SCIENTIFIC RESEARCH OF THE SCO COUNTRIES: SYNERGY AND INTEGRATION

上合组织国家的科学研究：协同和一体化

Materials of the International Conference

Date: September 28

Beijing, China 2019

上合组织国家的科学研究：协同和一体化
国际会议

参与者的英文报告

International Conference
“Scientific research of the SCO countries: synergy and integration”

Part 2: Participants’ reports in English

九月28，2019。中国北京
September 28, 2019. Beijing, PRC

Materials of the International Conference
“Scientific research of the SCO countries: synergy and integration” - Reports in English

(September 28, 2019. Beijing, PRC)

ISBN 978-5-905695-62-9

这些会议文集结合了会议的材料 – 研究论文和科学工作者的论文报告。 它考察了职业化人格的技术和社会学问题。一些文章涉及人格职业化研究问题的理论和方法论方法和原则。
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These Conference Proceedings combine materials of the conference – research papers and thesis reports of scientific workers. They examines tecnical and sociological issues of research issues. Some articles deal with theoretical and methodological approaches and principles of research questions of personality professionalization.

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ISBN 978-5-905695-62-9

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Foreword

We thank all participants of our conference "Scientific research of the SCO countries: synergy and integration" for the interest shown, for your speeches and reports. Such a wide range of participants, representing all the countries that are members of the Shanghai Cooperation Organization, speaks about the necessity and importance of this event. The reports of the participants cover a wide range of topical scientific problems and our joint interaction will contribute to the further development of both theoretical and applied modern scientific research by scientists from different countries. The result of the conference was the participation of 69 authors from 7 countries (China, Russia, Uzbekistan, Kazakhstan, Azerbaijan, Iran, Kyrgyzstan).

This conference was a result of the serious interest of the world academic community, the state authorities of China and the Chinese Communist Party to preserve and strengthen international cooperation in the field of science. We also thank our Russian partner Infinity Publishing House for assistance in organizing the conference, preparing and publishing the conference proceedings in Chinese Part and English Part.

I hope that the collection of this conference will be useful to a wide range of readers. It will help to consider issues, that would interest the public, under a new point of view. It will also allow to find contacts among scientists of common interests.

Fan Fukuan,
Chairman of the organizing committee of the conference
"Scientific research of the SCO countries: synergy and integration"
Full Professor, Doctor of Economic Sciences

前言

我们感谢所有参加本次会议的“上海合作组织国家的科学研究：协同作用和整合”，感谢您的演讲和报告。代表所有上海合作组织成员国的广泛参与者都谈到此次活动的必要性和重要性。参与者的报告涵盖了广泛的主题性科学问题，我们的联合互动将有助于不同国家的科学家进一步发展理论和应用的现代科学研究。会议结果是来自7个国家（中国，俄罗斯，乌兹别克斯坦，哈萨克斯坦，阿塞拜疆，塔吉克斯坦，吉尔吉斯斯坦）的83位作者的参与。

这次会议的召开，是学术界，中国国家权力机关和中国共产党对维护和加强科学领域国际合作的高度重视的结果。我们还要感谢我们的俄罗斯合作伙伴无限出版社协助组织会议，准备和发布中英文会议文集。

我希望会议的收集对广大读者有用，将有助于在新的观点下为读者提供有趣的问题，并且还将允许在共同利益的科学家中寻找联系。

范福宽，
教授，经济科学博士，中国科学院院士，会议组委会主席“上合组织国家科学研究：协同与融合”

市盈率乘数的基本因素及其在寻找被低估资产中的用途
FUNDAMENTAL FACTORS OF THE PE MULTIPLIER AND THEIR USE IN SEARCH FOR UNDERVALUED ASSETS

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抽象。 本文讨论了评估金融资产的主要方法，重点是乘数的使用。 已经形成了决定价格利润比值的主要因素。 以俄罗斯股票市场为例，说明了寻找被低估资产的过程。
关键字：资产估值，相对估值，倍数，市盈率，市盈率，股票市场，证券市场。
Abstract. *The article discusses the main methods of assessing financial assets with a focus on the use of multipliers. Having formed the main factors determining the value of the price/profit ratio. The process of searching for undervalued assets on the example of the Russian stock market is demonstrated.*
Keywords: *asset valuation, relative valuation, multiples, P/E, price/earnings, stock market, securities market.*

Fundamental *PE* Multiplier Factors

Consider the main factors that determine one or another value of the coefficient *PE*. In order to show that the use of multipliers is inextricably linked with the method of discounting cash flows, we also formulate the definition of the multiplier *PE*:

$$PE_0 = \frac{\text{Share price}}{\text{Earnings per share}} = \frac{P_0}{EPS_0}$$

Also, using the simplest model of discounting dividends, we write down the value of the stock at time $t = 0$:

$$P_0 = \frac{DPS_1}{r_e - g_n}$$

Where,

DPS_1 – expected next year dividend

r_e – cost of equity

g_n – stable dividend growth rate.

Divide both sides of the equation by earnings per share:

$$\frac{P_0}{EPS_0} = PE_0 = \frac{DPS_1}{r_e - g_n} \cdot \frac{1}{EPS_0} = \frac{Payout\ ratio\ \cdot (1 + g_n)}{r_e - g_n}$$

Thus [2], the *PE* multiplier is a function of the dividend payout ratio, the cost of equity and the growth rate of earnings per share:

$$PE_0 = f(Payout\ Ratio^+, r_e^-, g_n^+) = \frac{Payout\ Ratio\ \cdot (1+g_n)}{r_e - g_n}$$

Fix the main observations obtained during the analysis:

- The *PE* value is an increasing function of the dividend payout ratio - ceteris paribus[3], the greater the ratio of the cost of share to earnings on share it will have;
- The function is decreasing from the cost of capital - the more risky an asset or enterprise is in the eyes of a marginal investor, the smaller the multiplier;
- Higher earnings growth increases the ratio of share price to earnings per share[4].

Note that, depending on the fundamental factors, the multiplier can justifiably take any value from the set of real numbers.

Next, we consider, in our opinion, the most rational use of multipliers based on the results obtained, demonstrate examples of their use on the example of Russian stock market companies, and highlight its potentially undervalued assets.

Statistical Methods

Using statistical methods, in particular the regression analysis method, we will try to explain the value of the dependent variable - the *PE* multiplier using one or more independent variables:

$$PE = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_n X_n + \varepsilon$$

As was hown, *PE* is a positive function of the dividend payout ratio, profit growth rate, cost of equity:

$$PE_0 = f(Payout\ Ratio^+, r_e^-, g_n^+)$$

Obviously, in the reality surrounding us, we cannot observe the equilibrium, stable[5] to the coefficient of dividend payments, the cost of equity and the perpetual growth rate of net profit. The most difficult and worthwhile task is to find visible objective fundamental characteristics of the company that correlate with the boundless determinants of the multiplier. Using some of the considered observable

[1] $Payout\ ratio$ - dividend payout ratio (percentage of net profit paid to shareholders in the form of dividends)

[2] $\frac{DPS_1}{EPS_0} = \frac{DPS_0 \cdot (1+g_n)}{EPS_0} = Payout\ ratio \cdot (1 + g_n)$

[3] Ceteris paribus - is a very important assumption. Paying a large part of the profits imposes serious restrictions on the growth potential of the company. Next, we show the relationship between profitability, dividend payout ratio, and net profit growth rate in explicit form

[4] Under $g_n \to r_e, PE \to \infty$

[5] Suitable for the assumptions of the Gordon model

variables, we will compose a model for predicting the *PE* coefficient based on the 43 largest companies on the Russian stock market of the Moscow Exchange. One of the possible [6] models is as follows:

$$PE = 6{,}55 + 10{,}34X_1 - 88{,}73X_2 + 1{,}22X_3 + 1{,}89X_4$$

X_1 – Dividend payout ratio

X_2 – Dividend yield

X_3 – $\frac{\text{Debt}}{EBITDA} = \frac{\text{Debt}}{EBITDA}$

X_4 – ROE

Tables 3 and 4 show that a high value of Fisher's F-statistics and an extremely high value of multiple and adjusted R^2 (0.93 and 0.85) for financial data indicate the validity of using this model.

Table 1 - *Regression statistics*

Multiple R	**0.93**
R Square	0.86
Adjusted R Square	0.85
Standard Error	3.37
Observations	43

Table 2 – *Variance analysis*

	df	**SS**	**MS**	**F**	**Significance F**
Regression	4	2755.36	688.84	60.65	5.54E-16
Residual	38	431.59	11.36		
Total	42	3186.96			

Table 3 - *values of the coefficients of the regression model*

	Coefficients	**Standard Error**	**t Stat**	**P-value**	**Lower 95%**	**Upper 95%**	**Lower 95.0%**	**Upper 95.0%**
Intercept	6.55	1.34	4.85	2.06E-05	3.82	9.28	3.82	9.28
Payout	10.34	0.91	11.30	1.01E-13	8.48	12.19	8.48	12.19
Yield	-88.71	15.61	-5.68	1.56E-06	-120.35	-57.11	-120.35	-57.11
Debt/ EBITDA	1.22	0.19	6.20	3.00E-07	0.82	1.62	0.82	1.62
ROE	1.89	1.76	1.07	0.29	-1.68	5.47	-1.68	5.47

[6]It is possible to change the specification of models using the nonlinear influence of dependent variables on an independent one

Now, substituting the values of the independent variables for each company into the obtained regression equation, we obtain the predicted multiplier values for each company from the sample. One of the possible interpretations of the discrepancy between real and forecast values may be the undervaluation of company shares. Figure 3 groups assets in descending order of balances. According to this methodology, Rosseti, MOESK, Surgutneftegas and Gazprom are the most undervalued assets. Assets highlighted in red are potentially overvalued. Reviewing strategies using short sales of these assets and opening long positions on undervalued securities is one of the possible strategies. Testing a portfolio assembled by a similar principle for the possibility of extra profit is of particular interest and deserves a separate study.

The use of statistical methods, in our opinion, is the most reasonable approach when using multipliers:

- The flexibility of the approach allows the use of regression analysis both within a specific sector or industry, and the market as a whole;
- The ability to constantly update the specification and the result of the model provides dynamism.

It is important to note a compromise between the explanatory power of the model and its economic feasibility. For example, the relationship between $\frac{Debt}{EBITDA}$ and the PE multiplier is not obvious. The simplest explanation may be the tendency of fast-growing companies to have a high level of debt compared to *EBITDA*. Nevertheless, this is most likely in no way connected with the overestimation or underestimation of the company. If the analyst's goal is to search for overestimated or underestimated companies, we recommend removing such variables from the model specification, resigned to the fall of R2 or Fisher F-statistics.

Different from the expected signs of the values of some coefficients for independent variables may be due to multicollinearity. A number of researchers believe that there is nothing wrong with the fact that the coefficients are not accurately estimated, no. An alternative is to change the specification of the model, get rid of some variables, or to override the variables.

Conclusion

Based on an overview of existing methods for evaluation of assets, the inextricable relationship between the family of cash flow discounting methods and the use of multipliers is shown, i.e., the value of the P/E multiplier is completely determined by the same characteristics that form the intrinsic value of any asset:

- The expected cash flows generated by this asset;
- Risk and cash flow uncertainty;
- Cash flow growth rate.

A robust alternative to empirical rules and appeal to intuition is to control the difference using the fundamental characteristics of the company and the use of statistical methods.

Further consideration of the topic of using multipliers in the context of asset valuation is planned in the following three areas:

- Algebraic decomposition and aspects of the application of other multipliers;
- Testing strategies based on the design of various portfolios using the set of multiplier application methodology;
- In-depth analysis of determinants of multipliers for solving problems in management[7].

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[7]For example, calculating the gradient of the resulting multiplier function will, using the Lagrange multiplier method, maximize the ratio of the company's capitalization to its net profit, taking into account the limitations [15]

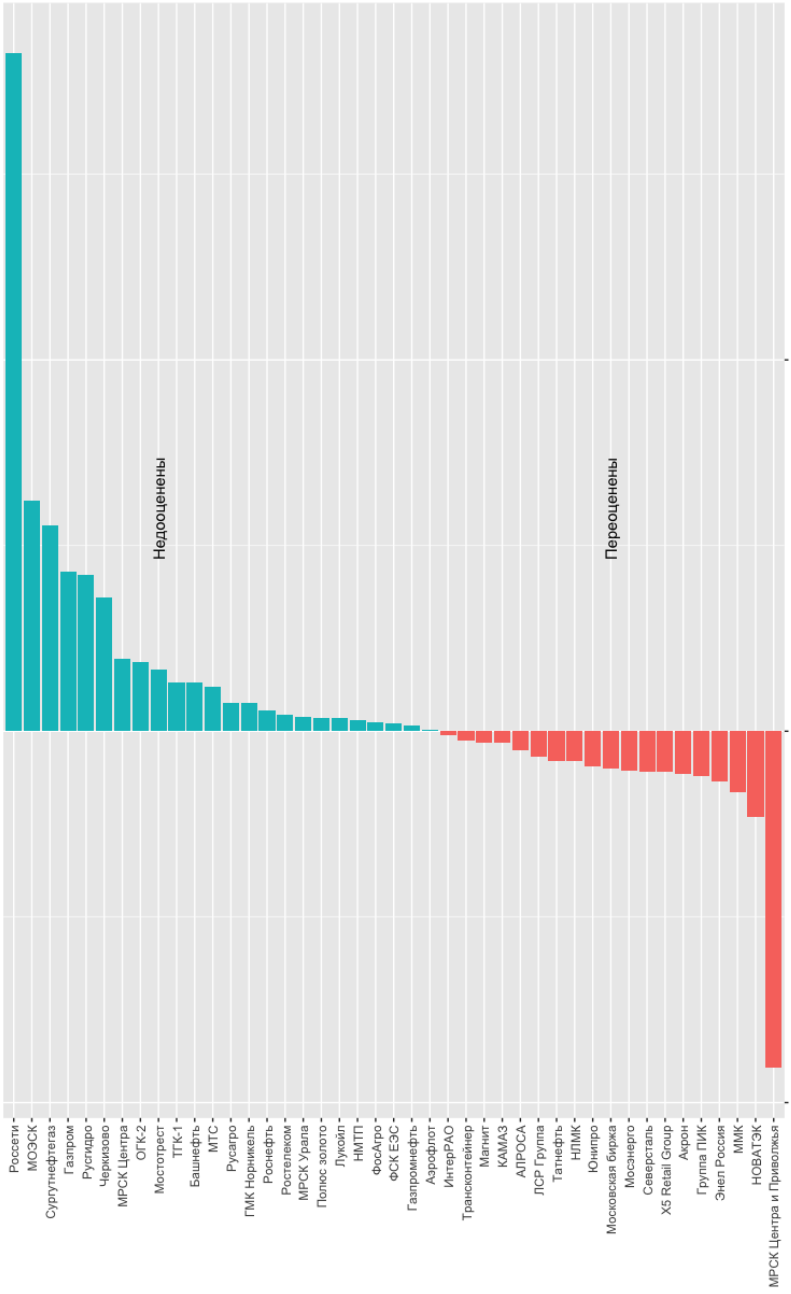

***Figure 1** - Underestimated / overestimated assets of the Russian stock market based on the balances of the regression model*

远程学习学生虚拟移动建模技术开发的概念方法
CONCEPTUAL APPROACH TO THE DEVELOPMENT OF TECHNOLOGY FOR VIRTUAL MOBILITY MODELING OF DISTANCE LEARNING STUDENTS

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抽象。 本文考虑了学生远程学习的问题，为学生虚拟移动建模的技术模块，开发该技术的方法，具有远程学习的学生虚拟移动知识图。
关键字：信息环境，远程学习，学生，虚拟移动性，建模。

Abstract. *The article considers the issues of distance learning for students, blocks of technology for modeling virtual mobility of students, an approach to developing this technology, a map of knowledge of virtual mobility of students with distance learning.*

Keywords: *information environment, distance learning, student, virtual mobility, modeling.*

The conceptual approach to the development and application of technology for modeling virtual mobility of students is based on ideas, principles, requirements and provisions that reflect current trends in the distance educational process, labor market requirements, regulatory legislation, potential and theoretical basis of a set of scientific disciplines, etc.

Let us describe the ideas that underlie the virtual mobility model of distance learning students:

- the idea of increasing the role and status of students' independent work;
- the idea of combining and complementing program-targeted and synergetic approaches to the formation of virtual mobility with distance learning;
- the idea of effective use of the material-spatial and information environment of the university, the creation of optimal conditions for the development of virtual mobility of students;

- the idea of using qualimetric monitoring procedures as a mechanism for providing feedback with the effectiveness of the development of virtual mobility of students in the educational process;

- the idea of highlighting the design, analytical, implementation, and expert-reflective stages of development of virtual mobility;

- the idea of using various types of educational activities as a procedural basis for the development of virtual mobility of students [1].

From the point of view of the conceptual approach, it is important to understand the mechanism for controlling the formation of virtual mobility of students of distance learning. On the one hand, distance learning is a strictly regulated process. The educational process is carried out on the basis of the Charter of the university, the educational program, on the basis of the curriculum, the plan of the faculty and the department, class schedules and other regulatory documents. If you look at the problem from the other side, where the participants in the educational process are people with their individual characteristics, abilities and inclinations, obeying the laws and principles of synergetics, according to which there are situations of multivariance and uncertain choice, spontaneity of trajectories, and managerial decisions.

In this regard, in relation to the management of the formation of virtual mobility of students of distance learning, we are talking about a synergistic approach. The conceptual conclusion and installation are taken into account during the design, planning, control and monitoring, analysis of the educational process.

Thus, based on the above conceptual provisions for the development of virtual mobility of students of distance learning, we will present a technology in which value-volitional, normative, resource, process-functional, managerial-diagnostic and resulting blocks are distinguished [2].

The value-targeted block of technology of virtual mobility of students of distance learning is presented in the form of target settings.

Let us highlight the priority targets:

1) effective formation and use of high-quality human resources necessary for a modern highly competitive innovative economy;

2) the fullest fulfillment by the university as a social system of its mission to reproduce qualified specialists [3].

Highlighted priority targets complement a number of values of virtual mobility, including the technical profile: values of orientation to professional standards; values of the fullest disclosure of the potential of the personality of the future specialist.

The normative block is connected to and supplements the value-targeted block of the technology of virtual mobility of students and is more formalized, official and mandatory. This technology unit sets a certain general framework, rules for the interaction of all subjects of the process, ensures the protection of the rights of students, and guarantees the transparency of the relationship.

The resource block of the technology of virtual mobility of students can be represented in the form of tangible and intangible resources. We classify material resources into material, technical, financial, personnel, and also partnership resources. Intangible resources are informational (including network), intellectual, innovative resources and potentials. The real purpose of this unit of technology of virtual mobility of students is to ensure the functioning of the distance learning system, the conversion of "input" characteristics to "output". The introduction of virtual mobile learning technology is based on a systematic approach with four essential elements. These are human factors; mobile learning management process; content (content); technological capabilities of modern ICT.

The social effectiveness of technology implementation determines the requirements, wishes, and expectations of various categories of consumers and customers of educational services, employers, and stakeholders with regard to the development of virtual mobility of distance learning students.

The pedagogical effectiveness of technology implementation shows the completeness of the achievement of pedagogical tasks that are set at various stages of higher education [4].

The managerial and organizational effectiveness of the implementation of this technology shows the quality of management of the remote educational process, the quality of program-targeted management of the development of virtual mobility of students of distance learning.

The process-functional block of the technology for the development of virtual mobility contains a complex of sub-processes during which individual interconnected pedagogical tasks can be solved. These subprocesses include: conducting competitive events; organization of information, joint activities with employers, etc. The effectiveness of the selected sub-processes is regulated by the plans and instructions of the university.

The management and diagnostic unit of the technology is a list of management tools in the form of functions, methods, and technologies for ensuring stability, controllability, measurability, and adjustment of the process under study in various situations and conditions. The process of developing virtual mobility of students is managed using functions interconnected and sequentially performed during the full cycle: studying needs - designing a process and pedagogical situations - planning a process - ensuring a process - implementing a process - monitoring, analyzing a process - evaluating results - conducting corrective actions.

The resulting block of technology for the development of virtual mobility of students puts forward the cumulative pedagogical effects in the form of certain qualities and properties necessary for the manifestation of virtual mobility of students.

Given the above classification of the results and effects of the process of developing virtual mobility of students, the authors carried out work on the formation of certain situations of development of virtual mobility of students of distance learning. Based on the analysis of scientific and methodological literature, we present a complex of technologies characterizing virtual mobile learning: technology of phases of mobile learning; mobile learning technology.

In the technology of phases of mobile learning, the following stages are distinguished:

1) activation (at this stage, the student's previous knowledge and cognitive strategies are activated);

2) reproduction (there is a reproduction of previous knowledge and intellectual models);

3) concentration (concentration of students' perception and cognitive processing of educational information);

4) interpretation (an explicit interpretation is performed by the student, based on perception and previous knowledge);

5) reflection (there is a reflection of their own interpretations and situational factors);

6) information processing (information is processed based on cognitive processes, problem solving, classification, comparison, development, etc.) [5].

Mobile learning technology includes a focused and ordered set and sequence of actions of a teacher and student through a joint or individual study of structured learning resources through work and educational communities.

Thus, based on the foregoing, we will present a map of knowledge of virtual mobility of students of distance learning (i.e., a structured interpretation of the concept under study, generalized in graphical and textual form).

The focus of this study is on the proposed virtual mobility technology for distance learning students, taking into account its transformation in open distance education. Changes made to the technology of virtual mobility of students are concentrated around the content of virtual mobile learning, tools, methods and forms of the technological subsystem.

The proposed technology of virtual mobility of students includes a focused, ordered set and sequence of actions of the teacher and students of distance learning through a joint or individual study of structured learning resources, work in educational communities. In the process of virtual mobile learning, an indirect interaction between the teacher and students is carried out, information and communication technologies based on wireless access to learning resources are actively used, students are transitioning to self-education and self-realization.

The knowledge map concentrates information on the technology of modeling virtual mobility of students and is presented in accordance with Figure 1.

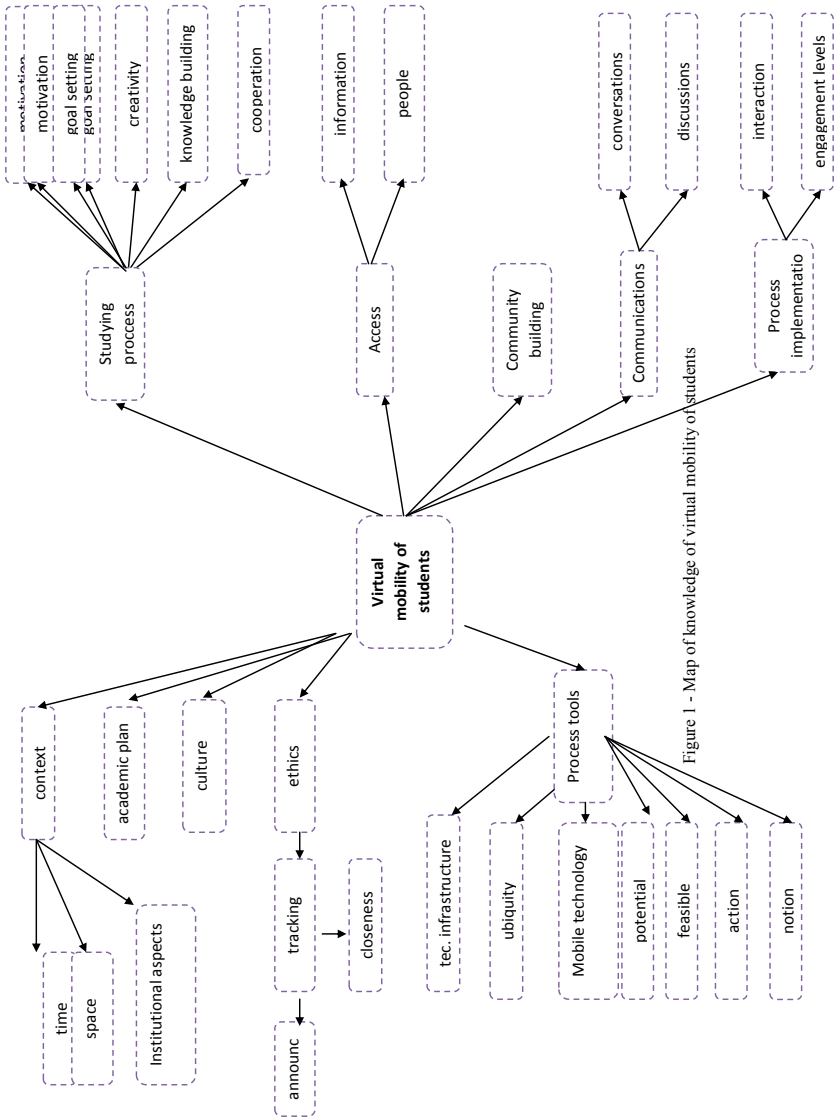

Figure 1 - Map of knowledge of virtual mobility of students

***Figure 1** - Map of knowledge of virtual mobility of students*

Thus, the technology of virtual mobility of students of distance learning is aimed at integrating the educational, scientific and managerial activities of the educational institution for the preparation of competitive specialists who are proficient in the main specialty based on modern information and communication technologies. The development of mobile learning tools provides an opportunity to take a fresh look at the technologies for the implementation virtual mobility of students of distance learning.

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开放世界的教育
EDUCATION THAT OPENS UP THE WORLD

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抽象。研究流动性是全球化时代的主要趋势之一。年轻人不受国家边界或语言和文化差异的束缚。他们准备离开家园，以接受高质量的教育，以保证将来的成功。外国留学生的队伍是国内高等教育竞争力的指标之一。为了提高国际排名，俄罗斯大学吸引了潜在的学生：他们提供配额，组织俄语语言的预备课程以及更新旅馆和体育馆的资金。本文的作者为自己确定了选择俄罗斯非资本大学（即乌拉尔国立教育大学）的外国申请人的动机。一项社会学研究表明，在USPU，大多数外国学生是中亚国家，前社会主义阵营和中华人民共和国的公民，地理每年都在扩大。学生面临各种困难：俄语知识匮乏，俄语教育系统知识匮乏，家庭混乱，与通常的社会文化环境隔离，但渴望获得更高的专业自我实现入门机会有助于克服这些困难问题。

关键词：适应，问卷，全球化，外国人，移民，教育，学生。

Abstract. *Study mobility is one of the leading trends in the era of globalization. Young people are not stopped by either state borders or linguistic and cultural differences. They are ready to leave their homeland in order to receive a quality education that guarantees success in the future. The presence in the contingent of students of foreigners is one of the indicators of the competitiveness of domestic higher education. In an effort to increase the international rating, Russian universities attract potential students: they provide quotas, organize preparatory courses for the Russian language, and update the fund of hostels and gyms. The authors of the article set themselves the task of identifying the motives for the choice of foreign applicants for a Russian non-capital university, which is the Ural State Pedagogical University. A sociological study revealed that at USPU the majority of foreign students are citizens of Central Asian states, the former socialist camp and the People's Republic of China, geography is expanding every*

year. Students face various difficulties: poor knowledge of the Russian language, lack of knowledge of the Russian educational system, domestic disorder, isolation from the usual socio-cultural environment, but the desire to get higher starting opportunities for professional self-realization helps to overcome these problems.

Keywords: *adaptation, questionnaire, globalization, foreigners, migration, education, students.*

Movement is the key to understanding modern society. Migration processes have captured people of different ages, professions, continents, their activity and direction depend on the political and socio-economic situation in different regions of the world. Most often, migration is forced, but not in the case of study mobility, the choice of an educational institution is the good will of a future student. World integration and globalization make it possible for a significant part of young people to feel like a man of the world, and they can quickly get involved in a foreign culture.

For domestic higher education, the presence of foreigners in the student body is an indicator of the university's international competitiveness. There are 50 states that regularly train young people from different countries. The leaders in this direction are Western countries: USA, UK, Germany, Canada, France. Russia is chosen by only 3% of future students [1]. Attracting foreigners to the ranks of Russian students allows the Russian government and educational institutions to create conditions for constructive and effective interaction with other countries, positively affect Russia's international ratings, and raise its profile [1]. The number of students from other countries in Russian universities today is more than 242 thousand people [1].

The Russian educational system does not divide students into “locals” and “outlanders”. The training conditions are provided exactly the same, both for Russian students and foreign students. As a rule, visitors do not have to pay more for tuition than for “native” students. As for free training for guests, they are allocated "quotas."

Minister of Education of the Russian Federation O. Yu. Vasilyeva at the annual forum in Sochi, said that the number of quotas for training of foreign students in Russia for 2019-2025 will be tripled - from 311 thousand to 700 thousand people [2]. A significant part of foreign students will be able to come to Russia and study at its higher educational institutions for free, living in student hostels on the same conditions as Russians, and sometimes even more comfortable. Every year a wide selection of professions and universities in which one can get them is offered.

In which countries is Russian education the most popular? A large proportion of students arrived from the CIS countries and the former socialist camp. Of the total number of foreigners studying, they make up 79.2% [1]. Next come immigrants from Africa, the Middle East, Asia (56.8%) [1]. Every year, the influx of students from China, India, Vietnam, and Thailand is increasing. The least attracted to study in Russia are students from Oceania, Australia and North America.

A significant part of students go to universities in the capitals - Moscow and St. Petersburg. In terms of the number of students from other countries, the State University of the Northern Capital is in second place after the capital's RUDN University (Peoples' Friendship University). In third place is the St. Petersburg Polytechnic Institute. However, educational institutions of Tomsk (Tomsk Polytechnic University), Novosibirsk (Novosibirsk Technical University) are also popular today; as well as Kazan (Kazan Federal University), Kursk (State Medical University); Belgorod (National Research University). A number of authors make forecasts that by 2025 the number of foreign students in the Russian Federation will triple [1].

In the Central Federal District there are 300 higher educational institutions in which, along with Russians, young people from other countries study. Only 130 are not metropolitan. The North-West okrug takes the second place after the Central - 96 universities, Siberia closes the top three — 91 universities [1]. Most of all, foreigners prefer to study full-time - 63%., About half of full-time students study on a budget basis [1].

In the last decade, a significant number of foreign students successfully receive higher education in the Ural, primarily in Yekaterinburg, where according to the data for 2019, 41 universities are working [5]. Yekaterinburg takes 15th place in the ranking of universities in the country. State universities of Yekaterinburg (18 educational institutions) provide an opportunity to enroll in budgetary education in many popular areas [5].

As in Soviet times, foreigners want to study medicine in Russia. 17% of all visitors seeks to obtain a medical education [1]. But other specialties are also popular: technical orientation - 22%; economics and management - 16%; humanitarian and social university programs - 12.2%; Russian language - 11.8% [1]. Currently, foreign students are interested in teacher education.

In the Ural State Pedagogical University, about 180 foreign students study in different educational units. A small part is students who came from China, Mongolia, Cameroon, Bulgaria, but most of the students are from the countries of the “near abroad”: Turkmenistan, Kazakhstan, Tajikistan, and Uzbekistan. They all live in Russia from several months up to 4 years.

At the Ural State Pedagogical University there is a Center “Preparatory Department and Support for Foreign Students”, whose employees help foreign citizens enter a new foreign-language, foreign-cultural environment. The program of the preparatory department "Russian as a Foreign Language" allows students to master the Russian language and prepare for admission to the university. The program includes reading, listening, speaking, writing, mastery of the lexical system, grammar, phonetics of the Russian language [3].

To help determine the choice of a university, a summer school for students from the Chinese Baicheng Pedagogical Institute was organized on the basis of the Ural Pedagogical University this year. The course is a module of the cultural and educational program "Learn and Study in Russian", which helps Chinese youth improve their knowledge of the Russian language and introduces the history and culture of Russia [4]. A summer school for Chinese students in Yekaterinburg has become an annual one.

The authors of the article asked what caused the choice by foreign students of a Russian university, and specifically the Ural State Pedagogical University, are their hopes coming true, what difficulties did they encounter? To analyze the situation, a sociological study was undertaken, which covered a tenth of all students from Central Asia.

Questions that interested the authors of the article: the reason for choosing an educational institution; what knowledge students had about the Ural; how to prepare for the trip; why the pedagogical university was chosen; what difficulties students encounter when learning; Are the educational process interesting for them? what is difficult in the educational space; what factors interfere with learning; how leisure time is organized in their free time, what are the prospects for professional implementation after graduation. Respondents could choose ready-made answer options, and they were also given the opportunity to express their own thoughts on the posed questions.

The motivation for choosing a Russian university by foreigners is diverse: the high status of Russian education in the homeland, the availability of the opportunity to receive a unique profession as a speech pathologist, speech therapist, and the relative simplicity of the admission procedure compared to other countries. However, the majority of respondents - 47% - react exclusively emotionally, choosing the proposed answer - I am interested in Russia.

Having opted for the Ural university, potential students from Central Asian countries had very vague ideas about the region. They imagined that it was somewhere far away, that this place with a cold climate or did not know anything about the region where they were going to study - 64% of the respondents. In only 29% of the responses, students showed geographical literacy, noting that they knew that the border between Europe and Asia was in the Ural. We can state that the choice of the place of study for most foreigners is quite random, which explains the difficulties of adaptation, especially in the first year of study.

Most of the students (up to 50% of respondents) responsibly approached a future trip to study in an unfamiliar country, and therefore they studied the Russian language on their own or at school, met and talked with people who studied in Russia or worked and could share personal impressions. For 30% of students, the main source of information about Russia and Yekaterinburg were the resource capabilities of the Internet.

It should be noted that up to 10% of the surveyed foreign students studying at Ural State Pedagogical University do not feel a language barrier, since their parents speak Russian, most of them after the collapse of the USSR were citizens of the former Soviet republics, and now independent states. For such students, Russia is a native country, here they do not feel like “strangers”. Such students, as a rule, studied at the Russian department in schools, participated in Russian language contests, and for them the language barrier at admission to the university was insignificant.

Respondents noted that parents had a significant influence on the choice of a university and the profession of a teacher, as 33% of students answered. The same number of students dreamed of being teachers, and the choice of a university was made consciously. Among the respondents there were also those who made their choice quite by chance, attracted by the financial availability of the period of study at the university or succumbing to advertising materials in the media, those were 5% of the students.

When asked what difficulties students faced after entering our university, students should have been extremely honest in their assessment of the situation when they found themselves in a foreign state and society. The realities turned out to be quite favorable, 44% of the students surveyed said that the biggest difficulty was that they had to study academic disciplines with which they were not familiar before. Among the difficult subjects was the history of Russia, which, for obvious reasons, is ignored in the post-Soviet space. It is hard enough for the first-year students who have not yet overcome the language barrier to master such an information-rich subject. Students also noted such disciplines as life safety, ecology, etc.

Problems arise in other positions: 22% of the students surveyed have difficulty perceiving lecture material, and find it difficult to prove themselves in practical classes. The same number of students with difficulty understand how to perform independent homework, 17% of foreign students noted that any tasks and activities at the university are difficult. At the same time, the same number of students perform all types of work without experiencing any difficulties. It all depends on the educational level and potential of students. It is unlikely that it will be possible to bring everyone closer to a common denominator.

The question of living conditions did not become relevant for the majority of respondents, only 11% of students noted a low level of hostel comfort, which is also a factor that negatively affects the learning process. The majority - 65% - largely suffer from loneliness, lack of support from parents and relatives. I must say that this is a common problem for all nonresident students, especially freshmen. The problems faced by foreign citizens studying at the Ural Pedagogical University do not prevent them from studying with interest, which 67% of respondents agreed with.

Foreign students compensate for the discomfort from being in an unfamiliar environment with active leisure, which helps them get to know their peers better and feel as a part of the team. A third of the students surveyed lead an active sports and creative life, and 22%, lacking in financial means, find the opportunity to "earn extra money". Of course, in a period free from studies, students attend cultural and educational institutions, leisure centers, but the language barrier is an obstacle to a wide acquaintance with the historical and cultural heritage of the Ural.

Studying the answers of foreign students to the question about life prospects after receiving education at USPU, we should be surprised to note that only 39% of the questioned students associate their fate with their historical homeland and intend to return, and there, perhaps, "organize their own business", to travel, "to arrange a personal life", since during study it is difficult. 17% of respondents are now ready to stay and continue their education at a higher level, they are ready to connect their future life with Russia. For 22% of foreign students, Russia remains unattractive, like its historical homeland, they dream of moving to another country.

Summing up, I would like to hope that the students answered openly and honestly. Adapting to new conditions of life is not easy. It can be noted that adaptation is influenced by various factors: it is not only the climate, but also differences in mentality, language barrier, a new educational system, living conditions, interpersonal relationships.

Communication efficiency depends on a number of factors. First of all, attention should be paid to the degree of complementarity of cultures, especially ethnic patterns of contactee behavior; the closer traditions, stereotypes, and attitudes are, the faster empathy and understanding are established. Adaptation is much more effective if the future student is prepared for the living conditions in Russia, selected for university education by a foreign entrant.

The appearance of foreign students in Russian universities poses a number of problems, both for students of a new type, and for university administration, teachers, and Russian students. For foreign students, before making their choice, it is necessary to learn about living conditions, traditions, the educational system in Russia, to have a basic level of knowledge of the Russian language. The administration of the university should establish a special department for escorting foreign students to assist them on a variety of issues: domestic, educational, leisure. It is necessary to organize not only Russian language courses for foreigners, but also ethnology classes for Russians.

In general, it can be noted that young people are quite easily adapted and mastered in Russian cities, and not only in capital cities. Over the years, Russian education has become more accessible, flexible, ready to exist in conditions of large-scale study mobility, to accept and form the required professional competencies for representatives of various ethnic groups. It is necessary to continue to conduct research on the specifics of the national psychological characteristics of various peoples, in order to take it into account and to create the conditions under which all young people who come to Russia from other countries will take home not only good impressions, a diploma testifying the development of the chosen educational program, but also a great amount of knowledge that will make them competitive in the labor market in any region of the world.

