the modern scientific achievements into the educational process;

- Modernizing the content and form of education;

- Adjustment of state requirements for graduates with requirements for those of educational systems of developed countries.

► Routing is the targeting of each activity within the cluster, the ability to predict and evaluate the outcome. The pedagogical education cluster calls for project directions and the implementation of several well-targeted and scientifically-based projects in each area. It is desirable that all aspects of education, such as scientific research, information-analytical, scientific-methodological and experimental-innovative, should be taken as project areas, and that a specific project will contribute to quality and efficiency in a particular area. Working in this way further clarifies, simplifies and focuses on the concept of pedagogical education clusters and activities in this area. The orientation of these aspects indicates the validity of the scientific proposal as a separate principle of the pedagogical education cluster.

As a prerequisite for providing routing, the following may be indicated:

- Clear purpose;

- Targeting of each activity;

- Focusing on staff training as the main criterion;

- To approach the concept of competitiveness from a global perspective, not from a local or national perspective;

- Development of a methodology for predicting and evaluating the effectiveness of activities;

- Providing projects that are exactly directed and guaranteed.

► Generality of purpose is the unification of cluster subjects around a single global goal, in addition to their specific objectives. An important factor in the process is finding the overall purpose involved in the activities of all subjects in the cluster. The overall objective is linked to the strategy, which implies a far-reaching plan. This may not be directly relevant to the subject, but the success of the cluster provides an effective activity of the subject which is indirectly relevant at the same time. The interests of

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all subjects that make up the cluster in general should be reflected. Otherwise, the cluster cannot be fully carried out. This is a disruption in the cluster chain that causes the system to malfunction or not to work at all. In these aspects, the commonality of the purpose is justified by the idea that the proposed one of the cluster of pedagogical education is an important principle.

As a prerequisite for providing the principle of generality of purpose is the following:

- Understanding that private interest is directly linked to a general purpose;
- Ability to step out of their shell when defining strategic directions and plans;
- Long-term vision (existence of long-term plans);
- The "voice" of each subject constituting a cluster is taken into account when setting a common goal

► The privatization of interests is the legal, social and economic interest of each subject in the cluster model of pedagogical education. The private interests of their subjects ultimately serve the common interest. Without the benefits, there will not be cluster of pedagogical education. Economic clusters were also created to increase profits and increase competitiveness. If they see benefit as material thing, the cluster of pedagogical education focuses on the social, i.e., increasing capacity of the staff and quality of education. Social interest also ultimately contributes to the material interest of the industry. In general, issues related to increasing capacity of the staff and material incentives are interrelated concepts and are considered as parallel processes within each cluster. The principle of natural interconnection occurs only when the most rational private interest is provided. Consequently, private interests provide a natural connection, and these two principles are inextricably linked. The escalation of either of these two principles will in itself increase (or vice versa) the other.

As a prerequisite for supplying the principle of privatization of interests, it can be pointed out:

- To have an interest in integration;
- Private interest should not cause withdrawal from the common interest;
- Equality between human resource development and material incentives;
- Equality of interests of subjects within the cluster.

► Mutual control is the creation of a unified system of educational subjects integrated within the cluster model, and the interest of each subject in the functioning of the system in a flawless manner, knowing the failure or omission of a particular subject affects the performance of other entities, and the establishment of a system for evaluating subjects. It is clear that the pedagogical education cluster is a phenomenon of a particular system, which demands

the principle of mutual control. The more the system is perfect, the stronger mutual control can be reached. In this regard, it is important to develop objective criteria for assessing the activity of subjects, which are based on the common purpose and the private interest.

As a prerequisite for the principle of mutual control, the following can be stated:

- Integration as a single system;
- Systematically working;
- Understanding that private interest also depends on the quality of activities of other subjects;
- Development of mechanisms of interaction;

Based on the above-mentioned principles, it will be possible to identify several key areas in the creation of a pedagogical education cluster. These are:

First, having the common purpose among the cluster subjects;

Second, the legal basis for the joint activities of the subjects;

Third, a system of mutually beneficial relationships between subjects that are united within a cluster;

Fourth, the coordination of the management mechanism;

Fifth, the activities of the subjects do not deviate from the general purpose;

Sixth, adhering to the principle of mutual control between subjects.

D. The Directions of Pedagogical Education Cluster

The cluster of pedagogical education should be organized in the following areas: 1) the direction of education; 2) the direction of educational tools; 3) the direction of education and science; 4) the direction of education and production; 5) direction of education management.

The above-given classification covers all areas of pedagogical education, with each sector being integrated. The content of these areas and networks encompasses all forms, methods and technologies of cooperation between educational, scientific, methodological, educational tools and management.

The content of the pedagogical education cluster includes:

1. The direction of education:
 - Development of mechanisms to identify, classify and eliminate existing problems;
 - Development of the mechanism of vertical and horizontal movement of educational and methodological potential;
 - Control and management of quality of lessons;
 - Development and implementation of the simplest and most appropriate mechanisms for determining educational and methodical effectiveness;
 - Establishment of inter-directions tutoring activities in educational and methodical areas.
2. The direction of educational tools:
 - Improvement of curricula and syllabuses;

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Enrichment and enhance the content of textbooks, manuals;

Improvement of auxiliary literature and didactic provision of lessons;

Achieving effective use of information technologies and pedagogical technologies.

3. The direction of education and science:

Strengthening integration between science and education;

Establishment of inter-directions tutoring activities in the field of science.

Increasing binary research in collaboration with teachers from universities and secondary schools (pre-school institutions) (scientific developments are implemented by professors of higher education and applying them into practice is done by teachers of secondary schools);

Development of a mechanism to provide the demand for scientific and pedagogical potential;

4. The direction of education and production:

Strengthening integration between education and production;

Increase binary research in collaboration with higher education teachers and production staff (scientific developments are implemented by faculty members of universities; their implementation is done by production staff);

Having the combination of theory and practice;

Improving the mechanisms for the rapid implementation of scientific achievements, taking into account the intensity of development;

5. The direction of Education Management:

Carrying out research on innovative management of education;

Creation of a system of territorial administration that would harmonize the interests of all types of education;

Implementation of innovative methods and tools for management, information and communication technologies.

The effectiveness of the cluster serves for the interaction and openness that provides mutual support and control to all participants. Proximity, internal relationships, constant personal contacts and shared openness facilitate communication and information sharing. Clustering issues require news in the field of education, availability of new components and manuals, testing of the educational process, and new trends in the development of the education system.

Implementation of the educational cluster requires the establishment of pedagogical conditions and experimental verification of the effectiveness of the formation of qualified specialists. The role of higher education in the cluster is evident in the creation of innovative products. The clusters, research institutes and production facilities will become the base of practice and will have the opportunity to participate in the formation of specialists in their

research and educational activities in accordance with their needs and prospects of development.

All subjects of the cluster form and organize a multilevel system of training of qualified specialists. Both the employer and the secondary schools, secondary special and vocational education institutions and higher education are all part of the process.

The process of continuous education is a multi-level system, with changes at the social level and professional development of the subjects creating favorable conditions for its development. Therefore, the main idea of continuing education is to adapt the status, desires, and abilities of a person to the world of work and social relations in a rapidly changing world.

CONCLUSION

In conclusion, all work done should be directly related to the level of primary, professional, high professional and vocational training of the cluster participants and should be aimed at the implementation of the scientific and educational cluster. At the same time, educational institutions within the cluster and other organizations that are part of the cluster must work together for a common purpose. Training should also include additional and distance learning. It is also important to create the necessary conditions for the active involvement of a number of research institutions, industrial enterprises and other institutions of the republic in the cluster.

As a result of this:

› Firstly, the need for qualified pedagogical staff is met with good quality (social consequence);

› Secondly, an effective market for educational services will be formed (economic consequence);

› Thirdly, there will be opportunities for rapid promotion of innovative educational technologies, new opportunities in educational work of educational institutions (the consequence of marketing);

› Fourthly, the legal and regulatory framework (legal consequence) will be established for the interaction of educational institutions, as well as the transition to a new organizational form of management of the education system;

› Fifth, the design of the pedagogical staff training system in conjunction with the cluster entities (pedagogical consequence) will be implemented.

Thus, the implementation of a cluster approach to education strengthens continuity and communication in the education system, the integration processes between the types of education. One of the major challenges facing the scientific community is to view this as an innovation in education and to develop mechanisms to measure its effectiveness and development of ways of implementation. The cluster approach will radically change the content of public education policies and provides an opportunity to look at the relationships of subjects with the criteria of development and

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effectiveness. As a result, the cluster creates a powerful mechanism for the integration of human

resources, organizations and technologies in the region as an innovative approach to education.

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THE PLACE AND SIGNIFICANCE OF ACQUAINTANCE ACTIVITY IN THE UPBRINGING OF INTELLECTUAL ABILITY YOUTH

Abstract: The article highlights essence of the upbringing process to enhance the intellectual creative potential reflects the inner connections and relationships that are characteristic of the process and manifest in certain laws by the helping scientific literatures. Therefore, the process of developing the intellectual and creative potential of young people, children acquire the skills and attitudes that will benefit society and meet their own ethical requirements.

Key words: upbringing, youth, intellectual, ability, potential, connection, process, children.

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Introduction

The role of education plays an important role in the development of intellectual and creative potential of young people. The essence of the upbringing process to enhance the intellectual creative potential reflects the inner connections and relationships that are characteristic of the process and manifest in certain laws. In the process of developing the intellectual and creative potential of young people, children acquire the skills and attitudes that will benefit society and meet their own ethical requirements.

“We will continue our youthful state policy, with no hesitation. Not only will we continue, but we will continue to elevate this policy to the highest level that we need today. We mobilize all the strengths and capabilities of our state and society to make our young people think freely, with high intellectual and spiritual potential, to grow up and be happy in their own world around their peers” [1, p.16].

To achieve this, a systematic, systematic impact on the child's mind, worldview and will. When any of these is ignored in the course of your creative potential, it becomes more difficult to achieve your intended purpose. Only taking into account these psychological aspects will allow young people to develop and develop their intellectual creative

abilities. Today, the process of training is not limited to acquiring knowledge, skills and skills in certain subjects. In this context, it is necessary to radically restructure the learning process. In this regard, the problem of enhancing the cognitive activity of students in educational institutions is of particular importance.

The issues of cognitive activity are detailed in the work of the renowned psychologist and educator P.P. Blonsky. P.P. Blonsky first analyzed the thinking of the learner in the formation of logical judgments (problematic, foresight) in the pedagogical-psychology and the conclusion of the conclusion. He considers cognitive activity as a dialectical connection with psychological phenomena - memory, will, perception, and reveals the inner connection of memory with thinking and speech as shaping memory theory. P. Blonsky's ideas for motivation and independence for learning, independent work, and the organization of students' cognitive abilities are effective.

Research methods.

Cognitive processes are those mental processes that allow a person to understand, understand, and understand the specific and important features of the environment in which he or she is involved, and to

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make the necessary conclusions and plan their behavior.

Cognitive processes primarily involve cognitive events: intuition, cognition, memory, thinking, speech, imagination.

Sensation is a simple, elementary form of psyche that consists of reflecting some of the features and events (color, temperature, odor, etc.) that affect the senses at the same time.

Perception is a reflection of a whole, whole thing and events and their parts. Perception is always based on a set of senses.

Memory is a reflection of past experiences, in other words, to recall, remember, and recall. This is the result of the formation of nerve connections in the brain, the ability to retain them, and the ability to regenerate any of the nerve processes and states that have ever occurred in the brain [2, p.40].

Thinking can be based solely on senses, perceptions, memories, that is, knowledge that is accumulated by emotional experience. Thinking is the process of processing knowledge in humans through language. Thus, speech is not only a basic and important means of communication between people, but also a form of thought. Active processing of knowledge is also carried out in the imaginary process. Fantasy refers to the emergence of new ideas and images that we do not perceive directly. These ideas are based on our past experiences, by combining our cognitive processes in a new order, or by combining elements of memory images and self-concept. Any cognitive process is an active process. The focus is on keeping our mind focused on something at the same time without distracting it. In most cases, attention is also considered to be a process of cognition.

The complexity of cognitive processes is that we can directly perceive the essence of things and events around us, but we are indirectly aware of the processes involved in psychic life, the essence of what is going on in our mind, brain, and mind. For example, one of our friends likes it and always has a good, positive impression on us, but when we see, evaluate and analyze his or her actions directly, we love him. we do not have the ability to directly perceive and perceive our sense of belonging. Exactly this is different from the phenomenon in psychology. After all, one of the most important tasks facing the modern cadre is a talented professional in all aspects of rational organization of social work and social work, knowing their identity, their abilities, individuality, personal qualities and qualities as future professionals is to operate.

