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SECTION I. Physical sciences

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ASTRONOMICAL VOCATIONAL APTITUDE TEST

There is a host of vocational aptitude tests on the Internet - including tests developed by psychologists who rely on social psychological personal characteristics as well as tests developed by astrologists who base their guesses about the personality characteristics on astrological propedeutics. And what about going back to the origin of the person's life, to his or her birthday, and confine ourselves exclusively to the data on the birthday provided by ephemerides [1] and some arithmetical calculations. These data may be sufficient to solve the problem. In order to prove the efficiency of the model the experimental database was created.

The author used partial data published in [2]. This edition contains coordinates of 10 planets and the North Lunar Node (in the format from 0° to 360°) on the birthday of 1000 people equally divided into the following groups: composers, movie and theatre actors, sportsmen, military personnel, and politicians. The database included first 71 of 200 people of each of the groups – composers (group 1), military personnel (group 3), politicians (group 4), and 61 sportsmen (group 2), 274 people in total. Apart from these 11 astronomical characteristics in respect of every given subject the author also added 10 numerical characteristics (which are calculated based on the initial data given in [1]): these are the distances between the birthday and the nearest station of each of the planets, in degrees of longitude; negative if the birthday came after the station, and positive if the birthday was before the station. Table 1 gives a part of the formed database containing the total of 274 rows and 21 astronomical characteristics.

Table 1. Sample Database

Group	Native	Birthday	Sun	Moon	Mercury	Venus	Mars	Upiter	Caturn	Uran	Neptun	Pluton	SUzel
1	Alyabyev A.A.	15.08.1787	143	171,2	153,5	125,6	73	81,2	325,7	118	196,8	314,9	273
1	Balakirev M.A.	02.01.1837	282	220,5	292,4	248,9	147	137	224,8	332	304,8	13,9	37,5
1	Bartok B.	25.03.1881	5	306,1	342,8	45,9	323	25,9	28,6	161	42,6	56,8	262
1	Bach W.F.	22.11.1710	240	262,3	220	223,9	142	250	120,3	152	28	150,5	317
1	Bach J.S.	05.09.1735	162	17,3	147,8	208,1	160	273	57,6	259	86,3	204	197

St-Me	St-V	St-Ma	St-J	St-S	St-U	St-N	St-P	St-X	St-LU
2,3	-208	44	4,5	-3	3	-0,5	1	0,8	0
30,8	-117	-0,2	-1,3	2,3	-1,2	-1,5	0	1,1	1
0	5,6	113	-16,2	-6,4	1,2	-1,1	-0,3	-2	0
-2,6	-210	7,8	-17,8	-0,1	0,1	0,5	0	-1,3	0
-14,6	23	-222	0	0	0	0,2	-1	0	1

Let us introduce you the list of natives from [2] who took part in the experiment.

Composers, group 1: Alyabyev A.A., Balakirev M.A., Bartok B., Bach J.K., Bach J.S., Bach C.Ph.E., Bellini V., Berg A., Berezovsky M.S., Berlioz H., Beethoven L., Bizet G., Bloch E., Boccherini E., Borodin A.P., Brahms J., Bruch M., Busoni F.B., Wagner R., Varlamov A.E., Weber C.M., Weckerlin J.B., Wieniawski H., Verdi G., Vivaldi A., Villa-Lobos H., Vladigerov P., Haydn J., Handel G.F., Herold L.J.F., Gerster O., Gershwin G., Glazunov A.K., Glinka M.I., Gliere R.M., Gluck Ch.W., Godard B., Gossec F.J., Grechaninov A.T., Griboedov A.S., Grieg E., Gounod Ch.F., Gurilyov A.L., Davydov K.Yu., Daquin L.C., Dargomyzhsky A.S., Dvarionas B.D., Dvorak A., Debussy C.A., Dunayevsky I.O., Dukas P., Durey L., Jolivet A., Jora M., Zakharov V.G., Suppe F., Ibert J., Ivanovs J.A., Ysaye E., Kabalevsky D.B., Cavos C.A., Kamenikov A., Kalomiris M., Kalman I., Karaev K.A., Cherubini L., Kilpinen Y., Clementi M., Corelli A., Kochan G.

Sportsmen, group 2: Abdulbekov Z.A., Avilov N.V., Akimov A.I., Aleksandrov B.V., Aleksandrov V.V., Alekseeva G.S., Amosova Z.S., Andrianov N.E., Anikin N.P., Antropov O.P., Antson A.A., Asatiani N.P., Astakhova P.G., Babinov S.P., Babich E.M., Bazhukov N.S., Balboshin N.F., Boldycheva N.V., Baranova L.V., Barkalov A.S., Barysheva O.F., Balashkin A.V., Belov S.A., Belova E.D., Belousov V.P., Belyakov V.G., Berdiev I.K., Blinov V.N., Blinov Yu.I., Bobrov V.M., Bogdan I.G., Bogdanov A.I., Bolotnikov P.G., Boloshev A.A., Bondarchuk A.P., Boreiko V.V., Borzov V.V., Borisov V.F., Botev G.G., Bocharova N.A., Boyraskih K.S., Bragina L.I., Brumel V.N., Bugaenko I.V., Buldakov I., Buldakova L.S., Burda L.V., Burobin N.A., Burtsev M.I., Bushuev V.G., Bykov A.M., Byakov I.I., Vaitsekhovskaya E.S., Vasin V.A., Vykhonin A.I., Vedenin V.P., Veinberg T.E., Veleva-Melnik F.G., Vengerovsky Yu.N., Vikulov V.I.

Military personnel, group 3: Abel R.I., Agaltsov F.A., Alekseev M.V., Andolenko S.P., Romanov A.V., Annenkov B.V., Artemyev V.P., Arkhangelsky A.P., Asmolov A.N., Akhromeev S.F., Bagramyan I.H., Bazilevich G.D., Batov P.I., Belov I.P., Berg A.I., Beregovoy G.T., Berzarin N.E., Biryuzov S.S., Becherakhov L.F., Blake D., Blukher V.K., Bogoyavsky A.P., Bogdanovich P.N., Bonch-Bruevich M.B., Brusilov A.A., Budenny S.M., Bulak-Balakhovich S.N., Bulganin N.A., Vasilenko M.I., Vasilchikov S.I., Vasyagin S.P., Vatutin N.F., Vekman

A.K., Verkhovsky A.I., Vershinin K.A., Viktorov M.V., Vinogradov N.I., Vlasov A.A., Volkogonov D.A., Vorobyov Ya.Z., Voronov N.N., Voroshilov K.E., Vrangel P.N., Romanov G.K., Gelovani A.V., Govorov L.A., Golikov F.I., Golovin N.N., Gorodovikoc O.I., Gorshkov S.G., Grechko A.A., Grigorovich I.K., Gromov B.V., Grundman E.Ya., Gurko B.I., Deynekin P.S., Denikin A.I., Dzhanibekov V.A., Dovbor-Musnitsky Ju., Dragunsky D.A., Drozdovsky M.G., Dudaev D.M., Egorov A.I., Egoryev V.N., Eremeev K.S., Eremenko A.I., Zhukov G.K., Ipatyev V.N., Kakurin N.E., Kaledin A.M.

Politicians, group 4: Abdulatipov P.G., Abdulladzhanov A.A., Avksentyev N.D., Aganbegyan A.G., Agafonov V.A., Adashinin A.L., Aytmatov Ch.T., Akaev A., Aksyuchits V.V., Aliev G., Andreeva N.A., Andropov Yu.V., Antikaynen T., Antipov N.K., Armand I.T., Arosev A.Ya., Artem (Sergeev F.A.), Aslakhanov A.A., Afanasyev V.G., Bakaev V.G., Bakatin V.V., Baklanov O.D., Bandera S.A., Baranov P.I., Basanavichus J., Beloborodov A.G., Berzin Ya.A., Beriya L.P., Bessmertnikh A.A., Bobrovskaya Ts.S., Bokiy G.I., Boldyrev Yu.Yu., Bonch-Bruevich V.D., Borman M., Bosh E.B., Brezhnev L.I., Bubnov A.S., Butaev K.S., Bukharin N.I., Bush G., Voznesensky N.A., Voikov P.L., Volin B.M., Volsky A.I., Vorovsky V.V., Vorontsov Yu.M., Vyshinsky A.Ya., Gaydar E.T., Gandhi M., Gerashenko V.V., Goebbels J., Himmler H., Hitler A., Golitsyn V.D., Golovin F.A., Gololed N.M., Goldin S.B., Gorbachev M.S., Gorbunov N.P., Grishin V.V., Gromyko A.A., Grushevsky M.S., Danilov-Danilyan V.I., Demichev P.N., Dzerzhinsky F.E., Dolgikh V.I., Dubchek A., Yeltsin B.N., Yenukidze A.S., Zhdanov A.A., Zhirinovskiy V.V.

Our experimental data includes: 274 subjects (categorized into 4 groups) each of which is described by twenty one astronomical characteristics. Structures of this kind are examined in unit 'Discriminant analysis' (DA) of mathematical statistics. The method may be applied to our data. Its algorithm is simple: a) coordinates of the center of each of the groups in the 21-dimensional space of characteristics are calculated; b) distances from each of the subjects to the centers of each of the four groups are calculated; c) conclusion: the object is better to be subsumed under the group which it is closer to comparing to other groups (out of 4 distances we choose the minimum one). All 274 subjects are searched. The result is written as a matrix. What do we expect to observe in the table? In case the suggested model expressing the relation between the set of astronomical characteristics

and the profession groups does not work, then all the objects will be uniformly distributed in the matrix. What have we obtained?

Table 2. Division of natives into groups

	Composers, calculated.	Sportsmen, calculated.	Military personnel, calculated.	Politicians, calculated.
Composers, original.	35	8	18	10
Sportsmen, original.	13	38	2	8
Military personnel, original.	2	11	46	12
Politicians, original.	8	15	19	29

The data has been processed in the application program package Statistica 6.1.

Row 1 of the matrix ‘Composers, original’ shows the result of scattering of the original number of composers into computation graphs as follows: high concentration of natives 35 is shown in the neighborhood of the center of group 1 and it would be preferable if the rest of natives were in other groups (8 of them fell under ‘Sportsmen, calculated’, 18 – under ‘Military personnel, calculated’, and 10 – under ‘Politicians, calculated’). Other rows are expressed likewise. It is remarkable that all four concentrations can be easily distinguished (their concentration is definitely higher comparing to the off-diagonal matrix elements) near all the centers of the groups. If we had a different task, i.e. to divide people into groups according to their race and the anatomico-physiological characteristics, skin color in particular, then the matrix would be close to diagonal one. And our result is not perfect since a human is multifarious. The last row is especially clear: many politicians were sportsmen, or the military in past. In fact, a sportsman having retired from sport, or a military leader after the military operations have ended, either of which got used to being highly respected as well as being the focus of attention, will find it psychologically difficult to change his or her world view. In addition, many of those prefer politics to coaching or teaching. Figure skater Irina Rodnina, the beloved of all, now works in the State Duma of the Russian Federation. Examples:

Military personnel: Akhromeev S.F., marshal, Beregovoi G.T., general, cosmonaut – deputies of the Supreme Soviet of the USSR; Volkogonov D.A., general – vice chairman of Council of Nationalities of the Supreme Soviet of the USSR; Kaledin A.M., cossack commander – in late 1917 was elected as a member of the All-Russian Constituent Assembly in Donskoy electoral district through list election (list No. 4 – cossacks). All mentioned people fell under group ‘Politicians’.

representing the cavalry – may fit with ‘Sportsmen’.

– Composers: Kabalevsky D.B. – tutor, journalist, public figure, falls under ‘Politicians’; Gerster O., German composer, who served in the military, falls under ‘Military personnel’; and Vivaldi A. – Italian composer, violin virtuoso, tutor, conductor, Catholic priest, an author of about 40 operas, as well as Bach J.S., German composer, organ virtuoso, chapel master, music teacher and an author of more than 1000 music pieces, fell under ‘Sportsmen’, apparently due to their complexity and inconceivable working capacity, meaning that they managed to succeed in lots of activities.

Conclusions.

1. In fact, given a little amount of experimental data we can easily observe a tendency to division into profession groups exclusively based on a specific set of astronomical characteristics on the person’s birthday.
2. It is just a first day of the person’s life. Nobody even saw his or her face. It is not time for taking psychological tests yet, and no astrologists studied his or her horoscope. And simple astronomical almanac may instantly give us information about the child’s future professional interest!
3. We plan further activities on expanding the database in each of the groups and adding new groups – based on efficient statistical analysis for the vocational aptitude test.
4. I must add that a keen reader may obtain the database as well as the final outcome of the article by himself just following the next steps: find the birth dates of all the natives on the list on the Internet, find in [1] the longitudes of all the planets on the birthday; transfer them into format ‘from 0° to 360°’; determine based on [1] the distances to the nearest stations, and use application program package Statistica 6.1., or any other mathematical statistics application program. Although, it is quite a hard work.

The author shows appreciation to Neil Michelsen for his book [3], which in section «Planetary Stations in Longitude 1700-2050» gives the dates and types of the planets' stations for 3,5 centuries, that made it much easier for us to calculate the distances from the planets to the birthday.

References

1. Website of Swiss ephemerides for 9000 years. URL: www.astro.com/swisseph/swephe_e.htm.
 2. 1000 prominent figures. Birth dates and coordinates of the planets, M., Astropsychology Research Center, 1997, 59 p. [in Russian]
 3. Michelsen N.F. Tables of Planetary Phenomena, ACS Publications, Inc., San Diego, 2007, 252 p.
 4. Nikitina E.P. Stationary planets in natal horoscope and in transit (statistical analysis of astrological data), M., ShNA, 2015, 95 p. (in Russian)
- otkritieinfo.ru/d/669057/d/sbornikpriority8-2.docx#_Toc424313059

SECTION II. Information Technology

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IDENTIFICATION OF A OCULO-MOTOR SYSTEM HUMAN BASED ON VOLTERRA KERNELS

Introduction. The innovative technology of Eye tracking which is rapidly being developed nowadays– is the process of determining the point where the eye looks or eye movements relatively to the head. This high-tech innovation is being developed further and is effectively used in the construction of a mathematical model of a process of tracking eye movement to detect anomalies in data tracking to quantify the motor symptoms of Parkinson's disease [1]. The use of nonlinear dynamic model of Wiener and Volterra-Laguerre [2] and their identification is based on a random effects test, which requires the application of

methods of correlation analysis and generation of a large amount of experimental data (long-term experimental studies).

In order to build a model of VolterraOculo-Motor System (OMS) a person is encouraged to use the test deterministic effects, for example, step signals (the most appropriate for the study of the dynamics of OMS), which simplify the computational algorithm of identification and significantly reduce the time of processing of experimental data. There is a method and computer algorithms identifying deterministic nonlinear dynamical systems in the form of Volterra models using multi-test signals.

The Aim of Work. The purpose of work is development method for constructing nonparametric dynamic model of OMS in the form Volterra series [2], based on experimental studies of «input-output» and also computational tools and software for the information technology processing experimental data [3].

Computing Method of Multidimensional Transient Functions for Identification of OMS. Taking into account the specificity of the investigated object, test multistage signals were used for identification. If a test signal $x(t)$ represents an identity function (Heaviside function) – $\theta(t)$, it will result in identification of the transition function of the first order and the diagonal section of n -th order.

To determine the sections subdiagonal transition functions of n -th order ($n \geq 2$), OMS is tested using the n step test signal with given amplitude and different intervals between signals. With appropriate processing responses, n -dimensional transition functions of subdiagonal section are received

$$h_n(t - \tau_1, \dots, t - \tau_n) = \int_0^\infty \dots \int_0^\infty w_n(t - \tau_1 - \lambda_1, \dots, t - \tau_n - \lambda_n) d\lambda_1 \dots d\lambda_n, \quad (1)$$

where $w_n(\tau_1, \dots, \tau_n)$ – Volterra kernel of n -th order.

The Method for Constructing an Approximate Model of Volterra Nonlinear Dynamical System. The method for constructing an approximate Volterra model of the OMS is developed. The method of identification is based on the approximation $y(t)$ at an arbitrary deterministic signal $x(t)$ in the form of integral power of the polynomial Volterra N -th order (N - order approximation model):

$$\tilde{y}_N(t) = \sum_{n=1}^N \hat{y}_n(t) = \sum_{n=1}^N \int_0^t \dots \int_0^t w_n(\tau_1, \dots, \tau_n) \prod_{i=1}^n x(t - \tau_i) d\tau_i, \quad (2)$$

Let the input test signals of OMS be fed alternately: $a_1x(t)$, $a_2x(t)$, $\dots, a_Lx(t)$; a_1, a_2, \dots, a_L – distinct real numbers satisfying the condition $|a_j| \leq 1$ for $\forall j=1, 2, \dots, L$; then:

$$\tilde{y}_N[a_jx(t)] = \sum_{n=1}^N \hat{y}_n[a_jx(t)] = \sum_{n=1}^N a_j^n \int_0^t \dots \int_0^t w_n(\tau_1, \dots, \tau_n) \prod_{i=1}^n x(t - \tau_i) d\tau_i = \sum_{n=1}^N a_j^n \hat{y}_n(t). \quad (3)$$

Minimization of the criterion

$$J_N = \sum_{j=1}^L (y[a_jx(t)] - \tilde{y}_N[a_jx(t)])^2 = \sum_{j=1}^L \left(y_j(t) - \sum_{n=1}^N a_j^n \hat{y}_n(t) \right)^2 \rightarrow \min \quad (4)$$

is reduced to solving the system normal equations of Gauss, which in vector-matrix form can be written as:

$$\mathbf{A}'\mathbf{A}\hat{\mathbf{y}} = \mathbf{A}'\mathbf{y}, \quad (5)$$

where

$$\mathbf{A} = \begin{bmatrix} a_1 & a_1^2 & \dots & a_1^N \\ a_2 & a_2^2 & \dots & a_2^N \\ \dots & \dots & \dots & \dots \\ a_L & a_L^2 & \dots & a_L^N \end{bmatrix}, \mathbf{y} = \begin{bmatrix} y_1(t) \\ y_2(t) \\ \dots \\ y_L(t) \end{bmatrix}, \hat{\mathbf{y}} = \begin{bmatrix} \hat{y}_1(t) \\ \hat{y}_2(t) \\ \dots \\ \hat{y}_N(t) \end{bmatrix}.$$

The results of the research. Testing of the tracking technology of the pupil's behavior based on video registration is performed on the basis of the analysis of the OMS work along the horizontal axis. Measured response of the eye $y_1(t)$, $y_2(t)$, $y_3(t)$ to the input test signals $a_1\theta(t)$, $a_2\theta(t)$ and $a_3\theta(t)$ ($L=3$) for values of the test signal amplitudes $a_1=0,33$, $a_2=0,66$ and $a_3=1$ is shown in Fig. 1.

Obtained graphs of EMS first $\hat{h}_1(t)$, second $\hat{h}_2(t, t)$ transient functions and third order $\hat{h}_3(t, t, t)$ are shown in Fig. 2 respectively.

Comparison of responses the OMS of identify $y(t)$, model $\tilde{y}(t, a)$ and partial components of response OMS first $\hat{y}_1(t, a_1)$, second $\hat{y}_2(t, a_1)$ and third order $\hat{y}_3(t, a_1)$ at an amplitude $a_1=0.33$ shown in Fig. 3.

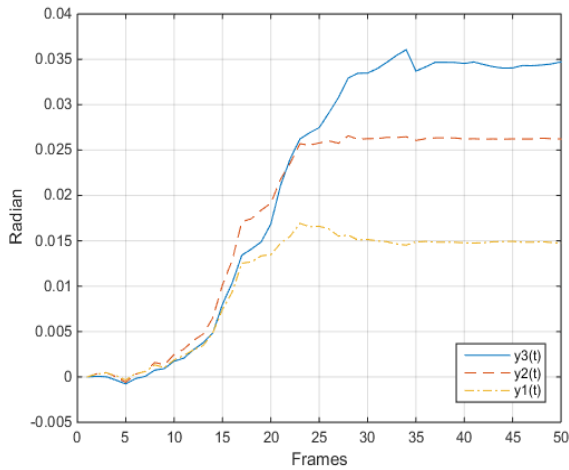


Fig.1 – Responses OMS $y_1(t)$, $y_2(t)$ and $y_3(t)$.