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UDC 378

防止师生之间的冲突互动
PREVENTION OF CONFLICT INTERACTION BETWEEN TEACHER AND STUDENT

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抽象。 本文对中等职业教育机构中师生之间的预防冲突问题的某些方面进行了分析，显示了针对预防师生之间的人际冲突进行心理和教育培训的测试结果
关键词：冲突互动师生心理教育培训中等职业教育机构

Abstract. *The article presents an analysis of certain aspects of the conflict prevention problem between a teacher and a student in secondary vocational education institutions, shows the results of testing psychological and pedagogical training on the prevention of interpersonal conflicts between teachers and students*
Keywords: *conflict interaction, teacher and student, psychological and pedagogical training, institutions of secondary vocational education*

The need for practice in ways and methods of conflict management between a teacher and a student and the insufficient development of this problem in modern science have led to the study of the prevention of interpersonal conflicts in the dyad “teacher-student” in the educational activities of secondary vocational education institutions.

Conceptual ideas regarding interpersonal conflicts are reflected in the works of M.M. Rybakova, I.E. Vorozheykin, O.N. Galanina, A.N. Leonova, A.Ya. Antsupova, E.G. Breslav and other authors.

In the course of the study, the goal was set: to substantiate the effectiveness of approving psychological and pedagogical training on the prevention of interpersonal conflicts between teachers and students.

In the course of implementing this goal, we came to the conclusion that the study of interpersonal conflicts is conducted from the point of view of various approaches: motivational, cognitive, activity-oriented, organizational. The approaches to the conflict are distinguished from the point of view of understanding

the essence of the conflict as a phenomenon: a description of the conflict as a negative phenomenon (constructive and destructive conflicts); as well as a description of the conflict as a natural condition for the existence of interacting people, an instrument for the development of an organization, any community.

Interpersonal conflict is considered by researchers as a situation based on contradictions that need to be resolved and cause activity of the parties aimed at overcoming the contradiction. A pedagogical conflict, which is a special case of interpersonal conflict, has, along with the general characteristics of interpersonal conflict, its own characteristics, which are largely determined by the specifics of activity and role asymmetry. Pedagogical conflicts include interpersonal conflicts between a teacher and a student that arise as a result of a clash of different opinions, views in the educational process of a teacher and a student.

Features of interpersonal conflicts between a teacher and a student are primarily in the teacher's responsibility for the pedagogically correct solution of the problem situations that have arisen. Among the main conflicts arising in the process of communication between teachers and students, there are such conflicts as a reaction to obstacles to the achievement of educational goals, conflicts of expectations and conflicts of personal incompatibility.

The main reasons for the occurrence of destructive (disrupting joint activity) and constructive (developing interaction) interpersonal conflicts in the teacher-student dyad in the context of the educational activities of STRs are subjective reasons based on real-life contradictions and objective ones related to individual and psychological features of teachers and students.

The methods of managing interpersonal conflicts in the teacher-student dyad are divided into intrapersonal methods, methods of influencing the student, structural methods, methods for the prevention and elimination of organizational conflicts, interpersonal methods for transforming the style of behavior in a conflict.

A diagnostic study of the problem of preventing interpersonal conflicts in the dyad "teacher-student" was carried out with 2nd and 3rd year students (26 people) in the field of "Engineering Technology", as well as teachers (5 people) of Kazan Technological College. Methods of diagnostic research were: "Assessment of the level of conflict" by V.I. Andreev, "Strategy and tactics of behavior in a conflict situation" by K. Thomas, "Personal aggressiveness and conflict" by E. P. Ilyin and P. A. Kovalev. Two questionnaires were also developed to identify knowledge about the nature of the conflict and identify the causes of interpersonal conflicts in the teacher-student dyad from the point of view of students and from the point of view of teachers.

According to the results of the first survey, it was concluded that teachers are more aware of the nature and methods of conflict prevention (65% of correct answers) than students. 3rd year students answered 32.2% of the questions, 2nd year 26.7% of the questions.

According to the results of the second survey, the main causes of conflicts in the teacher-student dyad, according to teachers, are: differences in perceptions, values, life experience, belonging to different generations; violation of standards of conduct in joint activities; the discrepancy between the student's self-esteem and that given by the teacher. On the part of students, the causes of conflict are: the need to evaluate the students by teacher, lack of motivation to study and to a future profession, violation of the norms of behavior in joint activities.

Diagnostic results according to V.I. Andreeva showed a rather high degree of conflict in student groups. A high level of conflict, as well as a level of conflict above average in the second year was showed by 29% of students, indicators average, lower than average and low - 14% each. In the third year, the high level of conflict was 26%, above average - 31%. Teachers are dominated by an average and above average conflict level - 40%.

Diagnostic results by the method of K. Thomas showed that the majority of 2nd and 3rd year students try to avoid conflicts (29% and 32%), or choose a confrontation strategy (29% and 27%). For teachers, in a conflict situation, the cooperation strategy prevails (40%).

The results of the methodology of E.P. Ilyin and P.A. Kovalev showed a rather high degree of aggressiveness and conflict among students: in the 2nd year, the general conflict was 24%, 8.9% - negative aggressiveness, 13% - positive aggressiveness. 3rd year students showed 24.3% of the total conflict, 9.4% of negative aggressiveness and 13.1% of positive negativity. Teachers made 21.3% of the general conflict, 8.5 - negative aggressiveness, 13.8 - positive aggressiveness.

In order to form the ability of an adequate response in conflict situations in the dyad "teacher-student", psychological and pedagogical training was developed and tested. The training program included 3 blocks and amounted to 16 hours. The methods and forms of work in psychological and pedagogical training were games, group discussions, practical exercises, work in pairs and mini-groups, mini-lectures, presentations. The goals and objectives of the first block are acquaintance, group cohesion and deepening self-disclosure processes, the formation of knowledge about the nature of the conflict and its causes. The tasks of the second block are to familiarize participants with the rules and styles of conflict resolution. The tasks of the third block are the development of skills to smooth out conflicts, analysis of problem situations and assessment of results (Table 1).

According to the results of the control experiment, positive dynamics could be observed: according to the methodology "Assessing the level of conflict", the students have reduced a high and closer to a high level of conflict (by 15% for 2nd year students and 5% for 3rd year students). 40% of teachers above the average level of conflict dropped to 20%.

Table 1. *Training program*

№	Lesson topic	Goals and objectives	Content
1 block	“Conflicts in our life”	Acquaintance; rallying the group and deepening self-disclosure processes; the formation of knowledge about the nature of the conflict, the causes and methods of managing them	1. The game "Snowball". 2. The game "Space Speed" 3. Exercise “Adoption of the rules of the training” 4. The game "Associations" 5. Mini-lecture: Conflict. Pedagogical conflict. Causes and factors of interpersonal conflicts in the dyad "teacher-student". 6. The game "Uncertain, confident and aggressive answers"
2 block	"Conflict management"	Acquaintance with the rules and styles of conflict resolution, development of conflict resolution skills	7. The role-playing game "Causes of the conflict." 8. The game "" YES "means" NO "" 9. Role-playing game "Conflict play." 10. Exercise “Me in conflict” 11. Exercise "Techniques that reduce stress"
3 block	"Self-control in communication"	Development of skills to smooth out conflicts; analysis of the distance traveled and assessment of the results	12. Exercise "Rules of conflict-free communication" 13. Game “A Worthy Answer” 14. Exercise “30 proverbs” 15. Exercise “Last meeting”

According to the results of diagnostics by the Thomas-Kilmann methodology, students have changed indicators of conflict behavior strategies: the prevailing styles of behavior became cooperation (29% in the 2nd year and 22% in the 3rd year) and a compromise (29% in the 2nd year and 27% in the 3rd year). 20% of teachers also changed their tactics of behavior from adaptation to compromise.

According to the “Personal Aggression and Conflict” methodology, second-year students decreased their overall conflict rates by 1.9%, positive aggressiveness decreased by 0.9%, and negative - by 1.1%. The general conflict of 3-year students dropped to 22.8%. The indicators of negative aggressiveness (1.6%) and positive aggressiveness (0.5%) also decreased. Positive changes were also observed in teachers: the general conflict decreased by 1, 3%, indicators of negative aggressiveness decreased to 7.8%, and positive - to 12.0%.

The aforesaid allows us to conclude the practical significance of the study, as well as the effectiveness of the use of psychological and pedagogical training on the prevention of interpersonal conflicts in the dyad "teacher-student" in the educational activities of TVET.

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UDC 378

未来专家准备从事专业活动的问题的某些方面

SOME ASPECTS OF THE PROBLEM OF FORMATION OF READINESS OF FUTURE SPECIALISTS FOR PROFESSIONAL ACTIVITY

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抽象。 本文讨论了未来中等职业教育专业人士准备活动形成的一些问题，提出了诊断研究的结果，证实了学生职业生涯准备活动形成的教学条件

关键词：职业准备就绪，中等职业教育学生，教学条件

Abstract. *The article discusses some issues of the formation of the readiness of future specialists of secondary vocational education for professional activity, presents the results of a diagnostic study, substantiates the pedagogical conditions for the formation of readiness for professional activity of students*

Keywords: *readiness for professional activity, students of secondary vocational education, pedagogical conditions*

The relevance of studying the issue of the formation of readiness for professional activity of students of secondary vocational education as a holistic phenomenon, which is the goal of vocational training, is associated with the requirements to ensure the competitiveness of specialists in the labor market. There is a need to create conditions that determine the education of highly qualified graduates who have developed professional thinking and are able to apply the knowledge gained in their professional activities.

Due to the foregoing, the aim of the study was the theoretical justification of pedagogical conditions that ensure the effectiveness of the formation of readiness for professional activity of students of secondary vocational education.

The problem of students' readiness for professional activity was reflected in the works of V.K. Dyachenko, M.I. Makhmutov, E.F. Zeer, and also E.N. Koreneva, A.V. Velichko, E.A. Koksheneva, N.V. Belosludtseva and other researchers.

When analyzing the psychological and pedagogical literature, it was revealed that today there are many points of view on the problem of forming students'

readiness for future professional activities and many approaches to understanding "readiness for professional activities". Willingness is examined from the standpoint of personal, competency, activity and psychological approaches. Students' readiness for professional activity is not only a consequence of the influence of external organizational factors, structures (institutes, universities) in which the educational activities of students are carried out, but also the result of the activity of the person.

The formation of readiness for professional activity of students of secondary vocational education can be defined as the process of developing complex comprehensive education, which implies the student's ability to determine their professional goals, analyze and evaluate existing conditions, choose the most suitable methods for solving problems, successfully fulfill their responsibilities, and the student's high level of motivation to work and study.

To monitor the formation of readiness for professional activity among students of secondary vocational education, the following criteria were identified for readiness for professional activity: a cognitive criterion characterized by the presence of theoretical knowledge among students and expressed in the completeness and strength of knowledge; activity criterion, which allows to determine the skills and abilities of using knowledge in practical activities; motivational-value criterion, which makes it possible to assess the formation of motives and value orientations of students.

Based on the severity of these criteria, the levels are determined: high, medium, low.

An empirical study conducted with third and fourth year students of the Kazan College of Technology had an analysis of readiness for professional activity as the main purpose of the study. The experiment was attended by students studying in the specialty "Installation and technical operation of industrial equipment (by industry)." The experiment was conducted as part of the professional module "Organization, installation and repair of industrial equipment."

According to the previously identified criteria of readiness for professional activity, a set of diagnostic tools was defined: this is a test method of A.S. Smirnova at the interdisciplinary course of the professional module in the specialty 02.15.01 "Installation and technical operation of industrial equipment (by industry) (cognitive criterion); observation of students' practical activities (activity criterion); test by G. Rezapkin "Educational and professional motivation of college students"; M. Rokich's methodology "Definition of value orientations" (motivational-value criterion).

To determine readiness by the cognitive criterion, the test of A. S. Smirnova was used. Analysis of the test results allowed us to conclude that students have a low level of theoretical knowledge; lack of completeness and strength of knowl-

edge. The main factor of such results is that the professional module is poorly studied, students have just begun to study this course.

The results of testing 4th year students showed that students have an average level of assimilation of theoretical knowledge. Compared with the first group, students of this group are characterized by sufficient completeness and strength of knowledge.

To determine the level of readiness by the activity criterion, the observation method was used. For this purpose, practical classes of both groups were attended.

Based on observations of the practical activities of students of the 3rd year, it was concluded that students have an average level of formation of practical skills, as the majority have sufficient speed and the correctness of the task, but students need control from the teacher.

Testing results of 4th year students showed that students of this group, compared with the first, have a higher level of practical preparedness. In this group, a greater number of students are able to independently and correctly complete the task; students are more active and proactive.

To determine the level of preparedness by the motivational-value criterion, the methods of Rezapkin and Rokich were applied. Testing by the method of G. Rezapkin includes four characteristics by which the educational and professional motivation of students was determined.

The results of testing students of the 3rd year testified to a high level of motivation among students, which indicates a desire for excellence and readiness for intensive work. At the same time, students have a high level of educational anxiety. Most respondents are characterized by compliance with social norms, i.e. they attempt to make decisions under the pressure of circumstances and authorities, and a balance of external and internal motivation - such motives as understanding the need for work and study, communication and evaluation of significant people are important for students.

Based on the results of testing 4th year students, it was concluded that graduate students have a pronounced desire to achieve success in their professional activities, but they have a higher level of anxiety, which can mainly be caused by nervous strain due to with graduation from college. They are more independent and responsible, compared with third-year students. They are also characterized by a balance of external and internal motivation.

The methodology of M. Rokich made it possible to determine the values of students that are most significant to them. The slide shows the hierarchy of values of students of both groups. It turned out that for the respondents of both groups, the dominant role in life is occupied by interesting work and good friends. Graduates want to make the most of their opportunities, in comparison with third-year students who are interested in the emotional richness of life. In achieving life values,

students of both groups rely on reason, but the respondents of the first group prefer restraint, then the other prefer hard work.

In percentage terms, the level of formation of each criterion with respect to both groups is as follows:

The cognitive criterion - third-year students: high level - 21%, middle level - 33%, low level - 46%. Graduating students: high level - 22%, middle level - 52%, low level - 26%.

The activity criterion - third-year students: high level - 25%, average level - 42%, low level - 33%. Graduating students: high level - 39%, middle level - 43%, low level - 18%.

The motivational criterion - third-year students: high level - 58%, middle level - 29%, low level - 13%. Graduating students: high level - 61%, average level - 39%, there are no students with a low level of motivation.

Identified pedagogical conditions for the formation of the readiness of future specialists for professional activities, as part of the study of the discipline "Organization and installation and repair of industrial equipment", became:

1. Improving the cognitive motivation of students through the use of active educational technologies in the study of this discipline. Imitation active technologies should be applied in order to simulate a real production environment, which will allow students to have a greater understanding of future professional activities and increase their cognitive motivation in studying this discipline.

2. Implementation of a competency-based approach. The result of mastering the program of the professional module is the mastery of students in professional and general competencies, this is the use of the following active and interactive technologies:

- Case technology. As a result of conducting classes using the case method, students develop professional judgment and a desire to find a new effective solution to the problem. This technology develops students' independent thinking, the ability to listen to someone else's point of view and reasonably express their own.

- Game technology. Game technologies form the skills necessary for professional activities, broaden students horizons, develop memory, speech, thinking, and creative abilities; the concentration of attention and the performance of students increases.

- Brainstorm. This technology encourages students' creative activity by obtaining the maximum possible ideas from each member of the group to resolve a problem or find an answer to an important question.

- Technology project design. This technology creates the conditions for independent acquisition of knowledge from various sources, develops communication skills, research skills, and forms analytical thinking.

- Technology of problem education. As a result of posing problematic questions, students develop thinking, assimilate the knowledge and skills gained in the course of an active search and solve the problem independently, as well as develop creative abilities, manifested in the ability to see, pose and resolve emerging issues.

- Technology for the development of critical thinking. When using this technology, students develop the mental skills necessary both in educational activities and in everyday life - the ability to make informed decisions, work with information, analyze various aspects of phenomena and processes, etc.

- Information and communication technologies. When implementing this direction using various computer programs in work, students develop computer skills, which is an important component of any professional activity.

3. Organization of independent creative activity of students. In order to organize independent creative activity of students, the following forms of independent work should be applied:

- writing a report, abstract, term paper, which contributes to the expansion of the scientific horizons, mastery of theoretical research methods, the formation of independence of student thinking;

- compilation of a glossary, which raises the level of information culture, helps to acquire new knowledge;

- development of a project that cultivates the ability to predict, design, simulate;

- fulfillment of case-tasks, forming skills that help students to analyze a large amount of information in a short time;

- development of a multimedia presentation, the purpose of which is the development (consolidation, generalization, systematization) of educational material;

- solving professional problems that develop professional knowledge and skills.

4. Orientation of students to a reflective analysis of their actions and conditions. In order to form reflection, teachers should apply the following teaching methods: problem-search method, logical methods, method for solving educational problems, method of control and self-control. Training methods: creating problem situations, posing problem questions, problem tasks, problem experiments. Forms of organization of educational activity: work in pairs, individual work.

The revealed pedagogical conditions make it possible to consider vocational training as a single process, during which purposeful interaction of the teacher with students is carried out in order to improve knowledge and skills, develop professionally important qualities necessary for the effective implementation of professional activities.

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俄罗斯高等教育体制中的冲突
CONFLICT IN THE SYSTEM OF HIGHER EDUCATION IN RUSSIA

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抽象。 本文考察了俄罗斯高等教育体系转型过程的后果，这种变革导致了该地区社会紧张局势和冲突的出现。 作者揭示了造成冲突的因素的特征，并对俄罗斯高等教育系统中的社会冲突进行了分类。

关键字：冲突，冲突产生因素，社会冲突，商业化，社会关系。

Abstract. *The article examines the consequences of the transformation processes of the higher education system of Russia, which led to the emergence of social tension and conflict in this area. The author reveals the features of conflictogenic factors and gives a classification of social conflicts in the higher education system of Russia.*

Keywords: *conflict, conflictogenic factors, social conflict, commercialization, social relations.*

Modern Russian society is in continuous development, which is accompanied by a periodic increase in social tension and the emergence of conflict situations in all spheres of its life, including in the field of education. Of particular relevance is the study of the sources and types of conflicts in the higher education system of Russia, which are caused by the consequences of serious structural changes. So, in the current conditions of globalization and technological innovation, the question arises of training highly qualified specialists, and, accordingly, the transformations taking place in the world of work dictate new requirements to the education system. Now it's becoming irrelevant to gain competence in only one limited professional sphere, the criteria for evaluation of the effectiveness of an employee are changing significantly.

In order to adapt the education system to the new requirements, in 1999 in Europe, the so-called Bologna education system was developed, which in 2003 was adopted in the Russian Federation[1]. The main goal of introducing the Bologna system was the integration of higher education standards in the European zone,

[1]Tsiguleva O.V. Educational models of higher education in Western Europe and Russia in the framework of the Bologna process // Bulletin of Tomsk State University. - 2014. - № 388. P. 227.

which in the long run would lead to a pan-European space of higher education and significantly increase mobility in the labor market[2].

Large-scale transformations of the education system have affected, among all, higher education. In 2012, the basic principles of the Bologna Declaration were introduced into the higher education system of the Russian Federation, such as a unified system of academic degrees, a two-level curriculum, the mobility of students, teachers and employees of higher education, as well as common standards for the quality of education[3]. The consequence of the introduction of these principles in higher education in Russia was an increase in social tension in the educational environment, which can be explained by the unpreparedness of the Russian higher education system and society as a whole for the changes[4].

One of the aspects of modernization of the educational process is the introduction of the latest information technologies. In modern realities, information is becoming one of the most significant resources, therefore, the informatization of the educational process makes it more effective. Moreover, a high level of informatization is becoming one of the factors of competitiveness of a higher educational institution. For example, distance learning forms, allow you to quickly perform some operations, it also becomes possible to interactively present training materials (presentations, videos, etc.). Such a situation causes a change in the role of the teacher in the educational process. Previously, he acted as the main medium of information, but now his role is gradually becoming advisory. So, the former, authoritarian position of the teacher is replaced by the position of democratic interaction between the teacher and the student, based on the initiative of the student and contributing to the formation and development of the student as a person.

Thus, one of the conflicting factors in higher education is the computerization of the educational process. Accordingly, new information technologies are actively being introduced into the learning process, entailing noticeable changes in the role and status of higher education, rooted in the fact that new technologies conflict with traditional forms of education[5].

Another source of increased conflict is the commercialization of higher education. In modern education, the institutional basis for the commercialization

[2]Shekhovtsov A.N., Shekhovtsova N.A. Traditions of the University of Bologna and the modern Bologna process // Bulletin of VolSU. Series 4. History. Regional studies. International relationships. - 2013. - №1 (23). P. 154.

[3]Tsiguleva O.V. Educational models of higher education in Western Europe and Russia in the framework of the Bologna process // Bulletin of Tomsk State University. - 2014. - № 388. P. 227.

[4]Same. P. 229.

[5]Sivolapov A.V. Computerization of education: modern problems and development prospects // Education and Science. - 2005. - № 2. P. 42.

of higher education is being formed: new legislative acts are emerging, private higher education institutions exist, and the number of students studying on a contract basis is growing. With the introduction of paid educational services, the material status of his parents began to have a significant impact on student status. Groups of students from economically better-off families are often isolated from the rest of the student body, which leads to an increase in social tension in student groups. Secondly, in the context of the commercialization of the higher education system, the role of higher education is changing: now universities and institutes are not only educational and scientific institutions, but also new cultural and economic communities. As a result, a special cultural, political and economic elite is formed, which indicates a significant transformation of traditional academic values.

In the educational environment, the stratification of students is increasing, and this means not only a different degree of student achievement, but also incentive factors, that is, different motivation for getting a higher education. So, some students adequately assess changes in the labor market and respond to emerging requirements for an employee. The motivation for obtaining higher education for such students may be the desire to obtain the necessary knowledge and skills that will ensure their competitiveness in the labor market. Other students have fuzzy life guidelines, they are alienated from the educational process. For them, the will of parents or other close people who have influence on them is often the driving force for higher education.

Thus, students are conditionally divided into several groups, characterized by different motivation and behavior patterns within the educational process. Thus, significant changes in the motivational-value orientations of students in connection with the transformations taking place in modern society are becoming a potential source of conflict between subjects of the educational process.

The specificity of conflicts in the higher education system stems from the role that higher education plays in society, as well as from the structure of educational institutions themselves. Higher education institutions are characterized by all the features of the organization - the presence of the charter, state registration, labor relations. Since the specific type of organization "higher education institution" conducts its activities in accordance with the standards established by the state, social and labor relations are carried out in the field of education, the number of teachers and students is established by the regulations. At the same time, it has a social function: meeting the needs of the individual in obtaining knowledge and skills[6].

[6]Nesterova L.V. Conflict levels of higher school teachers and how to reduce them // Science and World. - 2015. - № 6. P. 79.

Conflicts during the educational process in higher education are inevitable, as its subjects have unequal social statuses and perform different roles[7]. Having studied the possible sources of social conflicts in the higher education system, conflicts in higher education can be grouped into three main types. The first type of conflicts are "society - higher school"[8]. This type of conflict arises in the relationship of higher education with other social institutions. Conflicts such as "society - higher school" reflect the prevailing attitude towards higher education in society, and it reveals a real, rather than a proclaimed opinion[9].

The main source of conflicts of this type is the socio-economic situation of higher education in modern society. In the Russian Federation, the main problem of higher education in the current economic conditions is the lack of state funding of higher education. So, from 2012 to 2016, the share of education expenses in the total expenditures of the Russian Federation decreased by 10.3%[10]. This situation leads to the fact that high school is largely dependent on funds received from students studying on a contractual basis[11].

Thus, the status and role of higher education in modern society is changing in connection with transformations in the field of higher education - commercialization, computerization, globalization[12]. Conservatism in higher education and the rapidly developing Russian society, in which reorientations are taking place in the economic, political and spiritual spheres, can lead to conflict situations along the lines of “higher education institution - society”.

The second type of social conflict in the system of higher education is observed in the system "rector - collectives of the educational institution." This type of social conflict manifests itself in the primary collectives of higher educational institutions and is directly related to managerial problems[13]. It reflects the level of measures taken to ensure effective leadership in higher education and the introduction of innovations. This type of conflict includes all structural units of a higher educational institution: faculties, departments, academic councils and public organizations. Here we consider the relationship in the teams during the educational process.

[7]Kukhtevich T.N. Social conflicts in higher education (sociological analysis). NIIVO. – Moscow, 1993. P. 6.

[8]Same. P. 6.

[9]Kukhtevich T.N. Social conflicts in higher education (sociological analysis). NIIVO. – Moscow, 1993. P. 8.

[10]Kozlova E.K. State funding of higher education in the Russian Federation // Studarctic forum. 2017. № 6. P. 74.

[11]Anokhina Yu.A. Problems of commercialization of higher education: sociocultural and economic aspects // St. Petersburg Educational Bulletin. - 2017. - № 9-10. P. 15.

[12]Same. P. 15.

[13]Kukhtevich T. N. Social conflicts in higher education (sociological analysis). NIIVO. – Moscow, 1993. P. 6.

The third type of conflict in higher education includes conflicts of the type “subject - subject”[14]. Let us consider in more detail conflicts of this type, the particular manifestations of which are conflicts along the lines of “student-teacher”, “student-student”, “teacher-teacher”, “teacher-managment”[15].

Student-teacher conflicts are a special type of social relationship that has its own specifics. So, on the one hand, they are typical subject - subjective relations in which the culture of modern society is reflected, and on the other hand, their specificity is determined by educational activities in which the teacher is vested with certain authority in relation to students[16].

The effectiveness of the educational process largely depends on the ability of the teacher to respond to emerging social conflicts. The causes of social conflicts between teachers and students can have both objective and subjective nature. It should also be noted that the assessment of the causes of a conflict situation varies among students and teachers[17]. Students generally consider the distancing of teachers, that is, the manifestation of obvious isolation by the teacher, as well as the teacher's emphasized demonstration of their superior position, as conflictogenic. So, according to the study of conflictogenic factors in relations along the line of “teacher - student” by E.S. Ignatova, students arranged the causes of conflicts of this kind in the following sequence. The students consider “unreasonable accusations and reproaches” from teachers as the most acute factor in conflict situations. Students consider “the incomprehensible presentation of the educational material” to be the second most important conflict factor, and “the indifference, indifference of teachers to students' needs” is the third[18].

According to teachers, conflicts between them and students occur primarily due to the "tactless behavior of students." The second most important conflict factor, the teachers consider to be “disagreement of students with the grades,” the third - “failure to fulfill the tasks of the teacher”[19].

R.V. Kupriyanov’s research on conflicts in the system of relations "teacher - student" shows similar results. According to students, the most common conflict situations in pedagogical practice are: firstly, "illogical (incomprehensible) presentation of educational material"; secondly, “the indifference, indifference of the teacher to the needs and needs of students”; thirdly, "the teacher’s excessive

[14]Same. P. 7.

[15]Nesterova L.V. Conflict Levels of Higher School Teachers and How to Reduce Them // Science and World. - 2015. - № 6. P. 80.

[16]Kukhtevich T. N. Social conflicts in higher education (sociological analysis). NIIVO. – Moscow, 1993. P. 15.

[17]Ignatova E.S. The study of conflictogenic factors of pedagogical interaction in the university // Discussion. - 2014. - № 10 (51). P. 128.

[18]Same. P. 128.

[19]Ignatova E.S. The study of conflictogenic factors of pedagogical interaction in the university // Discussion. - 2014. - № 10 (51). P. 128.

requirements for discipline"[20]. However, these conflict situations do not always lead to conflicts. Situations that most often cause a conflict are defined by students as follows: “biased assessment of work, pickiness”, “refusal to accept an test result or give the necessary mark on the exam”, “unfounded accusations and reproaches”[21].

In the course of a study conducted by R.V. Kupriyanov, teachers noted as the most common following conflict situations: students being late for classes, failure to complete tasks set by the teacher, students skipping classes. The most significant conflict-generating factors for teachers are: “communication with the teacher in an aggressive, defiant manner”, “violation of the rules of conduct in public places”, “student failure to complete assignments”, “non-attendance of classes”[22]. Thus, based on the data obtained during the study, R.V. Kupriyanov concludes that for teachers, the most significant conflict factor is functional incompatibility with the student, while for students, both functional and communicative incompatibility affect the occurrence of conflicts equally.[23].

So, for the teacher, the following parameters can be called important parameters that influence the occurrence of conflicts during the educational process: professional knowledge and their compliance with the current level of development of science, his values and worldview orientations, motivation for teaching, pedagogical skills, motivation, knowledge and aspirations of students[24]. For students, the parameters of conflict in the educational process are: value orientations, motivation to study, self-esteem and self-criticism[25].

As noted earlier, during the educational process, conflicts also arise along the lines of student-student relations. This type of conflict is most likely to occur in the first year in connection with the process of self-assertion of individuals in a student group [26]. For the youth environment, psychological characteristics such as increased emotional excitability, inability to control their emotions, as well as insufficient experience of conflict-free conflict resolution are characteristic. The main sources of conflict in the student community are social inequality, the desire for self-assertion, insufficient life experience and heterogeneity of students[27].

[20]Kupriyanov R.V. Interpersonal conflicts in the dyad teacher - student / Kazan: KSTU, 2011. P. 129.

[21]Same. P. 130.

[22]Same. P. 141.

[23]Same. P. 142.

24Kukhtevich T. N. Social conflicts in higher education (sociological analysis). NIIVO. – Moscow, 1993. P. 16.

[25]Kukhtevich T. N. Social conflicts in higher education (sociological analysis). NIIVO. – Moscow, 1993. P. 17.

[26]Nesterova L.V. Conflict Levels of Higher School Teachers and How to Reduce Them // Science and World. - 2015. - № 6. P. 80.

[27]Same. P. 246.

Conflicts in the system of relations "teacher - teacher" are based on inconsistency of temperaments, as well as various values in the teaching staff. In the teaching environment, several lines of behavior can be distinguished that lead to conflict situations. Firstly, this is the rivalry of teachers seeking to achieve success in scientific activity, with already recognized authorities. Secondly, the attitude of more experienced teachers towards young with emphasized excellence and some condescension. Thirdly, the desire of some teachers to create a favorable impression about themselves, not through teaching, but through participation in various extracurricular activities[28]. All of these behaviors can lead to conflict in the teaching environment.

And finally, the last type of conflict of the type “subject - subject” in the higher education system is the conflict between teachers and management. This type of conflict may arise due to excessive requirements for the teaching staff from the leadership. Also, the cause of a conflict situation may be the uneven distribution of the leadership load among teachers and unreasonable claims and accusations[29].

Thus, as a result of the transformation of the modern system of higher education in Russia, such principles as a unified system of academic degrees, mobility of students, teachers and employees of higher education, unified standards of education quality, and the active introduction of the latest information technologies were implemented. On the one hand, new perspectives for training and professional development have appeared, and on the other, sources of social tension and conflict in the educational environment have intensified.

[28]Nesterova L.V. Conflict Levels of Higher School Teachers and How to Reduce Them // Science and World. - 2015. - № 6. P. 80.

[29]Nesterova L.V. Conflict levels of higher school teachers and how to reduce them // Science and World. - 2015. - № 6. P. 80.

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诚信原则是人格道德地位形成的基础
THE PRINCIPLE OF INTEGRITY AS THE BASIS FOR THE FORMATION OF THE MORAL POSITION OF THE PERSONALITY

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抽象。在本文中，作者考虑了相关“语言状态”中人格完整性的原则，并以现代社会文化媒体空间中的历史实例作为支持。

关键词：身体与精神的关系，爱的完整，古代俄罗斯的历史，叶夫根尼·普里马科夫，俄罗斯的文化时代，意识形态的信念，政治先祖，作为爱的对象的祖国，文化和语言的完整 ，个人和国家的完整性。

Abstract. *In this article, the authors consider the principle of integrity of the personality in the correlation "language-state", backing it up with historical examples in the modern socio-cultural media space.*

Keywords: *the relationship of physical and spiritual, the integrity of Love, the history of Ancient Russia, Evgeni Primakov, the cultural era of Russia, ideological conviction, the political patriarch, the Motherland as an object of love, the integrity of culture and language, the integrity of the individual and the state.*

All genuine creation is based on the principle of integrity. So, if in earlier times it was said: “all living things are from living things”, now we know a scientifically based, universally recognized formula: “all integral things are from integral”, with the hierarchy ascending to the Creator of the Universe, due to which every moment life in the Earth is realized . According to many scientists, in particular, on the scientific theory of academician V.I. Vernadsky “everything in the world possesses integrity: the rivers and forests, the sea and the soil of the Earth are integral, the cosmic sphere and every living cell on Earth are integral. The Universe and man are integral; people and every personality. Holistic culture, language and every word; every human name is integral. States and any human activity are integral. World, big and small is integral. Everything in its integrity is magnificent. And in its greatness it all is interconnected” [2].

Knowing this principle, it would be a mistake to assume that creative human activity is possible in the separation of political tasks from economic ones; educational, scientific and cultural tasks - from spiritual; and in general - all social and many other, strategically important, state tasks - come from moral and ethical.

In discussions about the creative prospects for the development of Russia today, a huge complex of problems - political, economic, social - inevitably comes down to the paramount issues of morality of the spiritual culture of the people.

Awareness of this principle - the close relationship between the physical and the spiritual - is the path to cognition, the path to comprehending one's involvement in everything that happens in the world, and it is in this that there is a deep essence of human life: only in belonging to everything we find and determine the great spiritual meaning of our being, t i.e. the meaning of the life of your personality. It is quite obvious here that the meaning of life can only be in life, in the possibility of a person experiencing its results. Of course, that understanding of life and its meaning can be different. The worldview of a person is formed on the educational base of knowledge and human education. And on the principle of integrity, education without a proper educational process, without the transfer of knowledge cannot form a worldview conviction in a person. Therefore, the principle of integrity in the educational process involves not only the development of a solid worldview and the acquisition of theoretical knowledge, but also the development of moral standards in a person, the development of a person's sense of conscience, inculcation of norms of pure morality, spiritual culture. And spiritual culture is always the exaltation of man.

Russian culture in its integrity is inextricably linked with the past and future, with the culture of mankind, with the traditions of the native culture, with spirituality, with Orthodoxy, with the spheres of goodness and love, and with its historically developed, centuries-old, unique identity - it is a unique integral unity.

And if a person, growing up and forming, penetrating at each stage of his growing up into the depths of his own image, that is, into his inner world, reveals the possibilities of his personality through culture, this person achieves in his development an understanding of the meaning and the ultimate, saving higher goal of his life, certainly and inevitably falling into the realm of goodness and love.

It is undeniable that such a person reaches the spiritual and moral level that makes him a full-fledged member of human society. And in this context, a person's earthly path can and should go with dignity, and this means that a person must lead a moral life, perform worthy deeds, have worthy thoughts and motives.

An integral property of a spiritually highly developed personality, a property arising from the realm of goodness and love, is compassionate and active love, that is, charity. In other words, one of the forms of activity of the sphere of goodness and love, expressed in readiness to help those in need, is mercy. And since beginning of mankind - its most important mission on earth has been to help each other in difficult life situations. Charity is the most important quality of the human soul. In its manifestation, it means selfless love, boundlessly emanating from the depths of the heart.

The article "Asceticism in the Modern World" examined types of asceticism, including "external asceticism," formulated by the holy Orthodox elder of the Valaam Monastery, Sheikhumen John (Alekseev) [4, p. 19-131]. In conjunction with the theme of the principle of integrity, the following example of the holistic, but unspiritual activity of "external asceticism" —that is, without the involvement of physical, social acts with faith, with a spiritual culture — you can clearly see its hopeless, non-salvific foundation remaining in its spiritless shell - a closed-profane integrity that does not fall into the life-saving spiritual-eternal process that does not rise above earthly life.

In the rich historical and patristic arsenal of different periods of time there are many wonderful names of great and famous people, distinguished by the height of their genuine spiritual and ascetic service to the world and which are ideal models for all generations. Starting from ancient Russia, one can consider such examples to be the ruling statesmen of the dynasty of the Rurikovich clan.

Many brilliant examples to follow are in a closer period to our lifetime. Among them, we well know the names crowned with world fame: the great commander of Russia Alexander Vasilievich Suvorov (1729-1800), who undoubtedly occupies a leading place in Russian military history; the great painter Ilya Efimovich Repin (1844–1930), one of the founders of the Russian realistic school of painting.

Many modern, eminent people, frantic ascetics, whose life is wholly devoted to the fulfillment of the most worthy, creatively high, spiritual mission, is present in our modern era. Among the first of the many respected compatriots, I would like to name:

Yuri Pavlovich Simonov (Vyazemsky) - Candidate of Historical Sciences, Professor, Head of the Department of World Literature and Culture of MGIMO Yuri Pavlovich - a prominent public figure in Russia, enlightener and publicist, is also the author and TV presenter of the best intellectual and educational television program for children and high school students "Umniki i umnitsy", repeatedly awarded the highest television award "TEFI".

Speaking about the integrity of the personality as the basis for the formation of its moral position, it is necessary to pay attention to the media personalization of EM Primakov, whom student journalists identified during the survey among many prominent people of the twentieth century. Respondents explained his rating by the fact that the politician combined several hypostases: journalist, orientalist, intelligence officer, economist, politician, prominent academician, writer, memoirist. It turns out that students chose an example of media personality, which has become a historical hero of various socio-political formations. The humanistic orientation of the sociocultural policy of the state, the recognition of the human factor as the decisive force of positive transformations in society determine the concept of the journalistic hero of our time. During the tragic events on Dubrovka, one of the hostages called one of the television channels and said in a hurried whisper: "Our situation is getting worse. Tell Primakov to come to negotiations with the terrorists." Who this man was is unknown. But, for sure, the caller saw a chance for saving people precisely in the appearance of a politician, by the way, a former journalist, with an impeccable reputation as an experienced negotiator. Perhaps the status of the former Minister of Foreign Affairs, the head of the government, seemed in that terrible context capable of shaking the scales. Primakov, the virtuoso of compromise, went without a moment's hesitation.