Results and discussions.

To have a deeper understanding of the processes of cognition, to provide optimal stages of life and optimal functioning at any age, to be psychologically prepared for various changes, to form new thinking

and scientific outlook, to objectively and fully understand the processes taking place cerebral palsy.

Each person is distinguished only by his or her individual cognitive process, emotional state, will, character, and behavior. When a person is well versed in the psychological laws and mechanisms inherent in the formation of his personality, he or she will not be stuck in life. Every prospective expert needs to have a thorough knowledge of each subject's matter techniques, but also cognitive processes at the present time when it comes to the education of a perfect person and a perfect person [3, p.23].

Seventy questions - the answers of seventy questions - thinkers and thinkers whose lives and creations help students to work on themselves, give them a deeper understanding of the subject of psychology, although their cognitive processes provide knowledge about the meaning of the scientific worldview. The introduction of key words and phrases, the independent study of other issues and the analysis of mental phenomena help students to gain modern pedagogical and psychological knowledge and to use these processes in everyday life, effectively contributing to the formation of the scientific worldview of the individual. ensures the acquisition of pedagogical and psychological concepts, basic knowledge in Andy's activities, knowledge of the psychology of the person, his / her activities, communication.

There is no personal issue in the educational process, and some of the individual psychic processes are manifested, formed and developed in the human psyche, in the course of its practical activities. Today, the study and management of the psychology of the entire generation is the main task of learning and managing its psychology, and it provides a solid foundation for enriching the intellectual and scientific worldview.

Therefore, an understanding of the cognitive processes provides an opportunity to manage the education system. In order to manage the educational process on a scientific basis, the educator needs to have a system of views on nature and society. Therefore, it is reasonable to dwell on the notion of worldview and its essence in order to conclude that the cognitive processes underlie cognitive processes [4, p.45].

An analysis of the literature on didactics and psychology reveals that there is a need to differentiate between "know" and "teaching".

The concept of "cognitive activity" is much broader than the concept of "learning activities". The cognitive aspect of the cognitive activity is beyond the formal curriculum based on the curriculum. The cognitive activity is not only the knowledge, skills, and skills required for a person's weapons, but also the ability to choose and organize it and his or her life, based on the needs for improvement and improvement.

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Pedagogy theory addresses the issue of activation of cognitive activity in terms of a set of factors: social factors (both objective and subjective) and the presence of a particular spiritual need in the subject [5].

To enhance the cognitive functioning of learners, it is necessary to form the following:

- readiness to learn;
- Skills in cognitive activity;
- Need for cognitive activity.

The process of forming students' need for cognitive activity is based on the psychological evidence of the activity. Revitalization of cognitive activity should be focused not only on improving the learning process, but also on the formation of activity and independence, which is the most important quality of personality.

Interest in revitalizing cognitive activity is of particular importance. Scientists regard the interest in learning as a special attitude to the positive, emotional, knowledge, skills and abilities.

Interest in learning is a particular type of interest in teaching. Interest in knowledge is seen as a comprehensive, in-depth study and knowledge of a person's complex relationship to subject and environmental events and their important features. The interest in learning is focused on selection, and it depends on the individual's needs [6].

Interest in the knowledge, the nature of the cognitive activity, is related to the close proximity of ideas to the object.

Signs of interest to know are:

- have an intellectual character;
- Be creative.
- Stages of development of interest in knowledge:

• interest - elemental level of target – “intended interest”;

• curiosity - passion for knowing, joy, penetrating the boundaries of the object;

• curiosity - search for the truth, seeking to penetrate into the nature of events.

• theoretical interest - the desire to know the theoretical foundations, regularities by actively influencing reality.

The emergence and development of interest can be conditionally classified into the following levels:

• a direct interest in new facts, the lessons learned in the information obtained from the lessons, and the knowledge of the essential features of events and events under different conditions;

• Stable interest in learning. It is important in teaching students, and their interest in learning needs external factors and depends on the conditions and methods of the actual learning process.

Sustainable curiosity includes:

• intellectual activity (indicators - questions and answers independence, aspiration to initiate live activity);

• active use of skills and abilities, their active counteraction (knowledge becomes a technique of acquiring new knowledge, on the contrary, interest in knowledge increases to the highest level of development);

• Demonstration of emotion (hatred, joy, anxiety, feeling in an intellectual state);

• Demonstration of the will - serious attention, weak distraction, striving to complete the study;

• free choice of own actions - freedom to choose any course except during training.

One of the important conditions for the formation of students' interest in knowledge may be the development of emotional state, the need for knowledge and the development of conscious thinking [7].

Cognitive activity is individual, not formed by the individual's innate ability, but formed by his or her behavior. For live cognitive activity of students are:

• deep, comprehensive interest in knowledge and learning objectives;

• active manifestation of mental, physical and intellectual forces;

• concentration of attention, memory, will, and other mental qualities.

In the process of cognitive activity there are 4 levels:

• reproductive activity. This includes readiness to integrate “ready-made knowledge”, as well as intensive processing activities;

• Applied activity - it is characterized by a willingness to engage in intense competition;

• Activity in Interpretation - Ready for Interpretation, Explanation and Revealing of Meaning;

• productive activity - it is characterized by a willingness to create something new.

The development of cognitive activity involves several steps:

• active participation in practical activities, manifested in the pursuit of independent actions;

• striving to incorporate the essence and principles of the events under investigation;

• creative activity is the highest stage, consisting of the causal linkage, the reliability of creative ideas, its vitality and value.

Cognitive independence has the following signs:

• be able to think independently and strive for it;

• Ability to be a target in new situations or to find a way to solve new tasks;

• Not only want to understand the acquired knowledge, but also to find ways to apply it;

• Critical approach to evaluating other cases;

• Freedom of their judgments.

The psychology and pedagogy literature distinguishes the following types of cognitive activity:

• Perspective;

• Reproductive;

• Productive.

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Perspective cognitive activity is a pattern of activity in which the signs and content of a subject, event, event and some information about them are reflected in oral and written means. Perspective activity begins with the intuition and ends with the expression of imagination,

Reproductive cognitive activities are activities that ultimately involve the processing of knowledge in practical and creative activities. This type of cognitive activity involves the acquisition of knowledge, the use of creative work, and the acquisition of different modes of learning [8].

Productive cognitive activity is a type of activity in which a variety of creative tasks are addressed. One of the types of productive cognitive activity is heuristic activity. Heuristic activities are performed in conjunction with students' independent work [9].

Formation and content of each type of activity, their interconnectedness, their alternation, formation and development of students' perspectives, reproductive and productive skills, skills and abilities and should be used in integrity.

Cognitive activity, both the purpose of the activity and the means to achieve it, is seen as the result of it. The concept of "cognitive activity" differs from motivation, intellectual and emotional components [10, p.65].

Based on the foregoing, there are many opportunities to support talented, talented young people in the Republic, to create conditions for the

development of unique abilities and stimulate their aspirations to study. Creating. Highly qualified specialists and self-employed professionals are involved in this work.

Conclusion.

The most effective way to develop young people's thinking is to organize the process of formation of children's knowledge, skills and abilities together with their upbringing. This requires the use of new technologies, training activities and contests to increase the effectiveness of training.

Nowadays, the following are important issues of upbringing harmoniously developed young people:

- Comprehensive study of the problems of nurturing gifted and initiative youth;
- Continuous improvement of educational and training efficiency in the country and achievement of world standards;
- Creation of educational content and national ideology with the aim of creating favourable conditions for young people, taking into account the bases of universal values and national culture;
- To enrich the basics of science based on best practices and conduct research on the introduction of new forms;
- equip prospective educators and educators with the knowledge and skills needed to build a fully developed personality.

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THE NEED TO HARMONIZE SOCIAL AND POLITICAL METHODS AND MEANS IN THE FORMATION OF ECOLOGICAL JUSTICE

Abstract: One of the most important and priority directions for solving global ecological problems and achieving stability in the nature-society-man system today is the formation of ecological awareness among young people. This article explores the methods and means of transforming ecological legal knowledge while increasing ecological legal literacy among modern citizens, especially young people, and at the same time develops suggestions and recommendations for solution some of the problematic problems in the field of ecology.

Key words: ecological awareness, ecological legal awareness, ecological advocacy, education and upbringing.
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НЕОБХОДИМОСТЬ СОГЛАСОВАНИЯ СОЦИАЛЬНЫХ И ПОЛИТИЧЕСКИХ МЕТОДОВ И СРЕДСТВ В ФОРМИРОВАНИИ ЭКОЛОГИЧЕСКОГО ПРАВОСОЗНАНИЯ

Аннотация: Одним из наиболее важных и приоритетных направлений решения глобальных экологических проблем и достижения стабильности в системе «природа-общество-человек» сегодня является формированием экологической осведомленности молодежи. В настоящей статье исследованы методы и средства трансформации экологических правовых знаний при увеличении экологической правовой грамотности у современных граждан, вместе с тем разработаны предложения и рекомендации по решению некоторых проблемных задач в сфере экологии.

Ключевые слова: Экологическое сознание, экологическое правовое сознания, экологическое правовое пропаганда, образование и воспитание.

Введение

В современный период глобализации для обеспечения экологического равновесия, одной из актуальных задач стоящих перед государствами мира является улучшение состояния дел в экологической сфере, сохранение в чистоте природную окружающую среду. В том числе, это такие проблемы как: загрязнение окружающей среды, уменьшение озонового слоя, фотохимический смог, кислотный дождь, деградация почвы, вырубка лесов, опустынивание и проблема мусора [1]. Также с целью

удовлетворения потребностей общества в природных ресурсах, расширения объема потребления, а также нигилистическое отношение некоторых граждан к природе [2, 348-с.] требует оптимизации на постоянной основе, деятельность направленную развитие общества, в частности развитие экологического правового сознания у молодежи.

Необходимо отметить, что «основной обязанностью правового государства на современном этапе развития видится формирование экологического правосознания на

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самом высшем уровне, поскольку его закрепление путем внедрения экологических технологий, экологизации экономики и законодательства позволит развиваться экологическому правосознанию на бытовом уровне, т.е. у каждого конкретного индивида» [3, 138-с.]. С этой точки зрения развитие у граждан, особенно у молодежи экологического правового сознания, внедрение в их сознание экологических правовых знаний, правильно донести до них эти знания является важной задачей на современном этапе.

Как утверждает известный ученый психолог Дейл Карнеги, есть только единственный способ заставить и заинтересовать человека на какое-либо дело. Это зарождение в душе человека настоящего желания к выполнению этого дела. Обязанности и пытки не дадут результатов... [4, 28-с.]. Таким образом можно сделать вывод, что нужно будет в каждом человеке пробудить желание к охране окружающей среды и бережному отношению к матери-природе. С этой точки зрения очень важными являются разработка и осуществление методов и средств пробуждения настоящего желания у народа, особенно у молодежи. Так как, как подчеркивал известный ученый П.Л.Капица “Это фундаментальная задача, от решения которой может зависеть будущее нашей цивилизации не только в одной стране, но в глобальном масштабе, задача не менее важная, чем проблема мира и предотвращения атомной войны” [5, 251-с.].

На сегодняшний день нам необходимо отметить три способа трансформации экологических правовых знаний населению, особенно молодежи, это такие способы как экологическая правовая пропаганда, помощь воспитания и образования. Потому что совместное использование этих способов создает условия для формирования и развития экологических правовых знаний у граждан. Конечно, содержание и смысл, порядок и механизм использования вышеупомянутых способов зависит от определенного государства и его особенностей.

По нашему мнению, при распространении и усвоении экологических идей, учений и правовых знаний в сознание людей необходимо принять во внимание актуальность и особое значение экологической правовой пропаганды при его самостоятельной роли в качестве способа формирования у граждан экологического правового сознания.

Известно, что экологическое правовое сознание членов общества отображает отношение к существующей экологической реальности. Необходимо отметить, что “знание последствий воздействия на окружающую среду представляет собой важнейший элемент человеческой культуры. Настоящее и будущее природы в

большей степени определяется человеком. В свою очередь, действия, которые предпринимает человек, определяются его образованием” [6, 32-с.]. Для того, чтобы в этой сфере, граждане с уважением относились к экологическому законодательству, соблюдали эти законы, непримиримо относились ко всем видам экологических правонарушений, они должны владеть соответствующей информацией. В этой сфере основную роль играет экологическое правовое воспитание. Основной целью экологического правового воспитания является развитие экологического правового воспитания и рост экологической правовой культуры.