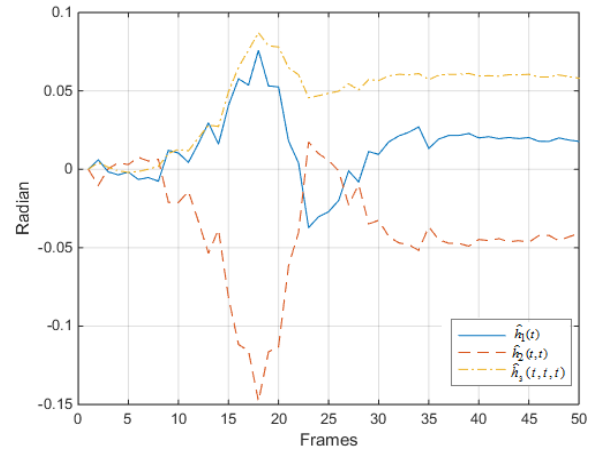


Fig. 2 – Transient functions $\hat{h}_1(t)$, $\hat{h}_2(t,t)$ and $\hat{h}_3(t,t,t)$

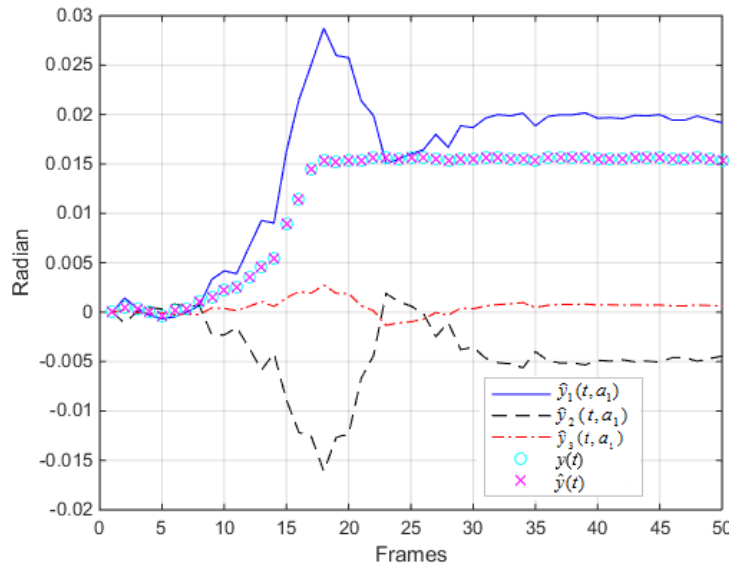


Fig. 3 – Responses of the OMS $y(t)$ and model $\tilde{y}(t, a_1)$, $\hat{y}_1(t, a_1)$, $\hat{y}_2(t, a_1)$ and $\hat{y}_3(t, a_1)$

Conclusion. Proposed a new method and information technology of construction nonparametric dynamic models of human OMS given its nonlinear and inertial properties on the basis of experimental data «input-output». This uses a mathematical model in the form of integral-power polynomial Volterra (multidimensional transition functions). Has been the further development of information technology «Eye tracking» and developed software tools identify OMS.

Basis on these experimental studies OMS for different amplitudes of input signals (distance eye point perturbations on the initial position on the screen). Using the method of least squares construct nonparametric dynamic model of the human OMS in the form of

transition and diagonal sections of the two-dimensional and three-dimensional transition functions.

References

1. Jansson D. Stochastic Anomaly Detection in Eye-Tracking Data for Quantification of Motor Symptoms in Parkinson's Disease / D. Jansson, A. Medvedev, H. Axelson, D. Nyholm // *Advances in Experimental Medicine and Biology*. – 2015. – 823. – P. 63-82. DOI:10.1007/978-3-319-10984-8_4
2. Jansson D. Volterra modeling of the Smooth Pursuit System with application to motor symptoms characterization in Parkinson's disease / D. Jansson, A. Medvedev // *European Control Conference (ECC)*. – 2014. – P. 1856-1861. DOI: 10.1109/ecc.2014.6862207.
3. Pavlenko V. Estimation of the Multidimensional Transient Functions Oculo-Motor System of Human / Vitaliy Pavlenko, Dmytro Salata, Mykola Dombrovskyi and Yuri Maksymenko // *Mathematical Methods and Computational Techniques in Science and Engineering: AIP Conf. Proc. MMCTSE 2017, Cambridge, UK, 24-26 February 2017*. Vol. 1872. Melville, New York, 2017. 020014-1–020014-8; doi: 10.1063/1.4996671. Published by AIP Publishing. 978-0-7354-1552-2. - P.110-117.

SECTION III. Chemical sciences

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BIOLOGICALLY ACTIVE POLYMER COMPOSITES ON BASED WATER-SOLUBLE POLYFUNCTIONAL OLIGOBUTADIENES

Polymeric materials (PM) are increasingly used in various fields of technology, everyday life, as well as in medicine to create medicinal forms. The use of PM is associated with the possibility of their modification in a wide range, the availability of raw materials, processing on high-performance equipment. However, in view of increasing production volumes, one of the major problems is the formation of a large amount of polymer waste that requires expensive disposal. In addition, a significant disadvantage of many PM is their low heat resistance and high flammability, and for medicine - unsatisfactory sanitary and hygienic properties. In this connection, the actual problem is the creation of ecologically sound polymeric composite materials (PKM) with a regulated period of operational properties and capable of physicochemical and biological transformations under the influence of environmental factors. At the present time, modern technology poses a fundamental task for chemistry to create PKM with a new set of specific properties.

In this respect, polyfunctional oligobutadienes (PFOBD) are of scientific and practical interest, the preparation of which is based on the use of liquid rubbers of regular structure by stereospecific polymerization and a mixed microstructure of anionic polymerization. The presence of epoxy, amino, hydroxy groups and double bonds in the oligomeric chain of PFOBD causes their ability to self-cure under the influence of temperature or structuring agents capable of interacting with functional groups.

The most effective hardeners for epoxy-oligobutadiene with a statistical distribution of epoxy groups (EG) are organic and inorganic acids of various types.

Due to this, polymers of a network structure were obtained on the basis of liquid rubbers, which are used as coatings for metal, wood, damping compounds, cataphoretic varnish and other materials. The solubility in water of such film-forming systems based on PFOBD is attributed to the introduction of neutralizing agents (acids).

Water-soluble polyfunctional oligobutadienes (WPFODB) are of great practical value, since they contain donor-acceptor centers in the oligomeric chain containing a mobile hydrogen atom (-COOH, -OH) and -NH₂ groups capable of forming stable polymer complexes with metal ions due to the appearance coordination bonds, as well as simple and complex polymeric esters formed with acids, which makes it possible to assume the production on their basis of biodegradable, metal-containing PKM materials with low combustibility dosage forms for external use.

The possibility of obtaining metal-containing polymer systems based on WPFODB was investigated. To impart cataphoretic PM fungicidal (biocidal) properties, small amounts of metals were introduced into them by an electrochemical method due to anodic dissolution of the metal. By chemical and physicochemical methods of analysis, it is established that metals enter the polymer matrix of modified rubbers to form polymeric complexes.

As is known, hydrocarbon rubbers burn in the air. When burning, toxic substances are released, and a carbon-like coke residue can be formed that slows down the combustion process. The slowing down of combustion is carried out with the help of flame retardants. For rubbers, the most promising and modern flame retardants are phosphorus-, boron-containing compounds that are most effective at the stage of polymer decomposition. These compounds not only reduce their combustibility, but also increase adhesion, anticorrosion resistance and other useful properties, and in addition inhibit the combustion process.

PFOBD containing -P = O, -P-O-B-, -B-O-C, -C-N-H bonds in the polymer chain can be used for these purposes. It has been established by the methods of investigation that these groups are part of the macromolecules of the polymers under investigation and impart to them an increased thermal stability.

Investigations of the biological effect of prototypes of WPFODB with inorganic acid on various types of microorganisms have been carried out. The acids were administered in amounts necessary for transfer to the water-soluble state, as well as taking into account the doses dangerous to humans. Stability of prototypes against the action of microorganisms and their effect on Gr (+) and Gr (-) species of bacteria

and fungi of the type *Candida* and *Penicillium* have been revealed. It is shown that the preparations may be of some interest in the manufacture of dosage forms for external use.

To create biodegradable PM on the basis of WPFOD, organic acid was used, which is widely used in medicine, especially in surgery for the production of sutures and artificial tissues, which under the action of the body decompose and are gradually replaced by living tissues. Above these methods, it has been established that at high temperatures, exposure to alkaline and neutral media, destructive processes are observed in samples of WPFOD with organic acid, which probably confirms the tendency of the preparations to biodegradation. Also, studies were conducted to study their antimicrobial effect. Test cultures of clinical strains were used: *Staphylococcus aureus*; *E. coli*; yeast-like fungi of the genus *Candida*; mold fungi of the genus *Mucor*.

The conducted studies showed different activity of the preparations in relation to the test of cultures, while the bright antifungal effect of the experimental preparations was revealed. In this regard, it is promising to study their effect on Gp (-) microorganisms having an amorphous cell wall that can penetrate deep into the preparations and cause them to be biodegradable.

Thus, the possibility of obtaining heat-resistant PCM with bactericidal properties, microbiological activity and biodegradability based on water-soluble AEOD has been demonstrated. This opens up new prospects for obtaining PCM with given properties by varying the production of PS, namely the nature of the metal and the type of acid. The obtained PKM have fungicidal (biocidal) properties, microbiological (antibacterial) activity, ability to biodegradable and can be used for the protection of metals, wood, as well as medicinal forms of biomedical use.

SECTION IV. Earth Science

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REANIMATION OF OIL FIELDS OF THE OLD OIL BASINS OF UKRAINE

The long history of oil industry in our country indicates that most of the fields are already exhausted, or are being extracted at the final stages (third and fourth stage). They are characterized by oil extraction from wells along with significant amount of water, it's named stratal water (*StW*). At these stages of the development of fields, the volume of water in the extracted fluid varies within 80-95%.

The big volumes of *StW* extraction force oil companies to spend money on their utilization. More than \$ 40 billion annually are spent on the utilization of *SPV*. Average expenses for the preparation and utilization are in range from 5 to 50 cents per barrel. In wells operating with 80% watering, the costs per extraction and utilization of the *StW* can reach \$ 4 per barrel [1].

The oil fields of the Eastern oil and gas region of Ukraine are at depths of 1,500 - 6,000 m (lower hydrogeological floor or low water exchange zone). These aquifers are characterized by high mineralization of water and this water is of sodium chloride or calcium chloride type.

The oil and gas fields of this region, geologically, is confined to the deposits from the Upper Jurassic to the Devonian, but for deposits of the Jurassic, Triassic and Permian only for those depths in lower hydrogeological floor. In the Upper Jurassic complex the water is of sodium chloride and sodium bicarbonate-chloride type (by Kurlov) and has mineralization of 3-5 g/dm³. Waters of the Middle Jurassic complex are characterized by mineralization of 3-15 g/dm³ and they are of chloride and sodium hydrocarbonate sodium composition. Triassic deposits within the lower hydrogeological floor are characterized by waters of hydrocarbonate sodium chloride composition with mineralization of 2-4 to 11 g/dm³, and at larger depths, the mineralization of the water is 17-65 g/dm³. The most of oil and gas fields is confined to the Carboniferous and Devonian. [2].

The Carboniferous rocks are characterized by the presence of aquifers with highly mineralized water. This water is of calcium-sodium chloride type with the mineralization from 10 - 50 to 260 g/dm³. The water from the deposits of the middle and upper Devonian has mineralization of 131 - 376 g/dm³ and is sodium chloride calcium brines with high content of iodine and bromine and other microcomponents [3]. Water-bearing horizons of oil deposits are characterized by high content of: iodine, bromine, boron, strontium, lithium and others. Table 1 shows the high concentration of macro and micro components in extracted water from the Kachanovsky oil field (Sumy region).

Table 1

Indicators		Mineralization	Cl	SO ₄	Ca	Mg	Na	K	Sr	Cs	Li	I	Br	Fe	Ba	Mn	Cu
Kachanovsky oil field	g/dm ³	151667	91219	28,89	8122,2	1518,9	35938,9	335	444,4	0,279	4,257	5,3	14,3	46,7	63,5	3	0,25

Large volumes of extraction of this highly mineralized water in case of the wrong choice of the utilization method, or the reluctance of oil companies to spend on their utilization leads to the infiltration of the StW into soils and aquifers. The consequence is the outbreak of environmental problems. This causes a number of ecological problems which are represented by salinization of soils and aquifers, which in turn prevents farming and usage of aquifers for drinking water supplies.

The emergence of such environmental problems is a consequence of the fact that for oil-producing companies this water has bad influence on the total profit (cost component). However, high mineralization and high content in this water of such components as iodine, bromine, boron, strontium, lithium and others, allow them to consider StW as potential raw material for the extraction of these components. The examples of StW using as raw material for the extraction of valuable components are currently rare. The work of Azerbaijani scientists based on the research of the oil fields in the Apsheyronskiy region is one of them, as well as the works of Russian scientists at some oil fields in Western Siberia.

From our point of view, the oil field water can be used as hydromineral raw material, primarily because of high content of iodine and bromine. The main feature of extracting these elements is that they are extracted basically from hydromineral raw material. The technology

of its extraction in Ukraine and former republics of USSR is known since 1960s.

Today, special attention should be paid to such a component as lithium, because the major amount of lithium is extracted precisely from hydromineral raw material, while the demand for lithium is increasing due to electrical engineering development. Taking into account the technology of lithium extraction from hydromineral raw material in Chile we can see that this method is not very expensive. For example, the prime cost of extraction of 1 kilogram of lithium carbonate at Atacama fields (Chile) is 2 \$ while the market price varies in range of 30 \$[4].

Using StW as hydromineral raw material, the oil-producing companies can sell it and gain additional profit not wasting money for their utilization respectively.

From economic point of view the main parameter which defines the profitability of oil field exploration is watering (water coefficient) of extracted fluid. With the growth of watering of the extracted fluid, the volume of oil extraction decreases consequently with the profit. In the case of the sale of the extracted StW as a raw material, an oil company may receive additional profit. Figure 1 shows the theoretical graph of the dependence of the company's profit on the watering coefficient.

The graph shows that in normal conditions, an oil company would have worked until income from oil sales would cover costs (to the point C). And if a company receives additional income from the sale of hydromineral raw materials, it will allow receiving income from the sale of residual oil, which is beyond the limits of profitability and will significantly extend the exploration period of the field. Under such conditions, an oil company will be able to receive income which corresponds to the AB segment, compared with the classic case where the income corresponds to the AC segment.

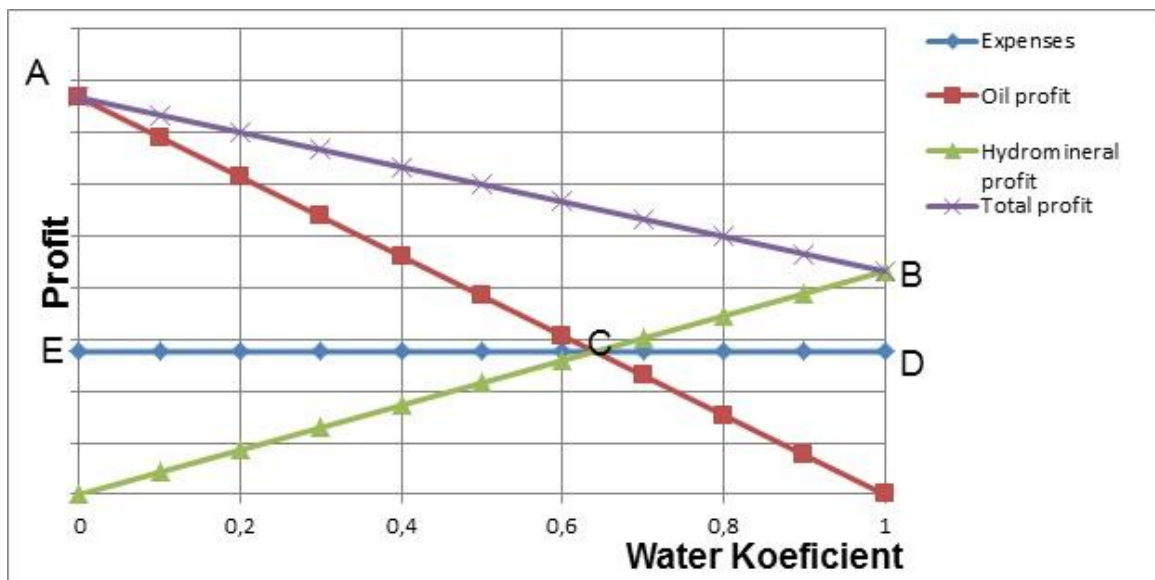


Figure 1. Graph of the dependence of the company's profit on the watering coefficient

Conclusions:

1. The using of StW as a hydromineral raw material for an oil company may bring additional profits, instead of wasting costs for its utilizing.

2. This method will significantly reduce the environmental impact of the oil-producing industry on the environment.

3. For the fields of the old oil regions which are already exhausted or are at the final stages of development, this approach will enable to use them more effectively. First of all, this approach will give a possibility to resume the operating of existing wells which have been closed due to high level of watering.

References

1. Beyli B. Diagnostika i ogranicheniye vodopritokov / B. Beyli, M. Krabtri, D. Tayri. // Neftegazovoye obozreniye. – 2001. – S. 44 – 67. [in Russian].
2. Tereshchenko V. A. Hidrogeologicheskiye usloviyagazovoye nakopleniye v Dneprovsko-Donetskoj vpadine : monografiya / V. A. Tereshchenko. – KH. : KHNU imeni V. N. Karazina, 2015. – 244 s. ISBN 978-966-285-162-5. [in Russian].
3. Kamzist Zh. S. Hidrogeologiya Ukrainy / Zh.S. Kamzist, O.L. Shevchenko. – Kyiv: Firma «INKOS», 2009. – 614 s. – (ISBN 978-966-8347-79-5). [in Ukrainian].
4. Izvlecheniye litiya iz solevykh rastvorov [Yelektronniy resurs] – Rezhim dostupu do resursu: <https://studfiles.net/preview/5787075/page:10/>. [in Russian].

SECTION V. Engineering

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LUMINESCENT CHARACTERISTICS OF TETRAPLOID CLOVER SEEDS WITH DOUBLE SCARIFICATIONS

The excitation spectra $\eta_e(\lambda)$ and luminescence $\varphi_l(\lambda)$ of the tetraploid clover seeds were measured; the operating range of the absorption spectrum is 380-500 nm, the operating range of the luminescence spectrum is 470-680 nm.

The absorption and luminescence spectra of unscarified clover seeds were measured, and also after the first and second scarifications. The measurements were carried out for 50 seeds. The curves are averaged, the result is shown in Fig. 1. The main peaks of the averaged excitation curves lie in the range 448-450 nm, the side peaks are 484 nm; the peaks of the averaged luminescence curves lie in the range 506-516 nm.

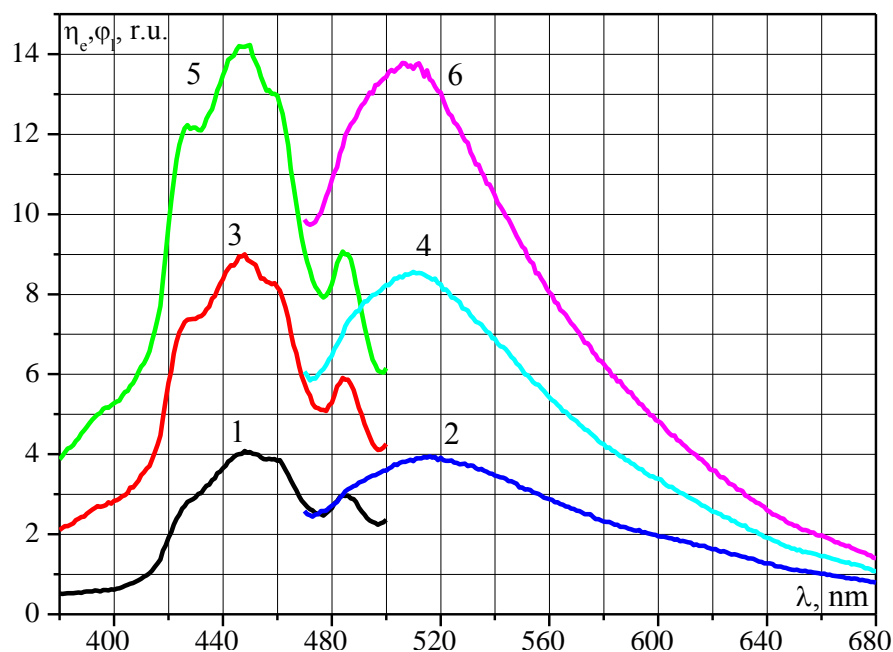


Figure 1. Spectra of excitation and luminescence of tetraploid clover seeds:
1,2 - unscarified, 3,4 - scarified once (weakly),
5,6 - scarified twice (strongly) respectively

As can be seen from the figure, the intensity of the signal after the first and second scalars increases. We calculate the integrals under the excitation and luminescence curves, and the integral under the luminescence curves is the relative luminescence power (flux).

It turned out that the area under the excitation curves after the first scarification increased by 2.38 times, and after the second - by 3.88 times with respect to the spectrum of unscarified seeds. The flow after the first scarification is increased by 1.98 times, and after the second - by 3 times with respect to the initial one.

To determine the ratio between the humps of the absorption curves, we calculate the integrals under the curves in the ranges 380-475 nm and 475-500 nm. Initially, the hump had a ratio of 3.30, after the first scarification their ratio became 4.27, and after the second - 4.62. This suggests that with an increase in the degree of scarification, the severity of the secondary hump decreases.

Then we carried out mathematical processing. The results are shown in Table 1.