Asked by journalists if he felt a sense of fear on Dubrovka, Primakov cringed: "It was chilly." Naturally, he is a person, and a person has a feeling of fear. But the politician possessed state thinking, more global. Was it less dangerous in the midst of the Lebanese war to cross the front line in Beirut on a day called "Bloody Saturday"? Fall under fire? And who could give EM Primakov any security guarantees when, before the start of a new war in Iraq, he again flew there on behalf of V.V. Putin? Or make his famous loop over the Atlantic, thereby expressing his attitude to the actions of the Americans and NATO in Yugoslavia? [5, p. 9].

The Prime Minister's turn round over the Atlantic Ocean was one of the highlights of the time that he held this position. Evgeni Primakov was on a visit to Washington on March 24, 1999. When the plane was over the Atlantic, politics was informed that NATO forces began to bomb Yugoslavia. The head of the Russian government in response ordered to cancel his trip and turned the plane back halfway. Although the politician himself commented on it this way: "This is not heroism at all ... I performed the function that any normal prime minister should have performed ... I think that today we can firmly say that we have taken the right position" [8].

The deeply erudite, humanistic, whole nature of Primakov the diplomat is expressed in the search for a way out of an uncontrolled situation. It is known that conflict is not just a clash of oppositely directed goals ... This is a special kind of interpersonal interaction - conflict interaction, expressed in various strategies and tactics of behavior of the parties to the conflict aimed at achieving their goals [1]. Unlike his predecessor, A. Kozyrev, nicknamed by some journalists “Mr. Yes,” E. Primakov draws a tougher line, trying to get the maximum benefit for Russia. This is a statesman politician who puts Russia's interests first and foremost.

Especially significant in the process of communication are the orientations of the cultural code, which in the linguistic picture of the world move the categorization and conceptualization of reality, form a precedent base, and in live communication implicitly orientate communicative behavior in accordance with ethical cultural standards. As Minister of Foreign Affairs E.M. Primakov was well remembered due to the fact that, according to the remarks of his colleagues in the shop, "he restored dignity to the foreign policy of Russia and its diplomatic service." It was under him that Russia switched from Atlantism (when the country was fully oriented toward the US course) to a multi-vector foreign policy. Thanks to such a balanced policy, Moscow developed partnerships with the West and the East equally, thanks to which it managed to declare itself as an independent and strong player in the political arena. Thus, thanks to his thoughtful policy as the head of the Foreign Ministry and the government, the country was able to quickly catch up on lost positions and defend its own interests. To the question of journalists: “Why are we all diplomats to Hamas and Hezbollah: do we have to negotiate at all costs?” Primakov replied: “... no matter how powerful the motivation may be, armed action against civilians is a real terrorism. We must look for those with whom we can find a common language. We should count on them in search of compromises” [5, p. 220-221]. In the article "Compromises are meaningless" in the journal "Russia in Global Politics" [9] the philosopher, political scientist-orientalist E.Ya. Satanovsky emphasized that “awareness of what is happening, readiness for action and the ability to respond“ according to the situation” - are three components, the combination of which will give a positive answer to the question posed.”

At the end of 1998, according to the "Public Opinion" Foundation, the Russians chose E. Primakov as the politician of the year, President B. Yeltsin took only ninth place in this list. In the same 1998, according to the POF, he was second after G. Zyuganov in the ranking of presidential candidates. Six months before the Duma elections, E. Primakov was fired from his post as prime minister, and, according to the POF, 81% of Russians did not support this decision. The emphasis on the political personality is very relevant, because thanks to their energy, historical changes occur or traditions are supported; this is due to a general change in human individuality and tendencies to personalize the subject of history [7, p. 61].

The political patriarch, having outlived many of his colleagues in the profession, for all his status, remained an extremely modest person, knowing for sure that his work must always be done with dignity, at the highest level, with full dedication. At the same time, he remains true to his ideals, because these ideals are the ones on which the world stands, on which Russia has been holding for centuries. The homeland as an object of love in its subject attributes (language, territory, economy, psychology and culture) coincides with the nation. The homeland is comprehended intuitively, by heart, the ability to love it, as well as the ability to love in general, is a special gift that not everyone has [3].

For all his goodwill, E.M. Primakov was known as a closed person. But in the moments of rest he received poetic lines in which we see how much moral, human energy was expended by him in order to remain a statesman: *"I'm squeezing slave out of myself - there's no harder work, / At first, it sin't very clear who to squeeze out of yourself ... / I work in three shifts, / But I remain the same in actions and deeds. / Perhaps genes were programmed in advance / To live in shackles to the very end?..".*

For any print publication, friendship with such an outstanding politician is a point of pride. The employees of "Literaturnaya Gazeta" were connected with him by humanitarian ties, appreciating the multifaceted professionalism of Man in him: "It is very important that we can hear his wise, calm word. Such people in history are always rare, but states cannot stand without them ... Once, our correspondents were in Switzerland at one of the international events. Evgeny Maksimovich also spoke at it. Later, on the sidelines, encountering our journalists, he said with a smile: "If i would have known that "literaturka" was in the Hall, I would have done better!" Humor is also one of his inherent qualities. We were proud that Primakov appreciated and loved our newspaper "[10, p.1]. The famous political scientist and journalist V. Tretyakov on his Facebook page admires the professionalism of E.M. Primakov, in particular, writing: "Evgeni Primakov is the reformer № 1 in Russia. Do as he says, and Russia will win." The famous scientist G. Mirsky was conquered by E. Primakov's political foresight: "Each time he came, we met with him, as we continued to be friends and were in the same company. I remember once he said to me: "Remember that last name Saddam Hussein, sooner or later he will be the first person in Iraq." I say: "Well, I will remember." A prominent Israeli politician Ariel Sharon said: "Mr. Primakov is a very smart person... Mr. Primakov knows the world" [6].

It is clear that all these respected, held, self-sufficient, worthy people are a mirror of the modern social, spiritual, educational and cultural era of Russia, its "golden weights", which have made an invaluable contribution to the revival of Russian culture by the weight of their activities.

All of them are extraordinary, talented, highly educated, intelligent and well-known, but modest in the spiritual essence of their inner content. And, as we see, not only these qualities unite them. They are dominated by the wealth of accumulated spiritual potential, combined with humane, touching, selfless, unlimited mercy, expressed in their determination, in their mature approach to understanding their earthly tasks, to fulfilling the earthly mission, which the Holy of Holies gives to every person born on Earth - The Most High Creator is in the inextricably moving chain of Eternity, in the interconnectedness of the whole holistic Universal world. Respect for the very holistic Life, endless, having a promising meaning in the continuation, also prevails here.

We need to know this principle. And in order not to take over and over again the revival of lost spiritual values, all of humanity should always not only remember this wise philosophical principle, but carefully preserve it in all its diverse integral forms - for the good of peace on Earth, for the good of all eternally living. For in the whole Holistic Life lies the great, deep spiritual meaning of the supreme Universal Unified Integrity, and in its holistic Love - Life is beautiful. It is beautiful as long as we, humanity as a whole, do not allow it to crack!

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十八世纪下半叶英国印刷版中的杰出俄罗斯人：M.V。罗蒙诺索夫
OUTSTANDING RUSSIANS IN THE VISION OF BRITISH PRINT EDITIONS IN THE SECOND HALF OF THE EIGHTEENTH CENTURY: M.V. LOMONOSOV

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抽象。 俄国最伟大的科学家米哈伊尔•瓦西里耶维奇•洛蒙诺索夫（Mikhail Vasilievich Lomonosov）的名字，即他在科学和文化上的成就，在十八世纪末因在俄罗斯旅行中作为旅行团的一部分而出名的旅行者而在英国广为人知。 上述信息在1797年出版的《大不列颠百科全书》中得到反映，表明英国人对这位伟大科学家的活动特别感兴趣。

关键字：十八世纪下半叶 英国罗蒙诺索夫，威廉•考克斯（W. Coxe），大不列颠百科全书。

Abstract. *The name of the greatest Russian scientist Mikhail Vasilievich Lomonosov, his achievements in science and culture, were known in Britain at the end of the XVIII century thanks to notes of travelers who visited Russia as part of the Grand tour. The reflection of the above information in Encyclopedia Britannica, published in 1797, indicates a special interest of the British in the activities of the great scientist.*

Keywords: *second half of the XVIII century, M.V. Lomonosov, Britain, William Coxe (W. Coxe), Encyclopedia Britannica.*

The history of relations between Russia and Britain is a series of ups and downs, love and hatred, complete harmony and deep hostility to each other. At different stages of historical development, our countries were both partners and enemies, both in the political sphere and in the economic sphere. Naturally, these processes reflected on the degree of British interest in Russian realities and leading personalities of the state.

The name of Mikhail Vasilievich Lomonosov (1711 - 1765), the greatest scientist in Russia, whose name is known all over the world thanks to the Moscow University, at the origins of which he stood, whose name the university proudly bears

today, is not ignored by any researcher of the history of Russia in any country of the world. This name was known in Britain at the end of the XVIII century. The third edition of "Encyclopedia Britannica", published in 1797, contains a short biography of Lomonosov with a list of his works. All subsequent editions of this authoritative source of information, the "scholar's encyclopedia", also contain information about the scientist.

The objective of this study is to track what kind of information was presented by the British print media about M.V. Lomonosov, what was known about Mikhail Vasilievich in England in the second half of the 18th century, who was the first among the British to draw the attention of the British public to the works of our famous compatriot, which of his works were translated to English.

The source for this study was William Coxe's notes on Russia; "Encyclopedia Britannica". Works on the history of Russia by Anthony Kross, academician Mikhail Pavlovich Alekseev, Irina Viktorovna Gunyakova, Nikolai Viktorov were used as bibliographic material.

The state and economic interests of Russia and Britain of the study period were closely related, the issues of the relationship between the two powers, in particular the strengthening on the southern borders after the Russian-Turkish wars, began to not only occupy, but also disturb British politicians. The end of the century (1791, 1793, 1795 - "Ochakovo crisis", sections of Poland) was marked by a surge of Russophobia in English society. The British, quite naturally, became keenly interested in the history of Russia, its potential in all areas of the economy, natural resources, and government. Cultural issues were less interested. But, in fairness, it is worth noting that this trend applies not only to Russia. Recall that first of all I asked you to pay attention, sending abroad to the "Grand tour" (a compulsory overseas trip for younger gentlemen), Lord Chesterfield of his son Philip. What useful knowledge, in his opinion, can a young Englishman, a future worthy member of society, bring from a trip abroad? "I hope that during your stay in Berlin you will carefully study how the possessions of the King of Prussia are governed, what civil authorities exist there, what are the structures of the army and the spiritual hierarchy, and you will pay special attention to the army, which is at a higher level in this country, than anywhere else in Europe. (...) You should also find out what changes the King of Prussia has made in recent years in the field of jurisprudence: they allowed him to reduce the number of court cases and expedite their parsing; it is a great merit, it is worthy of a great sovereign".

Taking all of the above into account, it is not surprising that the first work by Lomonosov, translated into English and published in London in 1767, was The Brief Russian Chronicler (1760), that is, an essay on the history of Russia. In the English version of the publication, it was called "A Chronological Abridgment of the Russian History: Translated from the original Russian Written by Mi-

chael Lomonosoff… and continued to the present time by the Translator". Mikhail Lomonosov was named in the title "professor of chemistry at the St. Petersburg Academy of Sciences." "In the dedication of this book to the Russian envoy in London, F.S. Musin-Pushkin emphasized that it contains the history of the Russian state, "written by one of the most gifted and learned people." The translator, the future famous German enlightener Georg Forster (1754–1794), points out the importance of the topic chosen for translation for the English reader, the novelty of the information.

The "Grand Tour", or rather, the accompaniment of Lord Herbert, the eldest son of Count Pembroke, as a mentor (incidentally, having become related later to the family of the Russian envoy in London, Count Semyon Romanovich Vorontsov), caused William Coxe to come to Russia (William Coxe, 1747–1828) The first time he stayed in Russia was from August 1778 to February 1779. The second time (already as a mentor to a graduate of Oxford, the son of a well-known in England brewer Samuel Whitbred) Coxe lived here from November 1784 to April 1785. The result of the first trip was the essay "Traveling to Poland, Russia, Sweden and Denmark" (these very works are of interest for the purposes of our study). The publication was reprinted many times and translated into many languages, even subjected to counterfeiting. According to the authoritative opinion of academician M.P. Alekseev, the work of Coxe was known, even in fragments, in Russia in the 80s of the XVIII century. However, Coxe's interest in our country was not exhausted on this. Information about Russia is contained in the subsequent works of the traveler: "Report on Russian discoveries between Asia and America", "Report on prisons and hospitals in Russia, Sweden and Denmark".

A significant place in Coxe's notes is occupied by his personal impressions of various aspects of Russian life: here are stories about meetings with peasants, and reviews of Russian folk music, and a brief summary of Russian history, retelling of the latest political news and court gossip, anecdotes. What is especially important for us, Coxe collected information about outstanding personalities of Russia, and the information is very reliable

Coxe was the first of the British to write about Lomonosov. What exactly drew his attention to this figure?

Information about Mikhail Vasilievich appears in the second volume of the essay, in the section on Russian poets. Coxe describes in sufficient detail all the stages of Lomonosov's life, names the main positions held by Mikhail Vasilievich, gives information on the areas of his interests, presents an extensive list of literary works by Mikhail Vasilievich, including his translations. This list, written in small italics, occupies a whole page, which indicates the author's desire to draw the audience's attention to the scale of Lomonosov's literary activity and its significance for Russian literature.

The first thing that struck Coxe was that Lomonosov, not being a representative of the nobility, managed not only to get a decent education in Russia and Germany, but also to reach the heights of his scientific career. "Lomonosov was the son of a fish merchant from Kholmogor, he was born in 1711, fortunately, he was taught to read, which was very rare in Russia for a person of such a low social status." “Lomonosov is a rare, perhaps the only example in Russia that wasn’t a man of noble birth, not a priest, has achieved considerable fame in the literary field. But, perhaps, such examples will soon cease to be a rarity, since the schools established by Catherine in all corners of her vast empire will attract the lower strata of the population to receive knowledge, and with the natural curiosity of the population, the honor and encouragement that accompanies the literary process will contribute to the desire to acquire such kind of knowledge. "

The main merit of Lomonosov, according to Coxe, is the reform of the Russian language. He writes: "Lomonosov is a great reformer of his native language." Describing the state of the latter before the reforms, Coxe notes that before the reign of Peter “there were really only a few poets, but their verses were more likely to be rhymes than poems. But even during the period of his [Peter] reign, the art of versification was just beginning to take shape. And then Lomonosov appeared. ”

Without delving into insight into the essence of the reform, he notes, referring to the opinion of L'Evesque, ("... if, of course, you can believe this person ..." (quote from "Travels ...")), which, according to Coxe, "was well versed in Russian language ”that Lomonosov“ enriched his native language with various sizes, which earned him the honorary title of “Father of Russian poetry”.

According to Coxe, the odes of Lomonosov deserve special attention: “Odes of Lomonosov cause such a wave of admiration, since their author was the first creator of such works [in Russian], where feelings are subordinate to form, and the energy of the language, a special spirit and passion, which most characteristic of the works of this genre, compensate for the poorly style [of presentation]. Pindar was an excellent model for Lomonosov. " An interesting comparison of Lomonosov’s odes with Sumarokov’s odes is: “Despite the fact that his [Sumarokov’s] odes are marked by light lyricism, harmony, gentleness and grace, their author was in no way able to reach the height and energy that permeate Lomonosov’s odes.” In this field, Lomonosov clearly exceeded his contemporary, but lost to him in the art of writing drama. In a footnote, Coxe notes that “unfortunately, between the two poets there was a constant annoying rivalry for leadership, in which everyone sought to be the first, and everyone lost. A detailed description of this rivalry may be worthy material for the author of Les Querelles Litteraires "[book" Literary Disputes "). In an effort to reconcile the two great names in Russian literature, Coxe notes: “The examples of Lomonosov and Sumarokov became the source of the spread of the“ spirit of poetry ”in Russian society and the fashion for teaching classical education. Numerous groups of poets became their followers. ”

In addition to the literary achievements of Lomonosov, Coxe notes his contribution to historical science: “The value of Lomonosov's contribution to historical science cannot be underestimated. He published two small works on the history of Russia. The first is written in the form of annals of the Russian supreme authority, is a chronicle of the Russian monarchy. The second is dedicated to ancient Russia, covers its history from the moment the Russian nation was formed until the death of Grand Duke Yaroslav I in 1054. Both works are very important, as they describe the most difficult and unclear periods of Russian history.”

The achievements of Mikhail Vasilyevich in the field of fine art are also noted: “Lomonosov is also known as an artist who has achieved considerable skill in drawing and realized his talent in creating mosaics. Portraits of the regent Anna and Peter III, made by Lomonosov using the mosaic technique, are presented in the Oranienbaum Gallery.”

Regarding the achievements of Lomonosov in the field of physics and chemistry, Coxe confines himself to an italic listing of the main discoveries of Lomonosov and the translations that he made in these areas of scientific knowledge.

Where did William Coxe get his knowledge of Lomonosov? According to Alekseev, the most important of the sources of information was Leclerc’s French book “History of modern Russia” (1783), in particular, the chapter “On Russian poets, historians and writers”. The information printed in it, the judgments were borrowed from Russian writers with whom Leclerc communicated, in particular from Nikolai Ivanovich Novikov. From Leclerc, Coxe could read fragments of translations into French of Lomonosov’s poetic works.

As a result of the analysis of the text by William Coxe, we came to the conclusion that, based on reliable knowledge about the life, work and scientific activity of Lomonosov, the author of the notes compiled a detailed portrait of one of the most prominent representatives of Russian science of the 18th century, with a special emphasis on reforms in the field of language and on poetic activities, but not losing sight of all the other achievements of Mikhail Vasilyevich.

Thanks to information collected by William Coxe, in 1784 (later in a new edition of 1798) in the English “New General Biographical Dictionary” for the first time in the history of Britain (in encyclopedic dictionaries), information about Russian writers appeared: Kantemir, Kheraskov, Lomonosov, Sumarokov and Volkov.

Since its first issue at the end of the 18th century, the Encyclopedia Britannica has been and remains the most authoritative publication for the inhabitants of Misty Albion. Unfortunately, when you read an article devoted to Mikhail Vasilievich Lomonosov in one of the latest editions of the encyclopedia (1975), you are involuntarily upset. On the one hand, it’s nice that the name of your compatriot, who made a significant and many-sided contribution to science, is known and not forgotten by the world community. On the other hand, there are offensive inaccuracies in the article, which seems unacceptable for publishing at this level.

Thus, we come to the conclusion that by the beginning of the 19th century, enlightened English readers had enough various information about Mikhail Vasilievich Lomonosov, were familiar with his literary and historical works translated into English. The name of Lomonosov falls into British authoritative encyclopedic publications, which indicates a well-deserved respect for the success of the scientist in various fields of science.

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1917年3月至1917年2月革命与俄罗斯的政治斗争，同时代人：读B.V. Nikolsky的日记

THE FEBRUARY REVOLUTION AND THE POLITICAL STRUGGLE IN RUSSIA FROM MARCH TO OCTOBER 1917 IN THE PERCEPTION OF CONTEMPORARIES: READING THE DIARY OF B.V. NIKOLSKY

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抽象。特别是对作家，诗人，法律学者，政治家BV Nikolsky（1870–1919）的日记的分析，尤其是对作者对1917年革命性动荡的看法的重建方面。现代史学的“语言转向”和“纪念繁荣”。 BV Nikolsky日记的价值在于，右翼君主制领导人的自我资源无法幸存：许多杰出的极端右翼政客遭到枪击（尼科斯基本人于1919年被枪杀），失踪了，更小部分人能够移民，从而导致个人资料的丢失。因此，通过对极右翼保守派（一个坚信君主制）的认识的棱镜来证明1917年革命事件的证据，就其独特性和与通过人格研究历史的相关性而言，具有重要的价值。

关键字：自传，尼古尔斯基（B.V. Nikolsky），1917年2月的革命，1917年10月的革命，临时政府，布尔什维克，“新传记历史”，个人历史，自我来源，日记。

Abstract. *Particular attention is paid to the analysis of the diary of B. V. Nikolsky (1870-1919), a writer, poet, legal scholar, politician, in the aspect of reconstruction of the author's perception of the revolutionary upheavals of 1917, which seems relevant in the light of the "linguistic turn" and "memorial boom "of modern historiography. The value of B.V. Nikolsky's diary lies in the fact that the ego-sources of the leaders of the right wing monarchists did not survive: many prominent extreme right-wing politicians were shot (Nikolsky himself was shot in 1919), went missing, a smaller part was able to emigrate, which led to the loss of personal materials. Thus, the evidence of the revolutionary events of 1917 through the prism of perception of the far-right conservative, a convinced monarchist, is valuable in the light of their uniqueness and relevance to the study of history through personality.*

Keywords: *autobiography, B.V. Nikolsky, the February Revolution of 1917, the October Revolution of 1917, the Provisional Government, the Bolsheviks, the "new biographical history", personal history, ego sources, diaries.*

The revolution of 1917 is one of the key events in Russian history of the twentieth century. The breakdown of the political system, the social transformation of society, economic disasters shocked contemporaries, many of whom reflected the realities of that period in their memoirs and diaries.

Personal history is one of the most relevant areas of modern historiography, “it answers the challenges associated with the“ linguistic turn ”and“ memorial boom ”in historiography, because it successfully implements the desire of historians to“ historicize history ”on the basis of rapprochement with literature, using socio-cultural and personal -psychological approaches in the study of the past, active involvement in the study of sources of personal origin, or ego sources ”[9, P. 263]. New studies are not limited only to the genre of biography, that is, the biography of various personalities, expanding the boundaries to a “new biographical history”, “history through a personality”, “personal history”, etc. [2; 4]. Particular attention is paid to the so-called I- or ego-sources, the study of which allows to “look at the subject of your research through the eyes of a person from the past, not only to find out what was, how it was, but also what the author felt” [7, P. 35]. A similar source is the diaries of B.V. Nikolsky (1870-1919), a writer, poet, legal scholar, and politician.

B.V. Nikolsky was born in the family of a professor of Russian literature, his father was a teacher at the Alexander Lyceum. He himself graduated from the Law Faculty of St. Petersburg University, where he then taught for a long time. In addition, Nikolsky was a prominent literary critic - since 1900 he became a privat-docent of the historical and philological faculty of the university. His scientific interest was especially clearly manifested in the work of A. A. Fet and A. S. Pushkin, many pages of the diary are devoted to the description of the work on the study of their work. After 1902, Nikolsky retired from teaching and switched to law practice and became a private attorney. However, financial difficulties forced him to return to the university: since 1913, he taught at Yuryev University, taking the post of professor. [See: 1, 10].

ikolsky tried in every possible way to combine scientific and legal activity with the socio-political. Already in 1903, he became a member of the first large right-wing organization - the Russian Assembly. The special value of B.V. Nikolsky's diary lies in the fact that the ego sources of other representatives of the right wing monarchists have not been preserved. B.V. Nikolsky, along with A.I. Dubrovin, became one of the founders of the Union of the Russian people in 1906, the most influential and numerous right-wing monarchist party in the Russian Empire. Many prominent political figures of the union and other organizations of this kind were shot (Nikolsky himself was shot in 1919), went missing, a smaller part was able to emigrate, for example, N.E. Markov, which led to the loss of personal materials. Thus, the evidence of the revolutionary events of 1917 through the prism of perception of the far-right conservative, a convinced monarchist, is valuable in the light of their uniqueness and relevance to the study of history through personality.

It is worth noting that the description of domestic and foreign political realities of that period occupy a far from leading place in B.V. Nikolsky's diary, many of the most important events were not reflected at all in his notes. The echoes of the revolutionary events of 1917 penetrate into Nikolsky's narrative in fragmentary fashion; he does not describe the events themselves, avoids the facts, but only gives his own assessment of what is happening. By analyzing the text of the diary, we have the opportunity to see the experiences and personal assessments, to feel how a person was undergoing a tremendous change in 1917.

The beginning of the revolutionary unrest of February 1917 was not taken seriously by Nikolsky: "This is just a mob riot that took everyone by surprise. I see no plan, no program, no idea, no leadership. All this instantly disappears in front of an organized government" [6, P. 278]. However, his moods change on March 3 in connection with the news of the abdication of Nicholas II: "A great page of history turned <...> a coup was completed, the dynasty was over and a century of troubles began to be recited, if not more than a century" [6, P. 280]. It is characteristic that Nikolsky, being a convinced monarchist, one of the leaders of the Union of the Russian people, whose ideology clearly fit into the triad "Autocracy. Orthodoxy. Nationality ", very calmly reacted to the termination of the Romanov dynasty. Not a single record for the years 1917-1918. There is no regret about the fate of Nicholas II and the dynasty as a whole. This, on the one hand, seems surprising for a convinced monarchist, on the other hand, it is clearly consistent with the fact that a number of members, including leaders of the Union of the Russian people, were very negative towards the last Russian emperor and the Romanovs. The same Nikolsky, long before the events of 1917, wrote: "I think that the Tsar *organically* (italics of the author, - *O. Sh.*) cannot be reasoned. He is worse than incompetent: he - God forgive me – is a mere nobody!.. *One* (italics of the author, - *O. Sh.*) assassination is now not enough to purify the air. We need something Serbian» [6, P. 55], referring to the assassination of King of Serbia Alexander I Obrenovic and his wife in 1903. Describing his meeting with Nicholas II on April 2, 1905, Nikolsky, true to himself and his self-conceit inflated to impossible limits, puts himself much higher than the emperor, chooses an extremely mentoring and impartial tone when describing the monarch: "His nervousness is terrible. With all his composure and habit, he does not make a single calm movement, not a single calm gesture. When his face does not move, then it looks like a forcibly, intensely smiling. The eyelids always tremble subtly. Eyes, on the contrary, are timid, meek, kind and miserable" [6, P. 47]. Moreover, Nikolsky seemed to be waiting for the fall of the monarchy: "Whatever the case, the liquidation of the dynasty is apparently inevitable. All this becomes a part of a general spontaneous uprising against German oppression. Deaf-mute, learned to speak, must leave", he wrote on February 28, 1917. Interestingly, German oppression meant supreme power, and not external enemies of the

Russian Empire at all. Such thoughts were not alien both to Nikolsky and other leaders of the extreme right, and to ordinary members of the Union of the Russian people: “Russia is dying and it is ruining the real way of government from the faces of Our Orthodox Emperor as if Romanov and His Purebred German Woman Wife with the Orthodox Decoration. If our Reigning Dynasty will throw off Orthodoxy they will show their German faces, which have nothing to do with Russia. Western Europe is their native land. Russia was and will always be a stranger to them. Take them out from Russia. They give all Russia to the power of foreigners. They spawn foreigners and Jews. Russia needs a Russian thoroughbred Tsar. The reigning Dynasty is a German aristocratic colony” [3, P. 32], - they wrote to the union in the name of A. I. Dubrovin in 1908.

Analyzing these quotes, it is difficult to believe that Nikolsky was for a long time one of the leaders of the right-wing monarchy in the country. However, the rejection of Nicholas II and the Romanov dynasty on his part did not at all mean that the author was not a monarchist in his political views, as can be seen from his notes. He extremely painfully took the collapse of the monarchy as a political institution: “The greatness of Russia, the existence of Russia, is at stake; the monarchy in Russia does not exist; ahead - long-term unrest, hunger strikes, poverty, new wars; the church is in rejection, not today but tomorrow in persecution” [6, P. 281], - he wrote in March 11, 1917, largely anticipating the upcoming events of Russian history.

After the events of February 1917, Nikolsky was much more worried about foreign policy threats than the domestic political situation. Even revolutionaries destabilizing Russia, he often regarded as German agents. The recordings begin to be depressive, the author was very upset by the collapse of the Russian Empire: “It's sad and hard. It’s sad and hard for Russia, and for the family, and for ourselves” [6, P. 281]. Nikolsky evaluated the new government extremely negatively: “There was Nicholas II and Rasputin I. Now, instead of Nicholas II, there are twelve ministers, and instead of Rasputin I, a whole council of Rasputin deputies from workers and soldiers. And the ministers are just as helpless as the overthrown emperor, and the deputies are just as kamarinski hopeless as the killed life-clown” [6, P. 285].

The only event of 1917 to which Nikolsky devoted a significant number of records is the Kornilov rebellion. An attempt by the right-wing forces to seize power should have found a response in the soul of the author, because the forces that had undertaken it were close to him according to political views. However, Nikolsky, clearly sympathizing with Kornilov and completely not supporting the Provisional Government and especially the Soviets, from the very beginning of the rebellion did not believe in the success of this undertaking. He sincerely believed that the time for the “counter-revolution” had not arrived, “the coup was conceived too

finely to promise something solid" [6, P. 312]. The ideas of the immediate restoration expressed by his circle, Nikolsky invariably rejected: "this is such a stupid and pathetic nonsense that one should not even listen" [6, p. 293].

Much more Nikolsky during this period was worried about the food problem: "We don't care whether Kerensky or Kornilov, there would be order, there would be calm and there would be food" [6, P. 313]. In fact, in each of his entries, the author describes the appalling food situation in Petrograd, talks about the methods and tricks that he went to in order to provide himself and his family with at least a minimum set of goods. The food problem, as you know, was one of the most acute at that time. The February Revolution began under the slogans "Peace! Bread!", From February to October, none of these slogans was implemented by the Provisional Government, which largely predetermined its fall and the Bolsheviks raise to power. Nikolsky felt that it was precisely these two issues that were fundamental in Russia, and the stability of power depended on its solution. Even admitting Kornilov's coming to power, he wrote that his "dictatorship was ensured until the first major military failure" [6, P. 312]. Being a very educated person with a huge baggage of knowledge and erudition, which many contemporaries noted behind him, Nikolsky clearly saw and felt signs of impending global change. He did not deceive himself that the revolution took place suddenly, very vividly describing the problems accumulated in the Russian Empire, which led to the events of 1917: "I think that the cause of all the current events was centuries-old drunkenness and sudden sobering up of the people. Everything that happens is the fruit of a long, corrupting drunkenness and a terrible hangover" [6, P. 317]. To some extent, Nikolsky was waiting for the February Revolution to continue, anticipating: "The madness of the workers, the stupidity of the government, the arrogant hooliganism of dog deputies, the growing food disaster in Petrograd and the bitterness of the peaceful and calm elements of the population are reaching the highest tension. I think the explosion is not far off", wrote Nikolsky on August 10, 1917 [6, P. 310]. The tension did not left him later: "It is difficult to live, see and hear. We are flying deeper into some abyss and I don't see where and how this fall will end. I'm not afraid of the outcome", read the record of September 22, 1917 [6, P. 319].

Nikolsky did not devote a single line to the immediate events of the October Revolution: from September 22 to November 20, 1917 there is not a single entry in the diary. Just as in the case of the February Revolution, the author was not worried about the actual part of the events, but the diary retained his feelings and emotional reactions. The October Revolution made a depressing impression on Nikolsky: "Have lived 47 years in an unshakable conviction that Russia is unshakable, unbreakable, indestructible, that before it is a shining eternity, endless victories, <...> nourishing this faith untill the end, unshaken until now, and to see

Russia scolded, spat upon, betrayed, beaten, led to a shameful crucifixion <...> I think the most mournful part of my existence is coming" [6, P. 320–321]. On the one hand, he was waiting for it, saw the inevitability of the fall of the "fool" Kerensky and the Provisional Government, unable to solve both foreign and domestic political problems, curb the chaos in the country, on the other, the coming to power of the Bolsheviks could not but frighten Nikolsky. Initially, the author did not believe in the long-term coming to power of the RSDLP(b). As in the case of Kornilov, Nikolsky measured the strength of power by a foreign policy factor. The question of peace and war, in his opinion, was everything. It should be noted that in this case the author was also very perspicacious: Lenin, knocking out a "bawdy" peace with Germany, also assigned a key role to this issue: there will be no peace - there will be no power. "If there is no army, and a predator lies next to you, then you will have to sign the most gravest, humiliating peace treaty", [5, P. 16] - wrote the leader of the revolution, explaining his position at the VII Party Congress in March 1918.

Despite the fact that, according to their political views, the Bolsheviks were the exact opposite of the author-monarchist, he generally writes about the representatives of the RSDLP (b) party without unnecessary malice and pathos: "I don't feel anger towards them. Not to mention personalities and personal honesty, these are the only politically honest people throughout the revolution. They are helpless, powerless, miserable, but true to themselves. They did not lie politically" [6, P. 454]. The dispersal of the Constituent Assembly by the Bolsheviks was welcomed by Nikolsky positively ("They dispersed the Constituent Assembly, thank God" [6, p. 325]), even though the majority of the mandates in it were received by the Cadets, who supported the parliament, but nevertheless monarchy. Perhaps this is due to the fact that the author, like many of his contemporaries, was tired of the useless "empty talks" of that period, perhaps with that, Nikolsky, as a supporter of strong power, saw in the Bolsheviks the ability to establish a rigid vertical of power. Moreover, Nikolsky, even for a short period of time, managed to find a common language with the new government: in March 1918 he was appointed a legal adviser to the Office of the Chief Director of Engineering Defense of Petrograd and its approaches, and in early April, during the reorganization departments credited to the salary of the correspondent. No, Nikolsky did not welcome the October Revolution, was not happy about the Bolsheviks coming to power. However, he treated them much better than members of the Provisional Government. He saw in the representatives of the new government loyalty to their ideological views and this devotion to the principles, him, a man extremely fundamental and ideological, could not fail to bribe. He saw political will in the Bolsheviks and even defined their political role in the history of Russia. He was experiencing difficult internal disasters that engulfed

the country's unrest, however, he considered this an inevitable period in Russian history. Nikolsky wrote in 1918: “Let the “revolution” die out of the people to the end <...> Then it will be possible to organize the merciless extermination of all those who survive until then. But the purge must be historically and logically monstrous, unprecedented. <…> And the new dynasty will get everything ready. You say that it will take a lot of great selflessness to take on the terrible work of this purge: yes, of course. However, if I live, I am ready to take on this terrible role of the punishing All-Russian posadnik in order to clear the field for a new dynasty. <...> Such a role is destined for me - I will fulfill it to the end, without flinching and not embarrassed by the soul. Let me disappear, Russia would live. Amen” [7, P. 363]. Thus, until the very end, Nikolsky did not betray his political ideals: “The monarchy must be reborn, this is clear, and will be reborn” [6, P. 308]. He sincerely believed that the Bolsheviks would clear the field for the future revival of Russia, that the period of revolution and turmoil following it was a cleansing of the country, liberation from the "sins" and mistakes of the past centuries-old history. Nikolsky considered the new power, the power of robbers, as an inevitable evil, an inevitable period in the history of the country. He estimated the duration of this period in different ways: either he spoke of a 100-150 year old turmoil, or he predicted an early change of power. “Oh, my God, for how long this torture, this lie, this nonsense of existence in a robber den instead of a state has to continue?” [6, P. 359], Nikolsky lamented in 1918. Believing in the speedy restoration of order and the revival of the dynasty, having in mind not the Romanovs at all, but the restoration of the monarchy as a political institution, Nikolsky, faithful to his over-conceit, conceded a leading role in the future of the Russian state. These hopes were not destined to come true - neither the restoration of the monarchy, nor at least some of its role in the structure of the future country. In 1919, Nikolsky was accused of espionage, convicted and executed.

The diaries of B. V. Nikolsky “paint” before us an extremely extraordinary personality, full of contradictions: a comprehensively educated and versatile person, but with an extremely difficult character and excessive conceit; a convinced monarchist, but at the same time “thirsty” for the fall of the dynasty; lawyer, attorney, conservative, but at the same time “accepting” the power of the Bolsheviks much more positive than the power of the liberal Provisional Government. The revolutionary events of 1917 are very fully studied in a concrete historical vein, however, from the point of view of a new biographical history, which is significantly influenced by a microhistorical approach, which has concentrated its attention on the study of history shown through a person [8, P. 289–290], diaries of B.V. Nikolsky is a unique ego-source, reflecting how deeply and contradictory he experienced the upheavals of 1917.

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从个人经验到社会记忆：反映“自我来源”的俄罗斯内战（1918年至1920年）（根据乌瓦罗娃的回忆录）\
FROM INDIVIDUAL EXPERIENCE TO SOCIAL MEMORY: THE CIVIL WAR IN RUSSIA (1918-1920) IN THE REFLECTION OF “EGO SOURCES” (BASED ON THE MEMOIRS OF P.S. UVAROVA)

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The revolution events of 1917, and then the outbreak of the Civil War forever changed the former way of life, dividing the lives of millions of people into “before” and “after”. The war, in which there were no right and wrong, merciless, heavy, raised, according to one of the main leaders of the White movement A.I. Denikin, “all the dirty scum, all the lowlands hidden in the depths of the human soul” [2], was reflected on the pages of numerous documents, among which were materials from government bodies, office work of the “white” governments, and the press. The history of the Russian revolution and subsequent tragic events is well known, several generations of historians reflect on political events a hundred years ago. However, there is no doubt that political history should be supplemented by research in the field of “everyday history,” based primarily on the historical memory of direct eyewitnesses of events, reflected in sources of personal origin - memoirs, letters, historical journalism - and designed to reveal how dramatic political events of those years were experienced by people in the practice of their daily lives. The study of changes in the mentality of ordinary participants in the historical process, visible at the level of "micronarrative", will expand the historical knowledge of social changes at the macro level, to identify how they are related to each other.

Representatives of the White movement who left the homeland or thouse who sympathized it, who settled in Paris, Prague or on the shores of the Adriatic, retained the memory of past Civil War events. Emigrant memoirs are distinguished by a wide variety: as a genre, here are military memoirs about the activities of the fronts, and research works on the revolution and war of the direct participants, taking into account personal experience, autobiography, diaries or literary and philosophical notes; and in the form of presentation - from a dry summary-retelling

of facts to fictionalized works. They are also distinguished by the originality of authorship: the creators of the sources represented different political flanks and movements, these were people who had been at the epicenter of front-line events, and experienced the hardships of war in the rear, far from politics and power. These works were united by one thing - disappointment with a lost war, multiplied by longing for an abandoned homeland, an acute desire to preserve what was experienced for posterity, an attempt to explain, justify oneself or expose the enemy.