В свою очередь экологическое правовое воспитание перед собой ставит ряд целей, таких как:

- обеспечение граждан достаточными и глубокими знаниями и сведениями о действующем экологическом законодательстве, экологических прав и свобод и обязанностей;
- формирование у людей чувства уважения к экологическому законодательству, повышение его авторитета, непримиримо бороться с проявлениями экологического правового нигилизма;
- воспитание у людей чувства подчинения к праву, прививание в сознание населения достоинств правового поведения, усиление отрицательного отношения к экологическим правонарушениям, формирование руководств и путей участия в юридической деятельности;
- формирование у граждан чувства уверенности о неотвратимости наказания за экологическое правонарушение и другое.

В повышение уровня экологической правовой грамотности у граждан, в частности у молодежи, важным способом считается экологическое правовое обучение. Поэтому, в системе экологического правового воспитания экологическое образование занимает основное место. Эти два правовых события, объект влияния можно отличить по их направлению. Экологическое правовое воспитание влияет в основном на чувственно-волевое сознание, систему ценностей и мировоззрение человека, экологическое правовое образование влияет на рациональную сферу информационно-ознакомительного содержания сознания человека.

Следствием экологического образования является формирование у индивидов профессиональных навыков восприятия, отражения и выражения экологических знаний, оценок, регулятивных возможностей природоресурсных и природоохранных норм, эффективности их применения, реализации прав и обязанностей субъектов природоресурсной и природоохранной деятельности, в оптимизации

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юридически значимых явлений и процессов, эколого-правовых принципов, норм, актов и т.д. Указывая на специфические признаки эколого-правового образования, следует отметить, что ему присущи более четко очерченные элементы (субъект, объект и содержание), чем эколого-правовому просвещению или воспитанию. Таким образом, круг субъектов, осуществляющих образовательную деятельность, представляет собой школы, гимназии, лицеи, профтехучилища, техникумы, вузы, специальные курсы [7, 45-с.]. Объектом данного процесса является сознание лиц, получающих среднее, средне специальное, высшее образование, индивидов, получающих второе образование или проходящих курсы по переподготовке кадров и повышению квалификации, а также тех, кто получает образование для осуществления профессиональной преподавательской или природоохранной деятельности. Что касается содержания эколого-правового образования, то ему характерна стабильная обязательность и оценка знаний по балльной системе, средства значительно зависят от субъекта, объекта и целей.

На сегодняшний день для достижения стабильности в системе “природа-общество-человек” одним из самых важных направлений считается формирование экологического правового сознания. Действительно, «Современная молодёжь - по количеству является самым крупным поколением во всей истории человечества, так как их число составляет 2 миллиарда человек [8]». В этой связи, важным считается в регулярном порядке исследовать вопросы, связанные с данным направлением.

В то же время следует отметить, что на сегодняшний день обеспечение экологического права и свободы молодежи опирается на такие основные правила, как приоритетное значение государственной политики по формированию, а также повышению их экологического правосознания, верховенство конституции и законов, научность, последовательность и общность юридического образования и воспитания, открытость экологической правовой информации, соответствующее отношение к экологическому правовому воспитанию и грамотности.

В свою очередь, считаем целесообразным в учебных заведениях осуществлять следующие задачи по повышению инициативности молодежи в делах по охране природы и формированию активной жизненной позиции и посредством этого поднимать их экологическое правосознание:

Во-первых, во всех типах учебных заведений 5-10 минут начала каждого урока следует выделить непосредственно экологическому образованию. Так как, проблема экологии стоит на

втором месте среди глобальных проблем (на первом месте ядерная проблема).

Во-вторых, важное значение имеет при охране окружающей среды доставлять экологически правовую информацию для молодежи и через это повышать у них экологическое правосознание и культуру.

В-третьих, необходимо ещё более активизировать деятельность различных общественных организаций в осуществлении экологических мероприятий.

Вместе с этим считается целесообразным рассмотреть на основании следующих предложений и рекомендаций некоторые существующие проблемные вопросы и их решения по усовершенствованию организационно-технической, экономической и правовой основы процесса повышения экологического правосознания граждан, особенно молодежи, а также по применению в жизнь приоритетных направлений, изложенных в законодательных документах:

разработка нормативов ограничения, запрещения и наказания антиэкологических действий, а также стимулирования экологической деятельности;

гармонизация теоретические, практические и методологические аспекты в отношении унификации и интеграции учебно-образовательной системы;

эффективное использование в экологическом воспитании народных традиций, исторического наследия и религиозных экологических ценностей национальной педагогики;

проведение экологических игр, конкурсов, соревнований среди молодежи соответствующих их классу, возрасту и психологии (например, знаете ли вы экологию? - викторины и КВНы);

организация экологических экскурсий в природу и здесь улучшить экологические знания о природе;

организовать при школах (за счет грантов, спонсоров) мини экологические лаборатории (регулярные ежедневные наблюдения: исследования атмосферного воздуха, воды, почвы, растений) и (для анализа результатов) научно-исследовательские центры;

сбор и публикация народных сказок, легенд, статей и преданий о бережном отношении к природе, а также развитие работ по организации конкурсов и соревнований по чтению книг;

организация кружков по предмету экологии; широкое использование рекламы в экологическом воспитании;

объяснение молодежи экологические вопросы сохранения природных ландшафтов;

определение возможностей воздействия на окружающую среду территориальных промышленных предприятий;

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выдавать информацию об определении состава территориальных промышленных и бытовых отходов и технологиях их утилизации; дальнейшее расширение научно-методических и консультационных центров с целью разработки единственной концепции и стратегии в области экологического образования; развитие партнерских отношений между экологическими общественными организациями и мобильными сотовыми компаниями (в том числе, ежедневно отправлять на сотовые телефоны короткие, но действенные сообщения об охране окружающей среды) [9, 34-с.].

Таким образом, систематическое совершенствование вышеупомянутых методов трансформации экологических правовых знаний и решение вышеупомянутых задач в формировании экологического правосознания у молодежи будет служить не только для обеспечения сегодняшней социальной жизни, но и оставит в наследство благоприятную природную среду для будущего поколения. Так как, подчеркивал первый президент Узбекистана Ислам Каримов “Экология, борьба за чистоту окружающей среды – касается всех государств и народов земли...” [10, 109-с.].

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SPECIFICITY OF MODERN EDUCATION IN THE REPUBLIC OF UZBEKISTAN

Abstract: This article discusses the full compliance with the modern requirements of the National Program of the Republic of Uzbekistan on training personnel in the field of education in the following types: pre-school, general secondary, specialized secondary, vocational education, higher, postgraduate education, advanced training and retraining, extracurricular education.

Key words: Determination, education, higher education, specific tasks, system, professional skills.

Language: English

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Introduction

The education and training system that prevailed before independence was declared in Uzbekistan did not correspond to the democratic transformations that began to take place in the republic. Fundamental reforms were also caused by the crisis in the world education system.

Over the past decades, education reform has been carried out in many countries. These transformations vary in number and effect. The development of society makes new demands on the education system and makes us constantly look for

new opportunities for development. There are various types and systems of education in the world.

Many common problems reflect the general tendency for the development of the education system; help to better understand the specific tasks facing a particular national education system. An important, and perhaps a central place here, is the problem of the development of higher education as an important public school, an institution bearing both a research, educational and educational role.

The main feature of the program is the continuity of education. Everyone has the opportunity to acquire

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knowledge, professional skills and specialties throughout their lives. This program creates an effective mechanism of the educational system, in which the following are the main components: the formation of a freethinking person, his moral, spiritual

and physical development; respect for the individual, the disclosure of creativity and abilities; progressive training, obtaining professional skills and full self-realization of a person in life.

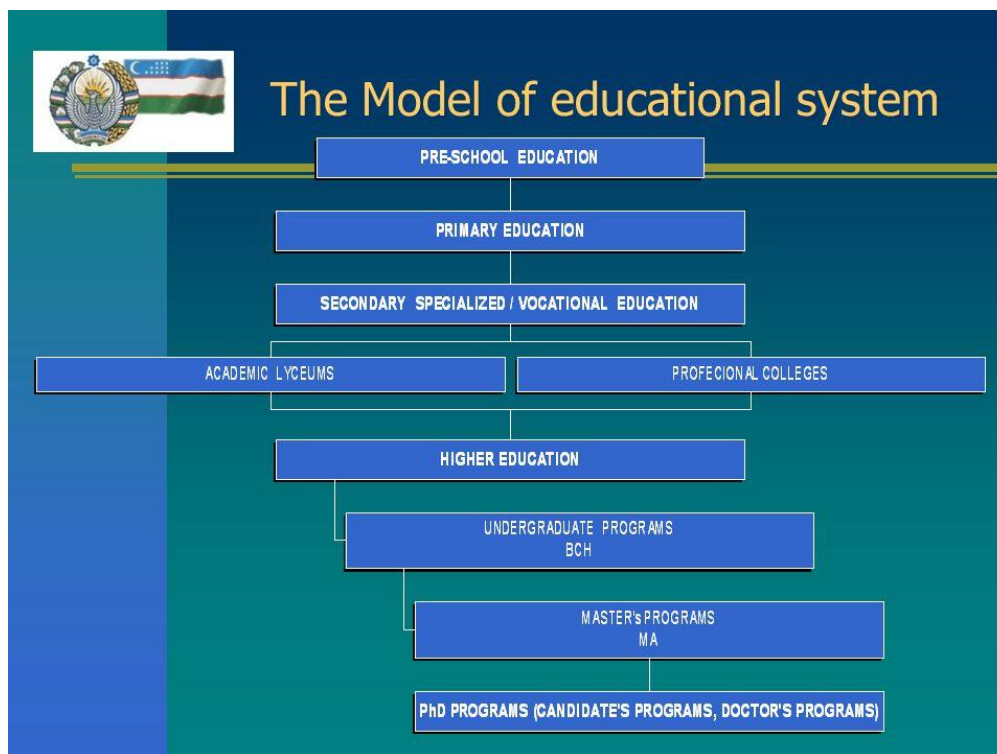


Fig.1. The model of educational system of the Republic of Uzbekistan

The education system of the Republic of Uzbekistan is unified and continuous and consists of:

- state and non-state educational institutions that implement educational programs in accordance with state educational standards;
- scientific and pedagogical institutions performing research work necessary to ensure the functioning and development of the education system;
- government bodies in the field of education, as well as enterprises, institutions and organizations subordinate to them.

Education in the Republic of Uzbekistan is implemented in the following types:

- preschool education;
- general secondary education;
- out-of-school education;
- secondary specialized, vocational education;
- higher education;
- postgraduate education;
- advanced training and retraining of personnel.

Preschool education. The purpose of preschool education is to ensure the development and upbringing of a healthy generation. It should reveal abilities in

every kid, arouse the desire to learn, so that the child is ready to learn new knowledge in school.

If earlier in Uzbekistan the same type of kindergartens functioned in which standard classes were conducted, today today, in the republic, several types of preschool institutions for children 2–7 years old work according to different educational programs:

Day nurseries, day nurseries, kindergartens, including home ones, which are a branch or a self-sufficient institution.

Kindergarten school. The institution serves as an elementary education.

Preschool organization. This is usually a narrow-type institution. In such institutions they study Russian, English or any other languages, engage in artistic and aesthetic education, sports and many other disciplines.

Kindergartens. This number includes institutions that work on a compensatory methodology. Its task is to provide qualified corrective assistance to pupils who have minor deviations in physical or psychological development in order to prepare children for school as much as possible.

Children's institutions, the task of which is to help restore weakened children who need supervision.

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In institutions of this type, conduct preventive, health and hygiene procedures.

Secondary education

Free school education in Uzbekistan is designed for children from 6 to 16 years old. It consists of two levels - primary (grades 1–4) and general secondary education (grades 1–9). Teaching in schools is conducted in the Uzbek language.

The task of the initial stage is to form the basis of knowledge that will be necessary in further studies.

Tasks of the next stage:

- Submission of a large amount of information.
- Development of independent thinking and organizational skills.
- Gaining practical experience for career guidance.

Accordingly, 9th grade graduates can continue their studies at lyceums and colleges, choosing the type and direction of the institution in which they can obtain the basics of knowledge for entering a university or work. To enter the university, you need to score the required number of points according to the test results. The right to education in universities is every citizen of the country. According to innovations in this area, Uzbekistan plans to introduce eleven-year education in secondary schools.

The education system of Uzbekistan provides for two levels of certification. Undergraduate education is a basic education that provides basic and fundamental skills in various fields with a minimum duration of 4 years. The end of the program for graduates is marked by the conclusion of the state commission on awarding the level of "bachelor" according to the profile of training with the issuance of a standard diploma.