Table 1. Statistical characteristics of tetraploid clover seeds at double scarification

Excitation									
Scarificat	$M_{\lambda,}$	σ^2	σ	μ_3	$\mu_4 \cdot 1$	As	E_{λ}	$E,$	H, ru.
w/o	452,5	714,5	26,	0,00	1,31	0,0	-	2,7	279,5
1	446,5	833,8	28,	0,00	1,63	0,0	-	2,7	666,7
2	444,8	856,6	29,	0,00	1,68	0,0	-	2,8	1085,
Luminescence									
Scarificat	$M_{\lambda,}$	σ^2	σ	$\mu_3 \cdot 1$	$\mu_4 \cdot 1$	As	E_{λ}	$E,$	$\Phi,$
w/o	552,3	2813,	53,	7,59	1,85	0,5	-	2,2	505,1
1	544,7	2584,	50,	8,70	1,75	0,6	-	2,3	988,7
2	541,5	2481,	49,	9,02	1,70	0,7	-	2,3	1515,

On the basis of the data obtained, it can be concluded that for the excitation and luminescence spectra, in the process of scarification, the center of gravity is shifted to the short-wave region, and the total energy and area under the spectral curve increase. The dispersion for the excitation spectra increases, while for the luminescence spectra it decreases. The asymmetry coefficient for the excitation spectra does not change and is zero, while for the luminescence spectra it increases. The kurtosis coefficient for luminescence spectra increases, and for excitation spectra decreases. Stokes shift is: for unscarred seeds - 68

nm; for the first scarification - 62 nm; for the second scarification - 56 nm.

Literature

1. Зиенко С. И., Беляков М. В., Малышкин В. В., Кондрашова М. Е. Люминесцентная диагностика семян кормовых растений при скарификации // Научная жизнь. 2017. №5-6. с. 4-13.
2. Беляков М. В. Влияние скарификации на люминесцентные свойства семян галеги восточной // Вестник НГИЭИ. 2016. №10(65).с. 73-82.

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A METHOD OF CALCULATION OF MASS FLOW RATES AND TEMPERATURE OF GAS COOLANT IN PARALLEL CHANNELS OF AN ACTIVE CORE OF A NUCLEAR REACTOR DURING CORE SHAPING

Abstract: A problem of calculation of distribution of mass flow rates in cooling channels of an active core is an important issue for gas cooled nuclear reactors due to high level of thermal stress. At known thermal power and reactor construction with set average temperature at outlet from the active core decreasing of temperature of wall of a cooling channel can be done during core shaping. This article is devoted for development and verification of a calculation method of determining distribution of mass flow rates and heating of the gas coolant in cooling channels with different core shaping such as: core shaping by equal temperatures of the coolant at outlet of an active core, core shaping by equal mass flow rates in cooling channels, core shaping by equal maximum wall temperatures of the cooling channels.

Keywords: Core shaping, active core, «GT-MHR» project.

1. Mass flow rates distribution in cooling channels

Primary we select core cooling channels with equal aerodynamic characteristics and equal thermal load and write an expression for mass flow rates for active core which consist of "m" groups of cooling channels.

$$G_0 = \sum_{i=1}^m n_i \cdot G_i, \quad (1)$$

where G_0 – mass flow rate through active core, kg/s; n_i – number of cooling channels in group "i"; G_i – mass flow rate through single cooling, kg/s.

We suppose that pressure drop is equal for every group of channels- $\Delta P_i = \Delta P$.

According to Darcy-Weisbach equation and equality of pressure drop for every group of channels we can write an expression for pressure drop for every group of channels:

$$\Delta P = \left(\xi_i \cdot \frac{l}{d_i} + \zeta_i \right) \cdot \frac{\rho_i \cdot \omega_i^2}{2}, \quad (2)$$

where ξ_i – Darcy friction factor; ζ_i – local resistance coefficient; l – active core height, m; d_i – diameters of channels, m; ρ_i – average density of the coolant, kg/m³; ω_i – average velocity of the coolant, m/s; P – pressure, Pa.

We denote k_i by following relation:

$$k_i = \frac{G_i}{G_{i+1}}, i = 1, 2, \dots, m-1.$$

With considering relation between mass flow rate and coolant velocity:

$$G_i = \rho_i \cdot \omega_i \cdot f_i,$$

and after simple algebraic transformations we obtain relation between pressure drop and mass flow rate through active core for «m» groups of the cooling channels. Also we get a relation for determining mass flow rate in a cooling channel of any group «p»:

$$\Delta P = 8 \cdot \left(\xi_m \cdot \frac{l}{d_m} + \xi_{m,m} \right) \cdot \frac{1}{\rho_m} \cdot \left\{ \frac{G_0}{\pi \cdot d_m^2 \cdot \sum_{i=1}^m \left(n_i \cdot \prod_{j=i}^m k_j \right)} \right\}^2, \quad (3)$$

$$G_p = \frac{G_0 \cdot \prod_{j=p}^m k_j}{\sum_{i=1}^m n_i \prod_{j=i}^m k_j}, \quad (4)$$

$$k_p = \left[\frac{\left(\xi_{p+1} \cdot \frac{l}{d_{p+1}} + \xi_{m,p+1} \right)}{\left(\xi_p \cdot \frac{l}{d_p} + \xi_{m,p} \right)} \cdot \frac{\rho_p}{\rho_{p+1}} \right]^{0.5} \cdot \frac{d_p^2}{d_{p+1}^2}, \quad p \neq m. \quad (5)$$

where $k_m = 1$. p - index of a various group of the cooling channels.

Darcy friction factor is calculating according to Blasius correlation:

$$\xi_p = \frac{0.316}{\text{Re}_p^{0.25}}. \quad (6)$$

2. Heating of the coolant in the coolant channels

Density ρ and dynamic viscosity μ are an average thermal parameters, which calculates as an arithmetic average between their values at inlet and outlet of the active core. If inlet pressure P_0 and inlet T_0 temperature of the coolant are set then to determine the thermal properties of the coolant with known pressure drop or known mass flow rate of the coolant through the active core we need to know a heating in an individual cooling channel ΔT_i

Steady state heat balance for the active core will be shown in following form:

$$Q_0 = G_0 \cdot \overline{c_p} \cdot \overline{\Delta T}, \quad (7)$$

where $\overline{c_p}$ - average value of isobaric heat capacity of the coolant, J/kg·°K; for Helium as the coolant $\overline{c_p} = c_p = \text{const}$;

$\overline{\Delta T}$ - average heating of the coolant in the active core, °K.

Q_0 - thermal power of the active core, W.

Heat balance for the active core with « m » groups of channels

$$Q_0 = \sum_{i=1}^m Q_i = \sum_{i=1}^m G_i \cdot n_i \cdot c_p \cdot \Delta T_i. \quad (8)$$

So far as neutron-physics characteristics of the active core in gas cooled reactors have weak dependency from aerodynamics we count those characteristics known and not changing during core shaping and we can calculate heat generation distribution in particular a deviation ν_p of heat load q_p from the average heat load q_F :

$$v_p = \frac{q_p}{q_F}.$$

where $q_F = \frac{Q_0}{F_0}$ - average heat flux, W/m²;

$F_0 = \sum_{i=1}^m F_i$ - full heat exchange surface area in the active core, m²; F_i - heat exchange surface area for cooling channels type «i» m².

Thermal energy receiving by the coolant per unit of time in a group of channels:

$$Q_p = v_p \cdot Q_0 \cdot \frac{d_p \cdot n_p}{\sum_{i=1}^m d_i \cdot n_i}, \quad (9)$$

An expression for temperature at the outlet from an arbitrary cooling channel «p» follows from relations (8) and (9):

$$T_p = T_0 + v_p \cdot \frac{Q_0}{G_p \cdot c_p} \cdot \frac{d_p}{\sum_{i=1}^m d_i \cdot n_i}, \quad (10)$$

For helium at low pressures and high temperatures the ideal gas law is valid for calculating the average density. Then for an arbitrary cooling channel «p» ideal gas law writes in following from:

$$\rho_p = \frac{\rho_0 + \frac{P_0 - \Delta P}{R_{He} \cdot T_p}}{2}. \quad (11)$$

where ρ_0 – coolant density at the inlet of the active core, kg/m³; R_{He} – individual gas constant, J/kg·°K; T_p – temperature at the outlet from an arbitrary cooling channel «p», °K.

According to kinetic theory of gases changing of dynamic viscosity for gases can be calculated by Sutherland's equation:

$$\mu_p = \frac{\mu_0 + \mu_0^* \cdot \left(\frac{T_p}{T_0^*}\right)^{3/2} \cdot \frac{T_0^* + S}{T_p + S}}{2}. \quad (12)$$

where μ_0^* – reference dynamic viscosity, Pa·s; S – Sutherland's temperature, °K; μ_0 – dynamic viscosity at the inlet of the active core, Pa·s.

As a result with known values of G_0 (or ΔP_0), Q_0 we have closed system of algebraic equations for the active core with known geometric

characteristics of the cooling channels and with also known heat generation distribution (3) – (6), (10) – (12).

As a solution of the system (3) – (6), (10) – (12) will be values of mass flow rates and temperatures of the coolant in all cooling channels of the active core. Local resistance coefficients during core shaping will be calculated according to Darcy-Weisbach equation.

3. Auxiliary equations for each way of core shaping

During core shaping based on equality of temperatures of the coolant at the outlet of the active core, the temperature of the coolant is determined by equation:

$$T_i = T_0 + \frac{Q_0}{G_0 \cdot c_p} = idem. \quad (13)$$

During core shaping based on equality of mass flow rates of the coolant in the cooling channels, mass flow rate in all cooling channels is determined by equation:

$$G_i = \frac{G_0}{\sum_{i=1}^m n_i} = idem. \quad (14)$$

During core shaping based on equality of maximum wall temperatures of the cooling channels following relation should be carried out:

$$\frac{C1_i}{\xi_i} \cdot \frac{G_0}{G_i} = a_i^{1/2} \cdot \left(a_i - C2_i \cdot \frac{G_0}{G_i} \right)^{1/2}. \quad (15)$$

where

$$\left. \begin{aligned} a_i &= \Theta_{wall}^{max} - T_0 = idem \\ C1_i &= \frac{\chi \cdot v_i}{b_i} \cdot c_p \cdot \frac{1}{\pi \cdot l} \cdot \frac{\overline{\Delta T}}{\sum_{i=1}^m d_i \cdot n_i} \\ C2_i &= v_i \cdot \overline{\Delta T} \cdot \frac{d_i}{\sum_{i=1}^m d_i \cdot n_i} \\ b_i &= \frac{c_p}{8 \cdot f \cdot (k + \varepsilon(\text{Pr}))} \end{aligned} \right\}. \quad (16)$$

where χ - part of thermal energy which generates in fuel elements; $\varepsilon(\text{Pr})$ и k - parameters of the Petukhov's equation [1]; Θ_{wall}^{max} - maximum wall temperature of the cooling channels, °C.

Equation (15) has been obtained for cosinusoidal distribution of the heat generation by height of the active core with using Petukhov's equation for heat transfer coefficient [1].

4. Verification of the developed method and CFD modelling

For verification of the developed method we have chosen the GT-MHR project. The project includes vessel high temperature graphite moderate nuclear reactor with thermal neutron specter and helium as the coolant [2]. The active core consists of an assembly of hexagonal graphite fuel elements, which are stacked in the core to form columns. The active core height is 7.93 m. The heat carrier flows through the cooling channels of two diameters: 12.7 mm and 15.88 mm. The cooling channels are represented by two groups: first group of the cooling channels consist of 9984 channels with 15.88 mm diameter, second group of the cooling channels consist of 642 channels with 12.7 mm diameter. Mass flow rate through the active core is $G_0 = 320$ kg/s. Thermal power of the active core – 600 MW. Temperature of the coolant at the inelt of the active core is $T_0 = 491^\circ\text{C}$. The active core has a hollow cylinder shape. Ratio of inner and outer effective diameter of the active core is less than 2, it means that active core can be imagined as flat active core with cosinusoidal heat generation distribution by height and by thickness of the active core.

As for computational domain we have chosen inner, central and outer parts of the active core. Each of the parts consist of single row of fuel elements. Radial profile of the heat generation count as symmetrical with respect to an average radius of the active core. Heat fluxes in inner and outer parts of the active core are equal due to symmetry of the heat generation profile.

In the result by specification of the input data we have received deviations of the heat load by the cooling channels:

$$\nu_{1.1} = 0.965; \nu_{1.2} = 0.743; \nu_{m.1} = 1.096; \nu_{m.2} = 0.843, \quad (17)$$

where index 1.1 and 1.2 mean outer and inner parts of the active core with diameters of the cooling channels 15.88 and 12.7 mm respectively and index $m.1$ и $m.2$ mean central part of the active core diameters of the cooling channels 15.88 and 12.7 mm respectively.

Results of calculation for different options of core shaping and are listed below. The results were compared to CFD modelling to proof their authenticity [3]. Controlled parameters: outlet temperatures of the coolant T_k , mass flow rate G_k , maximum wall temperature T_w .

In the result of calculation for the active core without shaping we have obtained pressure drop $\Delta P_0 = 45200\text{Pa}$. Other results are listed in table 1.

Table 1. Results of calculation for the active core without shaping

Part of the active core	Channel's diameter mm	Parameter	Developed method	Parameter	CFD modelling
			Value		Value
Inner/Outer	15.88	$G_k, \text{kg/s}$	0.0307632	$\Delta P_k, \text{Pa}$	45653.8
		$T_k, ^\circ\text{C}$	834.277	$T_k, ^\circ\text{C}$	834.315
		$T_w, ^\circ\text{C}$	857.1077	$T_w, ^\circ\text{C}$	849.651
	12.7	$G_k, \text{kg/s}$	0.0166271	$\Delta P_k, \text{Pa}$	45476.8
		$T_k, ^\circ\text{C}$	882.002	$T_k, ^\circ\text{C}$	882.3
		$T_w, ^\circ\text{C}$	896.032	$T_w, ^\circ\text{C}$	889.76
Central	15.88	$G_k, \text{kg/s}$	0.0305131	$\Delta P_k, \text{Pa}$	45738.5
		$T_k, ^\circ\text{C}$	884.095	$T_k, ^\circ\text{C}$	884.683
		$T_w, ^\circ\text{C}$	910.185	$T_w, ^\circ\text{C}$	887.786
	12.7	$G_k, \text{kg/s}$	0.0164581	$\Delta P_k, \text{Pa}$	45548.4
		$T_k, ^\circ\text{C}$	939.667	$T_k, ^\circ\text{C}$	939.432
		$T_w, ^\circ\text{C}$	955.713	$T_w, ^\circ\text{C}$	947.685

During calculation for the active core with equal outlet temperatures of the coolant we have obtained pressure drop $\Delta P_0 = 64943\text{Pa}$. Other results are listed in table 2.

Table 2. Results of calculation for the active core with equal outlet temperatures of the coolant

Part of the active core	Channel's diameter mm	Local resistance coefficient	Parameter	Developed method	Parameter	CFD modelling
				Value		Value
Inner/Outer	15.88	7.738	$G_k, \text{kg/s}$	0.029404	$\Delta P_k, \text{Pa}$	42614
			$T_k, ^\circ\text{C}$	850.146	$T_k, ^\circ\text{C}$	850.25
			$T_w, ^\circ\text{C}$	877.037	$T_w, ^\circ\text{C}$	870.459
	12.7	0.0181	$G_k, \text{kg/s}$	0.018102	$\Delta P_k, \text{Pa}$	55133
			$T_k, ^\circ\text{C}$	850.146	$T_k, ^\circ\text{C}$	850.5
			$T_w, ^\circ\text{C}$	865.562	$T_w, ^\circ\text{C}$	858.118
Central	15.88	3.246	$G_k, \text{kg/s}$	0.033397	$\Delta P_k, \text{Pa}$	51988
			$T_k, ^\circ\text{C}$	850.146	$T_k, ^\circ\text{C}$	849.873
			$T_w, ^\circ\text{C}$	878.504	$T_w, ^\circ\text{C}$	871.74
	12.7	0	$G_k, \text{kg/s}$	0.02056	$\Delta P_k, \text{Pa}$	64547
			$T_k, ^\circ\text{C}$	850.146	$T_k, ^\circ\text{C}$	850.933
			$T_w, ^\circ\text{C}$	867.823	$T_w, ^\circ\text{C}$	860.273

During calculation for the active core with equal mass flow rates in the cooling channels we have obtained pressure drop $\Delta P_0 = 121464$ Pa. Other results are listed in table 3.

Table 3. Results of calculation for the active core with equal mass flow rates in the cooling channels.

Part of the active core	Channel's diameter mm	Local re-sistance coefficient	Parameter	Developed method	Parameter	CFD modelling
				Value		Value
Inner/Outer	15.88	25.019	$G_k, \text{kg/s}$	0.030114	$\Delta P_k, \text{Pa}$	43730
			$T_k, ^\circ\text{C}$	841.668	$T_k, ^\circ\text{C}$	840.971
			$T_w, ^\circ\text{C}$	864.811	$T_w, ^\circ\text{C}$	857.201
	12.7	0.139	$G_k, \text{kg/s}$	0.030114	$\Delta P_k, \text{Pa}$	120173
			$T_k, ^\circ\text{C}$	706.881	$T_k, ^\circ\text{C}$	706.914
			$T_w, ^\circ\text{C}$	717.155	$T_w, ^\circ\text{C}$	711.131
Central	15.88	20.851	$G_k, \text{kg/s}$	0.030114	$\Delta P_k, \text{Pa}$	55157
			$T_k, ^\circ\text{C}$	889.294	$T_k, ^\circ\text{C}$	890.204
			$T_w, ^\circ\text{C}$	915.623	$T_w, ^\circ\text{C}$	907.749
	12.7	0	$G_k, \text{kg/s}$	0.030114	$\Delta P_k, \text{Pa}$	120975
			$T_k, ^\circ\text{C}$	736.201	$T_k, ^\circ\text{C}$	736.45
			$T_w, ^\circ\text{C}$	747.864	$T_w, ^\circ\text{C}$	741.806

During calculation for the active core with equal maximum wall temperature we have obtained pressure drop $\Delta P_0 = 61298$ Pa. Other results are listed in table 4.

Table 4. Results of calculation for the active core with equal maximum wall temperatures of the cooling channels.

Part of the active core	Channel's diameter mm	Local re-sistance coefficient	Parameter	Developed method	Parameter	CFD modelling
				Value		Value
Inner/Outer	15.88	6.583	$G_k, \text{kg/s}$	0.0293423	$\Delta P_k, \text{Pa}$	41956
			$T_k, ^\circ\text{C}$	850.9	$T_k, ^\circ\text{C}$	848.957
			$T_w, ^\circ\text{C}$	877.671	$T_w, ^\circ\text{C}$	870.962
	12.7	5.144	$G_k, \text{kg/s}$	0.017307	$\Delta P_k, \text{Pa}$	48056
			$T_k, ^\circ\text{C}$	866.641	$T_k, ^\circ\text{C}$	866.51
			$T_w, ^\circ\text{C}$	877.671	$T_w, ^\circ\text{C}$	870.211
Central	15.88	2.765	$G_k, \text{kg/s}$	0.0328236	$\Delta P_k, \text{Pa}$	50951
			$T_k, ^\circ\text{C}$	856.424	$T_k, ^\circ\text{C}$	856.789
			$T_w, ^\circ\text{C}$	877.671	$T_w, ^\circ\text{C}$	871.352
	12.7	0	$G_k, \text{kg/s}$	0.0198433	$\Delta P_k, \text{Pa}$	61563
			$T_k, ^\circ\text{C}$	863.125	$T_k, ^\circ\text{C}$	863.506
			$T_w, ^\circ\text{C}$	877.671	$T_w, ^\circ\text{C}$	871.527

5. Conclusion

According to the developed method distribution of mass flow rates and outlet temperatures of the coolant in the cooling channels of the active core for the nuclear reactor of the «GT-MHR» project with core shaping and without shaping were obtained.

The developed method allows to determine individual mass flow rates and outlet temperatures of the coolant in any group of channels with considering core shaping.

For current active core with shaping by equal maximum wall temperatures of the cooling channels is the most promising way of the core shaping and required lowest pressure drop for implementation.

Comparison with CFD modeling confirms possibility of using and efficiency of the developed method for core shaping by different conditions.

References

- [1] Petukhov B S, Kirillov V V 1958 Heat power engineering No. 4, from 63 *On the issue of heat transfer in turbulent flow of fluid in pipes* (Moscow)
- [2] U.S. Nuclear Regulatory Commission 2002 *NRC Project No. 716* (Maryland: Rockville) p 198
- [3] Ansys Fluent (website) URL: <http://www.ansys.com/Products>

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CONTROLLABILITY OF HETEROGENEOUS WELDED JOINTS WITH DIAGNOSTICS BY MAGNETIC METHODS

Under repairing the working capacity of the steel shell structure, the defective area revealed on its surface, as a rule, tend to replace or reinforce with a fragment of steel of a similar brand. In this case, the physical and mechanical properties of the reinforcing section may differ significantly from the initial state of the structure material. In future, a question about the results reliability of the state technical diagnostics in such heterogeneous welded joints using magnetic-analysis inspection arises. This is due to a change in the magnetic characteristics near the fusion boundary of heterogeneous materials, which makes it difficult to identify the state of the material using conventional dependencies.

The purpose of this work is to analyze the information content of the heterogeneous welded elements magnetic characteristics under low cycle fatigue conditions as diagnostic parameters in evaluating the current state of welded metal structures.