Regardless of the form of presentation, the content of memoirs is always documented, it gives a cut of the era, because it is based on the source directly seen by the creator. At the same time, reality appears before historians in new interpretations, the value of which is no less than the actual side of the process. There is a strong opinion that sources of personal origin are distinguished by subjectivity, the information in them is not always accurate, because written after several or many years after the incident, from memory, which tends to weaken over the years, they can distort the true course of things. As A.K. Sokolov facetiously noted, “memoirs are a genre of literature that suffers from sclerosis” [3, p. 273]. But it is unlikely that a historian reading a memoir is only interested in a chronicle of events. Much more valuable is the living picture of the past, which is recreated through the prism of the author’s personality, appearing as if in “naked form” [3, p. 273], and his perceptions of bygone days. Recently, in the scientific literature, they have earned the definition of “ego sources”. As noted by N.B. Selunskaya, in the sources of this type “the individuality of their creator is manifested and contains very valuable information for an authentic reading, disclosing the meanings and assessments of sociocultural identity” [6, p. 263]. The historian’s work with sources of personal origin, containing a pronounced autobiographical layer of information, actualizes the methodological aspect demanded by modern historiography, implying a transition “from storytelling to the study of history shown through the personality” [6, p. 263]. This fully applies to the memoirs of Countess P.S. Uvarova (1840–1924), written in exile and having preserved , among other things, the memory of the difficult days of the Civil War for her descendants.

The author's name of the memoirs is “The past. Long gone happy days". They cover a significant time period. The story is about all the stages of the life of P.S. Uvarova, starting in early childhood. Memoirs break off at the events of the end of 1919, when the Uvarovs left Russia forever. Then the “happy days" ended, the memory of which was preserved for posterity of 122 typewritten sheets sealed in a notebook, with a thin cardboard cover with images of the coat of arms of the Uvarov family, published by the State Historical Museum in 2005 [9].

P.S. Uvarova – was a famous scientist, historian and archaeologist, chairman of the Moscow Archaeological Society, the first Russian woman to become an honorary member of the Imperial Academy of Sciences (1894). In 1910, she ac-

cepted the title of Honorary Member of Moscow University. Her life can be seen as an example of a new generation of women, independent, educated, oriented to activities in the public sphere, whose social role was not limited to the role of spouse and housewife. As noted by V.I. Guerrier, P.S. Uvarova was “a model of other Russian women ... was a secular woman who showed that secular needs are compatible with serious business” [1, P. XII].

Memoirs of Countess P.S. Uvarova is distinguished by a large proportion of the author’s reflections, the basis for which is the eventual outline of life, the focus is not on household details, everyday little things, which is so characteristic of “female” memories, but on thoughts. As a source of historical memory, they contain personal statements that make it possible to judge the author’s self-identification and the search for meanings in the dramatic period of the Civil War. As an “ego source” - they convey reality through subjective perception. However, the individual fate of P.S. Uvarova fully reflected the fate of a whole generation of people who belonged to the educated layer, to a kind of elite of Russian society.

The author’s intention of the memoirs was to preserve and convey to descendants their ideas about the most important life values that the revolution so inexorably destroyed. P.S. Uvarova strove to show the right paths and true goals inherited from her parents, and then strengthened and developed in her own family. The leitmotif of the whole story is the idea of serving the Fatherland, be it military service or state service, an example of which was the fate of the older generation of the Shcherbatov-Uvarov family, selfless service to the science of Russian antiquities, enlightenment, which A.S. and P.S. Uvarovs dedicated themselves to.

The description of the last years of life in the homeland, which took place far from your home, in southern Russia, where the Uvarovs were forced to move after October 1917, is very interesting and requires detailed study. It was here that the frontier of the confrontation of the parties in the Civil War was. Being practically on the front line, Countess Uvarova could observe what was happening inside. But her memoirs are about something else. The source text allows you to see the author’s desire, in spite of everything, to continue his path, not to exchange and not lose himself, responding to the challenges of harsh reality. On the other hand, through the prism of the narrative, one can consider how the fate of the countess and her contemporaries, whose everyday life forever changed in the stream of revolutionary events, reflected the hardships of the Civil War. Watching the everyday life of Uvarov and their environment in 1917–1919, one can also catch certain transformations of social consciousness: substitution of ideals, breaking of stereotypes under the influence of various circumstances in the face of new political forces, social ideas or values, as well as how these transformations were perceived people of the circle to which Countess P.S. Uvarova, what consequences it led to, how it influenced the civil choice in the thouse conditions.

The way of the Uvarovs, like many others who fled from the revolution, lay first in the Crimea, where they managed to get tickets with great difficulty "to crowded class 3 carts." Then the family moved to Essentuki, where it remained until February 1919. It is well known that the Caucasian Mineral Waters attracted in 1917–18 many opponents of Soviet power. The population of Essentuki was divided into two camps. To one of them, anti-Bolshevik, adjoined the Uvarov family. Countess P.S. Uvarova described in great detail the life, activities, her new neighbors. At first, their life flowed peacefully, quietly. They set up a "fairly spacious garden, in which they planted various garden greens, including cauliflower. The garden was a success, and until late fall we ate its fruits ",“ visited each other, young people had fun, even weddings took place there "[9, P. 239]. But they were well aware of the possibility of the Bolsheviks appearing in the city. By autumn, the Bolsheviks occupied Pyatigorsk, Kislovodsk, advanced to the Essentuki, according to the countess, "little by little the sad days come" [9, P. 239]. The first alarming signals were the appearance of individual units or, according to P.S. Uvarova, "gangs." "Gangs, if not purely Bolshevik, then at least bearing their names, and using this nickname and weapons to appear in apartments and demand and take away, supposedly for the wounded, mattresses, pillows, blankets, sheets, etc. Gangs these appear and disappear…" [9, P. 240]. But they were replaced by detachments of the Kuban Cossacks, which were headed by A.G. Shkuro, who also left memories of this difficult time [12]. In the spring of 1918, he organized a partisan detachment in the Kislovodsk area. And in the summer of 1918, in the period that P.S. Uvarova described, formed a partisan division in the Kuban, which later merged with the Volunteer Army. P.S. Uvarova called the units of A.G. Shkuro the unpleasant word "gang", essentially not making a difference between the white Cossacks and the Bolsheviks.

On February 7, 1919, the family moved to Maykop, using the Red Cross cart. P.S. Uvarova casually mentioned that his son Igor was in charge of these carts. Igor Alekseevich Uvarov, the youngest son of the Uvarovs, was the son-in-law of the former chairman of the III State Duma N.A. Khomyakova, who at that time headed the activities of the Red Cross Society in the Volunteer Army and Armed Forces of the South of Russia. This is perhaps the first indirect evidence of the attitude of Uvarov to the White movement.

In Maykop, they intended to stay for a long time. They began to work here, engaged in pedagogical activities, teaching foreign languages. On the pages of the memoirs you can find a detailed description of both the city and the people who inhabited it. In this description, not a word is said about politics or war, although that the Civil War was gaining momentum, P.S. Uvarova knew well: "the colors were darkening in our horizon"

The nature and external decoration of Maykop and its neighboring villages are described in exactly the opposite way in P. S. Uvarova's memoirs: "beauty and grandeur", "lovely view of the opposite shore", "well-built", "perfectly planned". This is seen as a literary device, a kind of antithesis, which can be interpreted in different ways. But one thing is obvious - the contrast between the natural world and the human world is evident. The rejection of the world of strangers with alien values could not but cause protest and action. But there is not a word about this in the memoirs, one can only indirectly guess that teaching and traveling around the villages are just part of this new life, its external side. The countess is silent about the main thing, about the activities of the family on the side of the opponents of Soviet power. But neither the son Igor, the management of the Red Cross Society wagons, nor the granddaughter's departure to Thessaloniki with the secretary at the OSVAG, described in detail, can hide from an attentive reader. Below we learn that the daughter Ekaterina Alekseevna at the request of A.I. Denikina went to inspect the children's colony in Rostov, Poltava, Kharkov. Under the onslaught of the Bolsheviks, she exported the Women's Institute from Kharkov. Then, according to the memoirs, "with the help of the British," Ekaterina Alekseevna arrived in Ekaterinodar, the de facto capital of the White South of Russia, from where she could return to her mother on New Year's Eve.

Nothing is written in the memoirs about her son Fedor Alekseevich. Nevertheless, it is known that in Yessentuki he was appointed civilian assistant to the Chief Executive of the Northern Caucasus. Then he served in the Armed Forces of the South of Russia, was in the post under the Ministry of the Interior. In 1919, he held the post of assistant on the civilian part of the ruler of Ingushetia. Obviously, the service for the Fatherland for Uvarov in the field of science, in the state or court service after the revolution was replaced by another kind of service. They continued to serve Russia, and the Civil War forced representatives of this family to make their choice in favor of the whites. And when the White movement in the south of Russia lost ground, the Uvarovs were forced to leave their homeland, having evacuated in late 1919 or early 1920 from Novorossiysk on the ship "St. Nikolay".

Thus, it can be assumed that in the description of the Civil War Countess Uvarova did not depart from the general tone of the whole narrative: touching only on a casual actual outline of events, her memories are rich in emotional reactions and evaluations. This is the specificity of her memoirs as an "ego source". The compilation of an accurate "chronicle" of the Civil War was not part of the author's plans; it was much more important for the countess to convey to her descendants her attitude, thoughts, and opinions. One thing is certain: life in the homeland, even in the years of terrible upheavals associated with the revolutions and the outbreak of the Civil War, military intervention, despite everything, was perceived by this generation as happy in emigration. The difficulties and hardships that the author and her family experienced in 1917–1919 only strengthened their love for their homeland and remained a bright memory in a foreign land.

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1930–1950年代苏联绘画中的“莫斯科克里姆林宫斯大林”主题：时代的力量象征
"STALIN IN THE MOSCOW KREMLIN" THEME IN SOVIET PAINTING OF 1930-1950s: THE POWER SYMBOLS OF THE EPOCH

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注解。 本文致力于研究莫斯科克里姆林宫背景下的一组1930年代至1950年代专门描写斯大林形象的绘画的图像特征。 作品用18世纪至20世纪初俄国皇帝的礼仪画像来分析这幅画的异同。 揭示了苏联作品的结构和语义特征。

关键词：苏联绘画，斯大林时代，社会主义现实主义，克里姆林宫，斯大林，权力地势。

Annotation. *The article is devoted to the study of iconographic features of a group of paintings from the 1930s-1950s dedicated to the image of Stalin with the Moscow Kremlin on a background. The work analyzes the similarities and differences of this circle of these paintings with ceremonial portraits of Russian emperors of the 18th - early 20th centuries, revealing the features of the structure and semantics of Soviet works.*

Keywords: *Soviet painting, the Stalin era, socialist realism, the Kremlin, Stalin, the power of topography.*

Thousands of poems, poesy, songs of the Stalin era connected together the two main symbols of Soviet power: the Kremlin and Stalin. Such a union had long traditions that originated in the 15th century, when the buildings of the Moscow Kremlin, renovated or re-built by Ivan the Great, became the personification of power topography. They remained such even after the transfer of the Russian capital to St. Petersburg. Moreover, with the loss of real power functions, the symbolic significance of the Kremlin has increased. Hundreds of ceremonial portraits of Russian emperors of the 18th - early 20th centuries again and again featured the Kremlin walls and towers, the golden domes of cathedrals rising above them.

In the post-revolutionary era, ceremonial portrait that contradicted all ideological norms and principles of the new government, it would seem, was doomed to oblivion. However, this did not happen. As the rejection of the topography of imperial power did not happen either.

Already in 1918, when the Soviet leadership returned to Moscow the capital status, the central government and party structures again settled in the Kremlin. They worked here, and the new leaders of the country lived here. To occupy the space of overthrown power, to subjugate it to oneself is the traditional way of manifesting a regime change, confirming one's own legitimacy. The Bolsheviks were no exception.

Understanding and accepting the symbolic significance of the Kremlin space, the most sensitive leaders grasped the contradictions that arose. So L. Trotsky in the book "My Life" recalled: "With its medieval wall and countless gilded domes, the Kremlin, as a fortress of revolutionary dictatorship, seemed like a perfect paradox. True, Smolny, where the Institute of Noble Maidens used to be located, was not its past intended for workers, soldiers and peasants' deputies. Until March 1918, I never visited the Kremlin, just like I didn't know Moscow, except for one single building: the Butyrka transit prison, in the tower of which I spent six months in the cold winter of 98–99. As a visitor, one could contemplatively admire the Kremlin antiquity, the palace of Grozny and the Faceted Chamber. But we had to settle here for a long time. The close everyday contact of two historical poles, two irreconcilable cultures both surprised and amused ... Almost on the first day of my arrival from St. Petersburg we talked with Lenin, standing among the Karelian birch. Cupid with Psyche interrupted us with a singing silver ringing. We looked at each other, as if having caught ourselves on the same feeling: a lurking past listened to us from the corner. Surrounded by him from all sides, we treated him without reverence, but also without enmity, a little ironically. It would be wrong to say that we are accustomed to the situation in the Kremlin - for this there was too much dynamics in the conditions of our existence. We had no time to get used to it. We squintedly glanced at the situation and inwardly spoke ironically and encouragingly to cupids and psyche: have you not expected us? Nothing can be done, get used to it. We accustomed the situation to ourselves "[2, P. 338-340.].

In such a context, the appearance of a ceremonial portrait against a background of an alien, still not "accustomed" was an infrequent event. As a rule, the leaders against the backdrop of the Kremlin were drawn by artists of the older generation, professing ascetic principles in art. The most famous among them was I. Brodsky. In the 1920s Kremlin buildings were only a truly depicted background, accurately reproduced by the scene. No special symbolism was invested in such objects.

However, by the 1930s, the situation had changed dramatically. The Stalin era openly and defiantly appealed to the past, to its material- subjective embodiment and its symbolism. Replacing the double-headed eagles with five-pointed stars, forcing the clock on the Spasskaya Tower to play "International", destroying several churches and making several rebuilds in the Kremlin Palace, the authorities did not change the essence of the Kremlin space as a space of power, but demonstrated the process of its appropriation. Stalin in this space already did not look like an unexpected guest, but a full-fledged master.

The paintings of the 1930s-1950s became a kind of mirror reflecting this situation. A ceremonial portrait of the leader against the backdrop of Kremlin antiquities has become a common type of image.

Contrary to expectations, the set of architectural elements on these canvases has changed little. Views of the Red Square were added to the traditional views of the Kremlin, which means the Mausoleum and St. Basil's Cathedral. Very rarely, but it still happened to place Stalin on the background of the pavilions of VDNH. Modern city buildings (plants, hydroelectric stations, high-rise buildings, etc.) were practically not depicted (we will talk about exceptions later). The topography of power has changed little in typological composition: the same Kremlin, palaces, temples. It appealed to the past, carefully avoiding everything modern.

Another element remained unchanged: Stalin, like all Russian emperors, in ceremonial portraits, which featured the architectural surroundings of Moscow, appeared to be dressed in a military uniform. Moreover, not just in a french jacket, which has become a kind of "visiting card", "an obligatory element of the image", but in a greatcoat or formal uniform. As a result, in this group of images the militarized beginning was significantly enhanced. E. Ya. Beiner, in an article on Russian art of the second quarter of the 19th century, indicates that in the Nikolaev era the introduction of elements of military aesthetics served as "the embodiment of the idea of national identity and the establishment of autocracy" [1, P. 107]. The uniform on the emperor in its semantic meanings was put on a par with other state symbols.

In relation to the Stalin era, we can talk about similar strategies. The combination of "Moscow antiquities" with the militarized image of the leader enhanced the sound of patriotic-panegyric messages embedded in the portrait, making them more obvious, easily readable.

However, in Soviet art, images of the ruler against the background of Moscow became more popular. They were created more often and were more diverse. First of all, by varying compositional techniques. All work in this circle can be divided into several groups.

One group is represented by portraits of the ruler, quite fitting into the tradition, against the backdrop of Moscow shrines. Inside it, however, independent directions stand out. On some canvases, architectural buildings are meticulously selected, taken out of the real context and presented as a concentrated symbol. The most striking example of such an image is given by the work of the Georgian artist A. Vepkhvadze.

Fig. 4. *A. Vepkhvadze. Portrait of I.V. Stalin. 1950s*

On them, the image of the leader is brought to a poster laconicism and expressiveness, which is also facilitated by the profile formulation of the figure. Stalin is represented between St. Basil's Cathedral and the Spasskaya Tower of the Kremlin. This symbolic vision has been raised "to the heavenly level": only the sky, only the upper parts of architectural buildings, only Stalin, ascended to them. It is amazing how often the Cathedral of St. Basil was featured in portraits of leaders in a militantly atheistic state. It was recorded already in the 1920s (for example, on canvases by I. Brodsky). Especially often, such representations were realized in the 1950s, which, of course, testified to the ideological and political bends of the Stalinist government, to a steadily increasing tilt towards conservative imperial values with their obligatory reliance on Orthodox norms and ideals.

Another type of image of the leader against the backdrop of Moscow shrines claimed greater realism and greater involvement of the protagonist in the visualized space. In such cases, Stalin stood either on Red Square, or on one of the bridges closest to the Kremlin. A striking example of such a solution is a painting by A. Gerasimov. The leader is all alone standing near the entrance to the mausoleum. However, the mausoleum itself is not included in the picture space. Again and again, a symbolic couple is duplicated: the temple and the Spasskaya tower.

Moreover, A. Gerasimov, being an experienced master of ceremonial portraits, extremely meticulously doses architectural details. Both the tower and the temple are cut off by the lateral edges of the picture, but the Spasskaya Tower, towards which black government cars are racing, is presented with much more fullness than the cathedral, barely visible from under the picture frame (but still present). Stalin was placed between the temple and the Kremlin, but apparently closer to the latter.

Fig. 5. *A. Gerasimov. I.V. Stalin. 1950s*

Along with mastering the language of the traditional ceremonial portrait, Soviet artists developed a new type of image of the state leader, not represented in pre-revolutionary painting. In works of this kind, Moscow appears not as a background, a theatrical backdrop, but rather, as a stage, theatrical scene. Stalin in such works is presented not against the backdrop of the Kremlin or Red Square, but inside them. His figure is inscribed in a sacred space of power, acts as its significant part. The leader looks from the height of the Kremlin walls or from the rostrum of the Mausoleum at Moscow. Such images solved two problems simultaneously. One - close to those in whose name the tsar's portraits were created: to tell about the state leader, present his reign as a continuation of a centuries-old tradition, for which the national, sovereign, Orthodox essence of a part of a single indissoluble whole, weave this board as an organic part into the history of the Russian state.

The other is to turn the entire space of the country lying outside the Kremlin, outside the power space, into evidence of Stalin's wise policies, into the fruit of his tireless concerns.

Such canvases featured factory pipes, and Stalinist skyscrapers, and modern residential quarters. Although, they are depicted in general terms and at a great distance, like the Moscow Kremlin once in ceremonial portraits of the 19th century. The picture was not so much to fix specific objects as to give a visible image of the transformed earth. Now all of Moscow, the whole country turned into a "garden", planted by the leader.

Characteristically, with this image, Stalin was rarely represented without accompanying persons. Soviet artists preferred to create a paired portrait, with not the retinue standing next to the leader, but either the closest comrades-in-arms or equally great statesmen (Lenin, Voroshilov, Mao Zedong, etc.). Stalin's companion became a witness, able to assess the scale of the transformation and convey a sigh of admiration to the viewer. Stalin himself was supposed to be satisfied, but at the same time restrained, unperturbed.

Fig. 7. *A. Gerasimov. I.V. Stalin and K.E. Voroshilov in the Kremlin. 1938*

The hero and his companions always figured against the sky, always at a certain height. The Moscow Kremlin, which occupied a place near the low horizon on the canvas of the 19th century, is elevated above the city, above the country, above the world, turned into a dedicated, sacred place that is firmly connected with one person. It was from a height beyond the reach of a mere mortal, from the height of a special space - the space of power - that this "observing look" was possible.

Thus, the Soviet ceremonial portrait of the Stalin era turned out to be able to broadcast social archetypes and power attitudes, to tell not so much about changes in the topography of power (it largely retained its stability), but about the transformations of meanings invested in it.

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今天将英语借用词引入俄语的过程

THE PROCESS OF INTRODUCING THE ENGLISH LANGUAGE BORROWINGS INTO THE RUSSIAN LANGUAGE TODAY

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注解。这项工作讨论了英语对非英语国家的影响的利弊，在全球化的背景下，英语已经成为一种普遍的交流手段。一方面，英语知识使不同国家的人们不仅可以在先进国家的最好的大学中接受教育，而且还可以在那里建立自己的企业，在创新中心工作，然后将知识和获得的经验转让给自己的国家，在那里创造新的产业和高科技公司。英语知识使使用互联网和开展日益国际化的业务变得更加容易。另一方面，包括俄罗斯在内的许多国家都被强大的英语主义浪潮所覆盖。这不仅阻塞了国家语言，而且有时还改变了许多概念的含义。许多英语单词和短语，尤其是在商业和演艺界，都有俄语同义词，因此不合理使用。

关键字：全球化，借贷，商务沟通英语。

Annotation*. This work discusses the pros and cons of the influence of the English language on non-English speaking countries, which in the context of globalization has become a universal mean of communication. On the one hand, knowledge of the English language allows people from different countries not only to receive education in the best universities of advanced countries, but also to establish their own businesses there, work in innovation centers, and then transfer knowledge and gained experience to their own countries, create new industries and high-tech companies there. Knowledge of English makes it easier to use the Internet and conduct a business that is becoming increasingly international. On the other hand, many countries, including Russia, were covered by a powerful wave of Anglicisms. Which not only clogs the national language, but also sometimes changes the meaning of a number of concepts. Many English words and phrases, especially in business and show business, have Russian synonyms and their use is not justified.*

Keywords*: globalization, borrowing, English for business communication.*

Globalization has put English into the role of a universal mean of communication. And this is understandable. English is spoken by at least 1.5 billion people, and the greatest progress in the economy and in the scientific and technological

field has been achieved in English-speaking countries. Over 80 percent of scientific, commercial, etc. Information is stored and exchanged in English. Business, trade, and the field of modern communications are practically impossible without English. Knowledge of English makes it easier to use the Internet and conduct a business that is becoming increasingly international. Moreover, it allows people from different countries not only to get education at the best universities in advanced countries, but also to start their own business, work in innovation centers, and then transfer knowledge and gained experience to their own countries, establish innovation centers in them (technopolises, parks, venture capital companies, clusters).

And this is clearly seen on the example of India. Many Indian students, having graduated from the best American universities, were invited to work in industry and high technology (including the famous Silicon Valley), became prominent specialists in their field, but at the same time did not break off ties with their historical homeland. Some of them returned to India, while others, while continuing to work in the United States, began to act as consultants to Indian firms and intermediaries between them and American innovative companies. The result was the creation in India of its own innovative production and branches of international, and especially American, companies. All this laid the foundation for the emergence in India of the largest industrial, innovative and scientific center in the country and Asia in the city of Bangalore, which came to be called the "Indian Silicon Valley". This is not to mention the fact that knowledge of English allowed immigrants from India to occupy a strong position in the field of medicine in a number of Western countries and, above all, Great Britain.

However, in Russia, knowledge of the English language does little from the point of view of the development of the domestic scientific and technical sphere by many of our fellow citizens. Quite the opposite! In the post-Soviet years, hundreds of thousands of scientists and specialists left to work in Western countries, mainly in the USA, and only a few returned. Entrepreneurs who do not want to play according to the ever-changing rules of doing business and "pay tribute" to corrupt officials and crime are leaving Russia.

In this case, as it is easy to understand, the point is not in the English language, but in the conditions prevailing in post-Soviet Russia. Having mainly a commodity economy, it cannot compete on equal terms with countries with highly developed manufacturing and the scientific and technical sphere. And in the era of globalization, open borders, competition between countries has increased dramatically, and the conditions for the departure of citizens from the country are not much limited.

Nowadays, progress is known to have accelerated sharply, and every decade, experts say, the amount of knowledge doubles. This entails the natural desire of people to convey the meaning of one or another concept faster, in a smaller area of

a newspaper and magazine, with less airtime. Accordingly, the pace of speech has accelerated, concepts, names and even names are becoming more concise. This is especially evident in business, in particular, during transactions on exchanges, where the language should be concise and understandable to everyone. But in general, business, or the business world, is the sphere of activity of many people, professionals in their field, and the language of business has its own characteristics, just as the language of physicians, lawyers, military, people, etc. has its own characteristics. And the wider the international relations of people of a particular profession become, the more in their language professional concepts, expressions and individual words, which, as a rule, are English prevail.

And, probably, it can be considered justified when one borrowed word (sometimes two words) replaces many Russian words, such as "conversion", "restitution", "lustration", "franchising" (a system in which one economic object, for example, a company or even a state gives another economic entity the right to act on the market on its behalf and often under its name), "royalties" (in the broad sense of the word, this is a legal term for compensation for the use of patents, copyrights, natural resources and other types from property), etc.

A language, including a foreign one, is a tool, and it all depends on how you use it. In particular, the English language can be both a blessing and a means of imposing alien meanings, a foreign culture, and a means of clogging and even crowding out the native language. Language is the creation of a people (peoples) in the course of a long history. And here it is necessary to distinguish, firstly, borrowing, assimilation (when one language is absorbed by another) from other processes and, secondly, the adoption of a foreign language as the state (often second) in multi-ethnic countries in which a language that everyone understands was never formed.

If we talk about the English language, then it is basically formed on the basis of the synthesis of several languages. The indigenous population of the present British Isles, at one time the former province of the Roman Empire, were the tribes of the Britons, hence the name "Britain". Until the 5th century, they spoke Celtic dialects. In the V-VI century, the invasion of the West German tribes was carried out on the British Isles, among which the Angles and Saxons stood out. As a result, the Anglo-Saxon language was formed, and the country began to be called England by the name of the largest and most influential tribe of Angles. In the VIII-IX centuries, the Vikings (Scandinavians) dominated for some time on the British Isles - mainly Danes, Norwegians, Icelanders, who contributed to the vocabulary of the English language. But, perhaps, the Normans had the greatest influence on the formation of modern English - all the same Scandinavians who invaded the western part of France at the beginning of the 10th century forced the French king to agree to create a special duchy (which later became the Normandy province), at least assimilated with the French, adopting their language, but retained the fighting spirit of the Vikings

and in the second half of the XI century conquered the British Isles and for many years planted the French language there. As a result, the Anglo-Norman dialect was formed, which was also the language of fiction. (Latin remained the language of the church.) Ultimately, the Anglo-Norman dialect became the new English language. Therefore, it is not entirely true to say, as some do, that English is 70% borrowed. It is a product of special ethnogenesis, the brainchild of Germanic and Romance languages with a slight presence in the vocabulary of Celtic, although officially English is considered the language of the Germanic group.

Another example was provided by India and Pakistan, which for a long time was in colonial dependence on Great Britain. Due to the fact that almost all educated people know English, and many people speak their own languages, English and two of the most common local languages - Hindi and Urdu, respectively are considered to be the state languages.

The foreign language of advanced countries not only enriches the vocabulary of the native language, but also opens up new opportunities for the society of its present and future structure, introduces new forms of economic and social activity, relations between people and genders, etc.

And now, concepts that are not known to our domestic practice (or, as they say, borrowed from the concept of foreign reality) enter our life through the English language. For example: electrocution, political correctness, multiculturalism, tolerance, consensus, people with disabilities, etc.

Knowledge of English helps business people (as well as scientists and specialists) to determine in which countries they are best able to realize themselves, and through rating agencies (Standard & Poor's, Moody's, Fitch Ratings, etc.) to know about the state of their economy, to navigate better, to know in which government institutions or companies thay can invest without much risk, etc. Moreover, in the era of globalization, when business, in fact, knows no boundaries, and the export of goods and services becomes the most important component of successful economic development and a channel for accumulating foreign exchange reserves, an in-depth study of business activity and the investment climate in a country is required, identifying niches that can be filled with domestic goods and services. It is extremely important for a business to know the relationship between risk and return. And for this, countries with an export-oriented economy should know well not only needs, but also traditions, fashion, tastes, etc. of countries where they want to invest their capital, export goods and services. According to Lillian N. Chaney and Jeanette S. Martin, authors of the repeatedly published book Intercultural Business Communication, successful businesses in other countries may not be those corporations that follow their own code of conduct, and those who “adapted the corporate governance philosophy to the values, ideas, behavioral preferences of local cultures” [1]. There is even a new concept - “glocalization”.

Summing up, it should be noted: there are borrowings. Why borrow words that are present in the Russian language and which are understandable to all and adequately reflect reality? For example, saying “trend” instead of the “тенденция”, “strata” instead of “слои общества”, “offside” instead of “вне игры”, “penalty” instead of “штрафной”, “time” instead of “период“ (in football, hockey, etc.), “weekend” instead of “выходные дни”, etc. In fact, there are a lot of such English words that have Russian synonyms (clearance, management, know-how, consulting, tranche, non-stop, consumerism, monitoring, impeachment, inauguration, provider, teenager, etc.).

Is it Russian language being enriched? Rather, it is being clogged and this even complicates communication between people and, if you like, divides them into those who know English, are widely educated, and those who do not know it and have not received proper education. You can also understand the frequent use of the English word "shopping" (делать покупки). It came into use back in Soviet times, when the country had an acute shortage of fashionable consumer goods, and for each (or almost every) Soviet citizen visiting a western country, the time allotted for "shopping" was of particular importance and objectively had, so to speak, socio-political coloring.

Many anglicisms are not always understood by Russians. Say, “киднэпинг”, which means “abduction of children”, or “юзер” from the English “user”, which can mean “потребитель” or “пользователь”. But sometimes Anglicisms make it difficult for people who know English to understand the phenomenon, subject, etc. For example, the word "пазл" from the English "puzzle". After all, it can mean “riddle”, and “puzzle”, and “confusion”.

But there are also Anglicisms, which seem to coincide in form with Russian synonyms, but in reality they change their meaning without transmitting the attitude of the people, that has been formed over the centuries, to it. The scornful words “hired killer” are replaced by a much more neutral “killer”. The sale of officials is called the concept of “corruption”, which is blurred for many Russians, which for some reason includes small bribe takers who have nothing to do with public administration.

But there another point of view. There is no need to exaggerate the danger of Anglicisms. Borrowing does more good than harm. This is what the head of the Russian language culture department of the Russian Language Institute named after V.V. Vinogradov RAS Professor A. D. Shmelev thinks about it: “Texts distributed by modern mass media abound with words that were not used in Russian speech only twenty years ago: words such as PR and newsmaker, marketing and futures, realtor and developer, a remake and blockbuster, and now not all native speakers understand it. However, the borrowing of most of them is due to the fact that new phenomena enter our life for which there is no ready-made Russian

name. As a rule, at first the corresponding reality is familiar to a relatively narrow group of "initiates", who usually know its English word... And a lot of people applying for grants 9 no longer remember that twenty years ago the very word grant was not widely known...” [2]. And then A. Shmelev says that some words will finally take root, and some will disappear, as was the case in the past. The specificity of our time is that there are a lot of new areas of life that are actively discussed in the media. It is difficult to disagree with this.

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到俄罗斯十二月主义者首次展览100周年
TO 100-ANNIVERSARY OF FIRST EXHIBITION OF DECEMBERISTS IN RUSSIA

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注解。 2018年春天，距俄罗斯文化生活史上首个专为分贝主义者而设的展览开幕已经一百年了。 它是Decembrist的孙子Knyaz Sergei Mikhailovich Volkonsky从Borisoglebsk的家庭档案资料中创建的。 现在，该展览已成为Borisoglebsky历史和艺术博物馆永久展览的一部分。 在2014年，展览目录由S.M. Volkonsky和现在的书目稀有品，完全保留了1918年的风格和设计，共印刷200册。 本文还讨论了S.M. 沃尔康斯基（Volkonsky），从逝世之日到2017年已有80年的历史

关键字：博物馆，分词学家，博览会，学生，实践，剧院，有节奏的养育，自由主义

Annotation. *In the spring of 2018, it was 100 years since the opening of the first exhibition in the history of cultural life of Russia dedicated to the Decembrists. It was created by Knyaz Sergei Mikhailovich Volkonsky, the grandson of a Decembrist, from the materials of the family archive in Borisoglebsk. Now the exhibition is part of the permanent exhibition of the Borisoglebsky Museum of History and Art. In 2014, the catalog of the exhibition, compiled by S.M. Volkonsky and now a bibliographic rarity, with full preservation of the style and design of 1918 was printed in a circulation of 200 copies. The article also talks about the life and work of S.M. Volkonsky, from the day of death of which in 2017 it was 80 years*

Keywords: *museum, Decembrists, exposition, students, practice, theater, rhythmic upbringing, liberalism*

One of the cities of the Voronezh oblast with a bright and interesting history is the city of Borisoglebsk, the second largest city in the region after Voronezh itself. It was founded as a Russian military fortress in 1698, it was first called Pavlovsky. In 1704, after the construction of the Borisoglebskaya fortress in the city, it received a new name - Borisoglebsk. From 1779 to 1928 Borisoglebsk belonged to the Tambov province. Railway workshops founded in 1869 (now Himmash Plant) became a major industrial enterprise in the city. Natives of Borisoglebsk are the Chief Marshal of Artillery M.I. Nedelin, academician E.N. Pavlovsky, artists A.P. Ryabushkin, A.V. Kuprin, writer V. Kin. Many illustrious Soviet pilots studied at the Borisoglebsk Aviation College: V.P. Chkalov, V.K. Kokkinaki, N.P. Kamanin et al. [11, P. 53]

In 2016, students from Lomonosov Moscow State University, who had practical training in the Voronezh region, visited Borisoglebsk. The curriculum of the faculty of foreign languages and regional studies includes mandatory field study practice for second year students. In the summer, after the end of the session, students in groups of 20-25 people travel to different regions of Russia in order to study them in detail. Throughout the spring semester, students attend a seminar to prepare for the upcoming practice, in which they study the features of the chosen region (history, geographical location, socio-economic situation, attractions, as well as the specifics of modern regional policy). By design, by the beginning of the practice, students should have a maximum idea of the place where they will go.

The head of practice makes an extensive list of topics for group written work (two to four people), from different sides revealing the main theme of the practice. Before traveling, students should work hard in Moscow libraries and on the Internet in order to receive only additional information in the region from local sources and materials not available outside the region. At the beginning of the fall semester, written works based on the results of practice are submitted and evaluated.

One of the main tasks facing students during practice is the task of familiarizing themselves with the work of provincial museums, the existence of which most of them do not even suspect before the trip. In addition, students must, in their written work, express their wishes and recommendations on optimizing the activities of museums for their future development.

In Borisoglebsk, students get acquainted in detail with the collection of the Museum of History and Art. The foundation of the Borisoglebsky Museum of History and Art should be attributed to the second decade of the 20th century. For the city, this period was marked by the development of industry, the opening of new educational institutions, libraries, bookstores, and cinema. In the city of Borisoglebsk, the initiative to create a city school museum was made by I. Ovtsynov, the teacher of the 3rd city elementary school for men. [8, p. 93]

Permission to open the museum was obtained on June 30, 1912, and by 1914 there were already several hundred exhibits in the museum's inventory book. After 1917, the progressive development of the museum was interrupted by the Civil War. The city was in a state of martial law for several years, as it was either in the front line or at the epicenter of rebellion and uprising. Only in 1923 did the revival of the city museum begin.

Since October 1, 1930 Borisoglebsk moved to the position of a city of regional subordination, so the museum became known as the city museum of local lore. A qualitatively new level of the museum's work is associated with its relocation in the late 1980s into a new modern building. On an area of more than 1600 square meters. m presents the departments of nature, archeology and the Middle Ages, the history of the XIX century, the present. [9]

In 1987, the Department of Fine Arts of the Borisoglebsky Museum of Local Lore received its first visitors, and in 2001 the grand opening of the P.I.Sholokhov Picture Gallery took place. Since this year, the museum has received the status of historical and artistic, as well as the status of a large scientific and educational center of the Voronezh Prikhoperye.

A significant part of the museum's exposition is the exhibition "Decembrists - the first freedom fighters", collected in 1918 by Knyaz Sergei Mikhailovich Volkonsky from the materials of the family archive. Most students heard the name of Volkonsky for the first time on this excursion, despite the fact that he is a man who occupies a special place in Russian culture.

Knyaz Sergei Mikhailovich Volkonsky, a major theater figure, art critic, writer, critic and memoirist, He was born in 1860, and died in 1937. In 2017, respectively, 80 years have passed since the day of his death.

Throughout his long and eventful life, S. Volkonsky showed little political conviction, and he participated extremely rarely in any political actions. The main evidence for this is his own memoirs, in which, describing the facts of his biography, he talks mainly about his creative ideas, the evolution of his views on theatrical, visual, musical art and literature.

Not a member of any liberal party in Russia, he nevertheless, in his ideas and actions, demonstrated in every way the desire for significant changes and reforms both in the artistic culture and in the process of educating the younger generation.

It is necessary to say a few words about the biography of Sergei Mikhailovich, so that his basic convictions, certainly related to the history of his family, become more clear.

His father, Mikhail Sergeyevich Volkonsky, was recorded at the factory peasants at birth and later became a fellow of the Minister of Education, the son of the Decembrist Sergei Grigoryevich Volkonsky and his wife, Maria Nikolaevna, nee Raevskaya. On the maternal side, Maria Nikolaevna was the great-granddaughter of Mikhail Lomonosov, which students of the Moscow State University learned with particular surprise. The mother of Sergei Mikhailovich, Elizaveta G. Volkonskaya, born Knyazhna Volkonskaya. Her paternal grandfather is Pyotr Mikhailovich Volkonsky, the hero of the Patriotic War of 1812, chief of the main headquarters under Alexander I, and on the mother's side, Alexander Khristoforovich Benkendorf, head of the III division of the Chancellery of His Imperial Majesty.