The magistracy implements higher education with applied and thorough knowledge in the chosen specialty with a duration of study of at least 2 years. Access to such training is provided through a competition and only at the end of the undergraduate program. At the end of the magistracy, graduates receive a master's degree in a particular specialty with the issuance of a diploma of the prescribed form. Diplomas of both degrees enable their holders to engage in activities in the profession obtained in the course of training in their specialty or to continue their studies in other educational institutions.

Three types of higher education organizations are established in Uzbekistan, each of which acts as a legal entity:

- University - offers programs for higher education or postgraduate training in the widest range of knowledge, level and direction;
- Academy - is engaged in the implementation of pedagogical programs of higher and post-institute education in certain branches of knowledge, levels and direction;
- Institute - works in the field of the implementation of curricula of higher and

postgraduate training in certain areas and levels within the boundaries of a particular branch of knowledge.

Regarding the education system in the Republic of Uzbekistan, we note that a lot of efforts and resources are paid to higher professional education in the country. Today, training of highly qualified specialists with higher education is carried out by 64 universities of the republic (of which 32 are located in Tashkent), namely 24 universities and 40 institutes.

33 higher educational institutions of Uzbekistan work under the auspices of the Ministry of Higher and Secondary Special Education (MHSSE), and the rest are under the jurisdiction of branch ministries. To date, 22,228 teachers work in universities of the republic, about 50% of which have academic degrees and titles. Today, universities across the country are connected to the global Internet. A number of educational and methodological programs have been developed that study the trends of the world community and take into account the specifics of the market economy of Uzbekistan.

In Uzbekistan, in recent years, large-scale work has been carried out to modernize the system of higher and secondary specialized education, develop science, and introduce modern forms and technologies of education.

Based on the needs of the real sector of the economy and the social sphere, over the past period, new universities have been formed in the regions of the country, including branches of leading foreign higher educational institutions, modern educational levels have been introduced, and training has been launched in the relevant areas of undergraduate education and master's degrees.

Today, in the framework of the implementation of the Strategy of Action in five priority areas of the development of the Republic of Uzbekistan in 2017-2021, special attention is paid to expanding the coverage of young people with higher education, improving the quality of education, strengthening the material and technical base of higher education institutions. Expanding cooperation with foreign universities plays an important role in achieving the goals.

In Uzbekistan, branches of leading universities in the USA, Great Britain, Italy, South Korea, Russia, Singapore, and India carry out effective activities. Moreover, together with financial institutions and developed countries of the world, a number of projects in the field of higher education are being successfully implemented.

For the successful implementation of reforms in the sphere, in July of this year, the Decree of the President of the Republic of Uzbekistan "On measures to reform management in the field of higher and secondary special education" was adopted. The document pays special attention to the organization of the educational process in accordance with international practice of introducing new pedagogical

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technologies of education and teaching methods. Improving curricula and subject programs, updating the educational process with the introduction of modern forms of training and information and communication technologies, as well as optimizing the areas of education and specialties, taking into account the needs of the development of economic sectors, scientific and social spheres, and organization students practice on industrial and other enterprises.

According to the Ministry of Higher and Secondary Special Education, in preparation for the 2019-2020 academic year, in accordance with the "Classifier of Directions and Specialties of Higher Education", the department has developed, coordinated and implemented. The educational process of higher educational institutions with the involvement of industry specialists in the economy educational standards in four areas of education, 45 areas of undergraduate education and 52 qualification requirements and curricula for master's degrees.

In order to improve subject programs in the 2019-2020 academic year, it is planned to study in 3,830 educational areas of undergraduate studies and more than 1,910 subjects in master's programs.

In addition, it should be noted that in accordance with the decision of the Board of Trustees of the El-Yurt Umidi Foundation under the Cabinet of Ministers of Uzbekistan in May of this year, the scholars of this fund approved 517 candidates who successfully passed all stages of the competition.

The Cabinet of Ministers carries out general management of the education system. The Cabinet of Ministers also directly administers individual higher education institutions, including the Tashkent Islamic University, as well as branches of international well-known foreign universities (Moscow State University, Westminster University, etc.).

Conclusion

Consequently, competence of the Cabinet of Ministers of the Republic of Uzbekistan in the field of education includes:

- implementation of a unified state policy in the field of education;
- leadership of public education authorities;
- development and implementation of educational development programs;
- establishing the procedure for the creation, reorganization and liquidation of educational institutions;
- determination of the procedure for accreditation of educational institutions, certification of pedagogical and scientific personnel;
- issuance of permits for the right to engage in educational activities to educational institutions of other states on the territory of the Republic of Uzbekistan;
- determination of the procedure for recognition and establishment of equivalence of documents of foreign states on education in accordance with the law;
- approval of state educational standards;
- approval of documents on education of the state standard and the establishment of the procedure for their issuance;
- establishing the number of state guarantors and the procedure for admission to educational institutions;
- appointment of rectors of state higher educational institutions;
- establishing the procedure for transferring students from one accredited educational institution to another;
- other powers in accordance with the law.

In Uzbekistan, two line ministries - the Ministry of Public Education (INR) and the Ministry of Higher and Secondary Special Education (MHSSE), carry out the direct management of the activities of educational institutions.

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IMPORTANCE AND PROBLEMS OF TEMPORARY DEPOSITS IN COMMERCIAL BANKS (ON THE EXAMPLE OF COMMERCIAL BANKS IN THE USA AND UZBEKISTAN)

Abstract: The article discusses the economic and theoretical consequences of temporary deposits of commercial banks, using examples from commercial banks in the USA and Uzbekistan, focuses on the low share of deposits in bank resources and their causes, as well as recommendations that can solve these problems.

Key words: central bank, commercial bank, passive operation, active operation, deposit, temporary deposit.

Language: English

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Introduction

The global deep division of labor, the growing popularity of digital financial services, operations and information, as well as the economic regulation of the country's monetary policy and regulation of financial institutions, along with increasing competition among commercial banks, pose a number of problems. Problems associated with attracting temporary deposits in commercial banks include poor public confidence in the banking system, high inflation of interest rates on deposits, and high devaluation of the national currency in relation to foreign currencies.

It should be noted that thanks to the efforts of the Government of Uzbekistan and the Central Bank over the past three years, the country's banking system, in particular the activities of commercial banks, have undergone significant changes. In particular, the introduction of a single exchange rate for foreign currencies as a result of monetary policy liberalization, eliminating the difference between cash and non-cash prices for consumer goods and services, as well as increasing the share of digital services in banking services.

However, amid growing competition between financial institutions and banks around the world, the growth of temporary deposits is becoming an urgent problem, which in some cases causes a number of

problems in banks. It is well known that the stability of temporary deposits of commercial banks is assessed in international practice as their financial stability. Financial stability of commercial banks means the extent to which their financial markets or financial infrastructure can withstand the risks of endogenous exposure [1].

In fact, the financial stability of commercial banks has a positive and strong influence not only on their activities, but also on the economic growth of the national economy, the effectiveness of the monetary policy of the Central Bank and increasing the solvency of the population. However, not only the policy of national regulators, but also at the international level, financial and economic crises every 10-15 years cause systemic problems. In particular, "over the past quarter century, 93 countries of financial institutions have had 117 systemic and more than 50 serious financial problems in financial institutions" [2], which caused all pressing problems with an increase in the volume of bank deposits by commercial banks.

In commercial banks of Uzbekistan, this issue is especially relevant, for example, as of January 1, 2019, the share of deposits in the structure of assets of commercial banks is 32.7%, more than 93.5% of the total loans issued by banks are long-term (more than one year). However, 70% of attracted deposits are

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short-term borrowing [3], which is a fact that commercial banks in Uzbekistan have problems attracting temporary deposits.

The issue of increasing the volume of term deposits of commercial banks in Uzbekistan is constantly in the focus of attention of our government, the tasks for their solution are outlined. In particular, the Decree of the President of the Republic of Uzbekistan dated March 23, 2018 No. 3620 "On additional measures to increase the popularity of banking services", which clearly outlines the problems and defines the tasks for solving them. In particular, the introduction of new types of banking services and products, as well as the introduction of contactless and mobile technologies.

It is known that temporary deposits of commercial banks are a source of attracted resources on their passive balance accounts. Resources of commercial banks are formed from two main sources: own resources (10-12%) and borrowed funds (88-90%). As a rule, the main sources of attracting funds from commercial banks are deposits, which consist of untimely, temporary and savings deposits.

International banking practice shows that the share of temporary deposits in the structure of deposits of commercial banks is high and amounts to 65-70% of the total deposits, which indicates the effectiveness of the deposit policy of banks, the stability of the national currency and a high level of public confidence in the banking system. Since the word "deposit" in Latin means "dipositum" - "deposited goods", the depositor must voluntarily provide the bank with its financial resources based on economic interest and trust.

In this regard, the opinions of economists about the economic content of the deposit are noteworthy, although they are very similar in content, but in form they are very different. For example, L.S. Padalkina claims that "a deposit is all term deposits in credit organizations" [4]. Opinion of L.S. Padalkina that the deposit is a perpetual payment of credit funds, is controversial, denies the definition of a deposit as temporary.

The American economist E.M. Rode offers an economic interpretation that "a deposit is all temporary and unlimited deposits of bank customers" [5]. Although the economic definition of E.M. Rode is more accurate than the description of L.S. Padalkina, it does not take into account the fact that the deposit is expressed in value terms.

Russian economist M.N. Berezina claims that "a deposit is an account open to a client for storing all kinds of money", and, if appropriate, a deposit is not so close to the economic value of the deposit. As the above definitions and sources show, in the economic literature there is no single approach to deposits and bank deposits in general. In international banking, deposits mean securities or money deposited with

financial or credit institutions or banking institutions [6].

It is known that temporary deposits are a product of passive operations of commercial banks and have been studied by foreign and domestic economists on passive banking operations. In particular, the opinion of Sh. Abdullaeva, operations related to the formation of banking resources are called passive operations of banks [7]. Uzbek economists also have the definition of "passive banking operations that lead to an increase in assets in passive or active-passive accounts, including an excess of assets" [8].

In our opinion, we pay special attention to deposit operations in four groups of passive operations of commercial banks. Deposit operations - these are operations to attract and hold a deposit for a certain period on the basis of bank agreements with depositors [9].

The Law of the Republic of Uzbekistan "On Banks and Banking Activities" describes deposits as savings, which stipulate that banks have the right to engage in activities to raise funds in deposits [10].

Deposits are a major part of bank liabilities and their level of stability allows the bank to maintain profitability and liquidity. In international banking practice, currently, when assessing the stability of temporary deposits of commercial banks, the adequacy of the deposit base is taken into account, which is determined by the following formula for the adequacy of deposits (AD):

$$AD = \frac{TD}{TD + SD + TeD} * 100 \quad (1)$$

TD - transactional deposits;

SD - savings deposits;

TeD - temporary deposits.

According to IBRD experts, the maximum limit should be 30 percent. If its current level exceeds 30%, then the deposit base of a commercial bank is considered insufficient.

In the context of globalization and countries with economies in transition, a number of countries, including Uzbekistan, use the CAMEL rating system to determine the stability of the deposit base of commercial banks using the following formula:

$$SDD = \frac{\text{Fixed deposits}}{\text{Total deposits}} * 100 \quad (2)$$

If the current level is at least 75%, a commercial bank deposit base is sufficient. In other words, the share of fixed deposits in the total deposits of commercial banks should be at least 75%.

In the CAMEL rating system, main deposits mean non-bank deposits. In this regard, the main deposits include a stable balance of all three types of deposits - transaction deposits, temporary deposits and savings deposits.

In our opinion, the methodology for assessing the adequacy of the deposit base in the CAMEL rating system is much better than the IBRD assessment

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method. That is, firstly, a stable balance of transactional deposits is taken into account. This is important because the use of a stable balance of transactional deposits does not pose a significant risk to the liquidity of commercial banks; Secondly, only a stable balance of savings deposits is recognized as the main contribution. While some of the savings deposits are unstable passive. They differ from transactional deposits in the form of withdrawal by the bank for a certain period of time.

In the opinion of Professor G.S. Panova, commercial banks should not allow transactional deposits to exceed 30% of gross deposits in order to maintain an adequate deposit base and set limits based on German banking practice with respect to credit operations. In Germany, 60% of temporary deposits and 10% of transactional deposits are used for credit operations. In addition, G.S. Panova proposes to introduce the concept of "basic deposits" in the banking practice of the Russian Federation in assessing the adequacy of the deposit base of a

commercial bank. In his opinion, deposits to individuals of about 5 million rubles, enterprises and organizations - 100 million rubles, should be accepted as a base deposit [11].