A large number of scientific papers have been devoted to interpretation of the results of magnetic quantities measurements for the evaluation of the state of various ferromagnetic materials and their welded joints. Thus, the possibility of analyzing the nature of the structural-mechanical heterogeneity of welded joints based on the results of measurements of magnetic and micro magnetic magnitudes is substantiated in [1, 2]. A correlation between the anisotropy of the magnetic characteristics and the anisotropy of the strength properties increased strength classes of tubular steels (including welded joints) was found in [3-6]. The revealed dependence makes it possible to establish the values of internal microstresses and elastic acting stresses in a metal under external loading [4-6], and also to estimate its adaptive properties [3]. However, the dissemination of the results of these studies on the state evaluation of heterogeneous welded structural elements causes difficulties.

The scientific novelty of this study is to substantiate the objective possibility of identifying the current state of heterogeneous welded elements under conditions of low cycle fatigue based on the analysis of changes in the characteristics of the magnetic field strength.

To achieve this goal, the nature of the variation of the normal H_n and tangential H_t components of the magnetic field strength at various points of welded joints of steels of increased strength of 17G1SU and 09G2FB at low cycle fatigue is studied in this paper. The work uses control samples of welded joints with an X-shaped seam in the middle, made of rolled stock steel. As a test machine, the system of IR 5113-100 was used. Cyclic tests were carried out in two stages. At the first stage, the number of destructive N_p cycles was determined (the arithmetic mean was 2500 based on the results of the series of tests), at the second stage, the magnetic measurements were made at the control points of samples subjected to 0.2; 0.4; 0.6 and 0.8 quantities of N_p .

For reliability, measurements were made on 10 identical samples in accordance with the scheme shown in Fig. 1 (points 1-4 corresponded to steel 09G2FB, 7-8 to the center of the seam, 11-14 to steel 17G1SU).

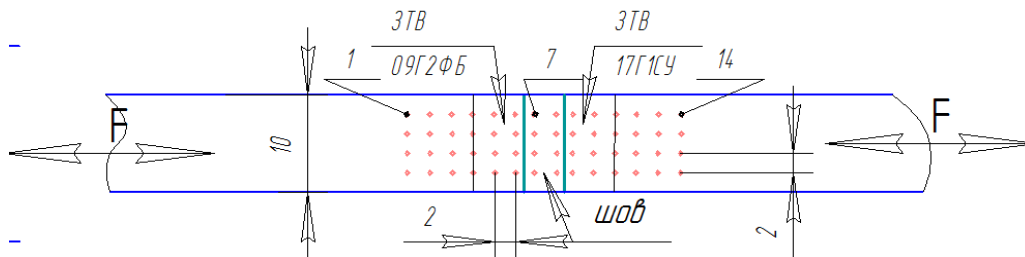


Figure 1 – Scheme of measurements of H_n and H_t
(F – direction of test load)

Magneto-sensitive ferroprobe combined device F-205.30A MKIYA 427633.001 was used for measuring. When measuring H_n , the sensor was located perpendicular to the welded joint, while H_t measurements were carried out in parallel.

The analysis of the components indications results of the magnetic field intensity vector at the control points of samples with different levels of fatigue damage made it possible to establish a complex character of the change in the magnetic properties of the jointly deformed metal regions with different initial structural-mechanical states.

Thus, the H_n value of the samples in the initial state decreases monotonically from the maximum in the stronger metal (09G2FB) to a minimum in the less strong (17G1SU). At the initial stage of cycling, the nature of its change in the direction from steel 09G2FB to 17G1SU steel drastically changes, while further loads return H_n to a state close to the initial one. At a level of accumulated damage of 0.8Ni/Np, H_n in the zone of thermal influence (HAZ) of a stronger metal significantly decreases.

The scalar value of the full vector and the anisotropy of the magnetic field strength ($\Delta = H_n - H_T$) also changes in a similar way.

The tangential component of the magnetic field strength H_t over the cross section of the samples in the initial state has a maximum in the weld metal; at the same time, as the load is applied, a decrease in its gradient is observed.

The established character of the change in the tension of the magnetic field strength of dissimilar welded joints material disproves the acceptability of the revealed regularities of the change in magnetic properties, substantiated in the works listed earlier, for the diagnostics of structures.

Despite the revealed complexity of the behavior of the magnetic characteristics in various local regions of heterogeneous elements, it was possible to establish the regularity of the change in the strengths of the magnetic field for the boundary region of welded joints "17G1SU-HAZ of the same steel" at the pre-destruction stage of the material. The "danger" of the zone of the heterogeneous welded joint in this area was also revealed earlier by the results of the first stage of cyclic tests.

Thus, the data presented in Fig. 2 show that in the local linear region of the material delineated by points 10, 11, 12, it is possible to establish a linear trend dependence of the anisotropy change and the normal component of the magnetic field strength with the accumulation of fatigue damages with sufficient reliability ($R^2 = 0.83-0.86$).

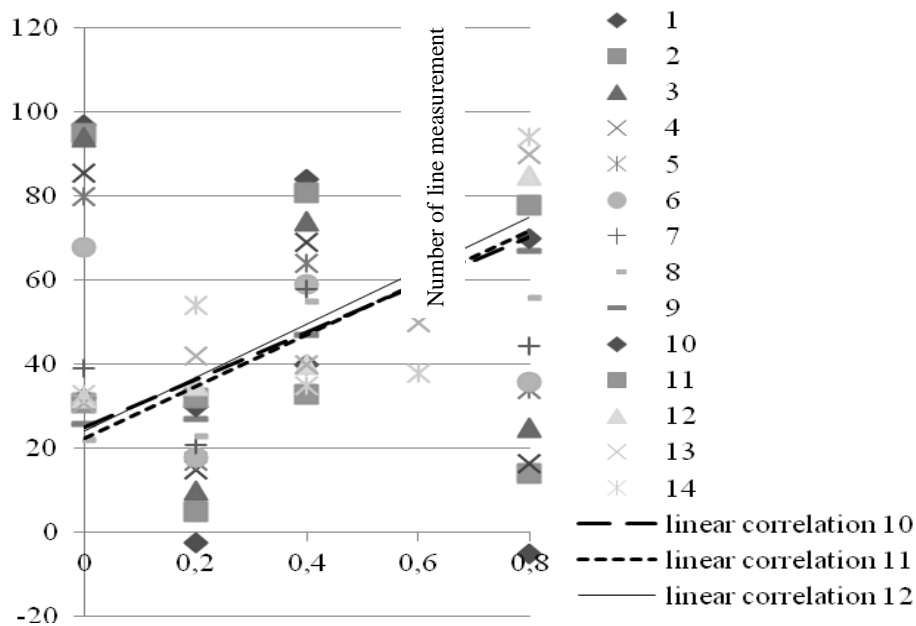


Figure 2 – Change in the anisotropy of the magnetic field strength with the accumulation of fatigue damages

Conclusion: The usage of such a technique for determining potentially hazardous zones of destruction of welded joints in metal structures will increase their operational reliability during the construction, installation, operation and repair phases.

References

1. Gorkunov, E.S. Determination of the magnetic properties of separate zones of welds and the width of welded joints based on magnetic measurements / E.S. Gorkunov, A.M. Povolotskaya, E.A. Tueva, L.S. Goruleva, S.M. Zadvorkin // Russian Journal of Nondestructive Testing. – 2011. – Т. 47. – № 9. – С. 577-586.
2. Горкунов, Э.С. Влияние структурных особенностей сварных соединений низколегированных сталей на магнитные и микромагнитные свойства / Э.С. Горкунов, С.Ю. Митропольская, К.Е. Соловьев, Е.А. Туева // Дефектоскопия. – 2009. – №12. – С. 70-82.
3. Кузеев, И.Р. Оценка адаптивных свойств металла по изменению его магнитных характеристик для определения ресурса безопасной эксплуатации нефтегазового оборудования / И.Р. Кузеев, Е.А. Наумкин, О.Г. Кондрашова // Нефтегазовое дело. – Уфа. – 2006. – Т.1. – №4. – С. 124-133.
4. Gorkunov, E.S. Effect of the structure and stress state on the magnetic properties of metal in different zones of welded pipes of large diameter / E.S. Gorkunov, S.M. Zadvorkin, E.A. Putilova, R.A. Savrai // The Physics of Metals and Metallography. – 2014. – Т. 115. – № 10. – С. 949-956.

5. Пояркова, Е.В. Эволюция структурно-механической неоднородности материалов сварных элементов конструкций в рамках концепции иерархического согласования масштабов : дисс. ... д-ра техн. наук : 05.16.09 / Е.В. Пояркова. – Уфа : УГНТУ. – 2015. – 392 с.
6. Агиней, Р.В. Разработка методики оценки напряженного состояния нефтегазопроводов по коэрцитивной силе металла : автореф. ... дисс. канд. техн. наук : 25.00.19 / Р.В. Агиней. – Ухта : УГТУ. – 2005. – 24 с.

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THE INFLUENCE OF DYNAMIC COMPONENTS OF EXTERNAL LOADS IN ESTIMATING OF STRESS-STRAIN STATE OF LIFTING FACILITIES METAL STRUCTURES¹

The equipment of design organizations with high-capacity lifting structures is one of the main conditions for construction improving.

The purpose of this work was to study the stress-strain state of lifting structures metal structures (for example, mast platform hoist), taking into account the influence of the dynamic components of external loads.

To achieve the goal, the following tasks were set:

- to develop a design model of bearing elements of steel structures of lifting structures;
- to simulate the loading system, including the dynamic action of external forces (for example, wind load);
- to conduct a checking calculation of strength, rigidity and stability of metal structures elements with and without the influence of the dynamic components of external forces.

¹ The work was carried out with the financial support Orenburg region Government Grant in the field of scientific and technological activities in 2017 under the agreement № 37.

It is known, mast construction hoists are ergonomic and easy-to-operate equipment, characterized by easy maintenance and long service life. The mast is the basis of the lifting machine, which is installed on a horizontal ground platform. The construction of the mast building hoists includes a working platform (basket) for goods or people transport, which moves vertically along the mast. There are forces that tend to overturn the freestanding mast hoists. It is considered that the stability of the mast construction is the ability to oppose these forces.

Therefore, to design a hoist, according to [1], it is necessary and sufficient:

- firstly, to perform strength analysis, taking into account the most unfavorable operating conditions of this lifting construction;
- secondly, to carry out an analysis of the ultimate load capacity, thereby determining maximum loads and impacts when the mast hoist loses its bearing capacity.

The use of modern finite-element computational complexes greatly simplifies the strength calculations and makes it possible to obtain comprehensive data both from the loading of any element of the lifting structures design and from the forecasting. In turn, forecasting will help to prevent or minimize the risks of emergencies during further operation of the lifting structures after repair, reconstruction and modernization [2, 3, 4].

The stress-strain state of the metal structures of the mast hoist is evaluated in the APM WinMachine software package. The finite element method is calculated in the following sequence:

creation of a simulated beam model → setting the stiffness of the cross sections for the elements in the beam model → the collision of boundary conditions, including the installation of supports and the imposition of additional connections on the beam elements → perform calculations: static, dynamic, structure stability → analysis of results → if necessary, adjusting the values for the above items.

To calculate the metal structures of the mast hoist, the method of limiting states, expressed in deterministic form, is used [5, 6].

To calculate, correction factors were introduced to the density of the material, taking into account the increase in the weight of the individual elements of the beam model. In addition, the uncertainty factor for weight was introduced, and possible overloads from platform motion were taken into account with the help of the dynamism coefficient [7]. The parameters of the beam elements material and the

geometric characteristics of the elements cross sections were chosen using the built-in database, which is included in the package of the APM WinMachine software package.

The service load was distributed evenly over the site and was assigned equal hoist capacity. The wind pulsation (dynamic load) was applied using the dynamic loading tool, which was incorporated into the software package in accordance with SP 20.13330.2011 [8].

The wind load (static component of the wind) was applied to the plates (subject to the prescribed fictitious rigidity) with dimensions equal to the area of the longitudinal sections of the elements along the mast height and in the direction of one X or Y axis. The dynamic component of the wind load - wind pulsation, was applied in the direction of the static component of the wind load.

Loads from the icing of metal structures were applied along the Z axis (from top to bottom) to plates similar in characteristics (as for wind load).

The calculation was carried out for the states shown in Table 1.

Table 1 - Results of the maximum stresses and movements calculating of the mast hoist metal structure

Design state of construction	Maximum stresses, MPa	Maximum displacement, mm	Natural oscillation frequency, Hz
The cross-section dimensions corresponding to the actual construction			
I state <i>(service load, icing load, wind load along the Y axis and wind pulsation)</i>	137,9	6,745	5,25
II state <i>(service load, icing load, wind load along the X axis and wind pulsation)</i>	136,1	6,631	5,12
III state <i>(service load, absence of wind and icing load)</i>	123,7	6,257	-
Adjusted cross-sectional dimensions of metal structures			
I state <i>(service load, wind load and wind pulsation along the Y axis)</i>	73,28	5,145	4,72
II state <i>(service load, wind load and wind pulsation along the X axis)</i>	72,12	5,57	4,68
III state <i>(service load, absence of wind and icing load)</i>	59,18	5,85	-

The results of the calculation are presented in the form of stress distribution displacements, forms of stability loss, frequencies and forms of natural oscillations of the structure maps, which are partially shown in Figures 1-6 and in Table 1.

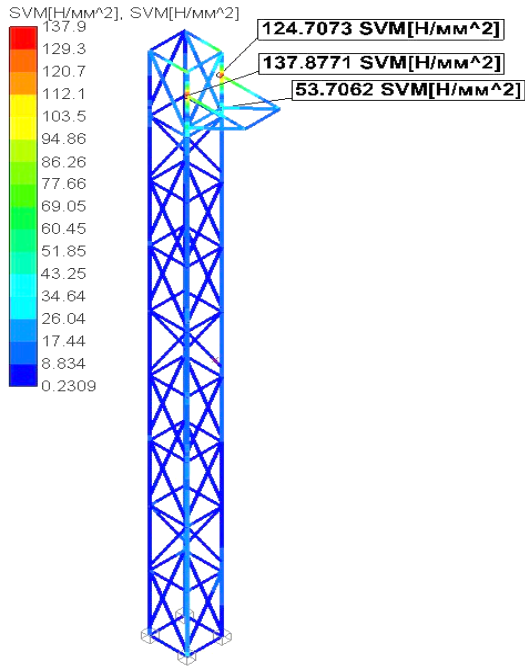


Figure 1 - Stress distribution map for the first state

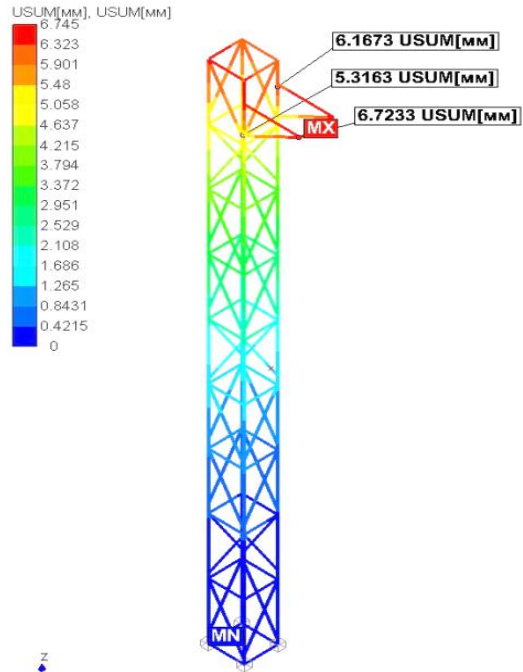


Figure 2 - Map of the distribution of displacements for the first state

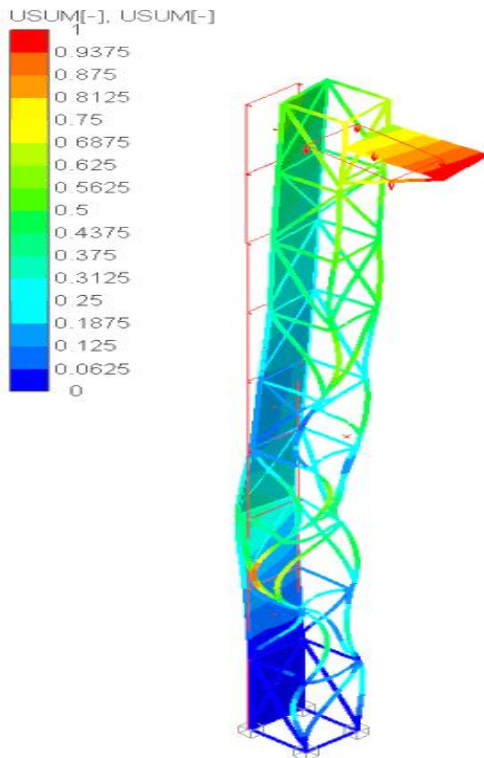


Figure 3 - Shape of stability loss for the first state

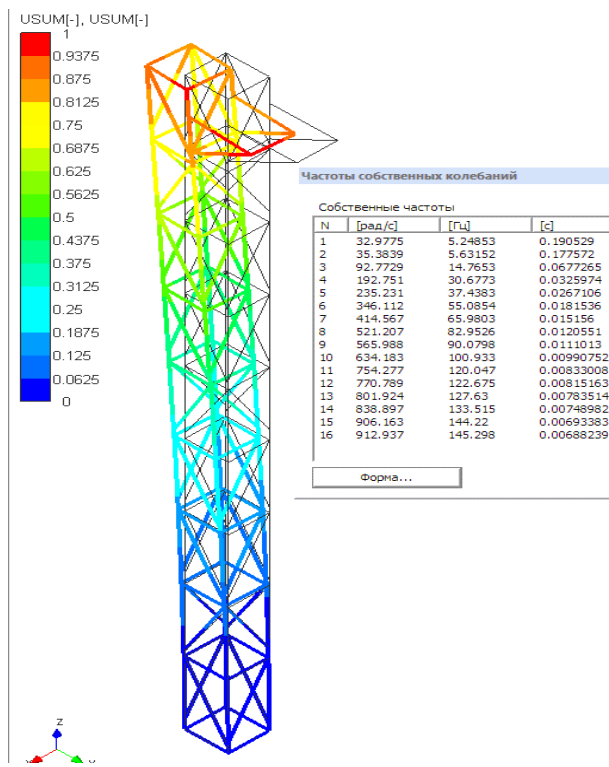


Figure 4 - Frequencies and forms of natural oscillations for the first state

After adjusting the dimensions of the cross sections, the stresses and displacements were expected to decrease; the result is shown in Figures 5-6.

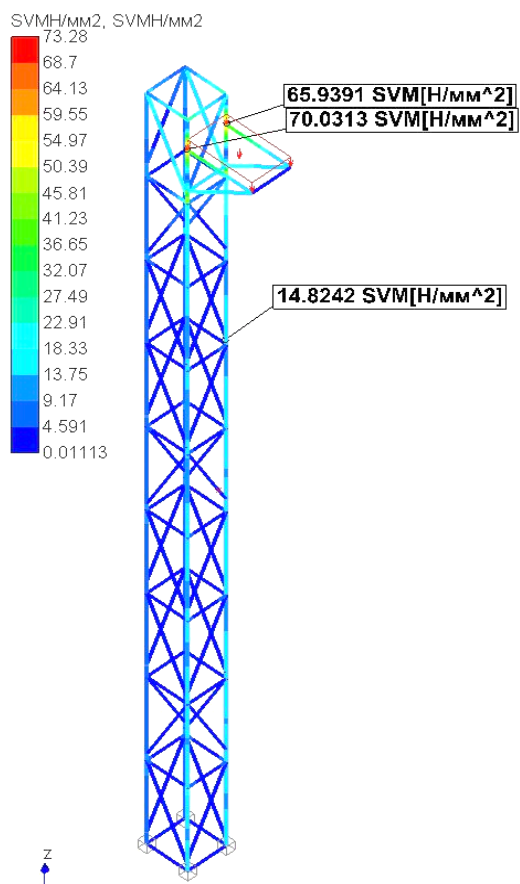


Figure 5 - Stress distribution map for the first state with corrected cross-sectional dimensions

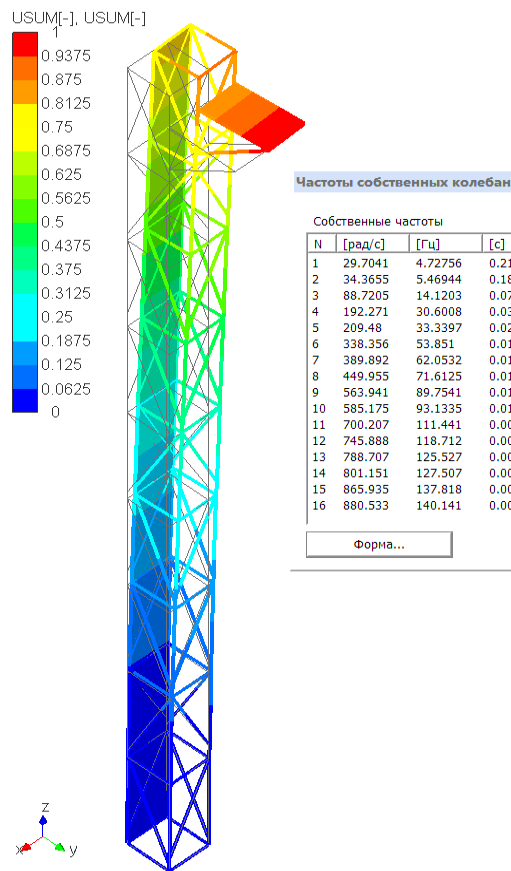


Figure 6 - The intrinsic oscillations of the construction for the first state with the corrected dimensions of the cross sections

The analysis of the obtained results shows a significant effect of the external forces dynamic action, more than 20% on stresses and more than 8% on the movement of structural elements. In this case, the change in the direction of the wind from one axis to it perpendicular, does not actually affect to stress and displacement for a freestanding mast hoist.