The childhood and youth of the knyaz passed in the St. Petersburg house of parents, which was then one of the centers of Petersburg cultural and court life. In addition to the highest court officials, A.K. Tolstoy, F.I. Tyutchev, Y.P. Polonsky, A.N. Maykov, I.S. Turgenev, V.S. Soloviev and a whole series of people whose names occupy an honorable place in the culture of Russia have visited he Volkonsky's house. [2, p. 101]

In 1880, Volkonsky entered the historical and philological faculty of St. Petersburg University, where he specialized in Roman languages. After graduating from the university, Sergei Mikhailovich served in the Zemstvo institutions of the Borisoglebsky district of the Tambov province for some time, and in the early 1890s he was already registered with the Ministry of Education. From the ministry he was sent as part of the Russian delegation to the World Exhibition in Chicago. A lecture course delivered in America was published as a separate book, which was highly appreciated by V.S. Solovyov, who noted that "Volkonsky has successfully accomplished an interesting task in America: to represent Russia by his face. This human face was unfamiliar to Americans and all the more interesting. " [4, p. 39] At the same time, Volkonsky often appears on the pages of the journal "Herald of Europe" with articles on problems of art and aesthetics. In July 1889, Prince Volkonsky was appointed Director of the Imperial Theaters. He was in this post until 1901 and brought to work on the stage of the Imperial theaters the artists from the association "World of Art": K. Korovin, A. Benois, K. Somov, V. Serov, A.M. Vasnetsova, Nikolai Roerich, F. Malyavin, A.Ya. Golovin and others supported the innovative search of the young choreographer M. Fokin and others. [1, p. 75-97]

In the tenth years of the twentieth century, he became the most famous popularizer and promoter of Jacques-Dalcroze rhythmic gymnastics in Russia. [7, p. 2] The idea of the method arose from a lively interest in ways of forming a harmoniously developed personality with the help of rhythmically organized movement, contributing to the formation of moral and intellectual qualities. [3, p. 2]

At the beginning of the twentieth century in Europe, fashionable theories of this kind were the idea of gymnastics of "expressive movements" by Francois Delsarte and the gymnastic system of Georges Demeny. However, the most common methodology was the rhythmic gymnastics of Emile Jacques-Dalcroze, who created in 1911 in Germany near Dresden a whole institute for teaching children using plastic and for training teachers. [6, p. 7]

Volkonsky, having received an appropriate education in Hellerau, becomes the founder of the St. Petersburg rhythmic school in St. Petersburg. The founder of the Moscow school of rhythm was Nina Alexandrova, another Russian student of Dalcroze. [12, p. 243] Due to their activities, rhythmic gymnastics was widespread in pre-revolutionary Russia. She it taught in schools, gymnasiums, medical institutions, there is evidence that she was even included in the curriculum of the Smolny Institute of Noble Maidens.

After the revolution, the teachings of Dalcroze suddenly proved to be quite in demand in its cultural construction of the young Soviet republic. In the context of the formation of a state with a new political system, the formation of an entire state system with the aim of creating a socially just society of the future, the ideas

of educating the “new human” were more relevant than ever. They even created the Institute of Rhythm (based on the Petrograd School of S. Volkonsky), and later even the Association of Rhythmists at the State Academy of Arts. [12, p. 265] Unfortunately, S. Volkonsky did not participate much in these processes, since in 1922 he emigrated.

In the years 1922-1925. C.M. Volkonsky is in Germany and Italy, and since the mid-twenties lives in Paris. In various educational institutions of European capitals, he teaches stage speech, gives lectures on Russian literature, culture and history, collaborates with the largest emigrant newspaper "Latest News". In 1936-1937, after the death of A.K. Glazunova, Volkonsky becomes director of the Russian Conservatory in Paris. Volkonsky died in December 1937 in Richmond (USA), where he was buried.

The main attention in this article should be paid to the “Borisoglebsky period” of S.M. Volkonsky, during which he proved himself to be a true "liberal". Volkonsky was a large landowner in the Borisoglebsky district of the Tambov province (now Voronezh oblast), owned 12,757 tithes of land, had his own house in Borisoglebsk, where he lived quite often. [8, p. 93] He took an active part in the public life of the city, was the chairman of the congress of magistrates, an honorary magistrate. In September 1914, a hospital for the wounded was arranged in his house. The newspaper Borisoglebsky Listok noted Volkonsky's caring attitude to the wounded: for them, the knyaz used to order newspapers in the capital, bought stringed musical instruments, checkers, lottos. [8, p. 126]

A bright page of S.M. Volkonsky in Borisoglebsk was the opening in the spring in 1918 of an exhibition dedicated to the Decembrists, from the materials of the family archive. It presented paintings, portraits, drawings, documents, as well as personal items: folders, clocks, a candlestick, a table, an armchair, sheet music. The efforts of Volkonsky in one of the printing houses of the city printed the circulation of the exhibition catalog, which is now a bibliographic rarity. In 2014, with a circulation of 200 copies, the catalog was printed in Borisoglebsk with full preservation of the style and design of 1918.

The introduction to the catalog of Russia's first “Exhibition of the Decembrists” says: “May it serve as an edification for those who cherish the past and future fate of our homeland. It will familiarize the people with one of the most touching pages of the Russian revolutionary movement and will serve as a feasible tribute to the first freedom fighters in Russia.” [5, p. 4] In addition, it emphasizes that the exhibition was caused by a desire to use in the public interest the rich and diverse material that, by a lucky chance, was in Borisoglebsky district.

Nowadays, this exhibition is almost completely represented in the permanent exposition of the Borisoglebsk Museum of History and Art. In 2014, a new museum exposition (by A.V. Aksenov) entitled “The Siberian Corridor” (the name

was given by S.M. Volkonsky) won the XI grant competition for museum projects "A Changing Museum in a Changing World" by V. Potanin Charity Foundation in the nomination "Museum exposition technologies."

The first visitors of the exhibition, in addition to a tour of the new exhibition, were offered an acquaintance with a temporary exhibition telling about work on the project and all its participants, a demonstration of the short film "The history of one exhibition" and a new excursion route "Borisoglebsk through the eyes of S.M. Volkonsky."

The opening of the museum was continued by the literary and musical evening "And music enters our house", dedicated to the 155th anniversary of knyaz S.M. Volkonsky. Musical and poetic works beloved by Volkonsky were performed, which he himself performed at concerts, charity performances in Borisoglebsk, as well as musical compositions written by himself.

Work on creating a modern exhibition lasted 12 months. As a result, it was created and occupied the front staircase, on which were the large portrait of knyaz S.M. Volkonsky, and three halls of the museum. The first one presents the reconstruction of the exhibition "Decembrists - the first freedom fighters", in the second room the office of knyaz S.M. Volkonsky, and in the third - the drawing room of the owner of the house, the vowel of the Borisoglebsk City Council, pharmacist R.K. Weiss. [10]

Initially, all the documents and materials of the future exhibition were in Pavlovka, Tambov province, the Volkonsky family estate. There, in the corridor of the outbuilding, portraits, types, documents, things from Siberia were hung and exhibited. In 1918, Volkonsky, fearing the pogrom of the estate, moved the exhibits to Borisoglebsk. Under the name "Decembrists - the first freedom fighters" exhibition was deployed in the People's House. [8, p. 126]

During the Civil War, at the urgent request of Volkonsky, who wrote a letter to the government, the exhibition was taken out of Borisoglebsk. The letter read as follows: "To the Chief Commissioner for Public Education. Mr. Commissioner. Let me bring to your attention a fact that should interest you, as an inhabitant and guardian of culture in our country. In the city of Borisoglebsk, the Tambov province, I have, or rather used to have, a house, a small house with seven rooms, where I took some of my belongings from the estate. This house, with everything in it, has been declared public property and has come under the jurisdiction of the Borisoglebsk Emergency Commission. I will not say that everything has been taken away from me (I came to Moscow with a bag of linen in one hand and a bag of dress in the other), I will not say that not only were my books taken, but my manuscripts, notes, and samples were taken - works that I can't restore; I will not talk about methods of action. In all this, neither my house, nor my belongings, nor my relatives, nor myself were any different from the hundreds and thousands

of other Russian people at the present time. But among the things taken away there is a collection of exceptional artistic and historical value. I mean the "Museum of the Decembrists" assembled and arranged by me. There are portraits of Bestuzhev's work, pencil portraits of Maser, views of ostrogs, cameras, scenes of cautious life, things that belonged to my grandfather-Decembrist, exported from Siberia ... I do not ask for anything. I cannot accept a favor from the very hands that did all this, and what I saw in the provinces is too terrible ... But I recall the cry of indignation that you issued after the damage to the Kremlin, and I think that maybe perhaps, personal responsiveness to cultural issues and administrative opportunities concentrated in your hands will be able to save these values from the all-consuming jaws of the barbaric destruction among which we live. Please accept the assurances of perfect reverence. S. Volkonsky." [10]

On December 13, 1918, the director of affairs of the Council of People's Commissars V. D. Bonch-Bruevich sent a document to the Museum Department of the People's Commissariat in which he proposed urgent action on the complaint of S. M. Volkonsky against the actions of the Borisoglebsky Cheka. He talks about the need to immediately take to Moscow the "Museum of the Decembrists" and the Volkonsky archives.

The emissaries of the People's Commissariat for Education took part of things and art values to Moscow and submitted to the Monument Protection Board of the Museum Department of the People's Commissariat of Education. For a long time they were in the cellars of the Rumyantsev Museum. [10]

Nowadays, the revived "Exhibition of the Decembrists" has become a kind of monument to a difficult and contradictory time. Unfortunately, the city of Borisoglebsk is not a center of tourist interest, as, indeed, most of the small provincial cities of Russia. However, Borisoglebsk surpasses many large cities by the number of historical and cultural attractions and unique materials, such as the "Exhibition of the Decembrists". In addition, an unusually friendly team of enthusiastic employees has formed in the historical and art museum, thanks only to the efforts of which you can now read the unfamiliar pages of the history of Russian culture.

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牙科组织准备接受“无障碍环境”国家计划
READINESS OF DENTAL ORGANIZATIONS FOR THE STATE PROGRAM “ACCESSIBLE ENVIRONMENT”

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抽象。 检查了全俄罗斯的145个克麦罗沃州的牙科组织，88个阿尔泰边疆区的牙科组织和1750个组织，以检查俄罗斯联邦“无障碍环境”国家计划的执行情况，该计划旨在促进残疾人与环境的互动。 经常发现以下违规情况：停车场不适合残疾人士使用，诊所大楼，大厅，楼梯和厕所的入口不符合残疾人与环境畅通互动的要求

关键字：无障碍环境，牙科组织中的违规行为，PWLM（行动不便的人），残疾人，残疾人

Abstract. *145 dental organizations of Kemerovo Oblast, 88 of Altai Krai and 1750 organizations all throughout Russia were inspected for the implementation of the state program of the Russian Federation “Accessible Environment”, designed to facilitate the interaction of people with disabilities with the environment. The following violations were most often detected: parking was not adapted for people with disabilities, the entrance to the clinic building, hall, stairs and toilets did not meet the requirements of the unhindered interaction of disabled people with the environment*

Keywords: *Accessible environment, violations in dental organizations, PWLM (people with limited mobility), people with disabilities, people with disabilities*

Introduction

According to very recent data from Rosstat, as of March 2019, there are about 12 million people with disabilities in Russia (this is every 8th inhabitant of our country), children with disabilities are about 670 thousand, people with disabilities of the 1st group are about 1.5 million, 2nd, the largest group is about 5 million people and people with disabilities of 3rd group are 4.5 million

Accessible environment – is the physical environment, objects of transport, information and communication in order to remove obstacles and barriers that arise for a disabled person or group of people, taking into account their special needs. The challenge of creating an accessible environment presents serious challenges for many institutions. But at the same time, creating a barrier-free environment for people with disabilities is the primary task of any developed society. Creating an accessible environment for people with disabilities will allow them to realize their rights and fundamental freedoms, which will contribute to their full participation in the life of the country. Moreover, it should affect people with disabilities of all groups: 1) blind and visually impaired 2) wheelchair users 3) people with defects of the musculoskeletal system 4) people with cognitive impairments 5) with hearing impairments

Purpose of the study

Raise the awareness of medical personnel and heads of dental clinics about increasing the accessibility of a medical organization for people with disabilities and other low-mobility groups

Materials and research methods

The work is based on a questionnaire and internal audit of dental organizations for the implementation of the state program “Accessible Environment”. 145 dental organizations of Kemerovo Oblast, 88 Altai Krai and 1750 organizations throughout Russia was checked.

Results and discussion

Medical facilities are highly significant social facilities, especially for the disabled.

The “Accessible Environment” program has entered into force, so all dental organizations must comply with it.

The study revealed the following violations:

Parking requirements for PWLM were violated. A parking space for vehicles of people with disabilities should be located near the entrance to the enterprise or institution accessible for disabled people, but no further than 50 m, from the entrance to a residential building - no more than 100 (paragraph 5.2.2, 5.2.3 SP 59.13330.2016) . The parking space must be equipped with a traffic sign designed to indicate accessible parking for the disabled. The plate “Disabled” can be installed under the sign “Parking place” to indicate that the effect of this sign applies only to motorized carriages and cars on which the identification plate “Disabled” is installed (paragraph 5.2.1 of SP 59.13303.2016). There should also be parking limiters designed to prevent the arrival of vehicles on the PWLM paths (paragraph 5.2.4 of SP 59.13330.2016). Only 5% (N = 4) of Altai Krai dental organizations, 3% (N = 5) Kemerovo Oblast, 37% (N = 648) throughout Russia had their own parking space, most of them did not meet the requirements of the "Accessible Environment " program

The entrance to the dental organization must have tactile warning markings in front of the stairs to ensure the safe movement of the blind person along the flights of stairs (paragraph 5.1.10 SP 59.13330.2016). The steps of the stairs should be contrasted for safe movement of the visually impaired person on the stairs (paragraph 5.1.12 of SP 59.13330.2016). The staircase should be equipped with handrails (paragraph 6.1.2, 5.1.15 SP 59.13330.2016). There should be a tactile warning marking in front of the doors of the entrance to the dental organization. Precautionary markings were present in 6% (N = 6) of Altai Krai dental organizations, 4% (N = 6) of Kemerovo Oblast 16% (N = 280) in Russia.

Transparent doors should be contrasted to identify the doorway by a visually impaired person with cognitive impairment (clause 6.1.5 of SP 59.13330.2016).

If the entrance to the dental organization is located high, then it is equipped with ramps. The ramp was present in 9% (N = 8) of Altai Krai dental clinics, 25% (N = 36) of Kemerovo Oblast and 55% (N = 962) in Russia.

At the entrance to the building of the dental organization there should be a button for calling personnel help, which will help people with disabilities to enter the medical organization. The help call button was present in 9% (N = 8) of organizations in the Altai Territory, 17% (N = 25) in the Kemerovo Oblast, 47% in Russia (N = 823).

The hall of the dental organization should be equipped with tactile marking of the main directions of movement, so that a blind person can tactfully understand which direction he should go (SP 59.13330.2016). Tactile markings were present in 3% (N = 3) of the Altai Krai dental organizations, in 1% (N = 2) of Kemerovo Oblast clinics, and in 8% (N = 140) in Russia.

Bathroom should be equipped with wall handrails and handrails for sinks. Handrails were present in 6% (N = 94) of Altai Krai clinics, in 8% (N = 11) of Kemerovo Oblast clinics, and in 16% (N = 280) of Russian clinics

Conclusion

A range of activities designed to facilitate the orientation of people with disabilities in urban settings is implemented by the state program “Accessible Environment” for people with disabilities of all groups, from wheelchair users to blind and deaf people. Despite the fact that the program started already 7 years ago, most dental medical organizations, both of Kemerovo Oblast, and Russia as a whole in 2019, are not ready to ensure the implementation of the state program “Accessible Environment”, which means that medical service without barriers remains impossible.

分析对填写牙科患者病历043 / y的规则的遵守情况

ANALYSIS OF COMPLIANCE WITH THE RULES FOR FILLING OUT MEDICAL RECORDS OF A DENTAL PATIENT FORM 043/Y

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注解。 分析了为妥善管理而填写的库兹巴斯（N = 1856），哈卡斯共和国（N = 1260），托木斯克州（N = 1582）诊所的牙科记录，最常记录以下违规情况： 缺少患者投诉，在牙齿配方中使用无效字符或为儿童使用成人牙齿配方，缺乏对患者卫生状况的评估，缺乏客观的检查数据，缺乏数据 关于过去和相关疾病，没有过敏史a，行为卡疏忽，缺乏知情的自愿同意/拒绝医疗干预，缺乏同意/拒绝处理个人数据，缺乏龋齿强度数据， 仅以电子形式存储病历

关键字：病历，卡043 / y，牙科组织中的违规行为，病历

Annotation. *An analysis was made of filling out the dental records of the clinics of Kuzbass (N = 1856), the Republic of Khakassia (N = 1260), Tomsk Oblast (N = 1582) for proper management, the following violations were most often recorded: the absence of patient complaints, the use of invalid characters in the dental formula, or the use of an adult dental formula for a child, the lack of an assessment of the patient's hygienic status, the lack of objective examination data, the lack of data on past and related diseases, and the absence of an allergic history a, negligence of conducting cards, lack of informed voluntary consent / refusal to medical intervention, lack of consent / refusal to process personal data, lack of data on the intensity of caries, the storage of medical records only in electronic form*

Keywords: *Medical records, card 043/y, violations in dental organizations, medical records*

Introduction

The 043/y form of medical records is used in Russia and was approved by order of the USSR Ministry of Health dated 10.04.1980 №1030 “On the approval of primary medical documentation forms of a healthcare institution”. It has strict

rules for filling out the passport office, medical unit and applications. The quality of the dental care provided to the population depends on the correctness of entering the correct information into the outpatient card. Based on this, it became relevant to study medical records to identify errors in observing the examination algorithm and register its results in the dental patient card

Purpose of the study

Improving the quality of basic medical records by dentists.

Materials and research methods

The work is based the study of the dental records of Kuzbass (N = 1856), the Republic of Khakassia (N = 1260), Tomsk Oblast (N = 1582) for proper management. Using the method of simple arithmetic calculation, the relative values of errors allowed when filling in the cards were calculated, which were expressed as a percentage of the total number of recorded manipulations.

Results and discussion

The form of the medical record for the dental patient 043 / y was approved by Order № 1030 of 04. 10. 1980. After 8 years, that is, in 1988 the Ministry of Health of the USSR cancels the effect of order № 1030. In 1993, the new government, already represented by the Ministry of Health of Russia, forgets about the existence of the 1988 order and begins to regularly refer to order № 1030 (which is actually no longer valid), introducing amendments and additions to it. After 16 years, realizing all the confusion, the Ministry of Health and Social Development of the Russian Federation in a Letter dated November 30, 2009 N 14-6 / 242888 reported that, before the release of a new album of sample accounting forms, institutions can use Order № 1030 forms (all the same usual /y forms) in their work to record the activities. Therefore, all dental clinics must still maintain 043/y medical records

During the inspection, the following violations were identified:

The absence of patient complaints was recorded in 19% (N = 353) of cases in the Kuzbass, 21% (N = 264) of cases in the Republic of Khakassia, 10% (N = 158) in the Tomsk oblast

The use of invalid characters in the dental formula or the use of an adult dental formula for a child was recorded in 37% (N = 687) of cases in the Kuzbass, 29% (N = 365) of cases in the Republic of Khakassia, 31% (N = 490) in the Tomsk oblast

Lack of assessment of the patient's hygienic status was recorded in 57% of cases in the Kuzbass, 65% of cases in the Republic of Khakassia, 48% in the Tomsk oblast

The lack of objective examination data was recorded in 10% (N = 187) of cases in the Kuzbass, 12% (N = 151) of cases in the Republic of Khakassia, 12% (N = 190) in the Tomsk oblast

The lack of data on past and concomitant diseases was recorded in 34% (N = 631) of cases in the Kuzbass, 28% (N = 353) of cases in the Republic of Khakassia, 29% (N = 459) in the Tomsk oblast

The absence of an allergic history was recorded in 35% (N = 650) of cases in the Kuzbass, 39% (N = 491) of cases in the Republic of Khakassia, 37% (N = 585) in the Tomsk oblast

Card negligence was recorded in 18% (N = 334) of cases in the Kuzbass, 21% (N = 265) of cases in the Republic of Khakassia, 16% (N = 253) in the Tomsk oblast

Lack of informed voluntary consent / refusal of medical intervention, lack of consent / was recorded in 8% (N = 148) of cases in the Kuzbass, 12% (N = 151) of cases in the Republic of Khakassia, 9% (N = 142) in the Tomsk oblast.

Refusal to process personal data was recorded in 24% (N = 445) of cases in the Kuzbass, 21% (N = 264) of cases in the Republic of Khakassia, 14% (N = 221) in the Tomsk oblast.

The lack of data on the intensity of caries was recorded in 47% (N = 872) of cases in the Kuzbass, 35% (N = 441) of cases in the Republic of Khakassia, 48% (N = 759) in the Tomsk oblast.

Storage of medical records only in electronic form was recorded in 9% (N = 167) of cases in the Kuzbass, 5% (N = 63) of of cases in the Republic of Khakassia, 11% (N = 174) in the Tomsk oblast.

Conclusions

The ministries of health of the USSR and the Russian Federation managed to arrange extraordinary confusion with a medical card. In most cases, various kinds of violations were revealed in the dental cards. It must be remembered that neglect of medical records is an abuse of authority and is a reason for prosecution (improper filling out of an outpatient card may be qualified by the supervisor under Article 14.1 or 19.20 of the Code of Administrative Offenses as a violation of licensing requirements for medical activities), up to criminal.

长期服用盐皮质激素受体拮抗剂对慢性心力衰竭患者左心室舒张功能指标的评价

EVALUATION OF THE EFFECTIVENESS OF LONG-TERM ADMINISTRATION OF ANTAGONISTS OF MINERALOCORTICOID RECEPTORS ON INDICATORS OF DIASTOLIC FUNCTION OF THE LEFT VENTRICLE IN PATIENTS WITH CHRONIC HEART FAILURE

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抽象。 本文讨论了长期给予盐皮质激素受体拮抗剂，螺内酯和依普利酮作为心力衰竭患者左心室舒张功能指标的比较效果的研究结果。

关键词：慢性心力衰竭，舒张功能障碍，盐皮质激素受体拮抗剂

Absrtact. *This article discusses the results of a study of the comparative effectiveness of the long-term administration of mineralocorticoid receptor antagonists, spirinolactone and eplerenone, for indicators of diastolic function of the left ventricle in patients with heart failure.*

Key words: *chronic heart failure, diastolic dysfunction, mineralocorticoid receptor antagonists*

Chronic heart failure (CHF), despite the success achieved in recent years on prevention and treatment, occupies a leading place in the structure of morbidity and mortality in the world. According to recent recommendations (2016), “1-2% of the adult population in developed countries have heart failure” [1,2]. CHF occurs in the active period of life, that is, in patients aged 40-60 years and is characterized by a frequent cause of hospitalization, a deterioration in the quality of life and a limited ability to work of patients, high mortality rates. There is evidence that violations of the diastolic function of the heart usually precede a decrease in the pumping function of the left ventricle and are a predictor of an unfavorable prognosis, the prevalence of which is 40-60% [3,4].

A number of scientific studies are being conducted in the world aimed at the diagnosis, early detection and achievement of high efficiency in approaches to the tactics of treating patients with heart failure [5,6]. In developing approaches to the early diagnosis of heart failure, it seems important to study the relationship of clinical and hemodynamic, remodeling of the heart, neurohumoral parameters and the state of diastolic function of the heart [7,8]. Improving the criteria for early

diagnosis of heart diastolic function in heart failure, predicting the progression and course of the disease, taking them into account, optimizing modern approaches to differentiated pharmacotherapy of heart failure with diastolic dysfunction of the left ventricle is one of the most urgent tasks today [9, 10].

Goal. To study the comparative effectiveness of long-term administration of antagonists of mineralocorticoid receptors - spirinolactone and eplerenone on the indicators of diastolic function of the left ventricle in patients with heart failure.

Material and methods. We examined 131 patients with chronic ischemic heart failure with I, II and III FC, men aged 38-60 years (mean age 54.51 ± 6.89) who received inpatient treatment in 1 clinic of TMA and RSNPMTS T and MR. The remoteness of myocardial infarction ranged from 3 months. up to 4 years. Patients were randomized to groups according to FC CHF submitted, according to the classification of the New York Association of Cardiologists according to the six-minute walk test. The group of patients with FC I was 31 patients, FC II was 51 and FC III were 49 patients. To compare the obtained data, a group of healthy individuals (control group) was examined in the amount of 20 people, comparable by sex, age with the main group. The study did not include patients with complex arrhythmias, acute cerebrovascular accident, diabetes mellitus, chronic obstructive pulmonary disease, liver and kidney diseases.

All patients underwent an electrocardiogram, a set of clinical, functional and biochemical examinations. The clinical condition of patients was assessed by TLC, the clinical condition assessment scale, modified by V.Yu. Mareev (2000).

To assess the comparative effectiveness of AMRK, the patients were divided into 2 groups: the first group (I) consisted of 51 patients with FC II (26) and FC III CHF (25 patients) were taken for 6 months with standard therapy - spirinolactone; the second group (II) –49 patients with FC II (25) and FC III CHF (24 patients) - eplerenone. The dose of spirinolactone was titrated up to 25-50 mg per day (the average dose of the drug was 31.5 ± 10.6), eplerenone also up to 25-50 mg per day (the average dose of the drug was 29.4 ± 11.5). Groups were randomized by age, gender, and comorbidity.

For statistical data processing, the Microsoft Office Excel - 2013 software package was used, including the use of the built-in statistical processing functions using the STATISTICA-6.0 program.

Results and discussion

Analysis of diastolic function indices in patients of the first and second groups after 6 months of treatment showed an improvement in LV diastolic function. In patients with FC I CHF after 6 months of treatment, an improvement in the LV diastolic function was observed, which was expressed in a decrease in E by 12.2% and an increase in A by 14.5%. The ratio E / A was 0.97 ± 0.21. A significant improvement in the isovolumetric relaxation time LV (IVRT) and the slowing down of the flow rate

during the LV early filling phase (DT) was found, and these indicators were194.5 ± 56.7 ms and 88.6 ± 12.6 ms ($p < 0.05$), respectively . In patients of group II with the inclusion of spirinolactone in the treatment standard, indicators of diastolic function peak E decreased by 10.4% ($p < 0.05$) and peak A by 11.5% ($p < 0.02$), which was accompanied by an improvement in IVRT and DT by 7.6 and 11.7% ($p < 0.05$). These indicators in patients with FC III CHF also changed significantly, amounting to 14.8 ($p < 0.01$) and 12.4% ($p < 0.05$), respectively. The E / A ratio was 1.31 ± 0.18. IVRT and DT improved by 9.9 ($p < 0.05$) and 13.1% ($p < 0.01$). In patients of group II with II FC CHF, a decrease in peak E by 12.6% ($p < 0.01$) and peak A by 12.1% ($p < 0.05$) was observed, and IVRT and DT were 89.17 ± 10.14 ($p < 0.05$) and 173.42 ± 14.27 ($p < 0.01$) ms. In patients with FC III CHF, peak E improved by 13.9% ($p < 0.01$), and A by 14.9% ($p < 0.01$), which was accompanied by a significant decrease in the E / A ratio. The E / A ratio was 1.12 ± 0.13. The IVRT and DT indices improved by 10.9% ($p < 0.05$) and 14.6% ($p < 0.05$) compared to the baseline. Assessment of LV diastolic function in patients with heart failure in the course of treatment showed a positive change in the structure of LV diastolic function and after 6 months of treatment, diastolic dysfunction was determined in 76 (58%) patients. Of them, in 33.6% (44 patients) type I was defined (impaired relaxation), in 14.5% (19) of patients type II - (pseudo-normal) and in 9.9% (13) of patients type III (restrictive) DD LV. Analysis of LV DD after 6 months of treatment for FC CHF showed that in patients with FC I CHF, type I was detected in 8 (25.8%) patients, type II in 2 (6.5%) patients. In patients of group I with CHF, IIFK DDLV was found in 20 patients (76.9%), of which type I was in 12 (46.2%) patients, type II in 5 (19.2%) patients, type III in 3 (11.5%) patients. After six months of treatment with inclusion of spirinolactone in the treatment standards, the incidence of DD LV was 18 (69.2%), while type I was detected in 11 (42.3%) patients, type II — 4 (15.4%) and type II in 3 (11.5%) patients. In patients with FC III CHF, LV LV was initially detected in 20 (80%) of 25, of which type I was in 8 (32%) patients, type II and type III were 6 (24%), respectively, in the groups. An analysis of the data revealed that after treatment, DDLV was determined in 19 (76%) patients, of which type I was in 8 (32%) patients, type II in 6 (24%) and type III in 5 (20%) patients. In patients with CHF, IIFK of group II of DDLV was detected in 19 patients (76%) of them, type I in 10 (40%) patients, type II in 5 (20%) patients, and type III in 4 (16%) patients . After a six-month treatment with inclusion of eplerenone in the treatment standards, DD LV was observed in 13 (50%) patients: type I in 9 (36%) patients, type II - 3 (12%) and type III in 1 (4%) patients. In patients of this group with FC III CHF, LV LV was detected in 20 (83.3%) of 24, of which type I was in 9 (37.5%) patients, type II in 5 (20.8%) and type III in 6 (25%) patients. An analysis of these parameters after treatment showed that DDLV was found in 16 (66.6%) versus 20 (83.3%), while type I was found in 8 (33.3%) patients, type II and type III in 4 (16 , 7%) patients in groups, respectively.

Thus, long-term complex treatment with the inclusion of spirinolactone and eplerenone contributes to the improvement of LV diastolic function and patients with DDLV accounted for 58%, the clinical course of the disease, indicators of remodeling of the heart and quality of life of patients. In both groups, a positive dynamics of the structure of FC CHF was achieved: the number of patients with CHF with FC III decreased due to an increase in the proportion of patients with I-II FC

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严重慢性心力衰竭患者血管造影参数的研究
THE STUDY OF ANGIOGRAPHIC PARAMETERS IN PATIENTS WITH SEVERE CHRONIC HEART FAILURE

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抽象。 本文介绍了有关FC III患者血管造影参数研究的数据。 在CHF患者中，冠状动脉病变与疾病的严重程度有关。

关键词：慢性心力衰竭血管造影参数临床过程

Abstract. *The article presents data on the study of angiographic parameters in patients with FC III. In patients with CHF, coronary artery lesions were associated with the severity of the disease.*

Key words: *chronic heart failure, angiographic parameters, clinical course*

At the global level, in order to achieve high efficiency in the diagnosis, early detection and selection of treatment tactics in patients with coronary artery disease, a number of scientific studies are carried out. In patients with coronary artery disease, optimization of treatment with endovascular methods, improvement of treatment methods with the aim of improving the quality and life expectancy is important. Optimization of approaches to the treatment of patients with coronary heart disease using endovascular methods of treatment using various stents that provide the function of recanalization in the vessels, restoring the elastic properties of the vascular pools, as well as studying their effectiveness and safety, immediate and long-term results with the assessment of cardiovascular complications is one of the urgent tasks for today [1,2]. A number of scientific and practical results have been obtained on the study of the effectiveness and long-term results of the use of endovascular methods for the treatment of coronary heart disease, including: the effectiveness of these methods has been proved, according to clinical and angiographic indicators, in improving the clinical course of the disease, prognosis and quality of life of patients; justified the improvement of heart remodeling indicators and the reduction of complications in assessing long-term results and prognosis to determine the established tactics of applying treatment standards and patient management taking into account the clinical course and form of the disease, functional angiographic criteria [3,4,5].

Purpose. To assess coronary lesions in patients with functional class III (FC) CHF.

Material and methods. We examined 50 patients with FC III CHF aged 52.52 ± 6.21 years who were hospitalized in the regional multicenter medical center of the Bukhara region. All patients underwent a six-minute walk test (SMWT), a clinical assessment scale (CAS) for patients, and clinical physical and angiographic studies. Men accounted for 90% (45 patients) and women 10% (5 patients). The exclusion criteria from the study were: patients with a previous PCI with stenting or coronary artery bypass grafting (CABG) in the anamnesis; with severe concomitant pathology of the cardiovascular system (aortic aneurysm; valvular pathology requiring surgical correction; severe left ventricular (LV) systolic dysfunction (LVEF <35%); severe renal failure); patients who are not tolerant of taking anticoagulants / antiplatelet agents; persons with bifurcation lesions. To assess the X-ray morphological characteristics of patients, selective coronary angiography (CAG) of coronary vessels was performed taking into account angiographic parameters: percentage of stenosis, number of stenotic lesions, classification of stenotic lesions by types A-B-C, localization of lesions (proximal, middle, distal) and artery diameter. The following basins of the coronary arteries were studied: the anterior descending artery, the envelope of the artery, the branch of the obtuse margin, the intermediate artery, the right coronary artery, the posterior interventricular branch and the left ventricular branch.

Results. An angiographic characteristic revealed that in patients with FC III CHF the right-wing type of blood supply prevailed in 64% ($p = 0.053$; $\chi 2 = 2.138$). The second place in the frequency of occurrence of atherosclerotic lesions belonged to the PKA basin - 32% of patients. The degree of stenotic contractions in the PKA basin was 55-60% in 6% of patients, 60-670% in 4% of patients, 70-85% in 14% and 85-95% in 24% of patients. The results show that in patients with FC III CHF, coronary artery lesions were most often encountered, up to 85-95%, while 10% of patients had total coronary artery occlusion. In 3 (6%) patients, the coronary arteries were unchanged. A narrowing of LCA to 50-60% was detected in 12% of patients, to 85-95% in 16% of patients. In 4 (8%) patients there were no changes in the coronary arteries. In 16 (32%) patients, 2-vascular lesions occurred. An analysis of the relationship between the degree of damage to the coronary vessels and the clinical course of heart failure revealed that 55-60% of the SMWT was 234.7 ± 28.2 meters for coronary artery lesions and 197.7 ± 24.8 meters for 85-95% lesions. When studying the CAS indices, it was also found that with coronary artery lesions of 85-95%, this indicator was 13.19 ± 0.68 points, which was 1.7 times higher compared to the CAS index with coronary artery lesions of 55-60%.

Thus, in patients with CHF, coronary artery lesions had a relationship with the severity of the course of the disease, as measured by SMWT and CAS.

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油井的阴极保护效果
THE CATHODIC PROTECTION EFFECTIVENESS FOR OIL WELLS

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抽象。 给出了对“ Tatneft” OJSC领土上2003年至2015年期间生产井和注入井的套管故障具体数量的比较评估结果。 显示了井龄和阴极保护设备的影响。介绍了在“ Tatneft” OJSC领土上配备阴极保护的井的动态（2001-2018年）。 以生产井为例，分析了阴极保护有效性计算和失效减少系数的计算结果。 给出了计算可靠性特征的结果-生产井和注入井无故障运行的可能性。

关键词：套管，油井，阴极保护，
外部腐蚀，套管损坏

Abstract. *The results of a comparative assessment of the specific number of casing failure from production and injection wells for the period of 2003-2015 on the territory of “Tatneft” OJSC are presented. The influence of well age and cathodic protection equipment is shown. The dynamics of equipping wells with cathodic protection for the period of 2001-2018 on the territory of “Tatneft” OJSC is presented. The results of calculating the effectiveness of cathodic protection and the failure reduction coefficient are analyzed using production wells as an example. The results of calculating the reliability characteristics - the probability of failure-free operation of producing and injection wells are presented.*

Keywords: *casing, oil well, cathodic protection, external corrosion, casing failure*

The solution to the problem of increasing the operational reliability of oil casing strings is not least connected with the provision of anticorrosion measures at the facility. The main characteristics of reliability can be assessed by the collection and systematization of field information about the facility during operation [1, 2].

One of the reasons for the loss of tightness of casing strings is the occurrence of electrochemical corrosion on its outer surface in the intervals of aggressive

horizons, which leads to the development of local lesions and, as a result, depressurization of the casing strings. Comprehensive protection, including the passive method — the creation of a cement ring behind the production string and the application of the active protection method, which consists in displacing the electrode potential of the casing metal into the cathode region due to an external current source, allows protection against external corrosion [3-5].

As of 01.01.2018, the cathodic coverage of production wells at “Tatneft” OJSC amounted to 39.4%, and injection wells - 29.2% (Fig. 1).

The purpose of the research is the collection and systematization of field information in accordance with the established form, related to the number of wells in operation, their age, number of repairs and failure rates for the period of 2003-2015, as well as a statistical analysis of the data obtained to evaluate the effectiveness of protective measures.

Objects of study - production and injection wells of "TatNeft" OJSC in the context of Oil and Gas Production Department(Aznakaevskneft-AzN, Almetyevneft-AN, Bavlyneft-BN, Jalilneft-DN, Elkhovneft-EN, Leninogorskneft-LN, Nurlatneft-NN, Prikam-neft-Neft-Neft-Neft-Neft , Yamashneft-YaN). Wells with and without cathodic protection are considered, disaggregated by age (years): 0 - 5; 6-10; 11-15, 16-20; 21-25; 26-30; > 31.

The results of the study. A criterion for the effectiveness of cathodic protection is to reduce the failure of casing strings (Fig. 2, the experimental data are approximated by the corresponding curves indicating the confidence coefficient of the selected trend model with the initial data). Analyzing the obtained dependences, we can conclude that the cathodic protection for injection wells has a significant effect on wells with a life of up to 25 years. The decrease in the effect of protection for this type of well older than 25 years is apparently associated with the increased influence of internal corrosion processes, which the cathodic protection does not affect. For production wells, the critical age for failures was a limit of 26-30 years, which is most likely due to aging of cement stone. As expected, the newest wells with a service life of up to 5 years are least affected by corrosion. The equivalent number of failures of this age group of wells with and without cathodic protection is associated with the rise of the cement ring to the wellhead and the use of modern cement mortars.