It should be noted that temporary deposits of commercial banks have been widely studied by foreign and local economists, but in recent years they have become increasingly important in connection with the rapidly changing global and local financial and credit systems.

The results of the analysis show that a number of factors influence the growth of temporary deposits of commercial banks. In particular, the main factors are public confidence in the banking system, as well as the types and quality of services of commercial banks.

At the international level, people's trust in the banking system, as well as the quality and quality of banking services are assessed by a number of indicators. The following table summarizes data collected from World Bank Global Findex statistics.

Table 1. Analysis of the availability of adult deposits in banks in Uzbekistan and some countries of the world [12] (percent)

Gountries	2011	2014	2017
Uzbekistan	23	41	37
Russia	48	67	76
Kazakistan	42	54	59
Kyrgyzstan	4	18	40
China	64	79	80
Japan	96	97	98
Germany	98	99	99
France	97	97	94
Italy	71	87	94
Spain	93	98	94
United states of America	88	94	93
India	35	53	80

The table shows that adult bank accounts in Uzbekistan (18 years and older) have the lowest level in commercial banks, decreasing by 4 points in 2017 compared to 2014, despite an increase of 14 points in 2017. In Japan, Germany, France, Italy, Spain, the United States, this figure exceeds 90% of adult accounts. From this we can conclude that the confidence of the population of Uzbekistan in the banking system, as well as the quality and quality of

banking services is much weaker than that of the countries involved in the analysis.

Temporary deposits, in general, are the main and important source of resources in the resources of commercial banks for a number of reasons. In particular, temporarily free cash in the economy, especially those that belong to the population, are stored in banks, and not outside the bank, and these funds will be redistributed by commercial banks on the principles that need money in the economy.

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Table 2. Liabilities composition and dynamics of US commercial banks [13] (percent)

Liabilities	2014	2015	2016	2017	2018
Deposits	77,0	78,4	79,7	80,4	81,2
including:					
Long term deposits	12,4	12,0	10,4	10,8	11,4
Other contributions	64,6	66,3	69,2	69,6	69,8
Borrowed funds	13,4	13,9	14,1	14,1	13,2
Obligations to foreign offices	5,2	3,3	1,9	1,7	2,1
Other liabilities, trade liabilities	4,3	4,5	4,3	3,8	4,5
Total obligations	100	100	100	100	100

The table shows that the bulk of the structure of the banking system of the US banking sector is made up of deposits, which tend to increase over the analyzed period. In particular, in 2018 this indicator amounted to 81.2%, an increase of 4.2 points compared to 2014. The next major source of bank debt is debt, with 13-14% of total liabilities.

In our opinion, this indicator, that is, a high percentage of deposits in the structure of the US banking system, is a positive factor, and deposit sources play an important role in ensuring the financial stability of commercial banks.

Table 3. The structure and dynamics of deposits of US commercial banks [14] (percent)

Deposits	2014	2015	2016	2017	2018
Temporary deposits	15,6	14,5	13,4	13,6	14,1
Savings deposits	69,4	70,6	71,8	71,4	71,3
Deposits on demand	15,0	14,8	14,8	15,1	14,6
Total deposits	100	100	100	100	100

As can be seen from the table, the main share in the structure of deposits of commercial banks in the United States accounts for temporary and savings deposits. For example, in 2014-2018, their volume together is more than 85%.

It should be noted that in the structure of deposits of commercial banks, savings and term deposits are a stable source of their financial resources, and banks can create risky assets (loans, investments) at this

expense. At the same time, the low share of demand deposits in bank deposits contributes to the absence of obligations and reduces transformational risks.

One of the main problems in the liabilities structure of commercial banks in Uzbekistan is the low volume of deposits and even a low deposit. The following table shows the structure of liabilities of commercial banks in Uzbekistan.

Table 4. Resource volume and dynamics of non-deposit sources of commercial banks in Uzbekistan [15] (percent)

№	Source of funds	2015	2016	2017	2018	2019
I	Deposit funds	58,3	56,2	49,5	40,8	37,3
II	Non-repository funds, including:	41,7	43,8	50,5	59,2	62,7
1	Central bank accounts	5,6	3,5	0,4	0,4	0,3
2	Due to other banks	2,3	1,8	5,4	4	3,8
3	Issue of securities	0,8	1	0,3	0,1	0
4	Received loans	28,1	32,3	35,7	49,9	55,6
5	Other obligations	4,9	5,2	8,7	4,8	3
Total:		100	100	100	100	100

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The table shows that the volume of deposits in the structure of attracted resources of commercial banks in Uzbekistan tends to decrease and amounted to 58.3% as of January 1, 2015, while over the analyzed period this indicator decreased by 37.3% or by 21 points. This, in turn, led to an increase in the share of non-bank deposits in attracted funds of banks, this resource of banks increased from 41.7% on January 1, 2015 to 62.7% on January 1, 2019.

The main share in the structure of non-deposit funds of commercial banks is comprised of loans, which are the most expensive and the term for which does not exceed one year. In addition, the inability to

generate funds in connection with the issue of securities in the form of non-custodial funds may be considered negative. Since this source of banks is widely used in foreign banking practice, it has a positive effect not only on attracting financial resources to commercial banks, but also on the image of the bank market and the number of customers and partners.

The analysis shows that the share of deposits in the structure of liabilities of commercial banks is low, and the share of temporary deposits in the total amount of deposits is not high, the table below shows the structure and dynamics of deposits.

Table 5. Composition and dynamics of deposits of commercial banks in Uzbekistan [15] (percent)

Deposits	2015	2016	2017	2018	2019
Temporary deposits	29,9	30,2	29,5	24,9	37,4
Savings deposits	10,6	11,3	11,1	11,0	14,1
Deposits on demand	59,5	58,5	59,5	64,1	48,5
Total deposits	100	100	100	100	100

The table shows that the deposits of commercial banks in Uzbekistan are formed mainly from demand deposits. Of course, during the analyzed period this share is still high, although it tends to decrease. For example, as of January 1, 2015, this figure was 59.5 percent, and as of January 1, 2019, it was 48.5 percent or decreased by 11 points for the period under review. The share of savings is very low, which has not

changed much in recent years, an average of 11% in the structure of deposits.

Deposits of commercial banks in Uzbekistan include transactional deposits, temporary and savings deposits. We use the following information to evaluate the structure and dynamics of their deposit base.

Table 6. The structure of deposits in commercial banks of Uzbekistan [15] (percent)

Deposits	2014	2015	2016	2017	2018
Deposits of legal entities	69,3	70,1	71,3	75,9	73,5
a) Deposits on demand and up to 30 days	50,1	48,6	49,6	58,6	42,5
b) Savings deposits	1,4	1,5	2,0	2,2	2,1
c) Temporary contributions	17,9	20,0	19,7	15,1	28,9
Deposits of individuals	30,7	29,9	28,7	24,1	26,5
a) Deposits on demand and up to 30 days	9,3	9,9	9,7	5,5	6,1
b) Savings deposits	9,3	9,9	9,2	8,4	9,2
c) Temporary contributions	12,1	10,1	9,8	10,2	11,2
Total:	100	100	100	100	100

As can be seen from the table, the bulk of commercial bank deposits in Uzbekistan are legal entities. Deposits of individuals in the total volume of deposits in 2014 amounted to 30.7% compared with 26.5% in 2018 or 4.2 points for the same period. At the same time, the volume of term deposits of individuals tends to decrease, which indicates a low level of public confidence in the banking system and the economic benefits of term deposits.

CONCLUSIONS AND OFFERS

As a result of the study and analysis of the issues related to the importance and attractiveness of temporary deposits in commercial banks, the following conclusions and recommendations were formulated:

– in the context of globalization of the global economy, international and local banks practice attracting temporary deposits in conditions of high competition;

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– deposits of developed countries include deposits in the structure of liabilities of commercial banks, and term deposits in the structure of deposits;

– attraction of temporary deposits to commercial banks plays an important role in the confidence of the population in the banking system, economic interest in interest rates on deposits and the degree of devaluation of the national currency in relation to foreign currencies;

– financial stability of commercial banks has a positive effect not only on their activities, but also on economic growth in the country, the effectiveness of monetary policy, the solvency of the population and a number of other issues;

– it is desirable to increase financial stability by developing and implementing appropriate strategies to increase the share of deposits in the

liabilities of commercial banks and the share of temporary deposits in the structure of deposits;

– most of the financial resources of commercial banks are expensive, and the share of this source should be reduced by increasing the volume of term and savings deposits;

– it is necessary to minimize the state's share in the capital of commercial banks and expand the activities of banks, both investment and issuers, in the country's financial market.

In conclusion, temporary deposits play an important role in ensuring the financial stability of commercial banks and the development of the national economy. Commercial banks in Uzbekistan should be more active in this area, and thanks to their effective use, it is necessary to further strengthen the confidence of the population and customers in the banking system.

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SEMI-EMPIRICAL STUDY OF IMPLICIT EXCHANGE INTERACTION IN RARE TARTH METAL-WEAKLY MAGNETIC METAL SYSTEM

Abstract: For the first time the exchange interaction of Ruderm-Kittel-Kasuya-Yosida (RKKY) type is studied semi-empirically in compounds of binary systems of rare –earthmetal (REM)-weakly magnetic metal (WMM) (REM=Gd,Tb,Dy,Ho,Er,Tm; WMM=Al,In) using experimental values of paramagnetic Curie temperature (θ_P) of these compounds. The prediction of theory of RKKY about existence of direct proportional dependence of experimental values of θ_{Pon} de Gennes factor for equiatomic compounds of heavy REM with WMM similar pure REM. As a whole, it is found that for REM compounds with WMM as well as for pure REM the exchange interaction of RKKY type is characteristic.

Key words: exachange interaction, magnetic susceptibility, paramagnetic temperature, magnetic moment, de Gennes factor.

Language: English

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Introduction

In rare-earth metals (REM) and compounds based on them, the question of the origin of the atomic magnetic order becomes especially important. In isolated REM atoms, the previously missed 4f-layer of the electron shell is sequentially built up. This layer lies deep and is shielded from external influences by a layer of $5s^2 5p^6$ even in the crystalline state of rare-earth metals. For heavy REMs, it is characteristic that the average radius of the 4f shell is 1/10 of the interionic distance. Therefore, direct exchange interaction (overlapping) between the electrons of the 4f-layers of neighboring ions is almost impossible. However, studies show that rare-earth metals and their

compounds with other metals have magnetic ordering, due to the exchange interaction of 4f-electrons localized in the nodes of the crystal lattice through conduction electrons, called the indirect exchange interaction of the Ruderman-Kittel-Kasuya-Yosida (RKKY) [1-5]. Such an interaction is carried out as follows: the electrons of the 4f-layer located in the n-node (determined by the radius vector \vec{R}_n) of the crystal lattice affect the conduction electrons and magnetically polarize them. Polarized conduction electrons, in turn, affect the electrons of the 4f layer located in the m-site (determined by the radius vector \vec{R}_m) of the lattice. Thus, the arising ordered state of

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the magnetic moments of the electrons of the 4f-layers is destroyed when they are heated to a certain temperature $T = \theta_p$ (called the paramagnetic Curie temperature), which is characteristic of each rare-earth metal. At temperature $T = \theta_p$ a magnetic phase transition occurs, magnetic ordering - magnetic disorder (paramagnetism). Thus, θ_p it is the energy characteristic (measure) ($k_B T$) of the exchange interaction of the RKKY type in REMs and compounds based on them.

The temperature dependence of the magnetic susceptibility of REMs and compounds based on them directly reflects the paramagnetic Curie temperature [according to the Curie - Weiss law $\chi = C/(T - \theta_p)$, where is the C- Curie - Weiss constant]. The experimental dependence $\chi^{-1}(T)$ determines the value θ_p . Information on the paramagnetic temperature of the Curie of rare-earth metals depending on their atomic number, and in compounds based on them, on the concentration of alloyed components, is necessary for the development of theoretical ideas about the nature of exchange interactions in these objects.

The purpose of this work is to study the effect of weakly magnetic metals (WMM) - paramagnetic aluminum metal and indium diamagnetic metal on the indirect exchange interaction in heavy rare-earth metals and to verify the applicability of the RKKY theory for intermetallic compounds in binary systems REM-WMM (REM = Gd, Tb, Dy, Ho, Er, Tm; WMM = Al, In) using their experimental values θ_p .