References

1. РД 22-166-86. Краны башенные строительные. Нормы расчета – Введен 1987 – 01 – 01. – Москва: Изд-во стандартов, 2009. – 64 с.
2. Колотвин, А.В. Вопросы эксплуатационной надежности башенного крана [Электронный ресурс] / А.В. Колотвин, Д.М. Исеменова // Университетский комплекс как региональный центр

образования, науки и культуры : материалы Всерос. науч.-метод. конф., 3-5 февр. 2016 г., Оренбург / М-во образования и науки Рос. Федерации, Федер. гос. бюджет. образоват. учреждение высш. проф. образования "Оренбург. гос. ун-т". – Электрон. дан. – Оренбург, 2016. – С. 123-126.

3. Синельщиков, А.В. Устойчивость башенных кранов при переменных эксплуатационных состояниях / А.В. Синельщиков, Б.Л. Булатов // Вестник Астраханского государственного университета. – 2012. – №2(54). – С. 41-43.

4. Авдонин, А.М. Прогнозирование величин деформаций и напряжений, возникающих при ремонте металлоконструкций сваркой / А.М. Авдонин, Е.В. Пояркова // Вестник Тамбовского университета. Серия Естественные и технические науки. – Тамбов, 2013. – Т.18. – Вып. 4. Часть 2. – С. 1585-1588.

5. ГОСТ 32579.1-2013. Краны грузоподъемные. Принципы формирования расчетных нагрузок и комбинаций нагрузок. Часть 1. Общие положения – Введен 2015 – 06 – 01. – Москва: Изд-во стандартов, 2015. – 30 с.

6. ГОСТ 32579.3-2013. Краны грузоподъемные. Принципы формирования расчетных нагрузок и комбинаций нагрузок. Часть 3. Краны башенные – Введен 2015 – 06 – 01. – Москва: Изд-во стандартов, 2015. – 7 с.

7. СП 16.13330.2011 «Стальные конструкции» – Введен 2011 – 05 – 20. – Москва, 2011. – 173 с.

8. СП 20.13330.2011 «Нагрузки и воздействия» – Введен 2011 – 05 – 20. – Москва, 2011. – 80 с.

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APPLICATION OF CONTEMPORARY TECHNOLOGIES OF MANAGEMENT IN THE ANALYSIS OF FACTORS OF REPRODUCTION PERSONNEL POTENTIAL IN AGRICULTURE

At the beginning of the 21st century, new realities of the economy revealed the urgent need for modern technologies for studying the process of reproduction of the personnel potential both in the general economy and in agriculture, since pre-reform methods are hopelessly outdated [1, p.43]. To this end, it is proposed to study trends and problems in this area using known control technologies of the type: PEST (for external factors), MORTAR (for internal factors) (naturally complemented and refined by necessary elements, adapted and tailored to our specifics branch), as well as methodological tools¹ for determining motives of potential turnover of personnel from agriculture.

Personnel potential is not a static, but dynamic category, which is characterized by a constant transformation, depending on the level of impact of external and internal factors. As for the external factors, along with traditional factors that are subject to PEST analysis (political, economic, social, technical), the influence of which has been studied extensively by economists and sociologists, new ones have emerged that are actively manifested in a crisis in modern agriculture and closely related to processes globalization and international integration. To them, in our opinion, include: cultural and historical, demographic, political and legal, scientific and technical, organizational, environmental and

¹ The latter is a four-level sociological survey (developed by the author in 2002-2003 and updated by polls for 2015-2016): high school students in rural schools; graduates of secondary and higher educational institutions of agricultural profile; workers of agriculture; unemployed citizens of rural areas, temporary and seasonal workers. Based on the results of the surveys, the sample was 1319 people: 1054 people - in 2002-2003 and 265 people - in 2015-2016.

others, the analysis of which (along with those noted above) is carried out below.

The revealed factors were analyzed by an expert way¹: 67 external, united in 9 groups and 6 internal ones (table 1).

Table 1 - Summary table of the analyzed factors affecting on the reproduction of personnel potential in agriculture

Factors		Weight	Factors		Weight
1. EXTERNAL FACTORS					
1.1	<i>Natural factors</i>	0,26	1.6	<i>Social factors</i>	0,48
1.1.2	Land resources and soil fertility	0,56	1.6.1	Development of rural social infrastructure	0,78
1.1.3	Water resources	0,24	1.6.4	Unemployment rate in rural areas	0,59
1.2	<i>Cultural and historical factors</i>	0,33	1.7	<i>Innovative factors</i>	0,2
1.2.5	Development of branch corporate traditions, norms, professional culture and mentality	0,66	1.7.4	State regional policy of attracting investments for the purpose of technical and technological modernization of production in agriculture	0,39
1.2.5	Stereotypes of consciousness and behavior of workers in agriculture	0,52	1.7.6	The policy of banks in regional investment of innovative projects in agriculture	0,39
1.3	<i>Demographic factors</i>	0,24	1.8	<i>Organizational factors</i>	0,34
1.3.2	Migration of rural population	0,36	1.8.6	Activities of employment services, local trade unions and personnel associations, organization of assistance to the unemployed	0,57

¹Specialists of the Ministry of Agriculture of the Chuvash Republic were attracted as experts.

1.3.6 - 1.3.7	Educational and qualification structure	0,29	1.8.5	Provision of agriculture personnel: the recruitment system, assessment of skill level and professionalism	0,52
1.4	<i>Politico-legal factors</i>	0,26	1.9	<i>Environmental factors</i>	0,2
1.4.4	Stability of the political and legal system of the region	0,48	1.9.2	Ecological cleanliness soft he region (atmosphere, water, level of radiation-pollution, probability of spread of epidemic sandinfections)	0,29
1.4.5	Position of the population and their political preferences in the election of representative bodies of authority	0,32	1.9.3	Regional policy regarding the development of harmful production in the territory	0,28
1.5	<i>Economic factors</i>	0,12			
1.5.7	Preferential lending to agricultural organizations and rural residents	0,26			
1.5.13	High degree of depreciation of fixed assets in the agrarian sector of the economy and in social sectors	0,24			
2. INTERNAL FACTORS (i.e. within an agricultural organization)					
2.1	Effective human resources management, incl. continuous professional training, opportunity-es for advancement in agricultural organizations, motivation of work	0,66	2.4	Management (objectives of the organization, production, scientific and technological development, marketing, financial management and accounting, sanitary and health conditions of work)	0,28

2.2	Employment of agricultural workers in private household plots (sowing area, livestock, share of wages in the worker's income, number of family members, etc.)	0,57	2.5	Agrotechnical, zootechnical, biological	0,17
2.3	Material and technical (development of means of transport, catering, consumer services, etc.)	0,52	2.6	Development of various organizational and legal forms of management in rural areas	0,16

Note - Development of authors (fragment)

Table 1 shows that the external factors (social, organizational, cultural-historical) and internal (effective personnel management, employment of workers in personal part-time farms, material and technical base) exert the greatest influence on the process of reproduction of personnel potential in agriculture.

However, the sociological survey gives slightly different results. For example, graduates of secondary and higher educational institutions of the agricultural profile¹, the reasons for the reluctance to work in agriculture (hence, to reproduce their personnel potential within the industry) are noted (table 2-3): 1) does not suit wages; 2) there is no desire to live and work in rural areas; 3) do not like to engage in agriculture; 4) do not suit the social and living conditions of life in the countryside; 5) not the prestige of agricultural work. Thus, at the core of the reluctance of graduates to work in the countryside, first of all, not housing, household and socio-psychological factors (the prestige of the work), as many sociologists consider, but production (wages, poor working conditions).

¹ And this is typical for the other respondents: schoolchildren, workers of agricultural organizations, unemployed.

Table 2 - Ranking the motives of potential staff turnover
in 2002 in the Chuvash Republic, %

Indicate the reasons for your unwillingness to work on of the specialty you receive:	Agricultural graduates technical school (specialty)			Graduates of agricultural institutions (faculties)			
	3107	1705	3106	Agronom.	Zooengin.	Mechaniz.	Econom.
You do not want to live and work in rural areas	25,0	11,1	7,1	20,0	22,2	32,0	20,0
You do not like to deal with farming	-	33,3	-	-	16,7	16,0	17,5
You do not like the salary	50,0	22,2	57,1	45,0	38,9	25,0	27,5
You are not satisfied with the social and living conditions of life in the countryside	-	-	14,3	20,0	11,1	8,0	15,0
Work in agriculture is not prestigious	12,5	11,1	7,1	-	11,1	8,0	12,5
Other	12,5	22,3	14,4	15,0	-	11,0	7,5
Total of respondents	100	100	100	100	100	100	100

Note - Development of authors

Table 3 - Ranking the motives of potential staff turnover
in 2015 in the Chuvash Republic, %

Indicate the reasons for your unwillingness to work on of the specialty you receive:	Agricultural graduates technical school (specialty)			Graduates of agricultural institutions (faculties)	
	3107 ¹	1705	3106	Biotechnology and Agronomy	Engineering
You do not want to live and work in rural areas	7,1	11,8	-	16,6	15,0
You do not like to deal with farming	50,0	-	-	15,8	6,6
You do not like the salary	28,7	35,3	45,5	46,4	50,3
You are not satisfied with the social and living conditions of life in the countryside	7,1	5,9	-	5,7	4,2
Work in agriculture is not prestigious	-	23,5	18,9	1,3	2,5
Other	7,1	23,5	35,6	14,2	21,4
Total of respondents	100,0	100,0	100,0	100,0	100,0

Note - Development of authors

¹ Note: 3107 «Electrification and automation of agriculture», 1705 «Maintenance and repair of road transport», 3106 «Mechanization of agriculture».

Thus, it is difficult to determine precisely which factors have a greater impact on the reproduction of the personnel potential in agriculture, since the opinions of the subjects (experts of the Ministry of Agriculture) and the objects (interviewed) of the analysis diverge. But it can be argued that the use of modern technologies somewhat simplifies this procedure, allowing quantitative estimates of the characteristics of environ factors. The need to take into account the multiple factors and conduct their precise measurements is one of the most important and complex issues of science and the practice of the future.

Literature

1. Ivanova T.V. Formation of the personnel potential of agricultural organizations in the conditions of a transforming economy: Diss ... cand. econ. science. - Cheboksary, 2004. – 144 p.

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GOVERNMENT STIMULATION OF THE DIGITAL ECONOMY

The digital economy is no longer just about the technology sector and digital companies; it is increasingly about the digitalization of supply chains across all sectors of the global economy. Those who will succeed over the next decade will bring a laser focus to which technologies increase the value-add for consumers, weighing those benefits against their costs. Accenture proposes eight technologies playing a key role through 2025, impacting all major areas of the value chain: Internet of Things, autonomous vehicles/drones, artificial intelligence/machine learning, robotics, digital traceability, 3D printing, augmented reality/virtual reality, blockchain [1].

The transition to a digital economy is a major policy priority for all countries. It can make overseas markets more accessible for exports, including by linking domestic companies and small and medium-sized enterprises (SMEs) to global value chains. It can create new markets, such as digital applications adapted to specific local conditions (e.g. in sectors such as agriculture, education and health) or open up niche

sectors, such as in the creative economy. It makes possible new business models for developing-country entrepreneurs and SMEs.

Besides these significant opportunities, however, digitalization also presents serious challenges:

- the digital divide – caused by a lack of investment, skills and capacity – makes digitalization a complex process, particularly for developing and least developed countries;

- digitalization can help address some development challenges, but it also has important limitations (e.g. remote teaching or health services cannot fully substitute for physical schools and hospitals);

- governments must address not only concerns over the impact of digitalization and automatization on employment and inequality, but also new regulatory challenges, e.g. the protection of security and privacy;

- digitalization will affect all countries, irrespective of whether they actively pursue it. Developing countries, and especially LDCs, may risk increasing dependency on a few global digital MNEs, or further marginalization from the global economy.

Some countries have already taken steps to modernize policies. Drawing on an ITU database of digital strategies and on additional research, UNCTAD identified 102 digital strategies from countries in all regions. The strategies include 30 plans that exclusively address broadband infrastructure, 6 that only focus on digital business development and 61 that cover both areas [2].

There are many aspects in which governments could play a role to encourage digital development and reduce barriers where possible. Based on UNCTAD [2], OECD [3, 4] and WB [5] recommendations, the following set of methods of government stimulation of the digital economy represents the core actions that should be considered.

1. *National digital strategy.* Calling for national digital strategies that are robust, but flexible enough to adapt to the changes in technologies and social norms, is the first step to closing the access and usage gaps and helping improve economic performance.

2. *Embedding digital development in investment policies.* At the level of domestic investment rules and regulations, policymakers need to assess how new modes of investment and changing investment impacts affect existing rules, which may be general investment regulations or, more likely, sectoral restrictions — and vice versa. Modernize investment regulations where needed, balancing investment promotion and facilitation with measures to mitigate risks associated with digital operating models and take into account the digital

investment dimension of evolving international rules, such as those on e-commerce and services trade.

3. *Embedding investment policy in digital development strategies:*

a) *Invest in digital infrastructure.* Regulators should promote an optimal level of investment and robust competition in high-speed networks and services:

- conduct a detailed assessment of infrastructure investment needs in digital development strategies, including broadband coverage and internet infrastructure;
- build the right conditions for private investment in digital infrastructure, including to promote public service and universal connectivity objectives;
- engage in regional cooperation, promoting multi-country infrastructure investments for scale.

There are a number of areas in which governments can take action to encourage further investments in telecommunication infrastructures, especially high-speed networks. Fixed networks:

- encourage the deployment of more fibre deeper into the network to drive a substantial increase in speeds experienced by users across all access technologies;
- reduce the administrative obstacles to high-speed infrastructure roll-out by simplifying licenses and facilitating efficient access to rights of way;
- ensure access to passive infrastructure deployed by other actors, whether that is for operators deploying fibre gaining access to the infrastructure of public utilities such as railways and energy companies, municipal facilities or new entrants seeking access to passive infrastructure owned by other operators themselves.

Mobile networks:

- produce national and regional action plans with a specific date (e.g. 2018) to spur the rapid deployment of 5G networks, acting quickly to free up sufficient spectrum, as well as facilitating the industry investment required to provide the necessary infrastructure and wireless backhaul capacity;
- exercise caution with potential mergers that would reduce the number of mobile operators in a market below four, and consider obtaining commitments from merging parties that would facilitate the presence of MVNOs or lead to a more equitable distribution of spectrum resources among remaining or new operators.

b) *Invest in digital firms.* Ensure that content rules and regulations remain conducive to investment in the digital sector, while safeguarding public policy objectives. Support local enterprise development in the digital economy, through clusters and hubs, facilitation of innovative financing approaches, and conducive regulations in non-digital industries.

c) *Invest in digitalization.* Promote investments by firms across all sectors in ICTs and in related skills, and access to low cost digital services (e.g. cloud services). Build and improve e-government services to lead the way, to create demand for local developers, and to lower the cost of doing business.

4. *Promote the development of standards and standards-based interoperability to support the IoT and industry 4.0.* Inclusive standards development can benefit from collaboration and co-operation among the many players that make up the standards ecosystem.

5. *Ensure competition in the ICT sector and across the economy.* Competition policy may also need to undergo some adjustments, such as a shift towards recognizing data and its analysis as a competitive asset in some markets, exploring different approaches to market definition and market power, and undertaking greater international co-operation and co-ordination among competition authorities. Policies to promote competition, innovation and investment may include:

a) identifying and removing or lowering barriers to entry to the market;

b) evaluating existing public interest criteria to see whether the objectives are still relevant, and

c) examining the continued relevance of regulatory tools to achieve these objectives.

6. *Call for national privacy and security risk management strategies and improve interoperability among frameworks.* The development of national privacy strategies responds to the specific need to adopt a whole-of-society approach to ensuring privacy and data protection while providing the flexibility needed to take advantage of digital technologies for the benefit of all. Such strategies should take advantage of the open digital environment by reducing security risk to an acceptable level without unnecessarily restricting the flow of technologies, communications and data. Given the implications for free flows of data and open markets, dialogue with a range of stakeholders, including the trade community, would be important.

7. *Craft more effective strategies that enable all people to adapt to and excel in the digital economy.* This implies identifying the mix of

skills needed to boost quality employment and active participation in a digitalized economy as well as promoting policies and targets to promote their development and use. These skills include ICT generic skills, ICT specialist skills, and ICT-complementary skills, including foundational skills, digital literacy, higher-order critical thinking skills as well as social and emotional skills, among others. At the same time, given that the skills gap tends to be larger for people in low-skilled occupations than for those in middle- and high-skill occupations, it is important to ensure that the opportunities of ICTs and other technologies benefit all of society.

8. *Support SMEs.* SMEs are key actors for leveraging digital innovation for aggregate productivity growth, and there is a strong demand by SMEs for solutions to support their ICT adoption. Awareness raising and capacity building, including organizational competences, are essential as well as the creation of networks where SMEs can learn from each other. As SMEs could effectively serve as the research engine for technology and application development, governments may consider the merits of policies that support SMEs' integration into the IoT evolutionary process and encourage and promote standards bodies to have open and inclusive processes, with clear rules of engagement that elicit SME participation.

9. *Promote consumer protection.* Well-tailored consumer protections and competitive markets are essential to build the trust needed to further develop e-commerce markets for the benefit of consumers and businesses alike. More effective implementation of consumer rights is essential for e-commerce to reach its full potential. Cross-border and cross-sectoral enforcement co-operation is but one area for further work. In an increasingly data-centric environment, approaches like data portability offer promise but require further study to ensure that they work for both consumers and businesses.

10. *Adapt legal frameworks to the realities of an increasingly digital and data-driven global economy and improve measurement.* Strengthen policy interactions and institutional synergies (ensure an effective whole-of-government approach, establishing coordination processes and communication channels across institutions, and involving investment authorities and IPAs) and e-government services including enhanced access to public sector information (PSi) and data (i.e. open government data). This means more co-ordination when making decisions and conducting actions across government ministries and levels of government as well as actively involving all key stakeholders, including the business community, trade unions, civil

society and Internet technical community, in the policy making process. To do so, comprehensive information about how the rapid rise of the digital economy has affected various legal and regulatory frameworks and policy areas such as competition, taxation, trade, the transfer of data across borders, transportation, investment, labor markets, institutions, etc. is essential.

The digital shifts underway are reshaping economies and societies today and will continue to do so in the future. Moreover, the successful transition to a digital economy is a necessary condition for boosting more inclusive and sustainable growth and enhancing overall well-being. It offers many new opportunities for inclusive and sustainable development. It also comes with serious policy challenges – starting with the need to bridge the digital divide. Both the opportunities and challenges are top policy priorities for developing countries.

Most countries are actively encouraging the digitalization of their economy, as it offers significant development opportunities. Further investment in digital infrastructures, especially high-speed networks and data itself, is essential to support a vibrant, innovative and inclusive digital economy.

References

1. Painting the Digital Future of Retail and Consumer Goods Companies. - Accenture, 2017. - 13p.
2. World Investment Report 2017. Investment and the Digital Economy. - UNCTAD, 2017. - 252 p.
3. Stimulating digital innovation for growth and inclusiveness: the role of policies for successful diffusion of ICT. - OECD Publishing, 2016. - 151 p.
4. Key Issues for Digital Transformation in the G20. - OECD Publishing, 2017. - 165 p.
5. Digital dividends overview 2016. - World Bank Group, 2016. - 359 p.

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**IMPROVEMENT OF LEGAL REGULATION OF SYSTEM
OF ENSURING ECONOMIC SECURITY OF THE STATE
AS FACTOR AND SUBJECT TO SUSTAINABLE
DEVELOPMENT OF ECONOMY AND SOCIETY**

The Russian State has certain experience in the field of creation of system of economic security of the state and certain experience in assessment of her providing. One of the most important factors of providing system of economic security of the state is its legislative and legal base which realization demands further development and transformation of system of standard legal support of economic security of the state, improvement of state policy and rules of law in the sphere of safety.

The mechanism's imperfection of legal regulation of economic security is shown regarding fixing of rules of law in precepts of law in the form of abstract logical designs which, apparently, come down only to establishment of mathematical calculations and formation of some statistical data, namely dynamics happening events to use of rules of law that leads eventually to submission of system of rules of law to some special case. But, such system of fixing of rules of law in precepts of law in the form of abstract logical designs can't provide unities of questions and problems of safety. In this regard, the legal institutionalization of the solution of modern problems of ensuring economic security of the Russian state has to be subject to adaptation and improvement of specially established legal functions of the right in time which standard and obligatory orientation is streamlining of the public relations and implementation of protection of bases of the political system.