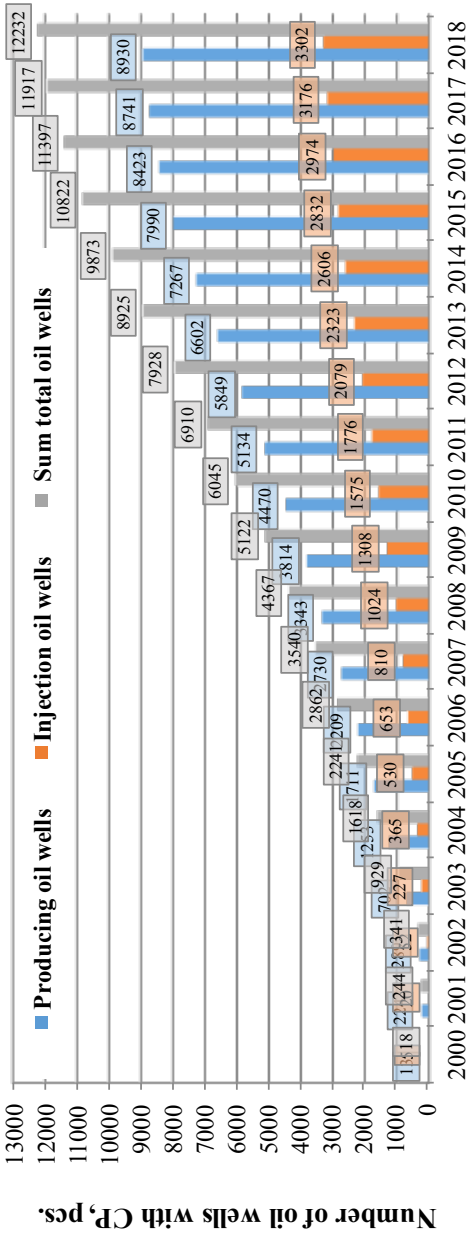
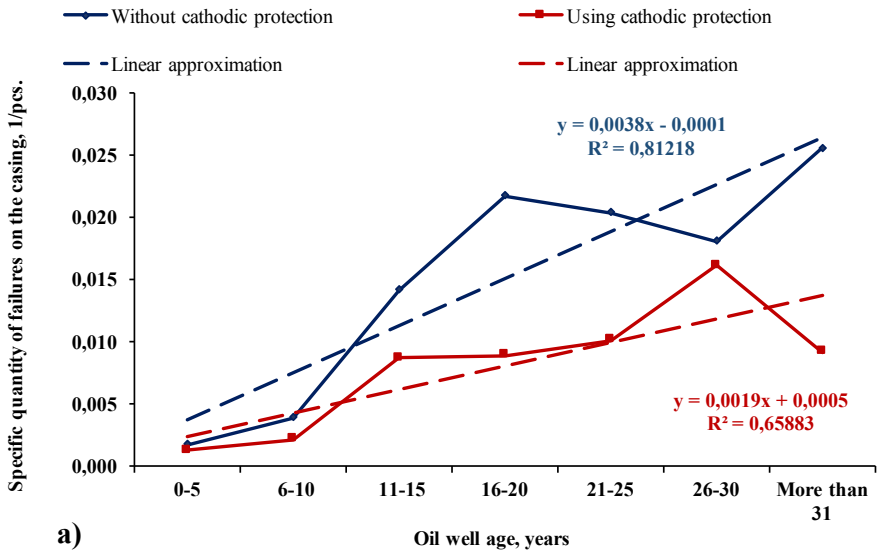


Fig. 1. *Dynamics of equipping wells with cathodic protection on the territory of "Tatneft" OJSC for the period of 2000 - 2018*



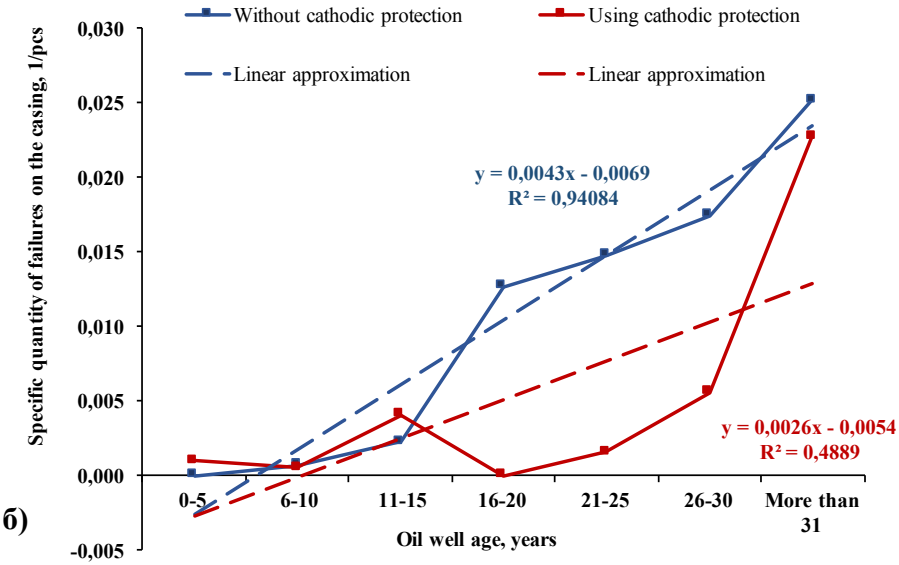


Fig. 2. *Comparative dynamics of the specific frequency of disturbances in production (a) and injection (б) wells, depending on the cathodic protection equipment for the period 2003 - 2015*

The response to failures can be estimated using the effectiveness of cathodic protection (degree of protection characterizing a decrease in the rate of corrosion of casing as a result of cathodic protection) and mathematically defined as the difference between the specific frequency of disturbances in casing strings without *n(t)* and cathodic protection $n_3(t)$, attributed to the specific frequency of violations without cathodic protection:

$$Z = \frac{n(t) - n_3(t)}{n(t)}.$$

The effectiveness values for individual Oil and Gas Production Departments reaches 1, and its average value is in the range 0.5 - 0.6 (Fig. 3). For injection wells, this indicator averages from 0.4 to 0.5.

The highest cathodic protection efficiency is observed for production wells with a life of 11 to 25 years in individual Oil and Gas Production Departments, as evidenced by the values of the failure reduction coefficient, defined as the ratio of the specific number of failures without cathodic protection to the specific number of failures with cathodic protection (Fig. 4). For injection wells, a value from 4 to 8 is observed in the Oil and Gas Production Departments of AN, BN, and AzN.

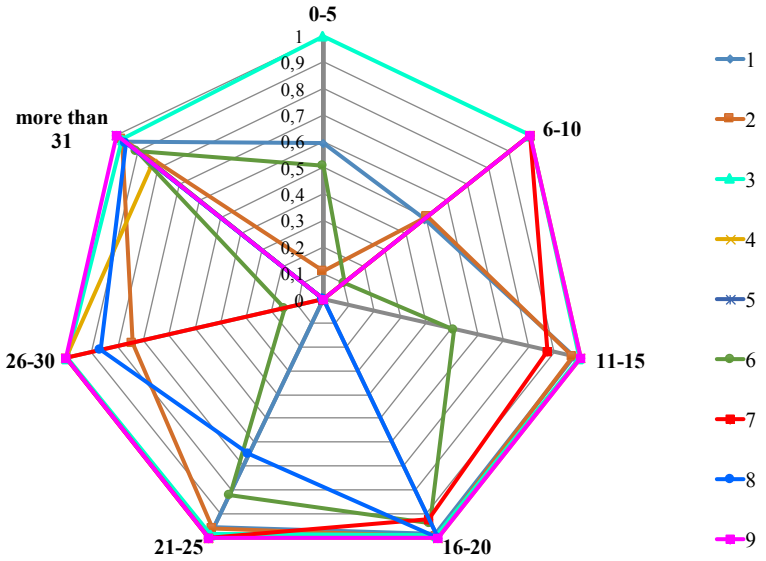


Fig. 3. *The effectiveness of cathodic protection technology for production wells of various age categories in the context of Oil and Gas Production Departments for the period 2003-2015*

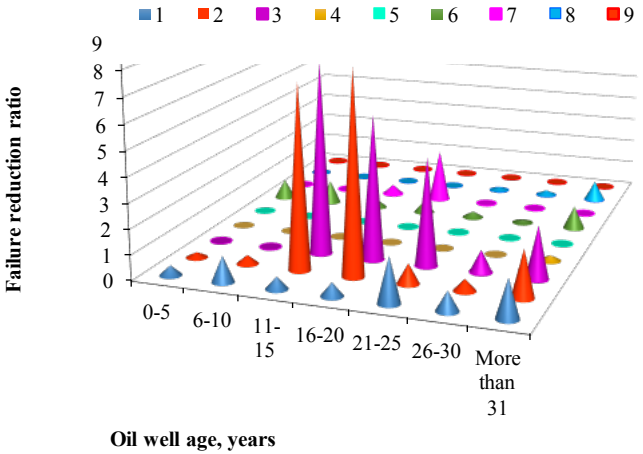


Fig. 4. *The failure reduction coefficient for producing wells, depending on their age for the period of 2003-2015*

(Азнакаевскнефть-АзН -1, Альметьевнефть-АН - 2, Бавлынефть-БН - 3, Джалильнефть-ДН - 4, Елховнефть-ЕН - 5, Лениногорскнефть-ЛН - 6, Нурлатнефть-НН - 7, Прикамнефть-ПН - 8, Ямашнефть-ЯН - 9).

The reliability of equipment can be most fully characterized by the probability of failure-free operation — the probability that within a given operating time (i.e., a given time interval corresponding to the age of the well) there is no failure, and mathematically determined by the ratio of the difference between the total number of wells of age N and the number of failure of wells $n(t)$ with an age t to the total number of wells:

$$P(t) = \frac{N - n(t)}{N}.$$

The linear dependencies obtained from the average values, excluding the extreme points, show that the probability of failure-free operation decreases to 0.9 for the old stock of both types of wells without cathodic protection (Fig. 5). When forecasting this indicator for unprotected wells with an age of about 40 years, the value decreases by 0.1 and amounts to about 0.8. At the same time, protected wells retain this probability up to 0.98 during the entire production period.

At the same time, the average probability of failures, i.e., the probability that at least one failure occurs within the specified production time (specified time interval corresponding to the age of the well):

$$Q(t) = 1 - P(t) = \frac{n(t)}{N}$$

for unprotected wells up to 0.15.

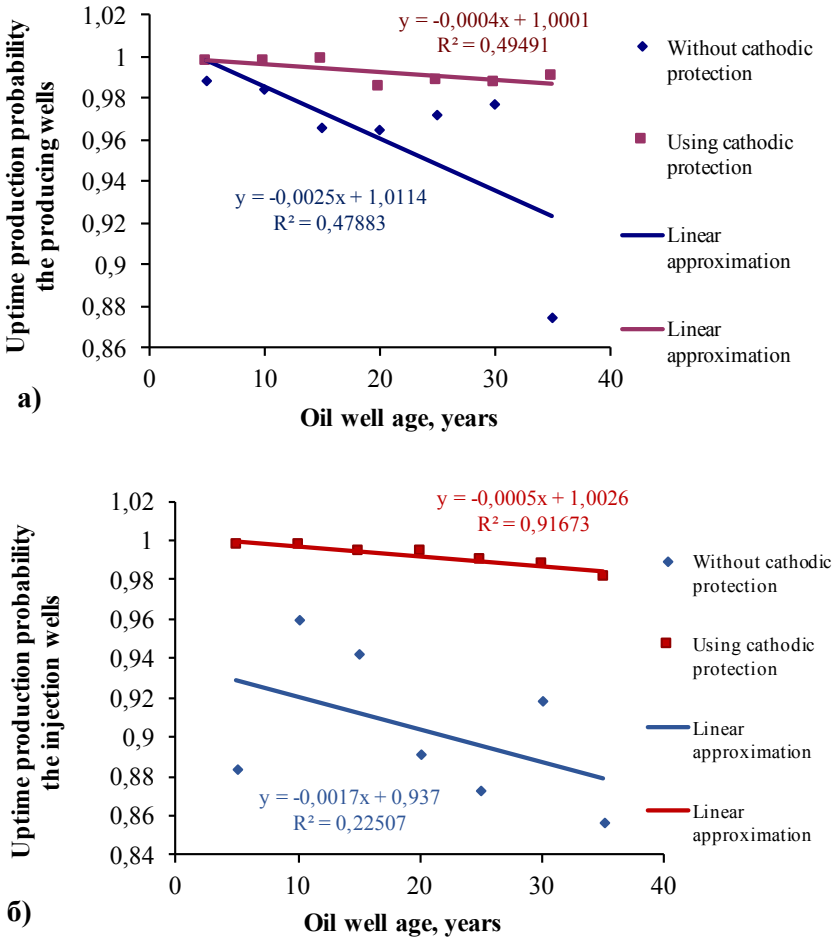


Fig. 5. *The probability of failure of production and injection wells, depending on their age and equipment with cathodic protection*

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UDC 331.45

确定温度对技术和工业场所墙壁表面高度的依赖性
DETERMINATION OF THE DEPENDENCE OF TEMPERATURE ON THE HEIGHT OF THE WALL SURFACE OF TECHNICAL AND INDUSTRIAL PREMISES

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抽象。 给出了生产设施工作场所的最佳温度值。 还介绍了测量下水道生产设施表面温度的方法，并处理了实验数据。

关键字：职业安全与卫生，工作场所可能的温度值，下水道表面的温度，实验数据处理。

Abstract. *The optimal temperature values at the workplaces of production facilities are presented. Methods for measuring the surface temperature of sewer production facilities are also presented, and experimental data are processed.*

Keywords: *Occupational Safety and Health, possible temperature values on workplaces, temperature to sewer surfaces, experimental data processing.*

Introduction

The aim of the research was to determine the dependence of the surface temperature of the walls of technical and industrial premises on their height.

To achieve this goal, the following tasks were set:

1. It was proposed that in the surface temperature of the walls of technical production and premises changes, depending on their height.

2. Determine experimentally the dependence of the temperature of the walls of technical and industrial premises on their height by the Orion-380 infrared pyrometer.

3. Measure the surface temperature of the walls of the technical room on the vertical line at five points in increments of 0.5 m with a repeat of 5 times.

4. Process the experimental data and determine the average temperature at the indicated points.

5. Carry out linear and polynomial approximation of data using the Mathcad computer program.

6. Draw conclusions about changes in temperature depending on the height of the walls of industrial premises.

The norms of the industrial microclimate are established in SanPiN 2.2.4.548-96 “Hygienic requirements for the microclimate of industrial premises” and SSBT GOST 12.1.005-88 “General sanitary and hygienic requirements for the air of the working area”.

They are the same for all industries and all climatic zones with some minor deviations.

These standards separately regulate each component of the microclimate in the working area of the production room: temperature, relative humidity, air velocity depending on the ability of the human body to acclimatize at different times of the year, the nature of clothing, the intensity of the work performed and the nature of the heat in the working room.

According to GOST 12.1.005-88, optimal and permissible microclimatic conditions can be established in the working area of the production room.

Optimal microclimatic conditions are established according to the criteria of the optimal thermal and functional state of a person. They provide a general and local sensation of thermal comfort during an 8-hour shift with a minimum voltage of thermoregulation mechanisms, do not cause deviations in the state of health, create the prerequisites for a high level of working capacity and are preferred at workplaces.

The optimal values of microclimate indices must be observed at the workplaces of industrial premises where operator-type work is carried out, associated with nervous and emotional stress (in cabins, at consoles and process control posts, in computer rooms, etc.).

The optimal microclimate parameters at workplaces should correspond to the values given in tab. 1, in relation to the performance of work of various categories in the cold and warm periods of the year.

Differences in air temperature in height and horizontally, as well as changes in air temperature during the shift, while ensuring optimal micro-climate at workplaces, should not exceed 2 °C and go beyond the values specified in tab. 1. for certain categories of work.

Table 1.

Optimum microclimate indicators at workplaces of industrial premises

Period of the year	Category of work by energy consumption level, W	Air temperature °C	Surface temperature, °C	Relative humidity, %	Air velocity, m/s
Cold	Ia (up to 139)	22 - 24	21 - 25	60 - 40	0,1
	Ib (140 - 174)	21 - 23	20 - 24	60 - 40	0,1
	IIa (175 - 232)	19 - 21	18 - 22	60 - 40	0,2
	IIb (233 - 290)	17 - 19	16 - 20	60 - 40	0,2
	III (over 290)	16 - 18	15 - 19	60 - 40	0,3
Warm	Ia (up to 139)	23 - 25	22 - 26	60 - 40	0,1
	Ib (140 - 174)	22 - 24	21 - 25	60 - 40	0,1
	IIa (175 - 232)	20 - 22	19 - 23	60 - 40	0,2
	IIb (233 - 290)	19 - 21	18 - 22	60 - 40	0,2
	III (over 290)	18 - 20	17 - 21	60 - 40	0,3

Permissible microclimatic conditions are established according to the criteria of an admissible thermal and functional state of a person for the period of an 8-hour work shift. They do not cause damage or impairment of health, but can lead to the appearance of general and local sensations of thermal discomfort, tension of the mechanisms of thermoregulation, deterioration of well-being and decreased performance.

Permissible values of microclimate indicators are established in cases where, due to technological requirements, technical and economically sound reasons, optimal values cannot be provided.

Permissible values of microclimate indicators at workplaces should correspond to the values given in tab. 2. in relation to the performance of work of various categories in the cold and warm periods of the year.

While ensuring acceptable microclimate values at workplaces:

- the air temperature difference by height should be no more than 3 °C;
- the horizontal air temperature difference, as well as its changes during the shift should not exceed:
    - for job categories Ia and Ib – 4°C;
    - for job categories IIa and IIb – 5°C;
    - for job categories III – 6°C.

In this case, the absolute values of the air temperature should not go beyond the values indicated in the tab. 2. for certain categories of work.

Table 2.

Permissible values of microclimate indicators at workplaces of industrial premises

Period of the year	Category of work by energy consumption level, W	Air temperature °C		Surface temperature, °C	Relative humidity, %	Air velocity, m/s	
		range below optimal values	range above optimal values			for air temperature range below optimal values, no more	for air temperature range above optimal values, no more **
Cold	Ia (up to 139)	20,0 - 21,9	24,1 - 25,0	19,0- 26,0	15 - 75 *	0,1	0,1
	Ib (140 - 174)	19,0 - 20,9	23,1 - 24,0	18,0- 25,0	15 - 75	0,1	0,2
	IIa (175 - 232)	17,0 - 18,9	21,1 - 23,0	16,0- 24,0	15 - 75	0,1	0,3
	IIb (233 - 290)	15,0 - 16,9	19,1 - 22,0	14,0- 23,0	15 - 75	0,2	0,4
	III (over 290)	13,0 - 15,9	18,1 - 21,0	12,0- 22,0	15 - 75	0,2	0,4
Warm	Ia (up to 139)	21,0 - 22,9	25,1 - 28,0	20,0- 29,0	15 - 75 *	0,1	0,2
	Ib (140 - 174)	20,0 - 21,9	24,1 - 28,0	19,0- 29,0	15 - 75 *	0,1	0,3
	IIa (175 - 232)	18,0 - 19,9	22,1 - 27,0	17,0- 28,0	15 - 75 *	0,1	0,4
	IIb (233 - 290)	16,0 - 18,9	21,1 - 27,0	15,0- 28,0	15 - 75 *	0,2	0,5
	III (over 290)	15,0 - 17,9	20,1 - 26,0	14,0- 27,0	15 - 75 *	0,2	0,5

* At air temperatures of 25 °C and above, the maximum relative air humidity should be taken in accordance with special requirements.

** At air temperatures of 26 - 28 °C, the speed of air movement in the warm season should be taken in accordance with special requirements.

Permissible values of the intensity of thermal exposure of workers at workplaces from industrial sources heated to a dark glow (materials, products, etc.) must correspond to the values given in tab. 3.

Table 3.

Permissible values of the intensity of thermal irradiation of the body surface of workers from industrial sources

Irradiated body surface,%	The intensity of thermal radiation, W/sq. m, no more
50 and above	35
25 - 50	70
no more than 25	100

Permissible values of the intensity of thermal radiation working from radiation sources heated to *white and red glow* (red-hot or molten metal, glass, flame, etc.) should not exceed 140 W/sq. m. In this case, more than 25% of the body surface should not be exposed to radiation and the use of personal protective equipment, including face and eye protection, is mandatory.

Table 4.

The values of the optimal and permissible temperatures in the premises of the residential sector

The name of a premise	Air temperature, °C, optimal	Air temperature, °C, permissible
Living room	20-22	18-24
Kitchen	19-21	18-26
Restroom	19-21	18-26
Bathroom	24-26	18-26
Corridor	18-20	16-22
Lobby	16-18	14-20
Pantries	16-18	12-22

Materials and methods. One-factor experiments, where one parameter varies for fixed values of the others, require a large number of experiments, and most importantly, they do not always make it possible to reveal the general picture of the influence of factors on the optimization object. Application of experimental design methods allows not only to reasonably reduce the number of experiments, and most importantly, without losing information, but also to reveal the interaction of factors, their total mutual influence on the optimization object. The design of the experiment allows, without large material, time expenditures, to determine the ways for further research.

To familiarize students with the basics of experiment planning, mastering the basic concepts and methods, this methodological guide has been developed.

When presenting this discipline due to time constraints, it is difficult to organize and obtain experimental data, and taking into account the fact that senior students who have concepts and ideas about conducting experiments study this discipline, this work proposes tasks directly related to the organization of experiments, and then

further continuation of work with the results of experiments issued by the teacher. This approach allows us to fully study the general methods of experiment planning and provide an opportunity for further independent in-depth study of this problem.

Experiment planning. It is known that warm air is lighter than cold, respectively, in technical rooms, warm air tends to go up, and cold air stays below. It is important to keep the temperature regime in technical and industrial premises in order to increase and maintain the labor productivity of workers and employees. Also important is the permissible temperature in residential premises. Warm air from the heating system rises upward, over time it cools down and goes down, i.e. a certain cycle is observed. From this we can conclude that there is some relationship between the temperature of the air in the room and the surface temperature of the walls. The surface temperature of the walls of the premises at the upper marks is higher than at the lower ones. The experimental design and data processing technique is presented in [1,2,3].

It was planned to take measurements at five points of the vertical plane with a step of 0.5 m, i.e. the number of experiments was 5 with a fivefold repetition equal to, in the final analysis, 25.

Measuring instruments and equipment used. The tests were carried out according to the classical scheme of a one-factor experiment. I.e. the value of the objective function when changing only one, most significant factor with the constancy and immutability of others was measured. The objective function in this case is the surface temperature of the walls of the room, and the height of the walls is the most significant factor. The surface temperature of the walls was measured using an "Orion-380" infrared pyrometer. The pyrometer reads the current surface temperature in less than a second. Safe measurement of the surface temperature of hazardous hot, hard to reach targets without contact. The pyrometer allows you to measure temperature both in degrees Celsius and in degrees Fahrenheit. The temperature range of the pyrometer lies in the range from 50 to 530 °C. The accuracy of the instrument is ± 2% or 2 °C, resolution 0.1 °C (0.1 ° F), response time ≤0.8 s.

Conducting a single-factor experiment. The experiment was conducted on March 24, 2017 in auditorium № 345 (building 29, Russian Timiryazev State Agrarian University). To ensure the purity of the experiment during temperature measurements, it was necessary to exclude factors (such as opening a door or window, turning on electric heaters, etc.) that could artificially affect the result. The wall surface temperature was measured in the vertical plane from the lower to the upper mark at five points, the distance between which was 0.5 m. Thus, five experiments were carried out with a repetition of five times, as a result, temperature measurement was carried out 25 times.

Results and discussion. All measurements, summarized in the table, and ultimately obtained average temperature values at all five points, were the basis for data processing (Table 5).

Table 5.

Measurement results

	i=1	i=2	i=3	i=4	i=5	∑
X_i	0	0,5	1	1,5	2	5
Y_i	20,5	20,7	20,8	21,1	21,1	104,2
$X_i Y_i$	0	10,35	20,8	31,65	42,2	105
X_i^2	0	0,25	1	2,25	4	7,5

Processing the results of the experiment to determine the dependence of the surface temperature of the walls of technical and industrial premises on their height.

1. Presentation of source information in the form of vectors.

X: = (0 0.5 1 1.5 2) X:= X^T

Y: = (20.5 20.7 20.8 21.1 21.1) Y:= Y^T

2. Determination of the free term of the regression equation A0.

A0: = intercept(X,Y) A0 = 20.52

3. Determination of the coefficient of the regression equation A1.

A1: = slope(X,Y) A1 = 0.32

4. Determination of the regression equation.

y(x): = A0 + A1·x x: = -1..3

5. Determination of the correlation coefficient

R: = corr(X,Y) R = 0.97

6. Graphic representation of the line of the regression equation and the points of the correlation field.

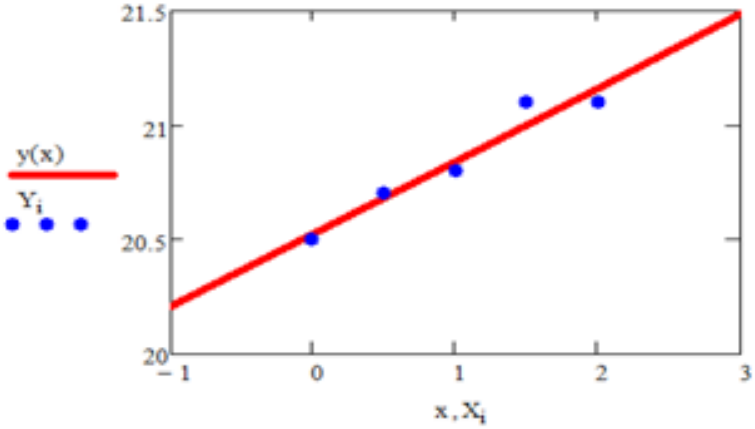

Fig. 1. *Listing of the results of processing experimental data in the Mathcad program*

Conclusions from the experiment. As a result of the experiments, average temperatures at 5 points were obtained, a linear approximation was carried out, and the regression equation **y=ax+b** was obtained. And the values of the coefficients a and b are obtained by the **least squares method**, the calculation of which is presented above. The elevations of the walls are denoted by X_i, and the average values of the surface temperature at the corresponding points – Y_i. As a result of the calculation, the regression equation is obtained, which has the form: **Y=0.32X + 20.52**

Linear approximation was carried out in the Mathcad program (Fig. 1). The same values at the two upper points indicate a certain stabilization of temperature in the room connected with the ceiling structure. As you know, there are several types of approximations: exponential, linear, logarithmic, polynomial, power-law and linear filtering. An indicator of which of the listed types of approximation most adequately describes a particular process is the value of the reliability of the approximation R^2**.** This value can vary from 0 to 1. As can be seen from Fig. 1 linear approximation describes the process with sufficient adequacy ($R^2 = 0.9412$). According to the dependences obtained as a result of the experiment, it can be concluded that the hypothesis put forward: "The temperature of the surface of the walls of the premises at the upper marks is higher than at the lower ones" is confirmed.

The prospects for further research are to obtain more accurate results on the volumetric value of the wall surface temperature, i.e. the walls of the premises can be divided into a volumetric grid with a step of 0.5 m with the possibility of a subsequent decrease in the value of the grid step. The smaller the step, the more accurate the result will be. However, the number of experiments and measurements in this case will increase and this will affect the duration of the research process.

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水分散性聚氨酯组合物的研制及其胶体化学性能分析
DEVELOPMENT OF WATER DISPERSION POLYURETHANE COMPOSITIONS AND ANALYSIS THEIR COLLOIDAL CHEMICAL PROPERTIES

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抽象。对水分散性聚氨酯组合物的科学和实践兴趣是由于其极高的质量和性能，例如良好的干燥速度，耐候性，耐水，耐化学性和耐热性，对各种基材的高粘附性。

关键词：聚氨酯水分散体，聚酯，二异氰酸酯，胶粘剂，涂料，胶体化学性质。

Abstract. *The scientific and practical interest in water-dispersible polyurethane compositions is due to their extremely high quality and properties such as good drying speed, weather, water, chemical, and heat resistance, high adhesion to various substrates.*

Keywords: *aqueous polyurethane dispersion, polyester, diisocyanate, adhesive, coating, colloidal chemical properties.*

The article provides information on the prospects and areas of use of water-dispersible polyurethane compositions. A method for producing dispersions by an energy-saving method that meets global environmental requirements is considered.

To obtain coatings and adhesives with high consumer properties, water-dispersed polyurethane dispersions based on Russian-made polyesters were synthesized and their colloid-chemical properties were studied. The results of experiments showed that the developed compositions have characteristics not inferior to industrial analogues and can be used as adhesives for 3D bonding, as well as coatings for wood and plastic.

Introduction

Under the conditions of import substitution and toughening of world legislation regarding the content of volatile organic solvents in the formulations of paints and varnishes, glues, impregnations and sealants [1], as well as, given the continuous development of the construction industry, furniture industry [2], an important task is to develop competitive impregnations, coatings and adhesives that meet international environmental requirements.

It is impossible to solve this problem without new technologies that increase the consumer characteristics of the materials produced and reduce their cost. Such products include aqueous polyurethane dispersions (APD), which are products with high added value [3].

The literature describes two methods for the synthesis of polyurethane dispersions: one-stage and two-stage. Industrial technologies for producing APD are, as a rule, two-stage and are produced by prepolymer and acetone methods. It is important that both methods have a common drawback - the need to introduce a significant amount of volatile organic solvents. In prepolymer - up to 30 wt.% Of high-boiling solvents remaining in the final product; in acetone - low boiling, removed by distillation under reduced pressure [4]. At the same time, the acetone method allows to obtain dispersions containing a small amount of volatile organic solvents, but the energy-intensive stage of their distillation and the complexity of regeneration (Fig. 1) leads to a decrease in the process profitability.

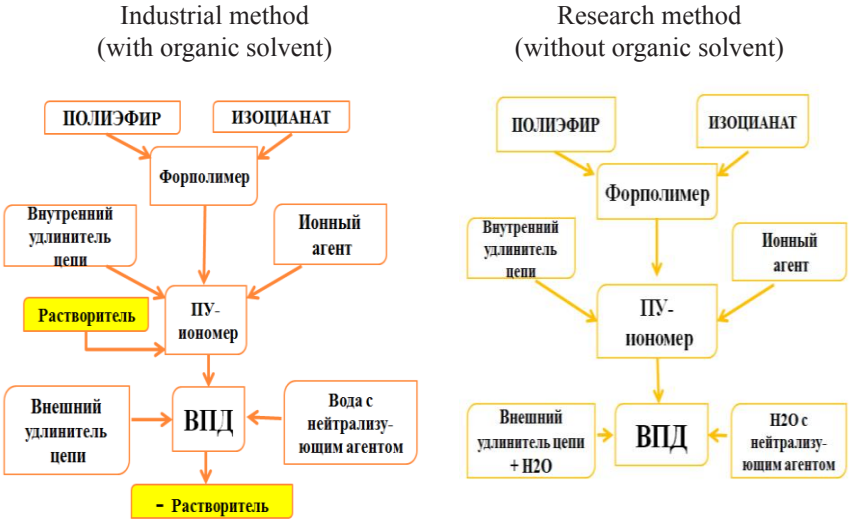

Fig. 1 - *Schematic representation of methods for producing aqueous polyurethane dispersions*

The interest in the development of APD formulations is not only due to concern for the environment (reducing emissions of organic solvents [1], but also to the possibility of producing low-viscosity polymers with a high molar mass (due to the solubilization of the hydrophobic dispersed phase in the aqueous medium), which, depending on the choice raw materials are used as adhesives, coatings and impregnating compounds [5].

One of the characteristics of polyurethane (PU) is the content of the hard segment (HS) in the polymer. By varying the fraction of HS in the composition of PU, it is possible to transform the properties of the polymer to a large extent without changing the nature of the initial monomers [6].

To ensure high elastic properties in the structure of polyurethane, soft segments (SS) (Figure 2) should alternate with HS.

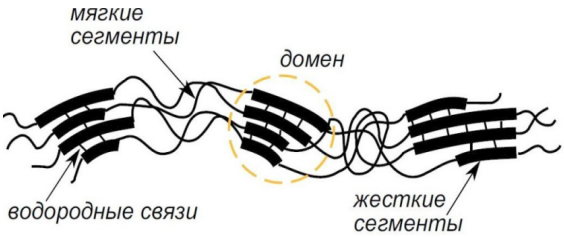

Fig. 2 - *Schematic representation of a segmented PU structure*

The bulk of APDs are polyols or polyesters, which largely determine the properties of the polymer. As polyols in practice, mainly simple and complex polyesters are used. In recent works, the use of polyethers [7] and aliphatic isocyanates is discussed in detail. However, the most promising in the production of APD, in our opinion, is the use of polyesters with terminal hydroxyl groups, which provide conditions for the interaction of excess bifunctional glycol with dibasic acid.

socyanates are the second, equally important component of any PU. In the synthesis of polyurethane dispersions, diisocyanates or polyisocyanates, which can be aromatic, aliphatic or cycloaliphatic, are mainly used. [6]. One cannot fail to note the economic profitability of using aromatic isocyanates in materials used in closed systems such as vacuum pressing and tire cord production [8], where the high physical and mechanical characteristics of PU impregnating materials play a decisive role.

Experimental part

In view of the foregoing, polyesters (polybutylene glycol adipate (PBA), polyethylene butylene adipate (P6BA), polydiethylene glycol adipate (PDA), polyethylene glycol adipate (P6)) were chosen as the starting oligomers for the preparation of water-dispersed polyurethane thermoplastic elastomers in this study.

1.6 hexamethylene diisocyanate (GMDI, TU 113-03-332-79), 2,4-toluene diisocyanate (TDI 102T, TU 113-38-95-90) were chosen as the optimal and most frequently used isocyanates in industry.

To determine the lifetime synthesized by APD by dynamic light scattering on a ZetasizerNano-ZS analyzer, the particle sizes and zeta potential were determined.

In order to determine the application method and scope of use of APD, Brookfield apparent viscosity was determined on a rotational viscometer of the ALPHA L series from Fungilab (Spain) in accordance with GOST 25271-93 and solids content in APD (dry residue) in accordance with GOST 31939 2012 " Paintwork materials. Determination of the mass fraction of non-volatile substances. "

Discussion of the results

As a result of the work, stable nanostructured APDs were synthesized based on polyesters [9], as well as aromatic and aliphatic diisocyanates, which do not contain volatile organic solvents and free isocyanate groups, which makes them environmentally friendly products.

Effect of the ratio of soft and hard segments on the particle size of APD based on P6BA polyester and aromatic and aliphatic TDI and HMDI is vividly demonstrated on figures 3 and 4

It was found that an increase in the proportion of HS in APD, both aliphatic and aromatic, leads to a proportional decrease in particle diameter and an increase in the stability of the compositions. So, if APD with a share of HS of 10-15% of the mass did not stratify within 4-10 weeks, the content of HS from 20-35% of the mass remained stable from 20 to 32 weeks or more.

An essential parameter of APD synthesis is the content of the ionic agent (DMPC), which acts as an internal emulsifier. It was found that the concentration of DMPC, being a component of HS, significantly affects the viscosity (Figure 5).

The analysis of passport data of foreign and domestic analogues of aqueous polyurethanes-new dispersions showed that industrial compositions are characterized by: solids content from 28 to 35%, viscosity – 150-5000 mPa.s.

Developed APD, have indicators that are not inferior to industrial water dispersions. The colloid-chemical properties of dispersions based on P6BA and TDI are presented in table 1.

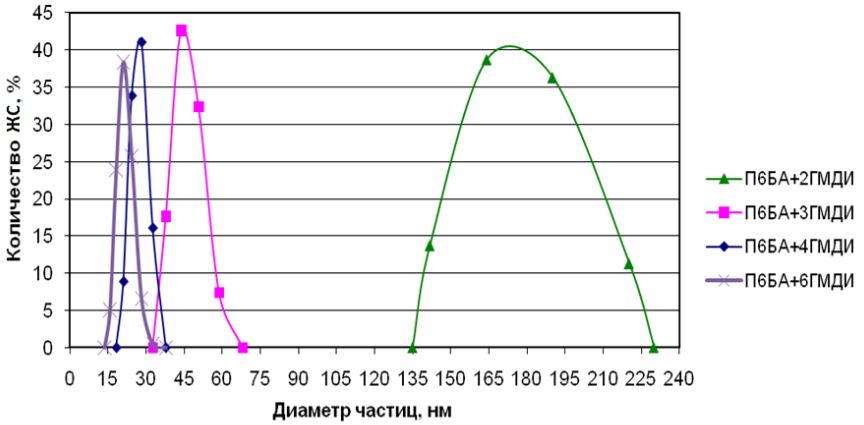

Fig. 3 - *The dependence of the particle size APD on the content of HS based on aliphatic diisocyanate*

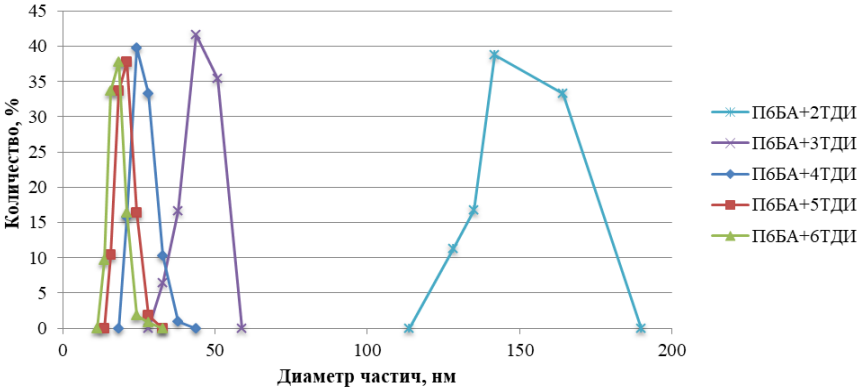

Fig. 4 - *Dependence of APD particle size on HS content based on aromatic diisocyanate*

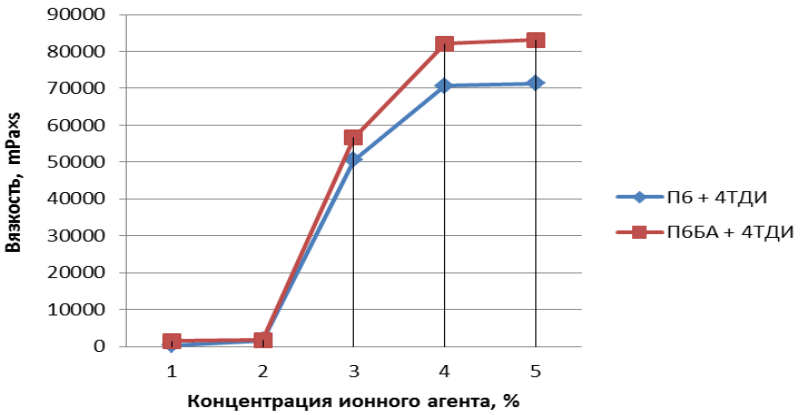

Fig. 5 - *The dependence of the viscosity of the APD on the concentration of the ionic agent*

Table 1 - *Colloidal chemical properties of APD based on P6BA and TDI*

Dispersion type	Amount HS, %	Dry residue, %	Viscosity, MPa.s	Particle size nm	Zeta potential mV	Surface tension, mn/m
P6BA+4TDI	34,37	35,3	834,5	43-79	-55	68,4
P6BA+5TDI	40,2	35,1	565,8	11-18	-52	50,4
P6BA+6TDI	44,13	35,7	426,7	21-37	-40	55,85

From the presented data it can be seen that an increase in particle size leads to an increase in surface tension and viscosity of APD. In this case, with an increase in the HS content, the apparent viscosity of the systems decreases.