II. Results and its discussion.

In a number of works, for example in [6, 7], it was previously established that the dependences $\chi(T)$ of heavy REMs (REMs = Gd, Tb, Dy, Ho, Er, Tm) and their compounds with aluminum and indium in a wide temperature range (300–2000 K), covering their solid state, the melting process and the liquid state, is described by the Curie - Weiss law. From the experimental dependence $\chi^{-1}(T)$, the values θ_p were determined.

In the framework of the RKKY theory, using the molecular field representation to explain the experimental θ_p REM values, the following expression is obtained [1, 5, 8, 9]:

$$\theta_p = \frac{3\pi^2}{k_B \Omega^2 E_F} A_{sf}^2(0) G \sum_{n \neq m} F(2\vec{k}_F | \vec{R}_n - \vec{R}_m |) \quad (1)$$

where: n - is the number of conduction electrons per atom; Ω - atomic volume; $A_{sf}(0)$ - Integral of the

$s - f$ - exchange interaction, independent of \vec{k}_F ; E_F and \vec{k}_F - energy and wave vector on the Fermi surface; $|\vec{R}_n - \vec{R}_m|$ - the distance between the rare-earth magnetic ions, located in the nodes of the crystal lattice n and m ; $F(2\vec{k}_F | \vec{R}_n - \vec{R}_m |) = F(y)$ - Ruderman-Kittel function defined by the expression:

$$F(y) = (y \cos y - \sin y) / y^4; \quad (2)$$

$$G = (g_J - 1)^2 J(J + 1) \quad (3)$$

de Gennes factor [9] for REM. In (3), g_J - the Lande factor is determined by the following expression:

$$g_J = 1 + [J(J + 1) + S(S + 1) - L(L + 1)] / 2J(J + 1), \quad (4)$$

where: S, L, J - respectively, the total quantum numbers of the spin, orbital, and total mechanical moments of the electrons of the 4f-layer.

In the framework of the RKKY theory, to calculate the integral of the indirect exchange interaction, the following expression was obtained [1,5]:

$$A = \frac{9\pi^2}{E_F \Omega^2} A_{sf}^2(0) \sum_{n \neq m} F(2\vec{k}_F | \vec{R}_n - \vec{R}_m |) \quad (5)$$

Given (5) and (3), from expression (1) we obtain a proportional dependence of the values θ_p for pure rare-earth metals on their de Gennes factor:

$$\theta_p = \frac{A}{3k_B} G \quad (6)$$

The de Gennes factor for the studied compounds can be calculated by the additivity rule:

$$G = (1 - x)G_{REM} + xG_{WMM} \quad (7)$$

where: x is the content of WMM (Al, In) in atomic fractions; G_{REM} and G_{WMM} - respectively, de Gennes factors for REM and WMM. Since the term of the ground state of the trivalent ion WMM - 1S_0 , therefore $G_{WMM} = 0$. When this fact and (7) are taken into account, for the value θ_p of the studied compounds we find:

$$\theta_p = \frac{A}{k_B} (1 - x) (g_J - 1)^2 J(J + 1) \quad (8)$$

The outer electron shell of trivalent rare-earth ions is almost identical ($5s^2 5p^6$), they are located in the nodes of the crystal hexagonal lattice, which remains almost unchanged when passing from one metal to another. The integral of indirect exchange by (5) depends on n , $A_{sf}(0)$, Ω , E_F and lattice sums (function $F(y)$). To a first approximation, all these quantities can be considered constant [10]. From expression (8) it follows that the values θ_p for the compounds under study should be proportional to the de Gennes factor, similar to pure REMs. Thus,

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expression (8) makes it possible to semi-empirically verify this prediction of the RKKY theory.

In [6, 7], it was found that the experimental values of the effective numbers of magnetic moments per heavy $P3M^{3+}$ ion, in all studied heavy REMs and compounds with aluminum and indium satisfactorily correspond to the theoretical values of free ions of heavy $P3M^{3+}$. This indicates that the 4f electrons responsible for the magnetic properties of the objects under study are localized at the sites of their crystal lattice in the same way as in pure heavy rare-earth metals. A weakly magnetic medium (Al, In) and high temperature ($T \approx 2000$ K) do not affect the energy state of 4f electrons in the studied objects.

The energy interval between the ground and first excited levels is large compared to $c k_B T$, and the population of the excited level is very small. Therefore, when calculating G for heavy rare earth metals and the studied compounds, one can use the values of J and g_J for the basic levels of free ions of heavy rare earth metals:

$$REM^{3+} [Gd^{3+}(J = 7/2, g_J = 2);$$

$$Tb^{3+}(J = 6, g_J = 3/2);$$

$$Dy^{3+}(J = 15/2, g_J = 4/3);$$

$$Ho^{3+}(J = 8, g_J = 5/4);$$

$$Er^{3+}(J = 15/2, g_J = 6/5);$$

$$Tm^{3+}(J = 6, g_J = 7/6)].$$

The results of calculations according to (6) and (8) are presented, respectively, in Fig. 1 and 2. The analysis of Fig. 1 shows that the dependences $\theta_p(G)$ for the studied equiatomic compounds of heavy rare earth metals with aluminum (p. 2-6) are almost linear and satisfactorily correspond to the linear nature of the dependence $\theta_p(G)$ for heavy rare earth metals (p. 1).

From Fig. 2 it can be seen that the dependences for the studied equiatomic compounds of heavy rare-earth metals with indium (p. 2-5) also have an almost linear character and satisfactorily correspond to the linear nature of the dependence $\theta_p(G)$ for heavy rare-earth metals (p. 1). Consequently, the change θ_p in the compounds studied is quite close to what the theories of the RKKY. This indicates that the exchange interaction in the studied compounds is an interaction of the RKKY type, as in pure heavy rare-earth metals.

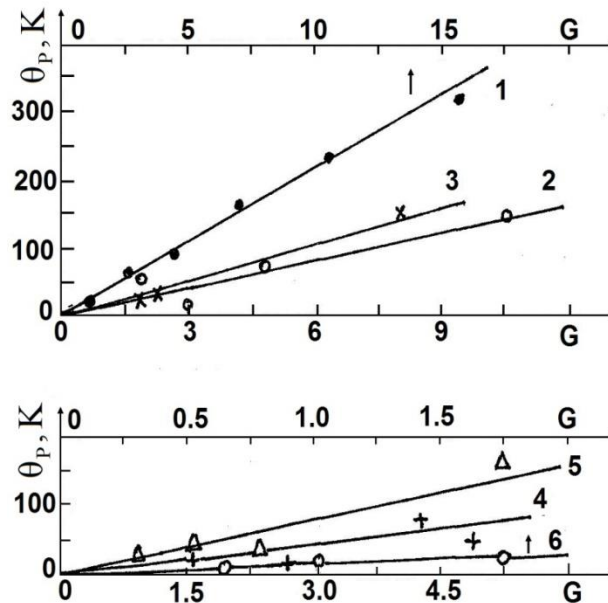


Fig. 1. Dependencies $\theta_p(G)$ for REM compounds with aluminum.

p. 1 - REM (REM = Gd, Tb, Dy, Ho, Er, Tm); p. 2 - $REM_2 Al$; p. 3 - $REM Al$; p. 4 - $REM_3 Al_2$; p. 5 - $REM Al_2$; p. 6 - $REM Al_3$.

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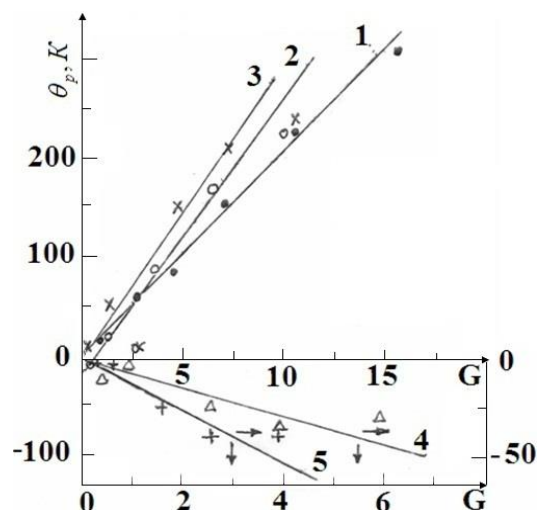


Fig. 2. Dependencies θ_p (G) for REM compounds with indium.

p. 1 - REM (REM = Gd, Tb, Dy, Ho, Er, Tm); p. 2- $\text{REM}_5 \text{In}_3$; p. 3- $\text{REM}_2 \text{In}$;
p. 4 - $\text{REM}_3 \text{In}_5$; p. 5 - REM In_3 .

III. Conclusions.

1. For the first time, a semi-empirical study confirms the prediction of the theory of the RKKY, i.e. the same proportional relationship between the experimental value of the paramagnetic Curie temperatures and the de Gennes factor for equiatomic compounds of rare-earth metals with aluminum and

indium was established, similarly to pure heavy REMs.

2. In general, it was found that for all compounds of the studied REMs (Al, In) systems, as well as for pure heavy REMs, an exchange interaction of the RKKY type is characteristic.

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MACROECONOMIC MODELING IN UZBEKISTAN: USING THE GERMANY EXPERIENCE

Abstract: The modern economic and financial system is actively using modelling techniques as a tool to illustrate processes, to predict further developments and, if necessary, to adjust baseline parameters for crisis prevention. The article contains an overview of the main parameters of macroeconomic modelling of economic growth of Uzbekistan, analysis of problems and prospects of their development. Legislation governing economic growth modelling has been identified. The best foreign experience of macroeconomic modelling was analyzed.

Key words: macroeconomic analysis, modeling, economic growth, macroeconomic forecasting, macroeconomic reforms.

Language: English

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Introduction

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Economic growth is an essential characteristic of public production under all economic systems. Economic growth is the most complete expression of quantitative and qualitative improvement of public production in a certain period of time. Economic growth also means that, in each period under review, it is possible to overcome, in some way or another, existing resource constraints and to ensure increased

production and a wider range of human needs. Because of the difficulties of measuring the whole process of economic development, macroeconomic growth is most often analyzed, although this is only one of the criteria for economic development. Economic growth is an essential component of economic development. But rapid or, on the contrary, zero or even negative economic growth does not always indicate rapid economic development or economic degradation. This requires additional special analysis.[7]

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Modern Uzbekistan is part of the world economic community, so the ongoing integration processes on the international market require the national economy to create new incentives and prospects for sustainable growth of the economy as a solid basis for the stability of the country.[2]

Thanks to the reforms, a regulatory and legislative framework was formed, creating conditions for the formation of a class of entrepreneurs, a competitive environment, a market infrastructure and the creation of a foundation for market relations. In addition to overcoming the consequences of the impact on the economy of the country of the administrative-command system, new economic relations of ownership have been formed, a class of owners-entrepreneurs has been born and has become progressive. Intensive development of small business and private entrepreneurship with the full support of the state was accompanied by processes of privatization and demonopolization.[8]

The Decree of the President of the Republic of Uzbekistan Sh.M. Mirziyoyev "On the Strategy of Action for the Further Development of the Republic of Uzbekistan" was adopted in order to fundamentally increase the effectiveness of the reforms carried out, create conditions for ensuring the comprehensive and accelerated development of the State and society, implement priority directions for the modernization of the country and liberalize all spheres of life. The Concept of "The strategy of development for the Republic of Uzbekistan till 2035" was developed. On June 29, 2018 the President of the Republic of Uzbekistan approved by Decree No. UP-5468 the Concept of reforming of tax policy of the Republic of Uzbekistan. According to the Presidential Decree from January 1, 2019:

- Lower tax burden on the remuneration fund
- Improved taxation of payers of generally established and simplified taxes with optimization of taxes on turnover (revenues), as well as criteria for transition to simplified taxation regime
 - Measures are implemented to reduce the negative impact of improved tax policy on the payers of the simplified tax regime
 - The procedure for calculation and payment of value added tax and excise tax is improved
 - Reducing the level of tax burden on the economy
 - Elimination of imbalances in the level of tax burden between economic entities paying taxes under simplified and established system of taxation
 - Optimization of the number of taxes through their unification and consolidation
 - Ensuring macroeconomic stability
 - Simplification of tax legislation, elimination of contradictions and conflicts
 - Ensuring the stability of tax legislation and the direct application of the Tax Code

- Maintaining favorable treatment for foreign investors
 - Improvement of tax control forms and mechanisms.