Diagnostics of problems of ensuring economic security of the state as factor and subject to legal regulation of sustainable development of economy and society, I have shown:

- first, that process constantly of the changing standard and legal blocks, laws and programs is and remains to one of important problems of providing and realization of a package of measures accepted by the state in the field of ensuring economic security;

- secondly, for stage-by-stage improvement of the operating system of ensuring economic security and creation of a highly effective legal mechanism, the operating documentary and legal system as one of options, can be conditionally focused on formation of the block-oriented mechanism on her improvement (the block of the first order, the basis is made by the documents forming a basis of economic security of the state; the block of the second order, is formed on the norms and documents relating to the system of types of development and types of safety on branches; the block of the third order as the block, the most subject to factorial influence and according to continuous change of documents, regulates program documents and the strategy of development for system of economic security). It is expedient to realize creation of the mechanism taking into account three-level block-oriented system: individual → society → country.

So, a modern problem of the Russian state remains:

- first, protection and maintaining information confidentiality, formation of the high-organized information environment which resource set, is intended for satisfaction of information needs of the personality, society, the state and, promoting ensuring economic security;

- secondly, legal regulation of economic security regarding a definition of definition of the criteria list/level of threshold parameters from the point of view of compliance to national interests in the field of economy and, actually, economic security of the Russian Federation.

The multilevel idea of economic security defined on the one hand as set of the conditions and factors providing independence of national economy, its stability and stability, ability to continuous updating and self-improvement", and on the other hand readiness and ability of institutes of the power to create mechanisms of realization and protection of national interests of development of domestic economy, maintenance of socio-political stability of society, is caused by one indispensable condition – achievement of effectiveness on her providing on the basis of effective standard and legal system. At the same time the important practical value of assessment of level of economic stability of the state buys the device of levels of rules of law and the mechanism of legal regulation of ensuring economic security which essence comes down to a specific form of legal influence, realized by the right as the standard and obligatory regulator of which impact on the public relations is result.

Process of improvement of a legal mechanism, according to us, has to be included in a framework of planning of interstate system / strategy

of ensuring economic security taking into account monitoring of a legal and financial and economic situation in the world. The complexity of proposed measures is aggravated with lack of the complex and complete mechanism according to their decision in the uniform program document and the uniform conceptual line of the uniting purpose and task in the context of economic, legal and special measures for safety. The corrected approach on a basis and taking into account practice of use of the domestic and international standards of the right, in the field of safety, will allow to define at the level of hierarchy and structural hierarchy, a role and responsibility of each role representative of authority of the uniform program document which is taking part in development and development of the uniform conceptual line. Will be a consequence of such approach, at the level of executive power, ensuring formation of the uniform program block in a look consecutive actions, at the level of legislature – realization of parliamentary control of the course of implementation, and at the level of public organizations and institutes – realization of control from a position of respect for the rights and the interests of various social groups and layers. In this regard also the operating system of laws and legal acts and as a result, respectively the mechanism of their realization will demand updating. Can be carried to the directions of adjustment:

1) the Federal law "About Safety" forming a legislative legal basis practically in all directions, defining the sphere of national security, including and economic security;

2) the laws connected with ensuring economic safety in the realized rules of law on fight in the sphere of economic crimes.

Thus, on the basis of the conducted research it is possible to draw a number of conclusions:

- the offered aspect approach, is directed to development of the new conceptual line providing inter-level methodological unity of rules of law and the strategy of social and economic development of the Russian Federation on the prospect corrected on the level of the increased economic risk in the sphere of safety;

- modern approaches on formation of standard acts in the sphere of economic security have to be subject to more rigid regulation and are determined, by our opinion, by more expressed legislative and legal form differing from earlier acting, the interrelation with with each other;

- improvement of legal regulation of economic safety regarding a definition of definition of the criteria list/level of threshold parameters from the point of view of compliance to national interests in the field of economy and, actually, economic security of the Russian Federation;

- creation of system of the carried-out works on improvement of the operating legislative system has to be focused on the end result, namely, on creation of productive and effective base of system of ensuring economic security of the country defined as the elevator of sustainable and effective development of economy of the Russian Federation;

- the legal system of ensuring economic security represents unity of system of legal and other means, with the help or with the help which, purposeful state and legal impact on the public relations in various spheres, including process on exchange, distribution and consumption of the material and non-material benefits is carried out.

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**MODERN TRENDS IN THE DEVELOPMENT
OF THE METHODOLOGY FOR ASSESSING FOREIGN
EXCHANGE RISKS IN FOREIGN ECONOMIC ACTIVITIES
OF ENTERPRISES**

Abstract: The article reveals the features of currency risk, examines modern approaches to assessing currency risks. The authors focus on the need for an integrated approach to the assessment of currency risks that inevitably arise when concluding international transactions

Key words: currency risk, stress-testing, Value-at-Risk (VaR).

Of particular relevance, the issues of assessing currency risks were obtained after the rejection of the gold standard and the transition to Jamaica currency system based on floating exchange rates. It was from this moment on that the currency transactions began to be accompanied by a greater degree of uncertainty, which inevitably affected the degree of exposure of organizations to this type of risk. The second factor that caused an increased interest in the management system is precisely currency risks is the paradigm shift of economic thinking from Keynesianism to monetarism, which is based on the need for constant monitoring of the money supply, which leads to interest rate volatility and exchange rate volatility [1,2].

Nevertheless, in economic theory there was a discussion about the concept of "currency risk". In the first, the risk is considered as a probability of incurring losses. This approach has most clearly found its application in insurance, actuarial models of pension calculations and other sectors of the economy, when the negative influence of possible uncertainty is investigated. The second approach takes into account the dual nature of risk: risk is also considered as an opportunity to benefit from the existing uncertainty. It is within the framework of this approach, in our opinion, that the assessment of currency risk should develop.

There are 2 approaches applied to risk assessment. The differentiation of these approaches takes place in connection with the method of assessing the situation.

In the first approach, all methods are based on assessing the likelihood of an adverse event, setting a certain confidence interval, generally at 95-99%, that is, they are aimed at assessing and predicting the most likely consequences of an adverse event. This group includes not only the classical Value-at-Risk (VaR) method, but also the derivatives of the synthetic valuation model, based on its algorithm: Marginal VaR, Incremental VaR, EaR, Cash Flow-at-Risk (C-FaR).

Within the framework of these models, three methods are used to construct the probability distribution of a random variable: historical, analytical, and Monte Carlo. The first is based on historical data and differs from the method of Monte Carlo statistical tests in that changes in risk factors are generated by a "pseudo-random" recall. The main condition of Monte Carlo is a significant number of scenarios. The analytical method is based on a linear dependence of portfolio returns on changes in market risk factors [3]. However, despite the use of different mathematical apparatus, the risk assessment algorithm itself does not fundamentally change, since the main task in the development of the Value-at-Risk (or VaR) methodology for its authors is the specialists in the field of risk management of the bank J.P. Morgan, was not actually the development of a certain mathematical apparatus, but the search and formalization of a process that would aggregate and unify primary and secondary risks in different areas of business:

1. The boundaries of risk are defined;
2. Confidence intervals are established;
3. Financial indicators are calculated;
4. A risk map is being constructed;
5. An assessment is made of the change in the value of each component when market factors change;

6. The obtained distribution of financial results is used to calculate statistical indicators of currency risk.

In addition, within the framework of this approach, other methods are widely known, including beta analysis, theories of CAPM, ART, Short Fall, Capital-at-Risk, Maximum Loss. Nevertheless, in 2012, in connection with the scandal in the JP Morgan bank caused by the large losses suffered by it in the portfolios of derivatives, the risk management specialists began to talk about the fact that using only models based on the VaR methodology is inadequate and may underestimate risk indicators.

Within the framework of the second approach, a group of methods based on stress testing, based on the development of a special algorithm in the case of exceeding the normal limits of indicators (the onset of stressful events-events defined as "exceptional but possible") is developing, that is, this approach implies an assessment of the situation from the standpoint of the occurrence of the remaining 1-5% (uncovered by the confidence interval), while allowing us to develop scenarios based on the worst historical scenarios DEVELOPMENT markets. This direction received special popularity in 2008-2012, during the protracted crisis, associated with a large range of currency fluctuations. Taking into account the fact that classical methods of risk assessment do not work under similar conditions, it is necessary to introduce other methods. In this regard, the second approach is of particular importance, since it allows to work with a high level of uncertainty (unpredictability) arising from the relationship between the rigidity of the monetary policy pursued by the state and the duration of the crisis, namely: the longer the crisis, the tougher will be itself policy.

It is necessary to understand that for enterprises engaged in foreign economic activity, whose main activity is not in the speculative management of the foreign exchange portfolio, the objective is to protect the cash flows of currency risks within the specified limits. It is necessary to use both approaches simultaneously in the process of assessing currency risks, because they both serve different purposes. The first one helps to predict the likely occurrence of an event and build a map of the most likely risks, and stress testing - to look at the likely outcome of exceptional events.

References:

1. Erokhin S.G., Matraeva L.V., Philatova Yu.M. International investments. - Moscow, 2014.

2. Dmitrieva M.A. Currency risk: from definition to classification // Russian entrepreneur ship. - 2015. Vol. 16. № 15. P. 2423-2436.
3. Zaripov I.A., Mazanov A.V., Petrov A.V. Currency risk: assessment and management methods / http://www.cfin.ru/finmarket/currency_risk.shtml

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FEATURES OF FORMATION OF SUB-FEDERAL BUDGETS IN CONDITIONS OF THE ECONOMIC CRISIS

The global financial and economic crisis has particularly significant implications for the Russian financial system, as accompanied by, in particular, the fall in prices for energy and raw materials, the export of which provides the main source of revenues of the federal budget. Not accidentally the economic crisis touched in the first place of the fuel and energy and commodity sector and related industries primary processing (mainly ferrous and non ferrous metallurgy). Accordingly, the strongest effects of the economic crisis began in the regions of the placement and operation of such industries.

This happened yet in the summer of 2008. Then, almost all regions of the country faced with similar problems, except in the most depressed in which the crisis has not stopped since the 90ies, and the revenue side of the budgets was formed largely through federal grants. In the remaining regions, the nominal revenues of the budget in the IV quarter of 2008 were in line with or even lower than those of 2007. In the short term, other threats to the socio-economic development of the Russian regions and municipalities will arise, as together with the revision of revenues downwards there is a clear tendency to maximize expenditure's savings of budget so fall levels.

Moreover, the negative effects of the crisis are manifested in the reduction of profitability, declining real incomes of the population as a result of the decline in employment and high inflation; payments crisis and the use of surrogates in the repayment are also possible. All of this

leads, as shown by international experience and national practice, to a significant acceleration of inflation and the multiplicity of prices. The deepening of the crisis leads to an increase of spatial differentiation of socio-economic development and the expansion of depressive habitats, as well as the emergence of new[1].

In general, the modern financial and economic crisis, coupled with the all-Russian systemic crisis that started in the 80years of the twentieth century, imposes significant imprints on the functioning of the entire bud get system of the country, its regions and municipalities, causing first need to optimize bud get expenditures. This, in particular, directed the federal government's anti-crisis measures, the regional anti-crisis measures of the Government of the Russian Federation, the anti-crisis proposals and own initiatives of subjects of the Russian Federation.

In the summer of 2008the Russian government started to develop some anti-crisis measures; in a systematic way they have been reduced to a published on March 20, 2009"The Program of Anti-Crisis Measures of the Government of the Russian Federation for 2009." In Section 8 of the" Anti-Crisis Program" the Russian government has defined the requirements for the implementation of these measures in the subjects of the Russian Federation, to the leadership of which were given two tasks crisis.

First. Maintaining a balance of regional fiscal-bud get system in order to the unconditional fulfillment of obligations to the citizens, of payment of wages to employees of the budget system, of payment immediate expenses.

Second. Promoting employment, the preservation and creation of jobs.

It was assumed that the first solution will be provided as giving up port to budgets of subjects of Russian Federation from the federal budget as the holding of a "responsible(!)policy" at the regional level, including:

- the optimization of budget expenses and restructuring of the budget network;
- the review of the parameters of the budget, including refusing from "non-binding" capital investments;
- the preventing the growth of accounts receivable on the priority commitments;
- the refusal to replenish the revenue base of the subject of the Russian Federation due to lower revenue base of local budgets.

In this case, the Government of the Russian Federation determines that support of regional budgets will be carried out at lower levels of co-financing of expenditure obligations of subjects of the Russian Federation (which are subsidized), and that this will be offset by the simultaneous increase in the volume of the remaining subsidies and their concentration on three or four of the most important tasks for the regions.

The decision of the second task set by the Government of the Russian Federation to the regional authorities implied the implementation of programs to promote employment and social support measures for the unemployed through grants from the federal budget in order to:

- provide advanced professional training in the event of a threat of mass layoffs;

- organize public works, temporary employment, placement of unemployed job seekers (including graduates of educational institutions), as well as employees in the event of a threat of mass layoffs;

- provide targeted support to citizens, including the organization of their moving to another area to fill jobs, including established in the framework of the federal target programs and investment projects;

- promote the development of small businesses and self-unemployed. Section 8 of the Program also notes that additional support will be provided to the subjects of the Russian Federation, which have the most urgent crisis on the regional labor market.

Among the specific measures in the areas of tax and budget policy, aimed at overcoming the consequences of the financial and economic crisis and implemented within the framework of the anti-crisis policy of the Government of the country can be noticed, in particular, a decrease of 4 percentage points of corporate income tax, an increase of the property deduction for personal income tax for the citizens of the acquisition of housing, lower tax rates on small businesses, etc. This is especially important because the effects of the crisis were reflected primarily on the state of regional and local budgets, causing reduction in revenues from corporate income tax and the increase in unemployment that led to a reduction in revenue from the personal income tax, which is the main component of the revenues of the regional and local budgets.

Subjects of the Russian Federation were not passive witnesses of the crisis. In all regions and major cities own anti-crisis measures have started to develop at the same time with the federal center, the validity and the targeting of these measures (their objects are municipalities,

industrial and agricultural enterprises, social organizations, governments, etc.) were exceptionally high. In Russia there is no region, hoping only to decisions of the Centre, as there is no one in the leadership of the subject of the Russian Federation who would bind the latest crisis only with the global and would not consider it a main or cause of failures in the economic, fiscal and social policies of all previous years. It is not surprising, therefore, that the subjects of the Russian Federation propose to mitigate the effects of the latest crisis, often develop or simply repeat what has been a long time ago (and more often without results) recommended by them to the Centre to ensure better functioning of the self-sufficiency of regions, municipalities and enterprises - the best "safety cushion" in critical situations[2].

It should be noted, however, that all anti-crisis measures taken by the federal center, regions and municipalities are only trying to smooth out the peaks of potential social unrest and protests, without changing anything in the nature of the Russian economic system. The worst that could threaten Russia- reinstatement in the same shape of the economy, that was powerless in the transition to a market more than twenty years ago and unable to overcome either post-Soviet crisis nor the latest phase of its strengthening by global crisis. But the country, its regions, cities and villages need above all a market economy, able to produce globally competitive products, primarily for its wide domestic consumption on the basis of intra-and inter-regional co-operation and involves a high employment. To stimulate the creation of this basic ally a new (and not innovation interpreted technocratic ally) economy should be a top priority of the state policy, but its implementation require different conceptual approaches to the organization of life in the country, we need other legal grounds, a different format of federal relations and other administrative and resource potential of the bodies of state power of subjects of the Russian Federation and local self-government [2].

One important aspect of anti-crisis measures of the Government of the Russian Federation is to promote the development of small businesses, largely determines the conditions for sustainable development of municipalities.

This sector of the economy, including on January 1, 2009 more than 4.5 million subjects, is characterized by a maximum adaptation to a crisis situation and can respond quickly to changes in consumer demand. In addition, given the ongoing staff reduction of large and medium-sized enterprises, the active involvement of the population in the small business and self-employed has a great social importance,

promoting the growth of employment. Over the last 2 years a number of legislative measures aimed at the development of small and medium-sized businesses, creating new jobs were carried out. Among them – the establishment of the right for region to reduce the tax rate from 15 to 5%, if the object of taxation is income minus expenses, for certain categories of taxpayers, and since 2010 -an increase in the threshold for the application of the simplified tax system ("simplified taxation") from 30 million rubles of annual revenues up to 60 million rubles. These solutions may initially lead to a reduction in revenues in the budgets of the regions, which can be compensated only by the development of small and medium-sized businesses. To solve this problem it is important to increase the interest of the local authorities. It is the "simplified tax" - which the tax on the expansion of the base of which may actually affect local self-government bodies, increasing not only financial support, but also promptly addressing issues of renting premises, land, etc., thus creating conditions for the development of small entrepreneurship[3].

In a crisis, especially acute is the problem of filling regional and local budgets. For this, in May 2009 the Government of the Russian Federation approved the "Rules for the Distribution of Grants to Budgets of Subjects of the Russian Federation to Support the Measures to Balance the Budgets of Subjects of the Russian Federation for 2009". Using this methodology, the selection of subjects of the Russian Federation to provide grants is based on indicators of the balance of the consolidated budgets of the Russian Federation subject, on which the balance of local budgets depends. In this case, the right to receive grants have the subjects of the Russian Federation, in which the performance of the consolidated budgets forms lack of revenues for financing the expenditure commitments. Regions, which have the level of actual fiscal capacity 10% higher than the Russian average, are excluded from the distribution. As a condition of the grants is the lack of overdue debt on socially significant expenditure responsibilities of subjects of the Russian Federation [4].

Due to the reduction of local revenues in 2008 their high dependence on intergovernmental transfers from the budgets of other levels survived, the volume of which (including subventions) amounted to 1412,7 billion rubles or 58,6% of revenues of local budgets. The share of tax revenues in the local budget revenues amounted to 29,9 %, the share of non tax revenues – 11,5% [4]. In connection with this, the mechanism of targeted financial assistance to regional and local budgets in times of crisis is introduced. This problem was solved when making changes to the federal budget in 2009, which contains new terms and

parameters of the economy of the country. Making these changes will allow to solve such problems as:

- unconditional implementation of all social obligations as summed by the State, and national projects;
- review of all investment projects on the basis of the inefficiency and urgency, as well as determining the feasibility of using them as "locomotives" of economic stabilization.

Similar principles would be appropriate to use also in amendment of regional and local governments when they need to optimize the connection with the financial crisis.

One of the factors stabilizing of the economy of municipalities may be the objects of their infrastructure. In accordance with the Federal Law of 28.04.2009 №76-FZ "On Amending the Federal Law "On the Federal Budget for 2009 and the planning period of 2010 and 2011" it is expected to provide an additional 300 billion rubles, including 150 billion rubles- in the form of grants for the balance of regional and local budgets, and 150 billion rubles-in the form of loans (including up to three years). For municipalities, it is very important that out of 150 billion rubles of loans - 25 billion rubles is allocated for targeted use-for road construction.

Instability of the financial situation at the municipal level during the crisis creates additional difficulties to municipalities to establish economic base – the basis for the formation of their budgets. Meanwhile, this problem can be solved today in the framework of the territorial dimension of regional programs of socio-economic development. This aspect implies a regional policy aimed at creating a single, well-functioning economic area by maximizing the competitive advantage of all types of municipalities, eliminate the negative trends and crises in some areas of the region. In this regard, at the regional level during the crisis an objective picture of the available resources and social and economic potential of all municipalities should be presented, their common problems should be identified, goals should be set (long-term, medium-term and short-term), a set of policy measures aimed at achievement of the objectives of anti-crisis should be developed[4].

In conclusion, we note that in a more complex financial situation is especially relevant, in our view, the proposal on the consolidation of municipalities, as the deal with the crisis in a weak financial base not everyone can do. The crisis has vividly demonstrated that the existence of a large number of rather small settlements without its resource and financial base, and living only through financial assistance from the

upper level, is not conducive to solving the problem of strengthening the local self-government. Such settlements (mainly rural) essentially has not their own tax base, revenue is less than the amount of the cost of maintaining municipal officials. Obviously, association of several similar settlements with the appropriate concentration of financial resources will facilitate the solution of these problems fulfilling by their office (area cleaning, provision of utilities, maintenance of local roads, etc.). At the same time, for the subjects of the Russian Federation the task of providing financial assistance to municipalities also will be simplified, a san opportunity to focus resources on priority areas of corresponding entities, facilitate the monitoring of the use of allocated resources and a number of other benefits.

References

1. *Клисторин В.И.* Российский федерализм: региональная политика, направленная на поддержку муниципальных образований. // Регион: экономика и социология. – 2009. - № 3. – С.41-54.
2. *Лексин В.* Первый глобальный кризис на территории России: региональное измерение. // Федерализм. – 2009. - № 3. – С.19-42.
3. *Карчевская С.А.* Развитие финансовой самостоятельности местного самоуправления на современном этапе. // Финансы. – 2009. - № 8. – С.15-22.
4. *Пронина Л.И.* Финансы муниципальных образований в условиях кризиса. // Финансы. – 2009. – № 7. – С.10-13.

SECTION VII. Philosophy of Science

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TRENDS IN THE DEVELOPMENT OF MODERN URBAN COMMUNITY AND THE FORMATION OF AN INDIVIDUAL'S VALUE-BASED ORIENTATIONS IN ITS ENVIRONMENT: TENDENCIES TOWARDS GLOBALIZATION AND LOCALIZATION OF URBAN COMMUNITY¹

To define the specific features of the formation of an individual's value-based orientations in the creative urban areas it is seen essential that we consider the main social factors influencing the formation of an individual's value-based orientations. The factors under consideration may be divided into 4 categories:

1. An individual's cultural experience. Cultural experience exercises direct influence on the formation of the regulative orientations of an individual's social and individual behavior, and also promotes the setting of personal, cognitive and practical tasks. Cultural experience is a way of an individual's transition to a new mode of being which is outside the domain of one person and is distinguished by much higher degree of regulation and comprehension. From the moment of his birth, a person is placed in the world of culture, which is remarkable for the accumulated gigantic human experience providing an individual with previously existing models and possible means of the solution of personal tasks and meeting his needs. The development of a person's mind and the formulation of his value-based orientations takes place inside the cultural universum, containing the ideas about the experience of the activity, communication and perception of the world [6].