So, with a solids content of 35%, APDs based on P6BA and TDI are nanostructured and have a viscosity of up to 834.5 mPa.s. which allows us to talk about the possibility of their successful application, both as protective coatings for wood and plastic, and as compositions for 3D bonding.

The zeta potential indices presented in the table characterize the obtained APDs as stable. The lifespan of the compounds exceeds 6 months.

Conclusion

APDs are a relatively new type of polyurethane composition that finds increasing use in many industries.

The influence of the components on the colloid-chemical characteristics of the studied dispersions is considered, on the basis of which it is possible to select the optimal APD formulations that can be used both as impregnants and adhesives, and coatings with high consumer characteristics.

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UDC 621.382

电子零件库的可靠性评估
RELIABILITY ASSESSMENT OF ELECTRONIC COMPONENT BASE

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抽象。 已经选择了用于评估电子设备可靠性的方法。 对于具有相同功能目的但来自不同制造商的三种类型的微电路，计算出故障率的基本值。 构造了无故障运行的强度和概率的直方图，以及它们的温度依赖性。

关键词：微电路，可靠性，计算程序，故障率，直方图，测试。

Abstract. *A choice has been made of the methodology for evaluating the reliability of electronic equipment. The basic values of the failure rate were calculated for three types of microcircuits of the same functional purpose, but from different manufacturers. Histograms of the intensities and probabilities of failure-free operation, as well as their temperature dependencies, were constructed.*

Keywords: *microcircuit, reliability, calculation procedure, failure rate, histogram, tests.*

Introduction

At this stage in the development of science and technology, the concept of increasing the reliability of radio-electronic equipment (REE) has become widespread by selecting the most reliable electronic component base. The required level of reliability of REE is laid at the design stage, and is implemented at the production stage. At the stages of preliminary design and technical design of REE, an estimated calculation of reliability is performed.

Reliability calculation methods are divided into [1]:

- forecasting methods;
- structural calculation methods;
- physical calculation methods.

Prediction methods are based on the use of information on achieved values and identified trends in the reliability parameters of analog products in terms of purpose, operating principles, circuit design, used electronic components, materials used, etc. Examples of techniques are given in works[2, 3].

The principle of structural methods [4] is to consider the product in the form of a structural-functional logic diagram that describes the state of the product and transitions to these states using states and transitions to these states of elements, taking into account their interaction and the functions performed by them.

Physical calculation methods are based on the use of already known mathematical models of the occurrence of physical, chemical and other processes leading to the appearance of a product failure or to the achievement of a limit state.

To do this, you can use different techniques. In this case, the calculation results are different.

The choice of calculation methods

In [5], an analysis of known techniques was performed. The most accurate method is considered to be based on the software package "Automatic Reliability Calculation System" (ARCS). We take it for the base case.

ARCS reliability calculation program is based on the data of the manuals “Reliability of electrical and radio products” [6, 7]. The manual contains information intended for use in calculating the reliability indicators of military electronic equipment in accordance with the requirements of the fundamental regulatory documents of the “Moroz-6” and “VT Nadezhnost” military complexes.

The methodology of the reference book “Reliability of ERI” (2006 edition) contains:

1. Information intended for use in calculating equipment reliability indicators.
2. Information on the reliability indicators of ERI groups used in the development, production and operation of military equipment, instruments, devices and equipment.
3. Each section of the methodology of this handbook of the 2006 edition. by product classes includes the following:

• mathematical models for calculating (forecasting) the values of the operational intensity of failures of groups of products, including during storage under various conditions;

• information on the reliability indicators of ERI groups and model coefficients.

In turn, the information on the reliability indicators of the ERI groups and model coefficients includes:

• values of the basic failure rate of ERI groups;

• the values of the coefficients included in the ERI operational reliability prediction model, and analytical expressions showing the dependence of these coefficients on the factors taken into account.

Mathematical model of calculation

The values of the operational failure rate of most ERI groups are calculated according to the mathematical model:

$$\lambda_э = \lambda_{б.с.г} \times \prod_{i=1}^{n} K_i, \quad (1)$$

where $\lambda_{б.с.г}$ – ERI base failure rate

K_i - coefficients taking into account changes in the operational failure rate depending on various factors;

n - the number of factors taken into account.

For individual groups of complex products, the total failure flow of which consists of independent failure flows of the components of the EIR (for example, the crystal and the body of integrated circuits), the mathematical model for calculating the failure rate has the form:

$$\lambda_э = \sum_{j=1}^{m} \lambda_{б.с.г\,j} \times \prod_{i=1}^{n_j} K_{ij}, \quad (2)$$

where $\lambda_{б.с.г\,j}$ – initial (base) failure rate of the j-th flow of failures;

m is the number of independent flows of failures of ERI components;

K_{ij} - coefficient taking into account the influence of the i-th factor in the j-th flow of failures;

n_j is the number of factors taken into account in the jth failure flow.

Models for calculating operational failure rate apply to a period of constant failure rate over time [6].

Data entry algorithm

Now consider the data entry procedure for the selected microcircuits.

The easiest data entry - is using the 174XA2 chip (Russia), since all its data is in the program database.

1. For 174XA2:

• In the ARCS program, click **Add ERI**;

• Select the brand 174XA2 and fill in the field **Selection type - 5VP** (Fig. 1);

• Select the ambient temperature $25C^0$, i.e. the temperate continental climate of Russia.

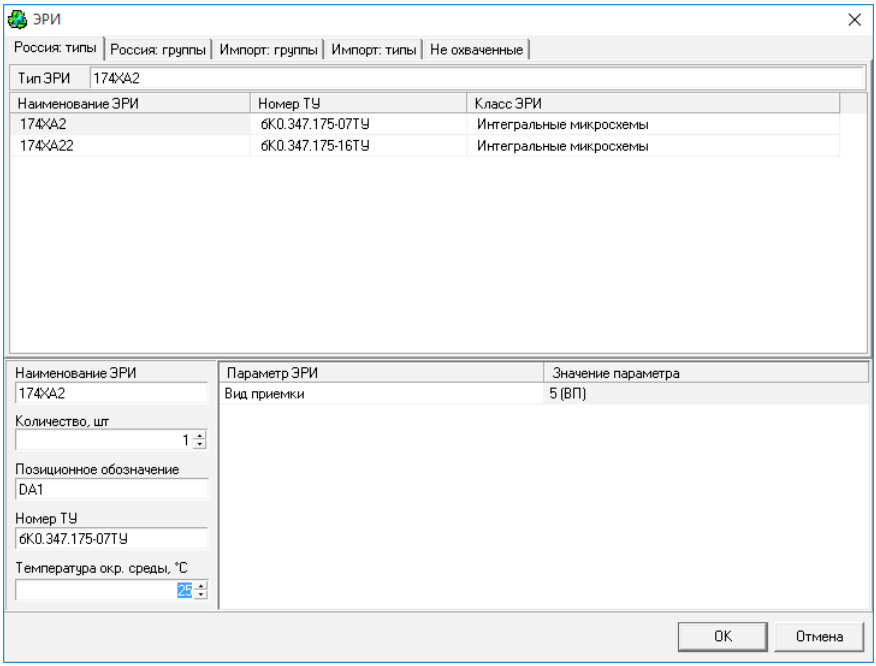

Figure 1 - *Data entry window 174XA2*

2. For imported IC, enter data manually:

- Also select **Add ERI;**
- But now we click **Import group - Integrated circuits - Analog bipolar** (Fig. 2).
- Enter the data we need, which are given in the DataSheet for each IC:

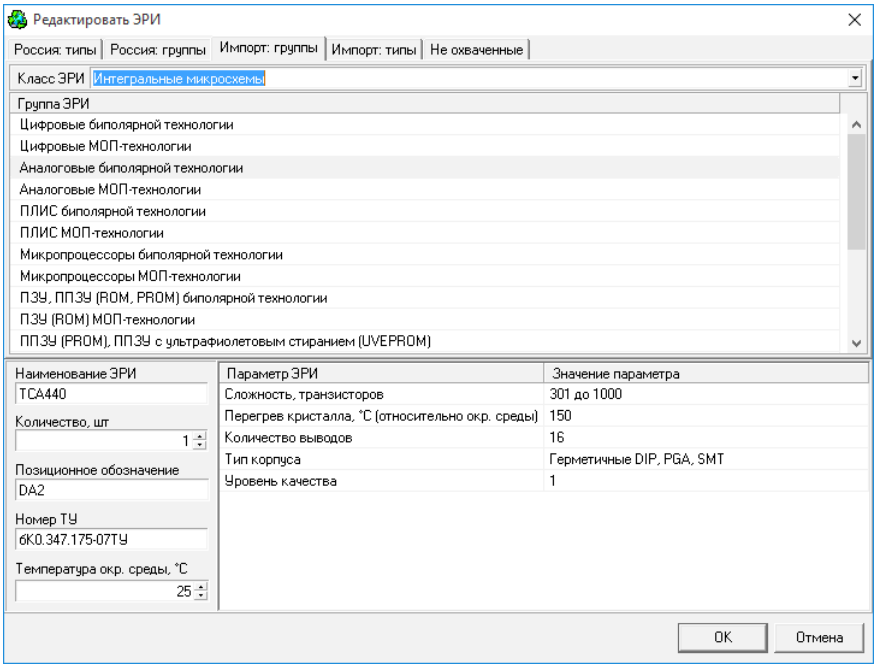

Figure 2 - *Data entry on the example of TSA440 IC*

3. Next, we calculate the reliability of ERI:

- In the program, click **Calculation**;
- We set the requirements that we need, the **Equipment Group** (set depending on the GOST), **Hours of Operation** (also depends on the type of equipment, since this is a military electronic equipment, I set the approximate work time before scheduled maintenance) (Fig. 3);
- Next, click the calculation and get the data we need (Fig. 4).

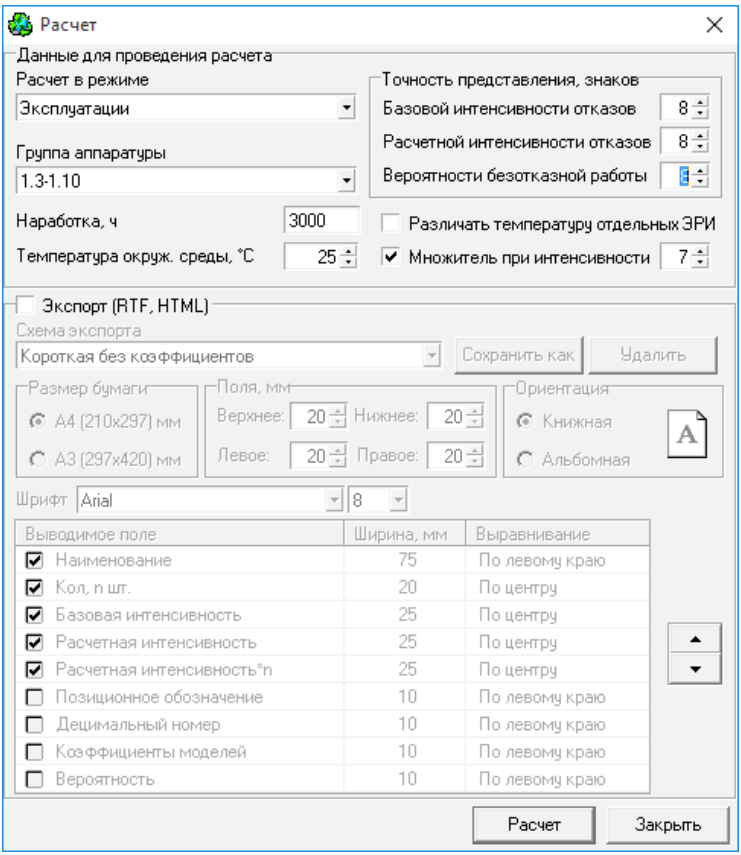

Figure 3 - *Entering design conditions*

Результат расчета

Наименование	Кол. n	Позиционное обозначение	Децимальный номер	$\lambda_0 \cdot 10^6$, 1/ч	$\lambda_э \cdot 10^6$, 1/ч	$\lambda_э \cdot 10^7 \cdot n$, 1/ч	P(t)	K1	K2	K3	K4	K5	K6
Аппаратура	1			–	263,73005...	263,73005451	0,9239...						
1746Х42	1	DA1	6К0.347.175-07ТУ	0,28000000	0,71124379	0,59066001	0,9998...	Кс.т = 1,...	Ккорп = 1	Ку = 1	Кэ = 1,5	Кпр = 1	
А244	1	DA3	6К0.347.125-06ТУ	–	0,59066001	71,12437931	0,9788...	λкр = 0,04	λкорп = 0,0	Кt = 177,...	Кэ = 4	Кпр = 1	
ТСА440	1	DA2	6К0.347.175-07ТУ	–	192,01501...	192,01501519	0,9440...	λкр = 0,04	λкорп = 0,0	Кt = 479,...	Кэ = 4	Кпр = 1	

***Figure 4** - The results obtained*

The results of the calculation of IC performance indicators

Using the ARCS software package, the reliability indicators of the selected IC were calculated. As a result of automatic calculation, the following values were obtained (Table 1).

Table 1 - *The calculated values of the IC indicators*

Name	$\lambda_э \cdot 10^7$, 1/h	P(t)	t,hour
174XA2(RF)	0.71	0,9998	3000
TCA440(Siemens)	1.92	0.9788	3000
A244D (Germany)	0.59	0.9440	3000

Figures 5 and 6 show histograms of failure rates and probability of failure-free operation of microcircuits. The calculated values of the failure rates and the probabilities of failure-free operation at different temperatures are shown in Tables 2 and 3. Figures 7 and 8 show the temperature dependences of the failure rates and the probability of failure-free operation.

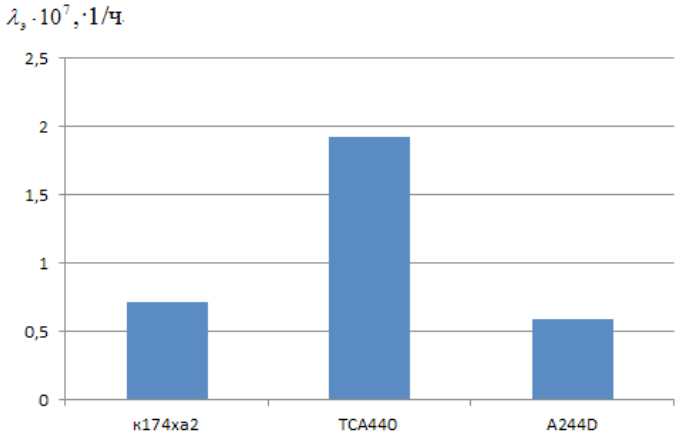

Figure 5 - *Operational failure rate of IC*

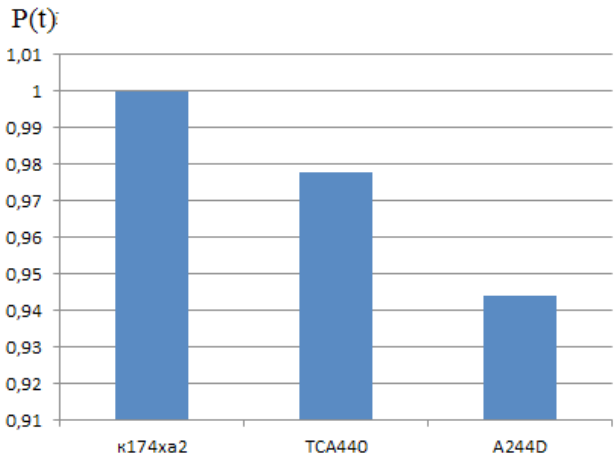

Figure 6 - *The probability of failure of the IC at t = 3000 h*

Let us consider how the obtained data changes depending on changes in the ambient temperature.

We do all the operations again, only increase the ambient temperature (Table 2 and Table 3).

Table 2 - *The resulting values of the operational failure rate*

Name	25 °C	35 °C	45 °C	55 °C	65 °C
	$\lambda_э \cdot 10^7$, 1/h	$\lambda_э \cdot 10^7$, 1/h	$\lambda_э \cdot 10^7$, 1/h	$\lambda_э \cdot 10^7$, 1/h	$\lambda_э \cdot 10^7$, 1/h
174XA2	0.71	1.07	1.58	2.31	3.31
TCA440	1.92	2.77	3.94	5.52	7.62
A244D	0.59	0.74	0.93	1.17	1.48

Table 3 - *the resulting values of the probability of uptime*

Name	25 °C	35 °C	45 °C	55 °C	65 °C
	P(t)	P(t)	P(t)	P(t)	P(t)
174XA2	0.9998	0.99973	0.9997	0.9996	0.9995
TCA440	0.9788	0.9201	0.8884	0.8473	0.7954
A244D	0.9440	0.9683	0.9534	0.9329	0.9054

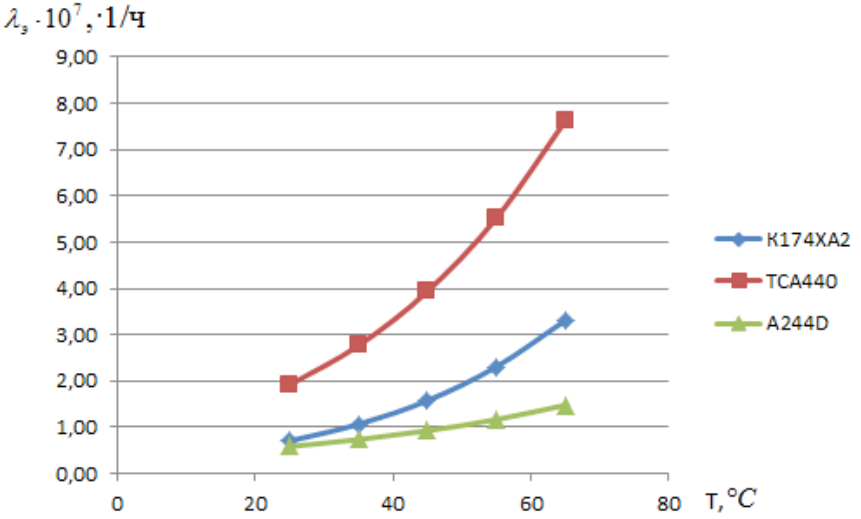

Figure 7 - *Dependence of failure rate on temperature*

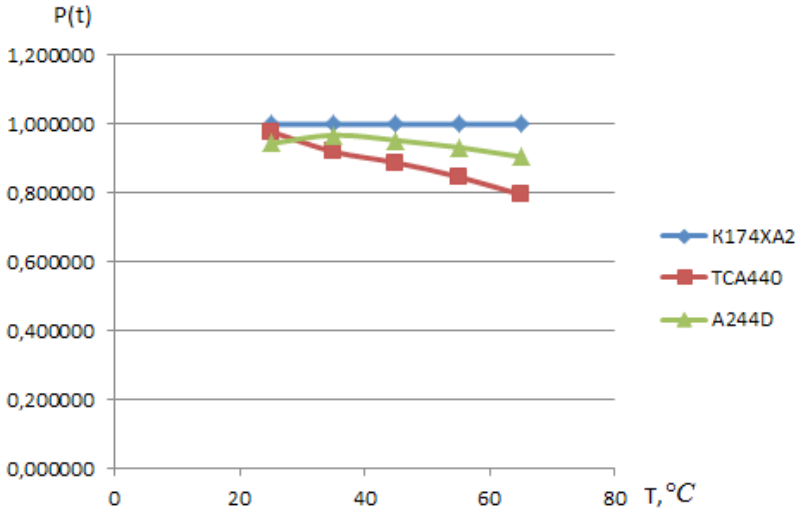

Figure 8 - *Dependence of the probability of failure-free operation on temperature*

Research tests and reliability tests have been conducted. It was found that the test results correspond to the calculated values with an error of not more than 15%. Therefore, the ARCS methodology can be used at this stage under the conditions of sanctions.

Conclusion

Using the ARCS program, reliability indices of 174XA2, TCA440, A244D microchips were obtained. It is shown that the reliability indicators obtained from the test results correspond to the calculated data. The discrepancy between the results does not exceed 15%. It has been established that the reliability indicators of Russian-made microcircuits are not inferior to those of European-made ICs.

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保加利亚附近发生核事故的气象要素对放射性核素扩散的影响
INFLUENCE OF METEOROLOGICAL ELEMENTS ON THE SPREAD OF RADIONUCLIDES IN A NUCLEAR ACCIDENT NEAR BULGARIA

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抽象。在分析影响保加利亚放射性粒子和放射性同位素扩散的气象要素时，将主要分析保加利亚上空形成的风和气流。 这些是最能影响放射性背景气候的主要天气因素。 影响降水的另一个因素是降水的各种表现形式-水平和垂直类型，并取决于水的物理条件。 其他气象要素由于受到辐射情况的恶劣影响，因此将它们排除在构成大气，水和土壤状态的自然指标的因素之外。

关键词：气象要素，风，降水，空气流量，核事故，放射性核素

Abstract. *In the analysis of meteorological elements that influence the spread of radioactive particles and radioactive isotopes in Bulgaria will mainly analyze the winds and air currents that form in the airspace over Bulgaria. These are the main weather elements that most influence the climate of the radioactive background. Another element that influences is precipitation in its various manifestations - horizontal and vertical type and depending on the physical condition of the water. The other meteorological elements because of their vile influence of the radiation situation will exclude them from the factors shaping the natural indicators of the state of the atmosphere, water and soil.*

Keywords: *meteorological element, wind, precipitation, air flow, nuclear accident, radionuclide*

Introduction:

Different weather elements can influence the radioactive contamination of our environment - atmosphere, soil and water, each indicator having a different weight in the formation of the radioactive background. The strongest influence on the spread of radioactive contamination in a nuclear incident, accident or terrorism is caused by winds at different heights from the surface of the Earth's crust. The different types of precipitation and the permeability of the atmospheric layer to the solar radiation reaching us are also affected. Other meteorological components have little effect on the propagation of radioactive beams, particles and isotopes.

Impact of winds:

Wind and air currents have the greatest impact on the change in the radiation background following an accident at a nuclear power plant or other nuclear facilities. The direction and speed of the mean wind determine the position, extent and extent of contamination of the trace of the radioactive cloud. Therefore, when assessing the radiation situation, the parameters of the air currents must always be taken into account. In the event of an accident or an increase in the radioactive background, we must constantly monitor the changes in the air currents and be informed of any changes that meteorologists make in their forecasts. It is also necessary to quickly gather information on common winds in the area in order to predict the direction of spread of radioactive contamination, using local indications to determine winds and their future development [1].

The wind direction and speed data allow us to solve the following tasks:

1. Determining the direction of propagation of the radioactive cloud and the extent of the radiation;

2. Determination of the time of arrival of the radioactive contamination to the designated area;

3. Determination of the level of suspected change in the radioactive background.

Influence of phase transitions of water into the atmosphere:

Air humidity affects significantly less the change in the radioactive background.

In relatively heavy rain or fog, a decrease in the pressure at the front of the spread of the radioactive cloud is observed, especially at larger distances from the explosion site. For blasts in medium rain (5 ml / h) or fog (0.2 g / m^3) the shockwave pressure is 5-15% lower than under normal conditions. In heavy rain (25 mm / h) or thick fog (1 g / m^3) the shockwave pressure decreases by 15-30%. In the case of nuclear accidents in snowfall, the shockwave pressure is reduced slightly and may not be taken into account in practical calculations.

The rains have varying degrees of effect on the change in radioactive background following a nuclear accident. In the formation of the trace of the radioactive cloud, raindrops trap the particles of radioactive dust and, along with them, fall to the earth's surface [2]. The result is:

1. Increasing the rate of precipitation of the radioactive cloud;

2. Increasing the degree of contamination of individual small areas of the area;

3. Stronger infestation of the population, living and inanimate nature.

Impact of the terrain:

In some cases, terrain relief can have a significant impact on the nature of the spread of radioactive contamination resulting from a nuclear accident or a nuclear explosion made on the surface of the earth.

On flat terrain. such as a slope slope of not more than 10 %, the influence of the relief on the spread of radioactive contamination and the change in radioactive background is negligible and may be neglected.

Typical of hilly terrain is the presence of hills up to 200 m high and with slope slopes greater than 10 %, gullies, basins and other sharply folded terrain. As it spreads in such terrain, the front of radioactive contamination is reflected by the slopes of the hills on the front (facing the scene of the accident or explosion), passing over them and from the side, entering the gullies and slopes.

The increase in the pressure of the front slopes of hills and gullies depends on their slope and the intensity of the change of radioactive rays, particles and isotopes into the atmosphere and is determined by a special graph. The pressure in the shock wave of the reverse slopes is determined by the graph. These schedules are available to the competent authorities, which are the first to combat the reduction of the impact of radioactive contamination on humans and infrastructure.

Behind hills and slopes with a slope greater than 20 °, an area of high pressure is observed, the length of which is equal to 3-4 heights of the hill [3]. The pressure in this zone is 10-20% higher than the pressure in the passing shock wave. The shock wave front of the reverse slopes is slightly upset. Pressure rise time to maximum may reach 0.01-0.05 s. At the bottom of deep slopes and ravines with steep slopes and long lengths, the orientation of which coincides with the direction of propagation of the shock wave, the pressure is 10-20% higher than that of the surface.

In mountainous terrain, the impact of relief is more pronounced than in hilly terrain.

Impact of other meteorological elements

Air density, aerosol concentration, atmospheric pressure, air temperature and soil also influence the rate of change of the natural radiation background following a nuclear accident or other action accompanied by radioactive radiation, but their impact is very small and therefore they are not taken into account when determining the radiation situation.

Analysis:

The analysis is made on the basis of detailed statistics on the direction and strength of wind and air currents over the territory of Bulgaria in the last 30 years after 1985 from the database of the National Institute of Meteorology and Hydrology (NIMH) at the Bulgarian Academy of Sciences (BAS).

In addition to the daily data for the period after 2014, aggregated values for the direction and strength of the winds have been used, both near the border areas and over the entire territory of our country. they capture trends in the change of atmospheric masses and the surface of water and earth. It should be noted that tracking the air masses over the last 30 years has given us only the trends and the

main directions of motion, but as we all know, these processes are too dynamic and not subject to cyclical uniform repeatability and prediction. Therefore, at the same time as the extensive research and data processing done, we must not stop constantly monitoring our environment and its parameters.

Table 1. *Wind frequency in 8 directions and average speed in the respective direction for the period 1989 - 2018 for the region of Silistra*

Direction	N	NE	E	SE	S	SW	W	NW	Quiet
Number of quiet cases, %	6.2	14.1	7.1	3.8	5.9	8.2	15.6	7.6	31.5
Number of cases without quiet, %	9.0	20.7	10.3	5.6	8.6	11.9	22.8	11.1	
Average speed, (m/s)	4.7	4.4	2.6	2.9	3.6	3.4	3.8	3.0	

Of particular interest to us are the changes in the direction of the movement of air currents in the border regions, near which there are nuclear sites, and this is the greatest force for the region of Northeastern Bulgaria. This is explained by the fact of the presence of the Black Water NPP on the territory of Romania and 40 km from the border with Bulgaria.

Table 1 shows that the main wind direction in this region is west and northeast. The Black Water NPP is located northeast of Silistra and that is where 20% of the winds originate. Adding to the near north and east winds, it turns out that more than 40% of the winds in the area would help to increase radioactive contamination in the event of a nuclear accident in our neighboring country. This is a prerequisite for us to monitor the radiation situation around the Black Water NPP, as well as the meteorological situation, and in particular the movement of air masses in this region. The wind speed must be taken into account when assessing the situation. Table 1 also shows very well that the northeast wind has the highest speed - more than 4.4 m / s, with only the pure north wind - 4.7 m / s at a higher speed.

Table 2. *Wind frequency in 8 directions and average speed in the respective direction for 2018 for the region of Silistra*

Direction	N	NE	E	SE	S	SW	W	NW	Quiet
Number of quiet cases, %	9.1	20.7	9.0	2.9	4.6	7.0	11.5	5.3	29.9
Number of cases without quiet, %	13.0	29.6	12.9	4.2	6.4	10.0	16.4	7.5	
Average speed, (m/s)	4.3	3.6	2.4	2.5	2.3	2.6	3.2	3.1	

Table 2 shows a similar survey but taken only for 2014. Here, the trend with the prevailing wind direction is even more pronounced - almost 30% of the wind days were northeast and with the addition of north and east winds, more than half of the wind days were predominantly from Romania and more specifically from NPP. This shows us the need for the functioning of radiation monitoring systems and meteorological forecasts, mainly with preventive activities.

In fig. 1 shows the wind rose in the Bulgarian border town of Silistra, which is located 50 km from the Romanian NPP. There are continuous measurements of the meteorological and radiation parameters of the environment. Of interest are wind roses in other border regions of Bulgaria, which are located near potential sources of radiation pollution, but due to the limited volume of the report I will present them in detail in another development.

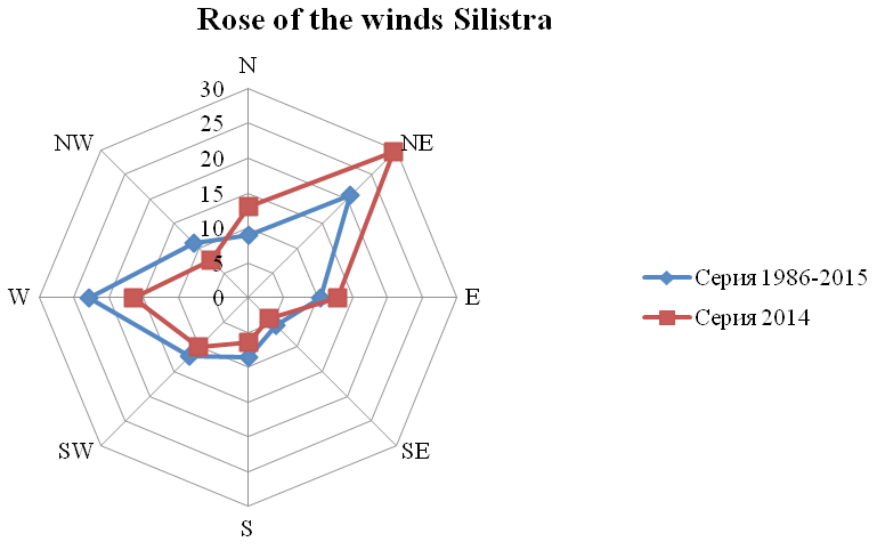


Fig. 1. *Rose of the winds in the town of Silistra*

In parallel with the National Automated System for Continuous Control of the Radiation Background in the NIMH, a system for forecasting the spread of radioactive contamination in the event of a major nuclear accident in the Northern Hemisphere is located, where more than 95% of the operating NPPs are located on our planet. . This system, which is known only to some of the narrow specialists in the field of radiation protection, shows us in real time the spread of air masses and their movement over time. It presents the results of the operational calculation of prognostic trajectories of certain nuclear power plants located in the region of Europe and

the Northern Hemisphere. The stations are divided into groups for greater visibility of the results and they are selected so that the movement of the atmospheric currents is clearly visible and there is a good resolution between the individual plants. Each of the pictures shows the trajectories of the listed NPPs, grouped into 5 groups. Three trajectories corresponding to three ejection heights start from each station:

- 100 m - red;
- 300 m - pink;
- 1000 m - green.

The starting point of each trajectory is the synoptic time (0 or 12 hrs. Greenwich time) and the corresponding color points on each trajectory indicate the points that the discarded particles will reach after 12, 24, 36, ... 72 hours. The location of the plants is indicated by an asterisk, and the numbers correspond to those of the list shown in Table 3 [4].

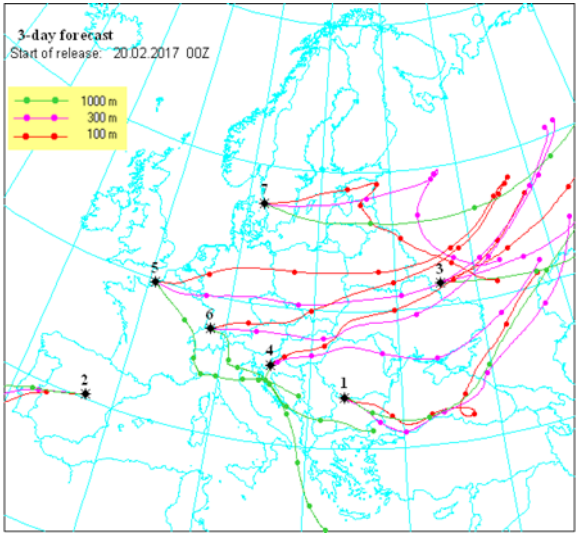
When analyzing the results of the predicted movements of the air masses and the dispersion of the radioactive particles, as a consequence, it is observed that besides the Kozloduy NPP and the Cherna Voda NPP close to Bulgaria, radioactive contamination may occur at different intervals of time. the result of an accident at the Zaporozhye NPP, Ukraine; NPP Kursk, Russia; NPP Southern Ukraine, Ukraine; Rivne NPP, Ukraine; Paks NPP, Hungary; Leningrad NPP, Russia; Philipsberg NPP, Germany and others. Nuclear power plants are listed in descending order of possible impact on the air, water and soil of Bulgaria as a result of a radiation accident. The results of February 20 for the air currents at altitudes of 100, 300 and 1000 meters above the level are shown in Figure 1. From the actual results of the movement of air masses at different altitudes, according to NIMH data, it can be seen that these processes are very dynamic and in each of the three days the impact of a possible nuclear accident at different points in Europe will be quite heterogeneous. This confirms the need for continuous monitoring of the radiation background, the movement of air masses and the status of major nuclear sites.

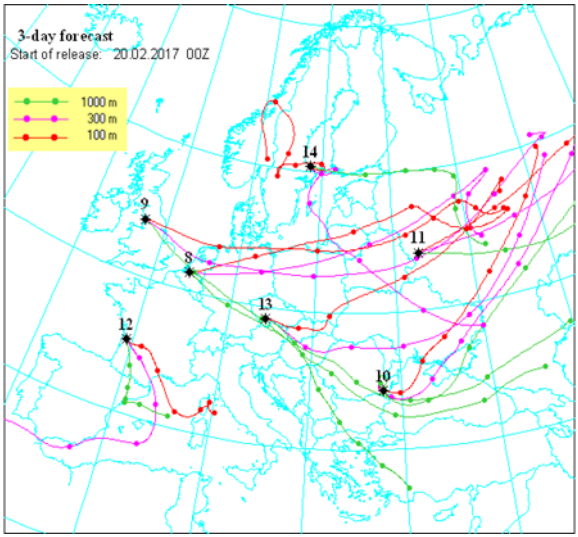
Figure 2 shows the estimated movements of the air masses up to 72 hours after a possible accident at 35 plants in Europe. The points along the drawn trajectories in different colors indicate the location of the atmospheric particles in 12 hours or how the front will spread and what its position will be during the specified interval. The data is for 20.02.2017, and it is evident from the cartographic drawings that the dynamics are too large and the direction of movement is very different. This is even more pronounced with consistent tracking of data over time, where certain trends in the movement of air masses can be captured. Some of the sites of interest to Bulgaria at that date are - Kozloduy NPP, Leibstadt NPP Switzerland, Doelr NPP Belgium, Temelin NPP Czech Republic, Paks NPP Hungary, Dukovan NPP Slovakia and more in the opposite direction [5]. Intermediate data show volatility in wind directions and velocities in different parts of Europe and in Bulgaria

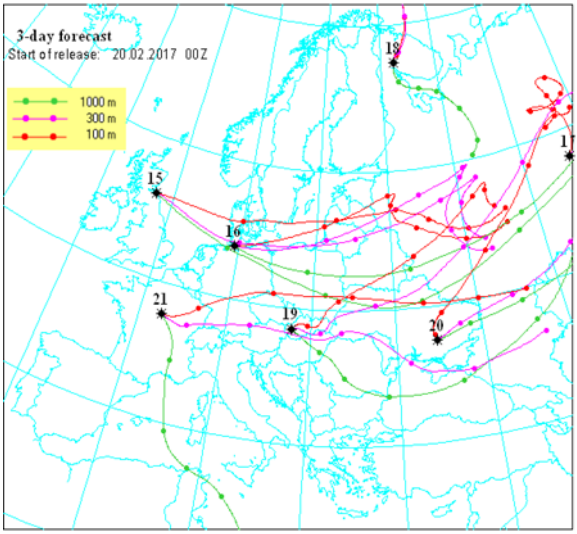
in particular. Due to the volume of the report, I cannot provide more complete data that is available and will be summarized and presented in other reports. Atmospheric movement data must be monitored continuously in order to be able to respond promptly in the event of a radioactive contamination as a result of a nuclear accident at a nuclear power plant in Europe.