The Institute for Forecasting and Macroeconomic Research was established in accordance with Presidential Decision No. IIII-3752 of 29 May 2018 in order to carry out in-depth macroeconomic research, create a sound scientific and methodological basis for forecasting macroeconomic indicators and develop proposals that serve as a basis for justifying the prospects for socio-economic development, modernization and structural transformation of the country's economy and achieving long-term macroeconomic stability. The main tasks and activities of the Institute are:

- Formation of the scientific and methodological bases of the system of strategic planning and development of concepts, integrated, targeted, sectoral and territorial programs aimed at ensuring the socio-economic development of the country for short, medium and long periods under conditions of economic liberalization, enhancement of the intellectual, technological and innovative potential of the country in order to improve the well-being of the population;
 - Development, on the basis of best foreign practice, of modern tools for predictive modeling, assessment of the impact of macroeconomic policy measures on the development of the national economy, its separate spheres and territories;
 - Participation in the development of a strategy of structural transformation in the economy aimed at increasing the competitiveness of domestic products in domestic and foreign markets, efficiency of foreign economic activity, preparation of proposals in the most important areas of modernization and diversification of the economy of the country;
 - Preparation of scientifically sound proposals for further deepening the reform and liberalization of the economy, ensuring the priority role of private property, wide introduction of market methods and mechanisms of economic management;
 - Participation in the development of strategies and programmes for the integrated and balanced socio-economic development of the regions, which provide for the reduction of interregional imbalances in the economy through the effective use of investment and resource potential of the Territories, further stimulation of small business development, innovative entrepreneurship and improvement of the investment climate;
 - Preparation of proposals on strategic directions of implementation of advanced resource-saving and innovative technologies, improvement of energy efficiency of the economy, introduction and development of renewable energy sources;

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- Assistance in the development of methodological bases for the formation of the state reserve and the country's food security strategy;
- Development of medium- and long-term projections of demographic development, followed by the development of forecast balances of labour resources, as well as innovative measures and mechanisms aimed at expanding the range of social services provided to the population;
- Carrying out a systematic analysis of various components of the standard and quality of life, the dynamics of well-being of the population, including the size and sources of its income, the structure of consumer expenditures;
- Carrying out calculations of the minimum consumer basket and subsistence minimum with subsequent elaboration of proposals to ensure further growth of purchasing power of the population;
- Wide discussion of the results of economic reforms in mass media and scientific publications,

during conferences, round tables and seminars with the participation of domestic and foreign experts, representatives of business circles.

In fact, the Concept of the Development Strategy of the Republic of Uzbekistan up to 2035. Uzbekistan needs to reduce the tax burden on business in order to stimulate the growth of the private sector, at the same time it is necessary to increase state transfers to improve the standard of living of society.[15]

The purpose of the forecast model is to determine the values of the target macroeconomic development indicators of the Republic of Uzbekistan by 2035. The calculation is based on both quantitative data obtained from open sources in Uzbekistan and the databases of international organizations, and also qualitative assessments and scenarios formed as a result of the interviews of the working group with industry experts.[16]



Figure 1 - Purpose of the forecast model

Indicators were calculated for the period from 2017 to 2035 with a step of 1 year. The US dollar was chosen as the calculation currency to level out any volatility. The horizon for calculations is 18 years (2017–2035) and includes the vision to 2035. Minimum calculation step is equal to one year.

Payment currency: US dollars. Calculations were made using Microsoft Excel.

The main block of the forecasting model is the calculation of macroeconomic indicators on the basis of the benchmarks of the fastest growing countries in Asia.[14]

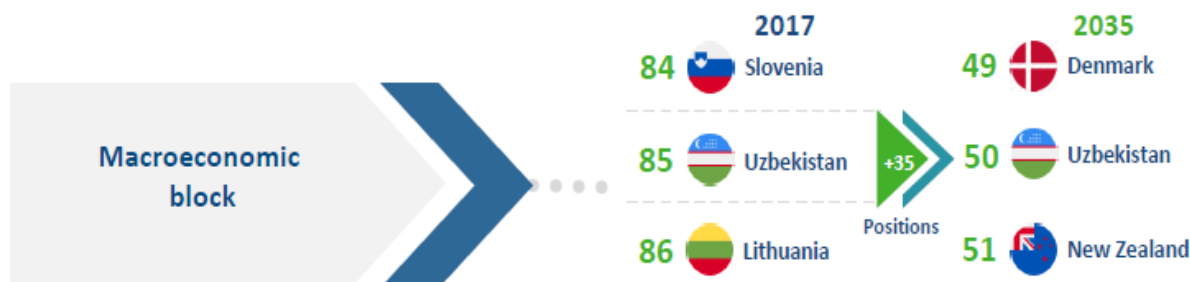


Figure 2 - Main blocks of the forecasting model

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Starting point of the calculation: the values of the key macroeconomic indicators of the Republic of Uzbekistan for 2017. Key prerequisites:

- The growth dynamics of gross indicators correspond with GDP growth.[12,13]
- The structure of the economy—the ratio of AIC, industry, and services—is gradually changing as

it approaches the values of benchmark countries: Malaysia, Turkey, South Korea.

- The dynamics of certain industry indicators are based on the historical dynamics of the countries serving as development role models set out in the Framework Development Strategy of Uzbekistan.

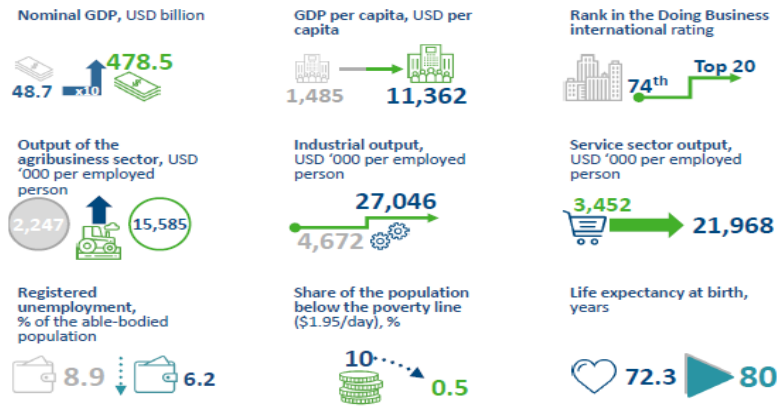


Figure 3 - Key prerequisites

Results of the calculation. Macroeconomic block: scenarios of key indicators. Evolutionary scenario:

- Continuation of the current course of development of the country with minimal institutional changes.
- The initial period of interest from global public and transnational investors (2019–2025) is followed by a gradual decline in investments, as interest in the Eastern region and emerging markets declines.
- Target GDP level will not be reached by 2035 due to the lack of sufficient investments.

Dynamic scenario:

- Gradual transition to the market system. Private funds are the main source of investment, including public-private partnership programs in infrastructure projects, private investments in the fuel and energy complex, as well as the projects of international corporations in Uzbekistan, which will result in investments in industry and agriculture.
- The target GDP level will be reached by 2035 thanks to the faster growth of investments, both public and private, in the amount of USD 993 billion–USD 1,213 billion.

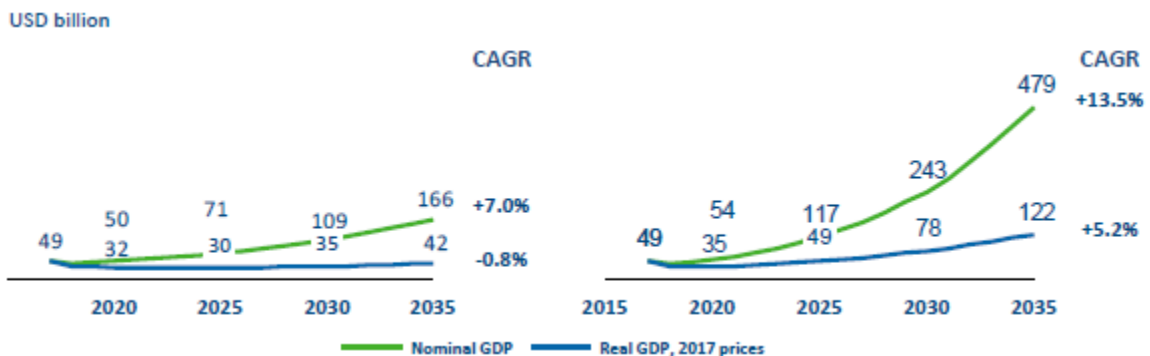


Figure 4 - Dynamics of nominal and real GDP

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Figure 5 - Global ranking

The forecast under the evolutionary scenario is based on the consensus:

- Forecast of the Ministry of the Economy of the Republic of Uzbekistan
- Euromonitor forecast
- IMF forecast
- Forecast of the historical growth rates of countries of the "Earlydemographic dividend" category according to the World Bank, including India, Mexico, Argentina, Turkey, etc.

Nominal GDP:

- The forecast under the dynamic scenario takes into account the goal of being ranked in the Top 50 countries.
- The EIU and Euromonitor forecasts serve as the basis.
- Growth rates are correlated with similar historical cases (including Brazil, China, Indonesia, South Korea, Malaysia, Singapore, Thailand, China, Kazakhstan).[11]

Real GDP:

- Calculated using the same assumptions as the evolutionary scenario: decrease in inflation from 14% to 5%, a slight strengthening in the Uzbek som.

Results of the calculation. Macroeconomic block: scenarios of key indicators:

- Target inflation will equal 4.5% by 2035. This indicator was calculated based on international benchmarks, including Singapore and Brazil
- Over the longer term, target inflation may be 2%–3%, which is the optimal value if the economy is stable.
- The period required to attain the target inflation rate in the Republic of Uzbekistan will equal about

seven years after the start of the targeting policy. A similar period of inflation decline was observed in the Czech Republic and in Brazil.

- The proposed scenario for the attainment of target inflation is more conservative compared to Mexico where target inflation was attained within three years.

• The interest rate of the Central Bank of Uzbekistan on short-term loans remains the main inflation targeting tool. An increase in this rate would reduce lending to the real sector of the economy. As a result, the population and business reduce their expenses, and demand for goods and services declines, which contributes to the slowdown of price growth.

• The maintenance of a high interest rate could have an adverse effect on the national economy. Based on the example of Brazil, inflation targeting based on high key rate instruments caused a decline in economic growth and the deterioration of a number of macroeconomic indicators, including state debt.

• Additional inflation targeting tools facilitating a reduction in lending to the real sector may include an increase in the required reserves and the withdrawal of funds from the financial market through the sale of government securities.

• Successful inflation targeting is contingent on consideration of several external factors that affect inflation:

- Rising prices of key imports.
- Rising prices of agricultural goods caused by a bad harvest.
- State price controls on certain goods.
- Increase in government expenditure.
- Existence of monopolies in some industries.

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Target inflation levels in Uzbekistan

per calendar year, %

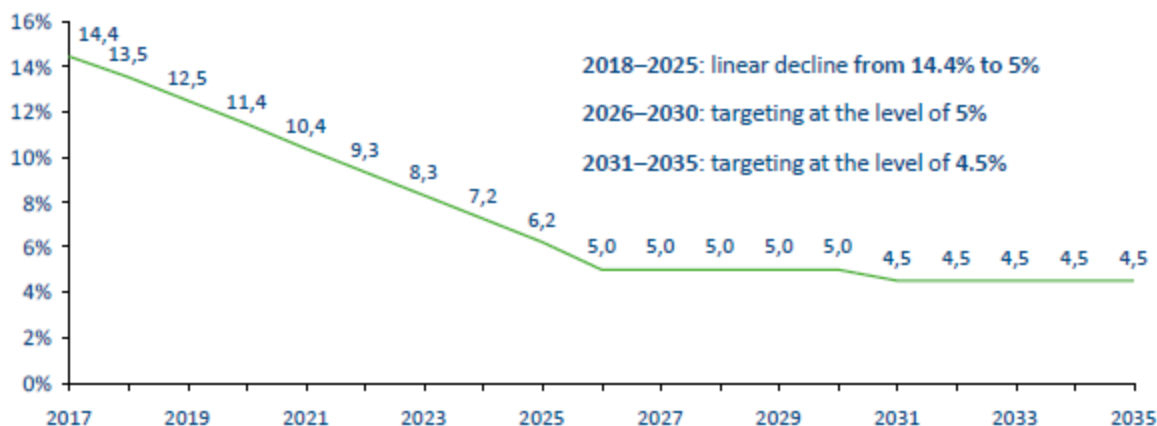


Figure 6 - Target inflation levels under the targeting policy (dynamic scenario)

But despite the macroeconomic reforms under way in Uzbekistan, there are a number of problems:

1. In the coming decade, our main problem will be that the share of able-bodied citizens in the total population will remain extremely high - more than 60%. In this regard, all the measures taken within the framework of the strategy of action of the Republic are primarily aimed at ensuring the advising growth rate not only of the economy, but also job creation

2. Large share of the state in many sectors of the economy (more than 80%).

3. Small export of finished products.

4. Outdated regulatory legislation.

5. Small number of highly qualified personnel in the field of innovation.

In order to solve these problems, the authors offer experience in the macroeconomic model of Germany.