It should be noted that the process of the appropriation of cultural experience requires from an individual his personal awareness and is not automatic. Thus, M. Bakhtin argues, that any universally recognized value is really valuable only in the context of an individual person [1].

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2. An individual's moral principles. Apart from the existing moral norms, knowledge of the moral qualities and understanding of the "ideal" in the history of the development of moral awareness there exists a need for a flexible and universal guide for a person. Such a guide is an individual's moral principles. These principles contain the general reason for the selection (realization) of the norms of behavior and the criteria for selecting the rules of behavior in various situations (conditions) [4]. At the expense of moral principles there takes place the fixation of the general rules of behavior, requirements of social discipline to an individual's behavior in society. In the moral principles there find expression the generalized laws of an individual's moral behavior that unite the actions different in content into an individual's unified mode of life and line of behavior.

2. An individual's personal experience. The factor of personal experience, in our view, is the most significant for the formulation of an individual's system of value-based orientations. The value-based orientations of adults, as a rule, are more stable than those typical for children [2], i.e. personal experience promotes the consolidation in an individual of certain value-based orientations, that are of certain significance for a concrete individual. It should be emphasized, that the process of the formation of value-based orientations takes place within the framework of the personal experience gained by an individual and proceeds from this experience.

3. The atmosphere inside the social cell (family). In the problem of the formation of an individual's value-based orientations the factor of the parent's influence on their children is traditional and is one of the most important [5]. Parents to a considerable degree influence the child's vital orientations. It should be noted that apart from the purposeful influence on the child's upbringing, an extremely significant factor of influence in the context of the formation of value-based orientations is the atmosphere inside the family (the effect that often exceeds the effect of the rest of the constituents of the category) [7].

Thus, the formation of a personality's value-based orientations is influenced by the 4 main groups of factors: the social norm adopted in society, the rules inside the family, models of behavior borrowed from culture and art, moral norms and principles. Later on, an individual is faced with a choice of his own way, the choice of his own system of values in the context of the locus of the urban body under study (an urban creative area) and the aspects of its influence on an individual's value-based orientations, of great significance are the factors of an individual's cultural and personal experience, as the indicated groups of

factors fall under the sphere of influence of the creative area on an individual and are characterized by an individual's ability to perceive the messages translated by them.

In the context of the problems under research, topical is the examination of two dialectically opposing trends in the development of modern urban society and the formation of an individual's value-based orientations in their environment, tendencies towards globalization and localization of urban society and the formation of an appropriate type of citizen: global (in the rudimentary form this tendency can be observed in cities with a well-developed metro-net – a person starts thinking about the city in the logic of the station and the availability of this very net. The administrative division, naturally established division into district, attitudes to other objects (streets, sights, shops) gives way to the ultimatum orientation (a five-minute walk from metro). The global citizen can travel huge distances between the points hanging in the virtualized area of the net city) and local (the local citizen thoroughly studies and distinguishes the surrounding urban environment: He has an idea of how to walk about the town and meets his needs by reducing, as far as possible, his contacts with big transport nets).

In the grant-awarding research the authors refer to the social group of “global citizens”, perceiving the city as the phenomenon of the surmountable area represented by dozens and hundreds of individual locuses (destinations), among which we highlight creative areas as well.

The perception by this group of the city as a spatial-graphic scheme and a high degree of the group's mobility enables us to assess their interaction with the territories of creative areas (in the aspect of the formation of their value-based orientations), whose participants in their majority are the representatives of the indicated group.

“Local citizens” are not the target group of the research as they are less perceptive of the creative transformations of the social body of the community and prefer the localized points of access to its resources [3].

Also, from the point of view of the geographical creation, the group of “global citizen” is represented in Russia's megapolises distinguished by the highest concentration of creative areas (according to the conducted research, the largest number of the creative areas in the urban environment (in Russia) is typical of: Moscow, St. Petersburg; a smaller number of the creative areas is represented in the following cities (in descending order) Ekaterinburg, Nizhny Novgorod, Novosibirsk, Kazan, Rostov-on-Don, Ufa, Perm, Volgograd etc.), unlike the “local citizens”, residing in small or provincial towns of the country,

and practically not experiencing the trends in the creative development of the urban area.

References

1. Bakhtin M.M. Collection of works in 5 Volumes. V.1., 2003.
2. Dmitrieva S.V. Actions and needs of a modern man (axiological aspect) // European Social Science Journal. 2014. № 1-2 (40).
3. Ivanov P. Global citizen – comfortable citizen // E-journal <http://urbanurban.ru/blog/reflection/588/Globalnyy-gorozhanin-udobnyy-gorozhanin>
4. Kucherenko A.V. The place and role of universally valued moral principles of I. Kant in modern social reality: doctoral thesis in Philosophy. M., 2014.
5. Mustafaeva D. Sh. Family as a source of the universal and national and ethnic values in the upbringing and development of an individual // The world of science, culture, education . 2015. № 2.
6. Sokolov E.A., Bulankin N.E. Methodology of cultural self-independence of the developing personality of a specialist in humanities. The experience of the philosophical comprehension. M., 2011.
7. Vavilova I.N. The mechanisms of value and value-based orientations // Science and business ways of development. 2012. № 12 (18).
8. Ermakova L., Sukhovskaya D. Conceptual aspects of the thesaurus of the creative space of an urban settlement // International Research Conference on Science, Education, Technology and Management Conference Proceedings. 2017.

SECTION VIII. Philology

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MANIFESTATIONS OF THE ANDROCENTRISM OF CULTURE IN THE LANGUAGE

The emergence of the anthropocentric paradigm has initiated a shift in linguistics studies, with the focus on the human and his place in the world and culture. Language is now seen as a creative instrument of consciousness which allows a person to model and create reality. This postmodern concept adopted in humanities stimulated the active development of gender studies in recent years. The anthropocentric approach to language used in linguistics put forward all aspects of the human personality reflected in the language. Gender relations permeate most spheres of human life. The gender is one of the most important existential and socially significant characteristics of people which determines their social, cultural and cognitive orientation in the world. “The gender approach allows us to take one more step forward and describe not only the anthropocentric system of the language, but also to explore the possibilities and limitations of its subsystems associated with masculinity and femininity as two aspects of human existence” [6, p. 26]. Genderology explores the relationship between the biological sex of people and their cultural identity, mental characteristics, social status, and a behavior strategy in communication. In society, to be a man or a woman means not only having certain anatomic features, but also performing certain gender-specific cultural roles that are prescribed by culture. Simone de Beauvoir said: “One is not born, but rather becomes, a woman”, and this can equally well refer to a man: “One is not born, but rather becomes, a man”. Any society requires a person to comply with the so-called “gender rules”, i.e. to perform certain social roles, behavioral norms, etc according to the gender a person has. From the moment of birth, a person is influenced by the system of gender. Even the clothes color or toys are chosen depending on the gender of the baby. Bringing up a child, the family, the education system, and culture as a whole form the required gender norms in the child’s consciousness. Different cultures have developed different forms of gender identification. In most cultures, “masculine” is connected with spirit, activity, strength, independence, control over emotions, rationality, and

light. “Women’s” qualities refer to the material aspect, chaos, nature, emotionality, being passive and weak, dependence, and darkness. Men and women are assigned opposite social roles. Here we deal with gender stereotypes that have evolved throughout the history of mankind. Gender stereotyping is imprinted in the language, is closely connected with evaluation and determines the expectations from members of a particular gender to demonstrate a certain type of behavior. Gender stereotypes are reflected in the language in the form of set collocations (old Russian sayings: “все бабы дуры” – “all women are stupid”, “волос долгий, ум короткий” – “long hair and short wit”, “женщина – это прежде всего мать” – “a woman’s role is primarily that of a mother”, “кобыла не лошадь, баба не человек” – “a mare is not a horse, a woman is not a man”, “женские умы – что татарские сумы” – “women’s minds are like Tatar bags”, “где баба, там рынок; где две – базар” – “where there’s a woman, there is a chatter, where there are two there’s a madhouse”, etc.) and as general ideas about men and women. Most commonly, the following binary oppositions are identified:

1) abstraction – specificity, logic – intuition; masculinity is associated with logic, and femininity with intuition (S.N. Bulgakov, N.A. Berdyaev, V.F. Ern, V. Soloviev, P.A. Florensky, V.V. Rozanov, etc.); 2) consciousness – unconsciousness, instrumentality – expressiveness; there is a stereotype that female sensuality, expressed emotionality is what distinguishes a woman from a man with his reserve and good sense; 3) power – submission; submission, devotion and sacrifice are considered to be female traits. As V.V. Rozanov writes, a man is believed to have the right to rule a woman, and the woman’s right is “to get a courageous and strong patron as a reward for her love”. F. Nietzsche noted that the happiness of a man may be called “I want!”, whereas the woman’s happiness is “He wants!”; 4) independence, individuality – collectivity; it is believed that women focus on relationships between people, they are democratic and responsive, while men are more independent, dominant and authoritarian in all societies; 5) order – chaos; “Since the male principle stands for structuring, creating the meaning, Logos, order, harmony, since the masculine spirit formalizes, disciplines and organizes, as it is the principle of order” (N.A. Berdyaev); 6) activity – passivity; Aristotle’s theory, according to which power, activity, movement are typical of the male principle, and the woman represents passive matter, was adopted up to modern times; 7) strength – weakness; according to a stereotype, men and women are distinguished by the strength of their personality manifestations. “The ego of a man is the size of a mountain, the ego of a woman ... just leans

against the male ego” (V.V. Rozanov); 8) instability, radicalism – stability, conservatism; it is believed that, unlike men, women are steadier. However, observations show that there is no pure masculinity or femininity in biological or psychological sense. Each person combines the biological and psychological features of both sexes (“androgynous personality”, according to the theory of Sandra Böhm). The interaction of the masculine and feminine principles is very accurately stated in an ancient Chinese symbol. Yin and Yang are two interdependent forces, the unity of which creates the universe. Two equal parts of a single infinity, the spheres are separated by a sigmoid line which represents the dynamics of their relationship. At the same time, each of the parts includes a circle cut out from the opposite half, thus symbolizing that in each of them there is a germ of the opposite.

Gender asymmetry has existed at all times. The woman is a creator, the keeper of life. Nevertheless, for centuries she was perceived as a chaotic, irrational (Aristotle), sensual (Kant), immoral (Schopenhauer) being. Even at the turn of the 19-20th centuries some scientists seriously believed that a woman is a lower product of evolution. The origins of such an attitude are as ancient as the history of mankind itself – Adam has not forgiven Eve the fall from grace yet. Analyzing the image of a woman in history, J. Hunter came to the conclusion that, on the whole, this is an image of inferiority, and from ancient times the process of woman’s emancipation was associated with the decline of morality and destructive social consequences. *Cherchez la femme* – “look for the woman”, for she is responsible for all misfortunes. Social norms change over time; however, gender asymmetry (with the superiority of males) is still there. Feminism has made an important contribution to the development of the modern model of a person, although the term “a feminist” is still negatively evaluated in the society. As V.A. Maslova notes, in people’s consciousness the “feminist” is somewhere between “a lesbian” and “a nymphomaniac” [8, p. 123]. Since the 19th century, women have been actively fighting for social and political equality. A large number of papers analyzing gender issues have been published over the past decades. Within the feminist criticism of the language, researchers point out the androcentrism of modern culture, that the social life is organized in such a way that all masculine is understood as a norm, and all the feminine is seen as pathological. Modern gender studies are based on the fact that it is not the biological or physical differences between men and women that matter, but the social and cultural significance attributed to these differences by the society itself.

Language plays an important role in the reproduction of cultural androcentrism. There are two main areas of research identified in the feminist criticism of the language. First, it is the identification of gender asymmetries (patriarchal stereotypes) in the language system (so-called sexism in language). Gender linguistics builds this its approach to language on the hypothesis of Sapir-Whorf's linguistic relativity, according to which language defines thinking, the process of learning about the world, culture, social behavior and the perception of the world by a person. This theory allows us to conclude that languages functioning in patriarchal cultures are built according to the male picture of the world. Feminist critics of the language point out that masculine language forms are used as norms, which contributes to the marginalization of women in the linguistic picture of the world. Proceeding from this, they insist on rethinking and changing linguistic norms. At present moment, recommendations have been developed to eliminate gender asymmetry and to ensure the correct use of the language. Second, there are studies on the specific features of communication in same-sex and mixed groups based on the assumption that patriarchal stereotypes lead to men and women developing different strategies of verbal behavior. For example, some common features of female verbal behavior that were established include: the active use of diminutive suffixes, polite phrases, lack of dominance, ability to listen to the interlocutor, etc. While masculine verbal behavior is characterized by aggressiveness, dominance, the use of foul language, etc. Modern theories of social identity consider gender as a factor created in the course of communicative interaction since it manifests itself implicitly, so that it may completely disappear in some communicative situations.

Linguistic data is one of the main sources of information on the nature and dynamics of the gender formation as the product of culture and social relations. Mechanisms for constructing gender identity can be studied through language. Let us consider the crucial features of androcentrism of culture expressed in language:

1. Convergence of the concepts "a human" and "a male". In many European languages they are denoted with one word: "man" in English, "homme" in French, and "Mann" in German.

2. Most feminine nouns are derived from masculine ones. When this takes place, they acquire a negative connotation. As N. M. Gabrielyan notes, "the consideration of a woman as a certain derivative of a man is fairly obvious even after a brief overview of some grammatical forms" [3, p. 70]. As an example, she names words denoting professions. For instance, in Russian language, "feminine"

versions of jobs, when compared to “masculine” ones (“arkhitektorsha”, “presidentsha”, “doktorsha”, “general’sha”, “vrachikha”, “directorsha”, etc.) acquire features of colloquialism. The status of “vrachikha” (a female doctor), for example, is much lower than that of a doctor. The “feminine” connotation may remain implicit. In fact, in this case grammar acts as a means of “the infusion into the subconscious, implantation of the thought that a woman engaged in the above occupations is a kind of a parody to a man...” [3, p. 71]. In German-speaking countries, this has led to mass protests, and since the late 1970s they have adopted legislative acts to introduce special feminine job names in official documents. Comparative analysis of some pairs of English words (for example, a mistress – a master, a governess – a governor) reveals differences in the content of the denoted concepts (a mistress: 1. a housewife, an empress; 2. (Br. E.) a teacher; 3. a lover, a beloved; a master: 1. a lord; 2. an employer; 3. the boss; 4. the owner (of the property); 5. the captain of a merchant vessel). R. Lakoff notes that sometimes the differences in the word usage are quite significant: in English “He’s professional” means that a man is an expert in his job, and “She’s professional” means: “She’s a prostitute”. It has been observed that at present, English language has a tendency to change the perception of gender roles. Both sexes are often described as “working”, “having a job”, “high-class”, “endowed with power”. There is also a tendency to describe women as “self-confident”, “self-centered”, “successful”, etc. Researchers have noticed that in many cultures the use of masculine characteristics when referring to a woman significantly raises her status (a masculine set of mind, manlike grip, male personality traits), whereas feminine features attributed to men bear obvious negative connotations (chatty, coquettish, capricious, hysterical, curious, like a woman).

3. Masculine nouns are often used about people of both sexes, because Russian language “prefers” masculine forms (“учителя” – “teachers”, “школьники” – “schoolchildren”, “ученики” – “pupils”, “студенты” – “students”, etc.).

4. At the syntactic level, the agreement is done not according to the real gender of the referent, but the form of the grammatical gender of the part of speech. Russian language tends to transfer the marking of the gender from morphological to the agreement elements: for instance, “директор пришла” – “the director has come”. Syntactic identifications of the gender become significant, especially in colloquial speech (“Вы та самая бухгалтер?” – “Are you that accountant?”).

5. Masculinity and femininity are contrasted both in qualitative (positive – negative evaluation), and in quantitative (dominance of the masculine) aspects. This results in the formation of gender asymmetries, which is expressed in stereotypical constructions. For example: “Мужнин грех за порогом остается, а жена все домой несет” – “A man leaves his sin beyond the threshold, but his wife carries everything home”; “Муж - глава семьи” – “The husband is the head of the family”; “Мое дело сторона, а муж мой прав” – “It’s not my business, and my husband is right”; “Бабе дорога от печи до порога” – “The woman travels from the stove to the threshold”; “Все бабы дуры” – “All women are stupid”; “Волос долгий, ум короткий” – “Long hair and short wit”; “Бабы умы разоряют дома” – “Women’s minds ruin houses”, etc. In addition to that, one should mention set comparative phrases. They reflect not just gender asymmetry, but convey a national character. For example, a Russian woman is often compared with a birch, a rowan tree (“slender, like a birch”); Belarusians compare a woman with a guelder rose; in Lithuanian “a birch” is of a masculine gender, so they do not have this comparison. Let us give some more examples: about women – “stupid like chickens”; “evil like a witch”; “fat as a cow”; “thin as a roach”; about men – “healthy as an ox”; “strong as an ox”; “strong as a bear”; “clumsy like a bear”; “fat like a hippo”; “as handsome as Apollo”; “good-looking as God”; “slender like a poplar”; “modest like a girl”; “gets embarrassed like a girl”.

The findings of association experiments in psycholinguistics reveal the dynamics and functioning of gender stereotypes in the linguistic consciousness. For example, the results of the study on femininity and masculinity images (on the material of Russian language) showed that, in general, female intelligence is highly evaluated, and the attitude toward the woman is mainly positive. Motherhood is still highly appreciated, as well as such qualities as love, selflessness and self-sacrifice. “Masculine” stereotype is not vividly expressed. The most frequent associations are “strong” and “good-looking”. Negative evaluation of men is associated with alcohol addiction and adultery. Many answers, especially those related to personal qualities, were given both to evaluate men and women [5]. There is practically no masculine dominance in the results of recent association experiments. For instance, according to the data of the association experiment conducted by A.V. Kirilina in 1998, all “informants, regardless of their gender, associate the image of a Russian woman with patience, kindness, industriousness, beauty, love (mainly mother love) and self-denial. The informants “appreciate” proactive

attitude, determination, energy and purposefulness of a Russian woman, as well as household skills and motherhood, high moral qualities: loyalty, kind-heartedness, the ability to sympathize, kindness” [5]. In Russian language consciousness, the image of a woman has a clearly more positive evaluation, in contrast to the image of a man. At the same time, femininity is associated not with weakness, but with strength, determination, patience, love, intelligence and beauty. The researcher found that Russian men highly appreciate Russian women, focusing not so much on their appearance, but on personal qualities. N. Kurilovich in his work “Linguistic representation of gender” rightly claims that: “in fact, masculinity and femininity are not opposites, but dialectically interrelated categories which are not something frozen which remains unchanged once and for all. On the contrary, they are social processes. Language is not just a mirror of gender, but is creating it. Thus, this is one of the ways of stating gender. Gender is not some kind of unalterable state of human reality. Gender is, first and foremost, a set of practices and actions. Gender is impersonated by people, and in different situations this can be done in different ways. Giving a linguistic analogy, we can say that gender is not a noun, gender is a verb” [7].

So, gender is a sociocultural phenomenon. Language reflects the social and cultural characteristics of society, that is why the analysis of language constructions can give an idea of the role of gender in the culture, how the concept of gender norms is changing over time, how gender stereotypes are reflected in the language, how masculinity and femininity are interpreted in different languages and cultures, etc. Studies show that sexism is not reflected so much in language as in the minds of people. Language does not only reveal the gender differentiation existing in society, but it is also able to create gender differences.

References:

1. Бурукина О. А. Гендерный аспект перевода. <http://www.auditorium.ru/>
2. Войченко В. М. Отражение гендерных стереотипов в языке и культуре // URL: <http://cyberleninka.ru/article>
3. Габриэлян Н.М. Всплывающая Атлантида (медитации на тему феминизма) // Материалы первой Российской летней школы по женским и гендерным исследованиям «Валдай -97». М.: МЦГИ, 1997.

4. Кирилина А. В. Возможности гендерного подхода в антропоориентированном изучении языка и коммуникации // URL: <http://www.gender-cent.ryazan.ru/kirilina1.htm>.
5. Кирилина А. В. Гендер: лингвистические аспекты. М.: Институт социологии РАН, 1999. // URL: http://www.ahmerov.com/book_1030.html
6. Кирилина А. В. Гендерные исследования в лингвистических дисциплинах // Гендер и язык. М., 2005
7. Курилович Н. Языковая репрезентация гендера. // URL: http://envila.iatp.by/g_centre
8. Маслова В.А. Лингвокультурология. М., 2004.
9. Мацумото Д. Психология и культура. – 2-е изд. – СПб.: Питер, 2003. – 720с. // URL: <http://www.gumer.info/>.
10. Словарь гендерных терминов. Под ред. А.А. Денисовой. М.: Информация XXI век, 2002.

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PROPOSITIONS AS THE BASE OF DERIVED PREPOSITIONS'FORMATION IN MODERN ENGLISH

Introduction.