Table. 3. *Visualization of the forecast air currents in case of an accident at the NPP*

Map №1	Map №2	Map №3	Map №4	Map №5
1. Kozloduy, BG	8. Doeller, BE	15. Tornes, UK	22. Siswell, UK	29. Hinkley Point, UK
2.Jose Cabreras, ES	9. Hashem, UK	16. Brockdorf, DE	23. Isar, DE	30. Philippsburg, DE
3. Kursk, RU	10. Black water,RO	17. Beloyarski, RU	24. Balakovo, RU	31. Asko, ES
4. Crush, SL	11. Smolensk, RU	18. Kola, RU	25. Leningrad, RU	32. Rivne, UA
5. Paluel, FR	12. Blaise, FR	19. Bohunice, SQ	26. South Ukraine, UA	33. Loviza, FI
6. Labshad, CH	13. Temelin, CZ	20. Zaporozhye, UA	27. Paksh, HU	34. Dukovi, CZ
7. Ringgils, SE	14. Forsmark, SE	21. Dampier, FR	28. Tricastin, FR	35. Armenia, AR




3-day forecast
Start of release: 20.02.2017 00Z
1000 m
300 m
100 m
14
9
11
8
13
12
10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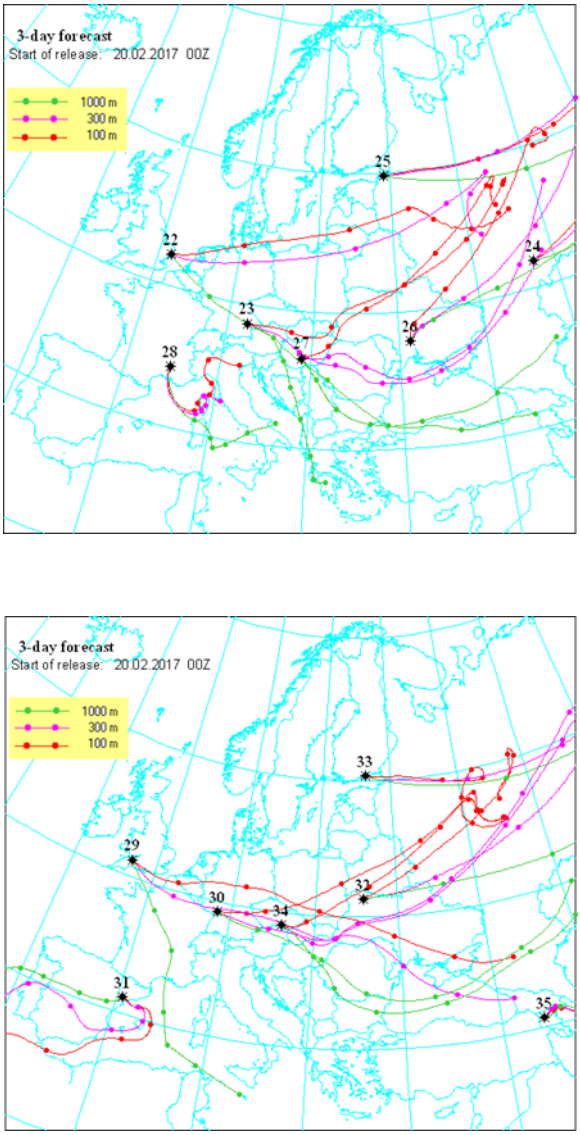

Figure 2. *Three-day forecast for the spread of air currents in the event of a nuclear accident in major nuclear power plants in Europe*

We should not neglect the difference in the movement of air parts at different altitudes from the earth's surface. The figures clearly show the differences in the direction of the spread and the length of the road. This leads us to think that the movement of air masses at different altitudes must be known in order to respond adequately. It is not enough to know only the surface winds, but it is necessary to know the movement of air masses at different altitudes from the earth's crust in order to be able to predict the spread of radioactive contamination and to take effective preventive and follow-up actions.

Conclusions:

1. Air currents have the greatest influence of meteorological elements on the eventual alteration of the natural radioactive background and the spread of radioactive particles in the event of a nuclear accident in some of the NPPs in Europe.

2. The relief of the area shall also have a significant effect on the natural radioactive background and its change in the case of radioactive contamination.

3. Air currents are a very dynamic process, both over time and at different altitudes above the earth's surface. This change must be monitored continuously in order to be able to respond promptly and adequately in the event of a nuclear accident.

4. The state of the natural radioactive background over Bulgaria at different times is affected by NPPs located in different parts of Europe, but NPP Zaporozhye, Ukraine; NPP Kursk, Russia; NPP Southern Ukraine, Ukraine; Rivne NPP, Ukraine; Paks NPP, Hungary; Leningrad NPP, Russia; The Philipsberg Nuclear Power Plant, Germany has been the most affected by data from the last 3 months.

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关于激光辐射对部队士兵眼睛的可能影响
ABOUT THE POSSIBLE EFFECTS OF LASER RADIATION ON THE SOLDIERS' EYES IN THE ARMY

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摘要。1960年，西奥多•迈耶（Theodor Meyer）展示了第一枚激光，此后不久便开始建造激光武器。如今，激光在军队中广泛用于各种任务，不仅具有破坏性，而且还具有预防和保护作用。在现有武器中启用激光技术提高了在武器发射前进行有效检测，跟踪和识别目标的能力。另一个用途包括测量距离，瞄准目标武器和采矿。

本报告的目的是提供必要的有用和充分的信息，以最大程度地减少陆军军事和训练活动中与激光辐射有关的危险。报告中的评估是基于在激光系统出现故障或无法保护军人免受激光辐射时，激光束对眼睛造成生物损害的能力。激光辐射被吸收到人体的外层，因此其生物学效应主要限于皮肤和眼睛。如果激光束撞击人，则激光辐射的作用是非常迅速地吸收能量。造成的损害取决于裸露的器官和组织，并且在透镜可能会聚焦光束的情况下，会带来特殊的眼睛危害。该报告讨论了损伤的严重程度，取决于波长，功率（以瓦特为单位，W）（如果是脉冲激光的连续波或能量（焦耳，J）），光束面积，曝光时间和距离。

关键字：激光，激光安全性，最大允许照射量，激光危害等级

Abstract. *The construction of a laser weapon began shortly after the first laser was shown in 1960 by Theodor Meyer. Today lasers are widely used a variety of tasks in the army, not just as destructive but also for prevention and protection. Turn on laser technology in existing weapons has improved the ability for effective detection, tracking and identifying targets before the weapon is launched. another use includes measuring distances, targeting targets weapons and mining.*

The purpose of this report is to provide useful and adequate information needed to minimise dangers associated with laser radiation in military and training activities of the Army. The assessment made in the report is based on the ability of laser beam to cause biological damage to the eye during laser system's malfunction or inability to protect the military staff from laser radiation. Laser radiation is absorbed into the outer layers of the body and therefore its biological effects are mostly limited to skin and eyes. If the laser beam strikes a person, the effects of laser radiation are characterized by a very rapid absorption of energy. The damage that is caused depends on the exposed organ and tissue and presents a particular eye hazard where the lens can focus the beam. The report discusses the severity of damage dependent on the wavelength, power (measured in watts, W) if it is a continuous wave or energy (Joules, J) from a pulse laser, the area of the beam, the duration of the exposure and the distance.

Keywords: *laser, laser safety, maximum permissible exposure, laser hazard classification*

Introduction:

Today, several decades after the demonstration of the first laser in 1960 by T. Maiman, advances in a wide range of scientific disciplines have allowed laser technology to evolve and improve not only for civilian but also for military purposes.

During the Cold War, the US government relied on military strength through technological advances and, in the 1960s, multiplied its budget. Only for 1962, according to "Aviation Week and Space Technology", the Department of Defence promoted the laser spending about 1.5 million US dollars.

The late 1970s and 1980s were difficult in terms of laser development in different types of weapon systems and their application. All branches of the military and industry have sought to master high levels of laser output power, beam management and creation of appropriate optics.

In 1999, the Department of Defence (US) officially recognized the lasers as future weapons and started intensive research and development programs .

In 2000, the Joint Technology Bureau for High-Energy Lasers was created to bring all laser technologies together to develop a comprehensive laser weapon system that could be used by the Air Force. With continued advances in laser development in recent years, modern laser weapon systems have become a reality and an important part of the weaponry [1].

High-energy lasers typically powered by chemical fuel, electricity, or a stream of electrons cast in tensively focused energy rays on the object, [2] Lasers are used to solve different tasks by military such as: to define targets, transfer information, maintain target, determine distances for destroying targets and others.

The output power of modern day lasers ranges from milliwatts (mW) to megawatts (MW) in cases where they deliver continuous output power, or even petawatts (1015 W) for short pulse lasers. In military terms, lasers with continuous output powers greater than 20 kW are classified as High Energy Lasers (HEL). Output powers in the range of kilowatts or even megawatts allow the creation of laser beams with potentially harmful intensity over distances of up to several hundred kilometres. These beams can be used to heat up targets, which then may lead to structural failure of the target object. Such beams can cause irreparable eye damage and the blindness of enemy soldiers and officers. The dangers of laser radiation for army staff can occur in the following three cases: training, military combat, as well as setup and service of laser sources and systems.

During combat operations, commanders may need to take decisions on the level of laser radiation and to weigh the risk of real injury, death or other hazards. In this report we will only deal with the physical aspects of laser hazards for military staff and not with combat guidance when using lasers. How much exposure to laser light is hazardous during military activity or exercises for the military personnel?

To answer this question, you have to take into account the output characteristics of the laser. Those characteristics include wavelength, output energy and power, size of the irradiated area, and duration of exposure. If you are using a pulsed laser, you must also consider the pulse repetition rate and the pulse duration [1].

2. Advantages of laser weapons

Why are lasers so attractive for military purposes? The answer to this question lies in the advantages they have to the conventional weapons.

Laser technology is introduced in military affairs according to specific guidelines that have been developed in the following areas:(see Fig. 1)

- Laser location (ground, air, underwater);
- Laser communication ;
- Laser navigation systems;
- Laser weapons;
- Laser systems for missile defence and anti-satellite protection.

The advantages of using laser weapons in military operations, depending on the tasks to be solved (the objectives set) are:

- Very fast and can strike at targets with the speed of light (300,000 km/s);
- Targeting without waiting (both in height and in the side directions);
- Quick targeting opportunities, agile and in a short time span can intercept several targets or a one single target multiple times (compared, for example, with missiles or projectiles already launched to reach the goal);
- Absence of the possibility to shoot down a striking beam (as a projectile or a rocket) can not be distracted by a heat trap, is resistant to jamming systems (resistant to electromagnetic interference), etc.;

➢ Low price in comparison with some classical means of destruction (exceptionally cost effective when compared to conventional ammunition, with each laser shot costing as little as one US dollar);

➢ Ability to control the shot power that allows you to hit different targets at different distances;

➢ High localisation of destruction, which makes it possible to use such systems, for example, in urban conditions without incidental losses;

➢ Relative silence of the shot and invisibility for the eyes (for IR, UV ranges, especially pulsed lasers);

➢ Logistic support of the combat use of laser weapons (especially on the basis of solid-state lasers) is much simpler than for a number of classical systems of defeat.Influence of phase transitions of water into the atmosphere:

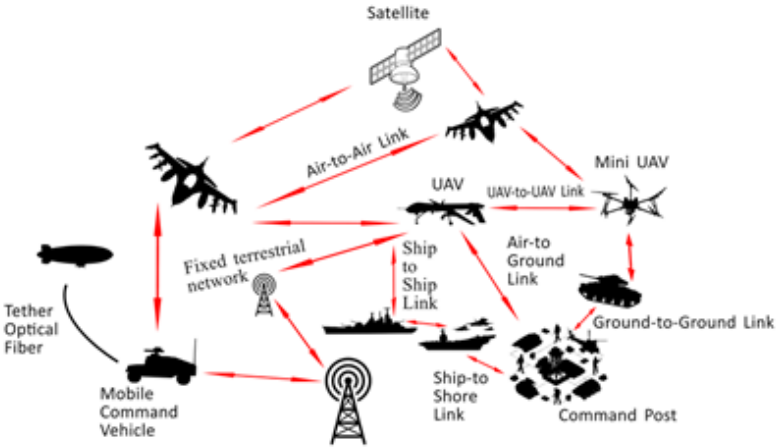

Fig. 1 *Military laser applications: illustration of spatial and technology diversity*

According to their purpose, laser weapons can be classified as strategic and tactical.

We can divide on the basis of their energy/power levels the laser weapons into three groups high, medium or low energy weapons. (Fig. 2)

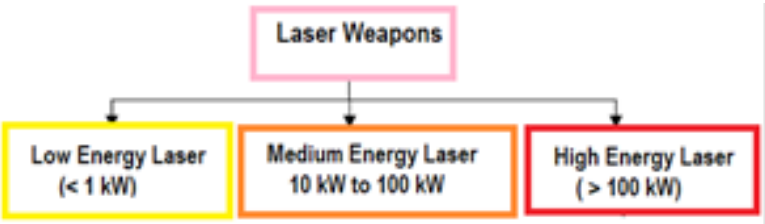

Fig. 2 *Classification of laser weapons on the basis of energy/power levels*

The low energy lasers usually give less than 1 kW of power and are used in weapon simulation systems for training or for jamming the sensors in communication systems, or can be used in anti-personal mode against the human eye. The use of these laser weapons for future military tactical operations radically change the situation on the battlefield. These lasers are more silent and less detectable by the enemy.

The medium energy lasers produce 10 kW to 100 kW of power and are used for the destruction of optical or optoelectronic devices on ground or space-based targets.

The High-energy lasers (HEL) generate more than 100 kW of power and are used for anti-aircraft or anti-missile systems.

3. Types of military lasers

3.1. Chemical laser

The first chemical laser, hydrogen fluoride (HF), was built in 1965, producing an output of 1 kW. Since then, the Department of Defence (DoD) has been interested in the research and development of more powerful chemical lasers for weapon applications. Subsequently, in 1968, the base demonstration laser of the Agency for Advanced Research Projects (DARPA) produced 100 kW, and in 1975 the naval-ARPA chemical laser (NACL) produced 250 kW.

Solid state lasers

Solid state lasers (SSLs) use a solid laser medium, such as glass or crystal, or gemstone (ruby, etc.). Rare-earth impurities such as Cr (chromium), Nd (neodymium), Er (erbium), Ho (cholemium) or Ti (titanium) are placed in the crystal (active medium). Chromium is the material used in ruby crystals. Nd (neodymium) is used in the most commonly used lasers, namely the Nd: YAG lasers. For pumping the active medium (crystal), a flash lamp, an arc lamp, or another laser is used. This type of solid-state lasers operate at 1064.5 nm and can operate both in pulse mode and CW mode. A great advantage of these lasers is the wide range of wavelength and pulse duration. The power level can reach megawatt when using Q-switching to achieve short pulse lengths. Different interactions with laser and other crystalline materials can double the electromagnetic frequency, which will reduce the wavelength by half, resulting in the laser beam in the visible range of 532 nm (green). The wavelength can be further divided into three or four, making this laser from the near infrared to ultraviolet wavelength. These lasers are usually used to indicate targets, measure distances, and so on. Other advantages of these lasers are that they can be made very small, user-friendly, cheap and battery-powered. The characteristics of SSL are shown in Table 1.

Table 1 *Types of military lasers.*

Laser Type	Wavelength, μm	Power	Output	Purpose
Deuterium Fluoride (DF)	3 ÷ 4.2	0.01 ÷ 100 MW	CW and Pulsed	weapon
Hidrogen Fluoride (HF)	2.6 ÷ 3	Up to 150 MW	CW /Pulsed	weapon
Krypton Fluoride (eximer)	0.249	100 W	Pulsed	weapon
Nd:YAG	1.06/0.532	0.5÷1000 W	CW /Pulsed Q switched	Atmospheric Communication
Nd:YAG	1.06	0.5 ÷ 1000 W	Pulsed	LFT/LTD
Nd:YAG	1.06	0.5 ÷ 1000 W	Pulsed Q switched	LIDAR
Raman shifted Nd:YAG	1.54 ÷ 1.55	>10 W	Pulsed	LIDAR
Nd:YAG	1.06	1 J =10s *1W	CW/Pulsed	Sensor
Nd:YAG	1.06	1 J =10s *1W	CW/Pulsed	Illuminator
Tunable Laser (Titanium: Sapphire)	0.66 ÷ 1.18	1 J =10s *1W	CW	Atmospheric Communication
Fiber Laser	Variable	10kJ=10s*1kW	CW	weapon
GaAs (Gallium -Arsenide)	0.85	>10 W	CW/Pulsed	LIDAR
GaAs (Gallium -Arsenide)	0.83	Up to 5 W	Pulsed	Illuminator
InGaAs (Indium-Gallium-Arsenide)	1.55	Up to 5 W	Pulsed	Illuminator
Vertical-cavity surface-emitting laser	1.06	5 mW÷150 kW	CW	Illuminator
He-Cd (Helium Cadmium Laser)	0.4416	1mJ=10s*1mW	CW	Underwater Communication
Ar (Argon Laser)	0.514 green 0.488 blu	0.1÷5 W	CW	Underwater Communication
CO_2	9 - 12	>100 kW	CW/Pulsed	weapon
CO_2	10.59/11.17	4 kW ÷ 5 kW peak	CW/Pulsed	Long range LIDAR

Modern fiber laser is a variety of solid SSL lasers. It is powered by electricity that excites diode lasers pumping the active medium (glass fibers). This makes such lasers extremely mobile and subject to support on the battlefield. In most cases, the active medium is a fiber treated with rare-earth ions such as Er3+, Nd3+, Ytterbium (Yb3+), Tyllium (Tm3+) or Praseodymium (Pr3+).

Fiber lasers have proven to have much benefit over traditional SSLs. They are resistant and do not require a clean room to operate or to be maintained, as most other laser systems do.

They are also extremely efficient; however, they cannot operate well in all weather conditions. One example is the IPG CW fiber laser that produces high quality laser beams causing damage to materials and components by thermal heating and burn-through. The Naval Surface Warfare Centre, Dahlgren Division (NSWCDD) purchased eight commercially available 5.5 kW IPG lasers, where two multimode (seven fibers) lasers are housed per cabinet. This type of laser is easy to mount due to the flexible fibers.

3.2. Gas lasers

Gas lasers are also widespread in the industry. They use a pure gas or gaseous mixture for an active environment in the optic resonator. A typical gas laser contains a tube filled with the working gas and there is a pair of mirrors at the edges of this tube. At one end of the tube the laser radiation leaves the resonator. Most gas lasers use electric current to cause pumping of the active medium (gas).

CO_2 lasers are also classified as gas lasers. These lasers were the earliest truly high-power lasers and have been among the most crucial lasers used in the research and development of high-energy laser (HEL) weapons. In the industry, the more powerful CO_2 lasers are used for welding, drilling, and cutting. There are many different types of CO_2 lasers that vary in pumping design.

CO_2 lasers work by burning hydrocarbon fuel (like kerosene or methane) in oxygen or nitrous oxide. The hot gas flows through a comb of nozzles, expands quickly, and achieves population inversion. The gas then flows through an optical resonator at supersonic speeds, resulting in stimulated emission and a laser beam. The wavelength produced by a CO_2 laser is also absorbed by glass. For example, the beam does not penetrate a windshield. Thus, shooting a CO_2 laser at a vehicle's windshield could deter while not reaching the driver at all.

4. Eye protection

In light of the foregoing considerations, it can be concluded that the eyes are exposed to a huge risk of injury from laser radiation if exposures exceed exposure limits.

In addition, it must be known that PPE (Personal Protective Equipment) safety goggles only guarantee protection for a particular laser source and a specified distance for which they are specified. To adequately address the real dangers and recommendations of the Safety Advisor, he / she must know the intentions and technical parameters of the laser operative and tactical weapons available to the opponent. This is particularly important if there are multiple sources that require different types of protective eyewear, e.g. different wavelength lasers require their own unique eyewear.

The level of attenuation of optical radiation provided by protective eyewear in the hazard spectral region should be, at least, sufficient to decrease the exposure level below applicable MPEs [10].

The absorption coefficient σλ is a property of the absorbing medium and the wavelength of the light. For eye filters (used in laser safety goggles) where the absorption coefficient for the filter is known and the filter thickness is predetermined, the product σλx is replaced by a quantity called the optical density, described by the symbol OD. In that case, with the base 10 replacing the base e, Lambert's law takes the following form:

$$Ex = E010–OD \quad (2)$$

where Ex is the irradiance after travelling through a thickness x;

E0 is the irradiance incident on the absorber.

Since the transmission of light through an absorber is defined as the ratio of Ex/E0, we can rewrite Equation 2 in a form commonly used with optical filters

$$T = 10–OD \quad (3)$$

where OD – optical density;

T – transmission.

Thus, if the OD of a filter is known, the transmission through the filter can be calculated from Equation 3.

Another useful equation involves a sample calculation for the minimum optical density (OD) required for a specified laser power and recommended MPE:

$$OD = \log10 (E_0 / MPE) \quad (4)$$

Luminous transmittance and colour of the environment as seen through the protective filters are important characteristics of eyewear, which may affect the operator's ability to perform the required operations without compromising non-optical radiation safety. Protective eyewear should be correctly stored, regularly cleaned, and subjected to a defined inspection regime.

Conclusions:

For the implementation of laser safety measures in the army, much of the trust lies in the education and training of staff: military personnel is trained to obey instructions and orders. When undertaking the risk assessment, as required by the Laser Safety Directive, consideration must be given to the military staff and to the fact that it may not always be possible to ensure that the exposure levels are below the exposure limit values.

Therefore, one approach used in this sector is Probabilistic Risk Assessment (PRA). This can be used to quantify the "probability" of risk . Various values may be adopted as a part of the PRA. However, an event with a probability of 10-8 is considered acceptable, even for an adverse event which, if it happened, could have catastrophic consequences. The use of PRA is complex and requires specialist expertise. However, a benefit for the military is that it may permit the use of artificial optical radiation in situations that might not be considered acceptable with a less rigorous assessment.

In order to use laser beams as weapons, a significant amount of laser output power is necessary. The output power depends heavily on the actual target. For the so-called soft targets, the minimum power to cause harm can be very low. Blinding lasers, for example, are designed to blind the human eye temporarily or permanently [11]. As the eye is very sensitive, these weapons require only a small amount of output power. Blindness can be caused in several ways: apart from burning the retina, a laser pulse can also break blood vessels inside the eye or cause a process of slow decline of the retina. At a distance of some meters, even an output power of a few milliwatts can damage the eye because the ocular focuses the beam onto the retina. This dramatically increases the intensity of the beam. Blinding lasers were used in the Falklands conflict and in the Iran/Iraq war of 1980s [12]. However, in 1995, these weapons were officially banned under International Humanitarian Law. If the aim is to destroy hard targets rather than to blind the enemy, however, the laser requires an output power which is many orders of magnitude higher than that of blinding lasers. As mentioned above in this article, many countries and research institutes develop and test lasers with continuous output power over 20 kW or impulse power over 1 kJ [13]. As stated above, the use of blinding laser weapons is illegal under International Humanitarian Law. In particular, these weapons violate the Fourth Protocol (1995) to the Convention on Prohibitions or Restriction on the Use of Certain Conventional Weapons Which May be Deemed to be Excessively Injurious or to Have Indiscriminate Effects. This protocol outlaws the use and transfer of laser weapons which are intended to cause blindness. Additionally, the signatories are obliged to take the necessary steps to prevent blindness caused by other laser weapon engagements [14]. However, the protocol is not applicable if collateral blinding occurs as a result of military laser applications that are otherwise considered legitimate. As a consequence, the protocol might be applicable to High Energy Lasers (HEL) weapons only, if they are especially designed for blinding purposes. Nevertheless, the protocol seems to have had some positive effects so far. The protocol the first step towards a comprehensive ban of all laser weapons. This would be the first step towards preventive arms control, a concept which was developed to ban the introduction of new destabilising weapon systems [15].

Whether and to what extent a complete ban is realistically achievable is obviously another question.

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对计算机程序的动态语义建模
MODELING THE DYNAMIC SEMANTICS OF A COMPUTER PROGRAM

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注解。本文使用两种方法来构造计算机程序的动态语义：将计算机程序生成的计算过程的数学模型表示为离散转换器，并按照功能语法表示计算机程序的数学模型。在研究中，主要兴趣集中在机器中计算机程序生成的计算过程上。将离散转换器的概念应用到计算机程序生成的计算过程的描述中，可以给出程序的精确数学模型或动态语义，它是两个离散系统和的组合。在这种情况下，组件是控制组件（程序框图模型），而组件是程序存储器模型。将程序分解为两个部分，在研究对计算过程进行建模的过程中非常方便，因为这为在关键程序节点中搜索不变量，为计算机程序的正确性提供数学证明，进行深层等效优化开辟了前景两种方法的比较分析得出了关于程序生成的函数表示形式的规律性的一个定理，该定理在转换器的离散性和功能语法的框架中均有效。

关键字：建模，语言数学模型，动力系统，语义，规律性，上下文无关语法，循环算子，语法。

Annotation. *The article uses two approaches to constructing the dynamic semantics of a computer program: representing a mathematical model of a computing process generated by a computer program as a discrete converter, and representing a mathematical model of a computer program in terms of functional grammars. In the study, the main interest is focused on the computational process generated by the computer program in the machine. Application of the concept of a discrete converter to the description of the computational process generated by a computer program gives an exact mathematical model or dynamic semantics of the program, which is a composition of two discrete systems* B *and* B*. In this case, component* A *is a control component (program block diagram model), and component* B *is a program memory model. Such a decomposition of a program into two components* B *and* B *is convenient when studying the process of modeling a computational process, since prospects open up for searching for invariants in critical program nodes, for mathematical proof of the correctness of a computer*

program, for deep equivalent optimizing transformations of programs, etc. Comparative analysis of the two approaches leads to a theorem on the regularity of the representation of the function generated by the program, which is valid both discretely of the converter and in the framework of functional grammar.

Keywords: *modeling, mathematical model of the language, dynamical system, semantics, regularity, context-free grammar, loop operator, syntax.*

Consider the loop operator of a programming language from two points of view:

1) from the point of view of discrete converter [2];

2) from the point of view of functional grammars [3].

These two theories are conveniently used in computer modeling of various dynamical systems, such as a computational process generated by numerical algorithms in order to find the invariants in the critical nodes of the program. The found invariants can be used to prove the specificity of the program and can be represented in the language of positively formed formulas [1].

The memory of program A denoted by $B \subseteq D^V$, where D - set of values, $V = \{v_1, v_2, ...\}$ - set of variables of a program A. In other words, B is a set of interpretations of variables from the set V, that is, if $b \in B$, then $b : V \to D$, and for any $v_i \in V$ $b(v_i) = d$, where $d \in D$, d - is a value taken by the variable v_i. Sometimes we will use postfix notation $v_i b$ instead of $b(v_i)$. This work is limited to that class of computer programs A, the meaning of which can be represented as a function $f_A : B \to 2^B$. In other words, the program A starts working at some initial state $b_н \in B$ of memory and finishes its work in one of the finishing states $b_к \in 2^B$, thus the program A is a multi-valued mapping. It is quite natural that the program can be considered as a discrete converter, consisting of two components: A and B, where B - control component, B - a set of program memory states. The control component A of the program A (designations match) has various representations: 1) in the form of text, when the program A is presented in a programming language (we say that A has a text metatype); 2) in the form of a control graph block diagram consisting of vertices denoted by symbols $a_1, a_2, ... \in A$, which are connected by arcs of transitions with the notations u_i / y_i, where $u_i \in U$ is a logical expression composed of basic conditions $u \in U$ of program A using logical operations $\wedge$ (conjunctions), $\vee$ and $\neg$. Each $y_i \in Y^*$ is a superposition of basic assignment operations $y \in Y$ of program A, having the form $y_i = (v_{i1} := t_{i1}(v), ..., v_{in} := t_{in}(v)) = (v := t(v))$, where t - is an expression, constructed from operations belonging to Ω from the data algebra operations signature $D = (D, \Omega, \Pi)$ of program A, where D - a set of data values, Π - data predicate signature. Based on the foregoing, we give a mathematical definition of a discrete program converter A, called «$U - Y -$ scheme of the program A», sometimes referred to simply as a component A, when it is clear from the context.

Determination. $U-Y-$ scheme of the program A, is a set $A=\{a_i \mid i=1,...,m\}$ states of the circuit along with set $T \subset A \times \hat{U} \times Y^* \times A$. Graphically an element of the set T can be represented as: $(a_i \xrightarrow{u/y} a_j) \in T$. If $y=e$ identical to the refference $e: B \to B$ so, that $\forall b \in B \quad e(b)=b$, then the graph is $a_i \xrightarrow{y} a_j$. We note a formal logical circuit $a_i \xrightarrow{u} a_j$ can be turned into a function $u/e: B \to B$ narrowing of scope $e: B \to B$ on condition $\forall b \in B: u(b)=true \to e(b)$. Thus, we can construct the set $U/e=\{u/e \mid u \in U\}$, and correspondingly $\hat{U}/e=\{u/e \mid u \in \hat{U}\}$. If by q_i we denote words in the alphabet Y, that is $q_i = y_1 \circ y_2 \circ ... \circ y_m$, $y_j \in Y$ and $q_i \in Y^*$, then $q_i: B \to B$ we will call elementary memory state converters. Transitions $a_1 \xrightarrow{u_1/q_1} a_2$ and $a_2 \xrightarrow{u_2/q_2} a_3$ we will call conjugate. A sequence of transitions in which any two transitions are conjugate is called the path l from a_i to a_j, where a_i is the beginning of the path l, and a_j is the end is the path. If the computing process is in a state $(a_j, b_j) \in A \times B$, then at the end of the path l the process will be in a condition $(a_j, b_j) \in A \times B$. If the superposition of functions q transitions of path l easy to compose $q \in \hat{U}/e \cup Y^*$, then $b_j = q(b)$. Suppose $U-Y-$ scheme of program A has one initial a_n and one final state of the scheme A. Then we can state the following regularity theorem for the function $f_A: B \to 2^B$, generated by the program A.

Theorem. Display of $f_A: B \to 2^B$, performed by $U-Y-$ scheme of program A, is regular to the set $\hat{U}/e \cup Y$.

Proof. To prove this theorem, we construct an algebraic model of $U-Y-$ scheme of program A and in the constructed model we consider the loop operator. To do this, we fix the set B of memory states and consider binary relations $f \subset B \times B$. As a supporting set of the algebra, all subsets $B^2 = B \times B$ we denote by $M=\{f \subset B \times B\}$. Fix the set $Y \subset M$. We set on the set Y the following operations: 1) such superposition $f \circ f' = g$, that $g(b)=b' \Leftrightarrow \exists b'' \in B: f(b)=b''$ and $f'(b'')=b'$; 2) such association $f \cup f' = g$, that $g(b)=b' \Leftrightarrow f(b)=b'$ or $f'(b)=b'$; 3) iteration $f^* = \bigcup_{n=0}^{\infty} f^n$, where $f^0 = e$, $f^{n+1} = f \circ f^n$, Y- is an identity relation. Smallest set of functions containing Y, as well as e- is an identical display, an empty mapping and closed with respect to the operations of superposition, unification, and iteration will be an algebraic model $U-Y-$ scheme of program A. The theorem is proved.

We turn to the consideration in this model of the operator of the cycle of the programming language. Imagine the loop operator syntax rule

<cycle> : := <u>while</u> u <u>do</u> $\{f_{10}\}$ <u>end</u> $\{f_{10}\}$;

Function f_{10} is assigned to the terminal <cycle> and describes a syntax function or mapping generated by a loop operator. In this construction, u is a < logical expression >, P stands for nonterminal <operators>. Function f_{10} has two arguments u and P.

Lemma. In the constructed algebraic model $Y \cup \{e\} \cup \{\varnothing\}$, signature operations $\Omega = (\cup, *, /)$ function f_{10} is regular with respect to the alphabet $(Y, e, \varnothing, \Omega)$.

Proof. Function f_{10} can be represented as an algebraic expression $\bigcup_{n=0}^{\infty}(u / P \vee \overline{u} / e)^n$, that is $f_{10} = \bigcup_{n=0}^{\infty}(u / P \vee \overline{u} / e)^n = (u / P \vee \overline{u} / e)^*$.

Correctness is obvious.

From the lemma we can conclude that any syntactic construction of a programming language can be represented as a mapping, which is a semantic function construction. Since the loop operator is a more complex operator compared to others, the remaining operators are also regular. In the function formula f_{10} P must be of type funk, that is, it must be represented as a superposition of basic functions. Recall that the original form P - is a text fragment of a programming language that has a text type and is a passive object. However, the passive object "text P " discrete transducer "is able to convert" into the active object funk P, which is a functional type. The machine equivalent of a funk P object is an exe file named " P .exe ", if the object "text P " corresponds to the type of the file " P .pas " (in case if the program A is written in the Pascal programming language). Further, the zhach metatype appears quite naturally, since it is possible to reduce a functional object «funk P » to value «znach P ». In other words execute «funk P » and get the result «znach P ». In the theory of discrete converter concepts text, funk, znach present implicitly, but in functional grammars it is present explicitly. There are a number of fairly good reasons for this. One of the first is the desire in science of computer science to manipulate functions in both their active phase «funk» and in their passive phase «text». Such manipulations are indisputably necessary for systems of automatic synthesis of computer programs, automation of programming and artificial intelligence. It will also be quite natural to move in the direction of data activation in programming, in other words, an attempt to present all passive data, starting with integers and real numbers and so on, in the form of functions. This tendency is observed in works [2], where it is always emphasized that all data are presented in the form of data algebra $D = (D, \Omega, \Pi)$, where D - support set, elements of which d, which are the values of variables, must also have the form of functions [4], Ω - is operation signature, Π - is predicate signature. The authors of this point of view were largely influenced by the theory of functional programming, and therefore I would like to pay close attention to the functional programming language Fort. In connection with the foregoing,

we turn to the consideration of one of the examples of functional grammars. First of all, we note that in functional grammars it was possible to combine concepts-primitives: context-free grammars, an identification operation (a basic constructively constructed alphabetical mapping between grammars), an operation *eval*, alternative operation | (analog $\vee$), recursion [3].

So, let's get to the issue of operator <cycle> representation as a display within functional grammars. The purpose of this consideration is the question of regularity theorem of the program L in a given programming language L regarding basic operations and functional grammar concepts. The syntax is represented as usual:

<cycle> : := while u do P end $\{f_{10}\}$.

Semantic function $\{f_{10}\}$ is written as follows:

$$f_{10} = (\underline{функ}\, x, y)\ \underline{знач}:(u, P)\, r_1(u, u, P), \text{ where}$$

$$r_1 = (\underline{знач}\, x, \underline{функ}\, x, y)\ \underline{знач}:((\underline{true}, u, P) f_4(P, r_1(u, u, P)) \mid (\underline{false}, u, P) e),$$

where e - identical presentation. Note that the function r_1 is recursive, where a recursive call occurs through a function f_4. Function f_4 - is a two-argument semantic function that corresponds to the syntax:

< operators > : := < operators > ; < operator> $\{f_4\}$.

If designated by < operators > through Q, and < operator> through R, then the indicated construction will take the form of $Q^{(1)}$: := Q ; R $\{f_4\}$, where $Q^{(1)}$ corresponds to the function f_4. Function f_4 has two arguments Q and R. Values of the arguments Q and R may have a metatype text, that is, they are syntactically textual arguments to the program, or they are a superposition of functions f_Q and f_R, which have type funk. However, functions f_Q f_R can be executed and will get results that will have metatypes znach. So the header of the function f_4 has the form $(\underline{знач}\, x, y)\ \underline{знач}:$, where x and y are formal arguments, and the actual arguments will be f_Q (corresponds to x) and f_R (corresponds to y). Overall the function f_4 has the form:

$$f_4 = (\underline{знач}\ x, y)\ \underline{знач}:(ЗНАЧ, ЗНАЧ^{(1)})ЗНАЧ^{(1)};$$

Here $ЗНАЧ$ and $ЗНАЧ^{(1)}$ are results of the execution of functions f_Q and f_R.

Function f_{10} has a header $(\underline{функ}\, x, y)\ \underline{знач}:$. Instead of formal arguments x and y actual arguments are substituted that are u and P. The result is the result of executing a recursive function r_1 with three arguments: u, u, P. First argument u called by value (type znach), and the second u and the third argument are called as functions (type funk). From the body of a recursive function r_1 further calculation scheme is obvious. From consideration of the loop operator <cycle> in the framework of functional grammars, the following conclusion can be drawn: for each syntactic construction, you can uniquely specify a function that describes the meaning of this rule. It follows that an arbitrary program is a super-

position of functions. And the final conclusion will be the validity of the theorem on the regularity of an arbitrary program A regarding the basic functions of a programming language.

Theorem. For an arbitrary program A, defined in syntactic grammar G_0, function f_A, displaying input to output is regular with respect to basic functions.

Proof. Each syntactic construct from syntactic context-free grammar G_0 programming language has a syntactic function. Then the parsing algorithm of an arbitrary program A as a result, gives a superposition of basis functions, which represents a function f_A of program A. The theorem is proved.

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科学出版物

上合组织国家的科学研究：协同和一体化

国际科学大会的材料

（2019年9月28日。中国北京）

编辑A.A.Siliverstova
校正A.I.尼古拉耶夫

2019年10月06日。中国北京。
USL。沸点：98.7。 订单253.流通450份。

在编辑和出版中心印制
无限出版社