Thanks to its robust state budgets, the German government contributes to positive economic trends and stability in Europe. Economic growth in Germany has continued for eight consecutive years. In particular, national economy is steady: the number of the jobs demanding contributions to social insurance increases since 2010 every year, unemployment rate is at the lowest level as reunion German, and there was a substantial increase of the salary, salaries and pensions. Fiscal policies aimed at growth-friendly consolidation have long increased confidence and laid the foundation for stable macroeconomic conditions, future investment and jobs.

Germany's economy is characterized by excellent infrastructure and a highly skilled workforce. In Germany's economic system, several specific features are highlighted.

Germany's economy is organized on the principle of a socio-market economy characterized by a combination of social balance and market freedom. This economic model involves largely free market forces, but the focus is on social security. The concept

of a social market economy was first developed and implemented by Ludwig Erhard and Alfred Müller-Armak between 1947 and 1949 for the purpose of post-war reconstruction of Germany.[10,9]

This model is represented by economic growth and an even distribution of wealth. The center of the system is the entrepreneurial activity of the State, which ensures the equal distribution of social benefits in society. Social partnership between international unions and employers provides a fairly lasting social peace. Reforms in social insurance systems and structural reforms in the labor market are aimed at reducing labor side costs and stimulating economic growth.[5,6]

Germany has recently experienced some difficulties in implementing a model of socio-market management. The high level of social guarantees has led to the fact that 40% of the net profit of German companies goes to remuneration and contributions to social funds. Out of 100 euros of net wages, on average, employers' contributions to social funds account for 81 euros. A powerful fiscal press on the population and companies is used to maintain social benefits at the proper level. The level of taxation in the country reached significant levels by the late 1990s. Thus, while in the United States about 32% of retained earnings were allocated to taxes, in the United Kingdom - 45%, in Germany this figure reached 65%. To date, the tax rate on retained earnings in Germany is 50%.

The high rate of ageing of the population also causes considerable expenditure on social security for pensioners. During economic growth in 2010 and 2011, the unemployment rate fell to 6.9%.

The second feature of Germany's economic path is the so-called "Rhine capitalism," characterized by the significant role of banks in the country's economy. Banks are large shareholders of industrial and service companies in Germany, so they actively interfere in business decision-making. Thus, banks' position in

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Germany 's economy, given their real impact on business, is stronger than in other countries of the world.[17,19]

Germany 's economy is also characterized by a high degree of industrialization. Compared to many developed countries of the world, industry is a very large share in GDP production - the main direction of Germany 's specialization in the world economy.[20,18]

In Germany, for historical reasons, there is uneven economic development within the country. The integration and modernization of the economy of eastern Germany remains a time-consuming and costly problem. The annual contributions of the federal government here amount to about \$100 billion.[3,4]

Another feature of the German economy is its export orientation. The state is interested in the open market and significant expansion of the presence in the world market has been achieved over the last decade. According to the International Monetary

Fund, exports of goods and services have grown stronger than world trade since 1997. Even in 2001, when world trade declined by 0.2%, Germany 's exports grew by 6.7%. The most important trading partners are the countries of the European Union, especially France (in 2004 goods and services worth 75 billion euros were exported) and the United Kingdom (61 billion euros), as well as the United States, India, China and Eastern Europe due to the EU 's expansion to the East [1].

In conclusion, despite reforms in macroeconomic forecasting and planning, there are still some problems in macroeconomic modelling. In order to address these problems, it is advisable to analyze best foreign practices and to carry out appropriate reforms. As this solution, the authors propose to use the experience of Germany. All these problems can be solved if there is a clear plan to implement reforms of the macroeconomic model of development of Uzbekistan.

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THE DEGREE OF STRESS STATE OF THE RUBBER PART AT VARIOUS TYPES OF STRAIN

Abstract: The calculation results of stress-strain state of the rubber part that had the properties of the Mooney-Rivlin model were presented in the article. The degree description of stress state of the rubber part during maximum compression and tension was given.

Key words: rubber, strain, stress, compression, tension.

Language: English

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Introduction

The rubber products have the special properties. The high degree of rubber elasticity allows using these products at the action of significant variable loads without changing the material volume. Rapidly changing loads applied to the product surfaces are absorbed due to high elasticity of rubber.

The strain degree of the product depends on the physical and chemical structures of material, the mechanism of highly elastic strain and the relaxation processes [1-6]. The value calculation of resistance to destruction under the action of mechanical stresses is performed during tension of the rubber products. Determining the rubber properties is performed on the special equipment and takes some time. Let us consider state of the rubber part that has been subjected to the various types of strain (compression, relaxation, and tension) after implementing the process by the method of finite element modeling. This method of the calculation will allow determining stress and strain state of rubber and getting the dependence between these parameters.

Materials and methods

The rubber part that had the cube shape was subjected to strain. The part was thrown from the certain height onto the flat surface. The rubber part had the properties of the two-parameter Mooney-Rivlin model [7-11]: mass density – 920 kg/m³; the

Poisson's ratio – 0.49; the constant $A = 5.4 \times 10^{-4}$; the constant $B = 4.75 \times 10^{-5}$. The part moved progressively down to the plane with the initial speed of 30 m/min. The plane in the research was presented as the absolutely rigid wall.

Sliding between the contact surfaces of the part and the plane occurred without friction. The internal contact (taking into account the material type) that prevents the negative material volumes from being generated was set for the part. The shape distortion of the elements was suppressed by standard viscosity setting [12]. The linear and quadratic volumetric viscosity coefficients were accepted 1.5 and 0.06, respectively. The suppression coefficient during bending the shell element and the suppression coefficient during bending the cross section of the shell were accepted 0.1.

Results and discussion

The strain process of the rubber part consisted of the following stages: initial undeformed state of material, compression, restoring the original geometric shape and tension. The rubber compression process lasted 0.461357 s, the process of restoring the shape lasted 0.79549 s, and the tension process lasted 0.7175 s.

The dependencies of rubber stress from the strain degree during compression and tension are presented in the Fig. 1.

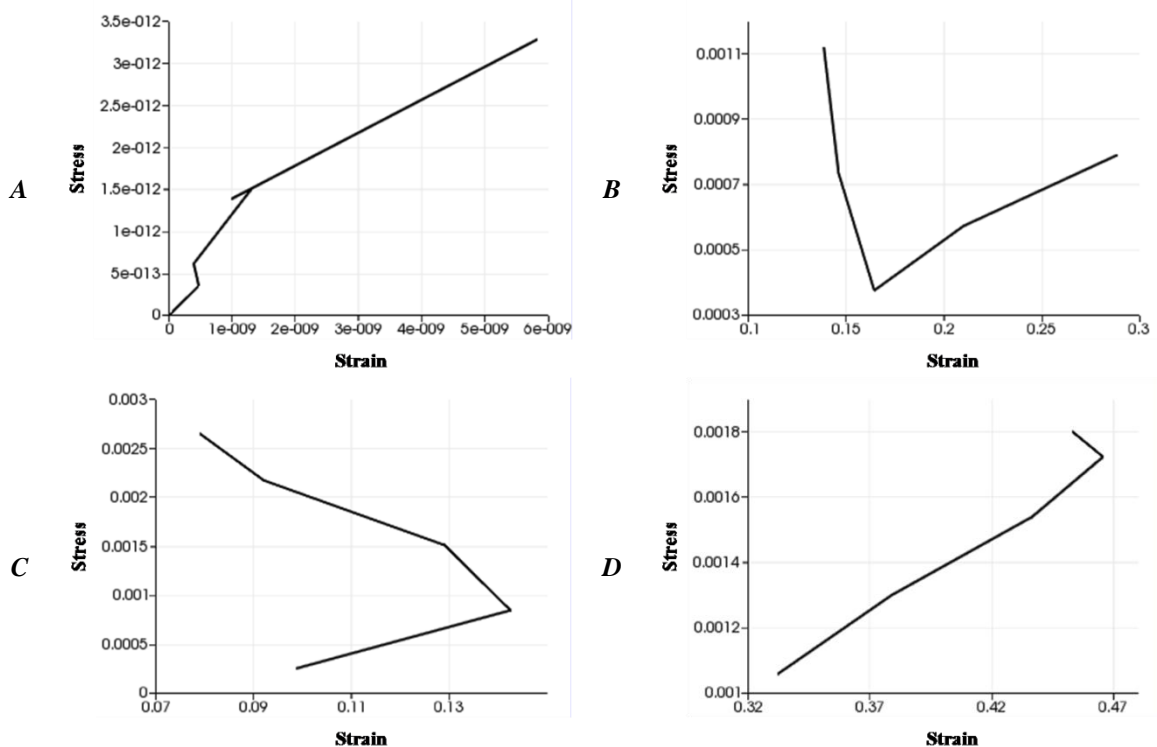


Figure 1 – The dependencies of rubber stress from the strain degree: A – the first contact of the part with the surface; B – maximum compression of the part; C – restoring the original geometric shape of the part; D – maximum tension of the part.

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The ratio of maximum strain to maximum stress was determined during tension of rubber. Stress in rubber increases in proportion to increasing strain. Rubber is deformed 1.5-2 times less during compression than during tension. The compression process is presented by two phases: the first is sharp decreasing material stress during small strain and the second is gradual increasing material stress during increasing strain by two times. Restoring the shape of the rubber part after compression is accompanied by decreasing stress from the maximum value to the minimum value (relaxation). Strain of the rubber part

increases at the beginning of the shape restoring process, and at the process end decreases.

Conclusion

The compression and relaxation processes are accompanied by transient stress-strain state of the rubber product. The mechanisms of changing strain and stress of the product material during compression and restoring the geometric shape are different. The rubber products are recommended using in the compression conditions. Rubber is deformed by 40-50% more during tension.

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DECISION OF PRESIDIUM OF INTERNATIONAL ACADEMY

According to the results of research work of the past 2019 and published scientific articles in the journal «Theoretical & Applied Science», Presidium of International Academy of Theoretical & Applied Sciences has decided to award the following scientists - rank Corresponding member and Academician of International Academy, as well as give diplomas and certificates of member of International Academy.



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Contents

	p.
37. Ismailov, S. Bakhouddin Nakshbands and Amir Temur.	201-204
38. Indiaminov, R., Kholjigitov, S. M., & Narkulov, A. S. Nonlinear vibrations of a current-carrying anisotropic cylindrical shell in a magnetic field.	205-211
39. Abdullaeva, M. Comparative analysis of the stories about “Alankuvo”.	212-219
40. Rasulova, U. Novelties in poetics of tales.	220-224
41. Ismailova, J. K. From the history of military art of Uzbekistan.	225-230
42. Mavlanov, T. M., & Khudaynazarov, S. Calculation of structurally inhomogeneous, partially filled with liquid, shell designs.	231-237
43. Sattorov, S. A., Turayev, T. Y., & Amonov, S. X. Application of computer technologies in the educational process.	238-241
44. Makhsomkhanov, R. A. Dogmatic views of Nuriddin Sobuniy reflected in his work “Al-Bidoya fi usul ad-din”.	242-245
45. Aleuov, U., & Pakhratdinova, T. Rules of children's games in folk pedagogy.	246-249
46. Mukhamedov, G. I., Khodjamkulov, U. N., Shofkorov, A. M., & Makhmudov, K. S. Pedagogical education cluster: content and form.	250-257
47. Sattarova, I. M. The place and significance of acquaintance activity in the upbringing of intellectual ability youth.	258-261
48. Djurakulov, H. A. The need to harmonize social and political methods and means in the formation of ecological justice.	262-265
49. Zakhidova, G. E., Khakimova, L. Y., Rashidov, D. G., & Rashidova, D. I. Specificity of modern education in the Republic of Uzbekistan.	266-270
50. Rakhimov, S. A. Importance and problems of temporary deposits in commercial banks (on the example of commercial banks in the USA and Uzbekistan).	271-276
51. Usarov, U. T., & Shakarov, K. O. Semi-empirical study of implicit exchange interaction in rare earth metal-weakly magnetic metal system.	277-280
52. Abdullaev, A. M., Tolibov, I. S., & Bahodirov, B. O. Macroeconomic modeling in Uzbekistan: using the Germany experience.	281-288

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53. **Chemezov, D., et al.**
 The degree of stress state of the rubber part at various types of strain. 289-291

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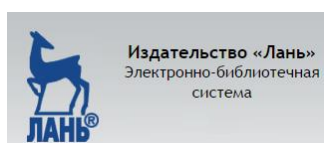
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