Nowadays it is possible to analyze semantic properties of lexical units with the help of cognitive approach. In modern works carried out within the cognitive approach the interpretation of the meaning and special features of formation of derived words are analyzed with the help of cognitive modelling, i.e. propositional modelling. This method makes it possible to bound the systematic characteristics of a lexical unit with its function in a context where the realisation of derivative potential of different lexico-semantic groups.

The vast majority of Russian linguists - cognitologists [1, 2, 3] have the opinion that a derived word like a sentence is characterized by a profound propositional structure. In this paper a propositional structure is a specific mental structure reflecting a concrete situation characterized by certain types of relations in it which are classified and organized in human mind. The structure of a proposition contains

arguments and a basic predicate which expresses the relation type between the arguments. The parts of a derived word are seen as the surface realisation of a conceptual structure [4]. A derived English preposition “excluding” is taken into account. An argument ACTION is represented by a verbal stem of a preposition (exclude - deny (someone) access to a place, group, or privilege, remove from consideration (ODE)), an argument denoting dynamics of the action is represented by a suffix -ing (-ing - 1) denoting a verbal action, 2) forming the present participle of verbs (ODE)). The derived preposition is represented by a verbal proposition.

Prepositions are special units which are characterized by some peculiarities. Within the confine of this study a **preposition** is defined as an unchangeable part of speech which lexical meaning is realized in a phrase. As a part of speech prepositions are used for denoting grammatical bounds and different types of relationships of interconnected linguistic signs. Lexical meaning of a preposition is totally realized in a phrase or in a sentence. Prepositions have only general meaning out of a phrase or sentence. The dependence of prepositions from other parts of speech explains the presence of a virtual argument (which can be a n Object) in a proposition. A virtual argument is re-established from a situation context and inherited from potential contexts where the further use of respective prepositions takes place. For this reason, a proposition representing a derived preposition is always characterized by the presence of the virtual argument which is explained by the lack of prepositions' independence. Prepositions organize objects of reality in certain relations to each other. For instance, a derived preposition “excluding” denotes RELATION OF EXCLUSION (not taking someone or something into account, except (ODE)). An action “to exclude (something)” is a motivating opinion where (something) is a virtual argument (OBJECT). The proposition of a derived preposition is the following: EXCLUDED (OBJECT) - RELATION OF EXCLUSION - ACTION. In this propositional model a virtual argument is in brackets. The interaction between the predicates is represented by the basic predicate. In this proposition the basic predicate is RELATION OF EXCLUSION.

A motivating unit expressing concrete knowledge is responsible for the formation of the meaning of the derived unit. But according to the view of Professor L. Babina, the meaning of the derived unit is also formed with the help of context which is traditionally understood as a fragment of written or spoken speech (text) sufficient for the examination of the selected unit [LES]. As prepositions are

characterized by special structural peculiarities, according to professor E. Kubryakova, the context is divided into two types, i.e. the inner context (a stem + affix) and outer context (a phrase or a sentence, where the lexical meaning of prepositions is fully realised). It is essential to take into account not only the context of a phrase but also that of a sentence during the analysis of semantics of prepositions as the sentence context can lead to the further revelation of some peculiarities of derived prepositions (LOCATION, TIME, EXCLUSION, etc.). Professor M. Yantsenetskaya holds the view that prepositions are fully expressed only in a sentence, in the rest of the cases we deal with their compressions of this or that type [5].

Material and methods.

The subject of this research is a cognitive base of formation of the derived prepositions in modern English. The units of analysis are the English derived prepositions (54 units) selected by means of continuous sampling from different lexicographical sources [7, 8, 9, 10, 11] and also from “The British National Corpus”. A whole complex of methods was used in this research: word-building, contextual, conceptual, cognitive methods.

Results.

As an example let's have a look at the following sentence: “High fences **around** Admiralty installations gave good views as the birds perched briefly on the wires” (BNC). The proposition LOCATION (PLACE) - RELATION OF LOCATION - DEFINING PLACE. The argument DEFINING PLACE is represented by an adverbial motivating stem “around”, the argument LOCATION is represented by a derived preposition “around”, the virtual argument (PLACE) is realised in the sentence context with the help of a phrase “Admiralty installations”. The relation between the arguments is expressed by the basic predicate - RELATION OF LOCATION.

During the exploration of semantic and cognitive peculiarities of the derived prepositions the following propositions were discovered:
LOCATION (PLACE) - RELATION OF LOCATION - DEFINING PLACE (opposite, overtop, around) (this proposition is realised in language with the help of the following word building model: Adv → Prep),
INCLUSION (OBJECT) - RELATION OF INCLUSION - DEFINING QUALITY (withal, forbye) (Adv → Prep),
INCLUSION (OBJECT) - RELATION OF INCLUSION - ACTION (including, respecting, considering) (V → Prep),

TIME (OBJECT) - TEMPORAL RELATION - ACTION (come) (V → Prep),

EXCLUSION (OBJECT) - RELATION OF EXCLUSION - ACTION (except, excluding, bar) (V → Prep).

LOCATION (OBJECT) - RELATION OF LOCATION - QUALITY (inside, outside),

TIME (OBJECT) - TEMPORAL RELATION - QUALITY (pending).

Conclusion.

To conclude, we are to admit that both initial and derived prepositions and conjunctions express different types of relationship between the phenomena of reality. But, in contrast to the initial prepositions and conjunctions, the derived ones both express different types of relationship and point to their connection to quality, actions, objects, etc. represented in other parts of speech.

In this research with the help of cognitive modeling we have tried to reveal the structures which a speaker operates during the act of secondary nomination. Also, there has been an attempt to reveal the process of compression, extension and detalization of the information in a derived word. We have tried to reveal the derivational ways and steps of nomination which entail the transition from old to new knowledge.

References

1. Babina L. Kognitivnye osnovaniya proizvodnyh slov, obrazovannyh ot imen sobstvennyh / L. Babina, I. Bochkareva // Voprosy kognitivnoy linguistiki. -Izd. TGU, 2011. - № 356.
2. Boldyrev N. Vtorichnaya representatsyya kak osobyi tip predstavleniya znaniy v yazyke / N. Boldyrev, L. Babina //Philologicheskyye nauki.- 2001. - №4.
3. Kubryakova, E. Yazyk i znanie: Na puti polucheniya znaniy o yazyke: Chasti rechi s kognitivnoi tochki zreniya. Rol yazyka v poznanii mira. Moscow: Yazyki slavyanskoi kultury, 2004.
4. Pozdnykova E. Kategoriya imeni deyatelya i puti ee sinhronnogo razvitiya v kognitivnom i nominativnom aspekte: diss. PhD / E. Pozdnyakova. - M., 1999.
5. Yantsenetskaya M. Propositionalnyy aspekt slovoobrazovaniya (obzor sibirskih derivatologov) / M. Yantsenetskaya // Vestnik Tomskogo gosudarstvennogo universiteta. - Tomsk, 2001. - № 1 (27).
6. British National Corpus]. – URL: <http://www.natcorp.ox.ac.uk/>
7. Collins Dictionary [electronic source].- URL: <http://www.collinsdictionary.com>
8. Free Dictionary [electronic source]. - URL: <http://www.thefreedictionary.com>

9. Linguistichesky encyclopedichesky slovar. - URL: <http://www.tapemark.narod.ru/les/>
10. Oxford Advanced Learner's Dictionary. Ed. By S. Wehmeier, C. McIntosh, J. Turnbull, M. Ashby. 7th ed. Oxford, 2005.
11. Oxford Dictionary of English. Ed. by C. Soans, A. Stevenson. 2d.ed. Oxford, 2003.

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**USING INNOVATIVE TECHNOLOGIES IN MOTIVATING
STUDENTS OF NON-LINGUISTIC SPECIALITIES
IN FOREIGN LANGUAGE LEARNING**

The rapid development of international relations, forms of interpersonal communication needs a modern man not only be a highly qualified specialist, but speak a foreign language. "With the development of international business contacts, development of new foreign technologies and intensification of professional activities in contact with foreign specialists especially increased demand for specialists who speak foreign languages. At the international labor market success depends largely on the level of knowledge of foreign languages» [2, p.16].

The President of the Republic of Kazakhstan N.A. Nazarbayev repeatedly talked during different official performances that knowledge of, at least, three languages is important for the future of our country's development. In his Message of 2007 "New Kazakhstan in the new world" Nursultan Abishevich Nazarbayev suggested to begin stage-by-stage realization of cultural project "Trinity of languages". "Kazakhstan must be perceived in the whole world as a highly educated country, the population of which uses three languages, that is Kazakh as an official language, Russian as a language of international communication and

English as a language of successful integration in a global economy", - Our President said. [7]

Trilingual education in Kazakhstan is gaining increasing importance and today is one of the main directions in higher education. Its task is to prepare competitive specialists speaking multiple languages. The activities in implementing trilingual education have been carried out since the 2012-2013 academic year in all non-lingual specialties of L.N Gumilyev Eurasian national University.

Learning a foreign language in higher school requires new approaches at the present stage.

The English language as a mandatory discipline "Foreign Language" for Bachelors is organized in 2 stages at our university: «General English» is taught to students during their first year of education and «Professionally oriented English» to the 2nd year students.

The main purpose of teaching the discipline "Foreign Language" is increasing the level of foreign language knowledge achieved at the previous level of education and students' mastering the necessary and sufficient level of communicative competence (in its composition with linguistic, sociolinguistic, pragmatic competences) carrying out communicative tasks. And the task in teaching discipline "Foreign Language in the professional sphere" is to improve foreign language communicative competence required for professional and business activities.

To achieve the objectives in syllabuses the question of the motivation of students of non-linguistic specialties like economics, legal, information technology, natural sciences and others to learning the English language is key and fundamental, since the majority of this category of students are lack of motivation to learn a foreign language.

Formation of interest to educational activity depends on the content and organization of pedagogical conditions of educational activity of students. These activities should be organized pedagogically and psychologically so as to constantly cause and maintain motivation, experience it and manage it, while "motivation" according to A.N. Leontyev is "the motor of activity".

Formation of motivation is a complex process, since not all students possess positive attitude to learning, and it is difficult for any teacher to interest different people with the same subject. In addition, it is necessary for a teacher to take into account the psychological, personal capabilities of higher school students, as well as socio-psychological possibilities, inherent specific interactions and relationships of any

academic auditorium. Therefore, the process of activating the individual trainee's potential is provided by the organization of joint creative activity of a teacher and a student. After all, many students are learning a foreign language indifferently, considering that the subject is not the primary at faculties of natural sciences or information technology or others, and without realizing the need to improve their knowledge in order to prepare for a future successful career. A teacher's task is here to convince pessimistic students that the quality of their work can be the key to win a place in society, to find and assert himself as a person.

According to Badmaeva B. TS. the basis of the training is “active cognitive activity of a student, leading to the formation of the ability to think creatively, using the knowledge and skills acquired in the process of learning” [1, p. 46]. An impact on the emotional sphere of students can be of great help to motivate trainees and it can be achieved by introduction of new technologies like Case Study method, problem-based learning, project method and corporation, Internet resources and training tools (for example, in education discourse on the basis of print and audible professional foreign language texts). Each of them is aimed at professional and social adaptation of the individual, as well as his efficient development. So, let's consider these methods in detail.

The case study method usually involving three stages such as individual preparation, small group discussion, large group or class discussion has a wide range of advantages in teaching a foreign language. It helps to develop and raise critical thinking (application/synthesis/evaluation) and reflective learning, develop problem solving skills, improve student's organizational skills – as case studies are sometimes very dense in information, the key is to condense this information into logical sections and organize them so that a clear picture of the problem can be understood, enhance communication skills as case studies can be used to improve the student's written and oral communication. Non-verbal communication skills are also practiced by using case studies as it trains managerial communication skills such as holding a meeting, negotiating a contract, giving a presentation etc. This method forces students into real-life situations to require them to get involved in managerial communication, enhances the listening/cooperative learning skills, helps to connect theory and practice. [5, p.7]

Problem-based learning (PBL) is one of effective active methods of teaching foreign languages that attracts much attention of those who are interested in raising students' motivation and competences level.

Problem-based learning is a student-centered instructional strategy in which students collaboratively solve problems and reflect on their experiences. Problem-based learning is based on the educational theories of Vygotsky, Dewey, and others, and is related to social-cultural and constructivist theories of learning and instructional design. The basic features of PBL are: learning is driven by challenging, open-ended, ill-defined and ill-structured problems; students generally work in collaborative groups; teachers are "facilitators" of learning. In PBL, students are encouraged to take responsibility for their group and organize and direct the learning process with support from a tutor or instructor. Problem-based learning can be used to enhance content knowledge and foster the development of communication, problem-solving, and self-directed learning skill.

Project method is one of the most pressing contemporary technologies in teaching foreign languages. It combines the elements of problem-based learning and collaborative learning that allows achieving the highest level of mastery of any subject, and foreign language in particular. Project method forms students' communication skills, culture, the ability concisely and audibly formulate thoughts, be tolerant to the opinion of partners in communication and develops the ability to extract information from a variety of sources, to process it with the help of modern technologies. [4, p.5] All these factors create language environment that results in the appearance of the natural need to interact in a foreign language.

Project-based learning does not contradict the traditional ways of learning. It helps to activate students since most of them have an interest for new knowledge. Such kind of motivation - the desire to successfully develop theme of the project is often stronger than the demands of parents and teachers to study hard in order to get excellent or good marks.

The work on the project can be carried out either individually or in groups and may be fulfilled short-term or long-term. Depending on the type, they can be presented at the next lesson, or at the final lesson. It is important to organize the work using project, creating the most favorable conditions for the disclosure and manifestation of the creative potential of the participants.

Using project method in our work, we came to conclusion that this method is very effective in generalizing, consolidating and revising educational material, especially in the organization of its practical application. For us there is a particularly appealing fact that project-based learning actively influences the motivation of student. [8]

The work with the project - presentation encourages students to use **computer technology**. It should be noted that many students get their first experience in Power Point preparing for such kind of projects. Project technology allows students to integrate a variety of activities, making learning enthralling, more interesting and therefore, efficient. Students with different abilities become successful and feel they are needed in the project activities. Educational, social and communication skills are developed during the implementation of projects. [4] At the preparatory stage, students learn how to work with dictionaries, reference books for posts, and of course learn to sort out their work. Project-based learning change students' attitude to the computer: our multiple experience showed that computer had been transformed into a source of information and one of the ways of presentation of the material.

Summing up, we would like to say that in contrast with traditional ways, the usage of innovative forms of learning plays a major role for a student in gaining knowledge. Furthermore, a teacher should not solve only educational tasks, but also must create conditions for students' independent research, encouraging them to develop orientation skills and independent decision-making. The implementation of innovative methods in teaching is an essential prerequisite in solving educational problems. Constantly evolving system of information management in combination with technical support provides the highest quality of educational process. Thus, the above discussed innovative technologies, which our teachers apply at foreign language lessons, enhance motivation for its study and effectiveness of the learning process, as well as its individualization, active pedagogical interaction of a teacher and students, create optimal conditions for the creative use of information in independent cognitive activity of students, as the foreign language professional competence becomes the most important professional quality which is more in demand in the labor market.

References:

1. Badmayev B. C. Methods of teaching psychology: Textbook for students Higher educational institutions. - M.: VLADOS, 2004
2. Wojtowicz I.K. Foreign languages in the context of continuous education: a monograph / ed. T.I. Zelenin. - Izhevsk: Publishing house "Udmurtia University", 2012.
3. Casanave C.P. Writing games: Multicultural case studies of academic literacy practices in higher education. Mahwah, NJ: Lawrence Erlbaum, 2002.

4. Guzeev V.V. Method of projects as a special case of integrative learning technology. // The headmaster, 1995.- №6.
5. Kuimova M.V. The use of case study method in teaching English as a foreign language in technical university // Young scientist. - 2010. - №1-2. T. 2.
6. Nazarbaev N.A. A Message to the population of Kazakhstan, 2007
7. Novikova. T. Project technology in the classroom and in extracurricular activities. // Education, 2000. - №7.

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**WEBLISH AS A RESULT OF VARIATION PROCESSES
IN A LANGUAGE¹**

Up to date, the importance of the Internet can not be overemphasized, as it is a convenient, powerful and rich source of information, as well as a means of communication that penetrates almost every sphere of social life. All of the above allows the modern society to rightfully be called an informational one.

With the advent of the Internet, people have an invaluable opportunity to communicate with each other not only in person, but also indirectly, that allows them to contact people from all over the world. In addition, the Internet helps people with disabilities who do not have enough real contacts with other people. Internet also provides tremendous educational opportunities, because now there are even those sources in it that can not be found in the library.

All the variety of advantages and possibilities of the Internet, its accessibility and simplicity of the use resulted in appearing of a new specific layer, in which there are significant differences from any classical language. Such dialects are characteristic of almost all languages, but most often they experience through borrowing from the

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English language. This language even accepted its own name, *Weblish*. The vocabulary of the language is constantly changing. Changes are monitored in it, they are monitored, and then fixed, which contributes to the normal perception of the language, as a living and constantly in the development of phenomena. To get an idea of culture of a society, it is enough to look at the complete speech image. There are two concepts here: normative vocabulary and non-standardized vocabulary. A speech that is pure and correct is called the norm. It is desirable to orient to this high ideal of using the language. It is also called the literary norm. It is peculiar to the speech of educated people. The non-standardized vocabulary also has another name - slang. Computerization and "Internetization" are the very important linguistic aspects. They consist of the peculiarities of borrowing the computer vocabulary and the lexicon of the Internet; in the methods of entering into the oral and written texts of lexemes and composite nominations of a given layer of vocabulary; in the delineation of the general and terminological vocabulary of this layer of borrowing; in the problems of translation and introduction of the English lexicon of the Internet; in the formation of appropriate terminology and specific slang, characteristic primarily for the younger generation.

What's that makes the Internet language of current interest for modern researchers? The main point as we accept it here is that the Internet is a new sphere in which the language is realized, and also a special medium for communication, thanks to it, people communicate in new ways, speech behavior and the stereotypes change, language manifests itself in its new forms of existence, which gives an extensive layer for further study. The vast majority of users at the non-professional level do not have a sufficient level of English, which is closely related to the computer and the Internet. Nevertheless, they can not help using the new terminology. This leads to the fact that users need to understand the slang of the Internet for competence in this area and to freely use the huge amount of information found in Internet texts.

When communicating on the Internet, chatting, writing via e-mail and being on forums, surfing the social media people constantly come across a colloquial language built on abbreviations, various pictograms and consonances. This language is called *Web-communication*, or *weblish*, a new way of interaction between people in the language aspect, which is called written conversational speech.

Network slang has its own functions. They are: saving time, i.e. a smaller amount of text transmits a large amount of information. This explains the fact that slang is based on pictograms, contrastions of the

most common words and abbreviations. In addition, the network slang serves to encrypt the transmitted meaning (Internet dialect *leet* from Eng.*elite*) - the meaning was encrypted by replacing the Latin letters with options for the American standard code for the exchange of information.

The first mention of slang refers to 1975, when Raphael Finkel in his small collection "Jargon File" combined hacker's slang of various technical culture. But when the World Wide Web appeared, this dictionary began to expand.

With the popularization of the Internet, slang from virtual life began to move gradually into reality. In 2008, the New York Times newspaper published a collection of Internet-related words (*Fail*, *longphoto* (that's how the *Flickr* users name the video less than 90 seconds long) and terms, with the combination of *tw*, which were invented by users of the social network сети *Twitter* (*tweeple* – *twitter people or users of Twitter*, *twittastic* – *fantastic*, *tweet(ing)* – *the act of posting to Twitter*, etc.). Lots of the Internet-abbreviations formed a basis of the everyday communication for millions of Americans.

Up to date, Internet slang is full of a huge variety of short and well-known abbreviations:

JK (*just kidding*);

LOL (*laughing out loud, laugh out loud*);

OMG (*Oh my god*);

IMHO (*in my humble opininon*).

As well as more complex abbreviations:

KTHXBAI (*OK, thanx, bye*), which expresses dislike to the interlocutor and allows you to stop the conversation;

LYLAB (*Loveyoulikeabrother*) или *LYLAS* (*Loveyoulikeasister*), used to express the location to the interlocutor.

Network communication is characterized not only by the presence of slang in it, but also there is intentional distortion of the writing of words or the making grammatical constructions that are incorrect from the point of view of grammar, which the teachers of a foreign language react violently, believing that this increases illiteracy. Often for an Internet user, the words *no* and *know*, *than* and *then*, *to* and *too* do not make any difference, they can make spelling mistakes (*laBtop* - *laptop*, *alright* - *all right*) or even use grammatical constructions that do not exist. Some of the teachers are right: adolescent slang adherents do not even know that there are the right options.

The style of Internet communication has a tremendous impact on society, it changes its speech, forms a completely new, *networked* lifestyle and thinking.

It also started a new type of communication. The Internet language is now considered by the language researchers not to be a variant of written communication, but more than that to exist like a single type, a virtual discourse. It means that the differences from what the written language is are so vast that it is more productive to study it like a separate type of discourse, to work out the special means of study, etc. What concerns modern Russian researches, virtual discourse studies have grown rapidly recently.

The use of the virtual reality language has spread widely among Internet users around the globe, but it is still an obstacle for those people who use the Internet not too actively.

Many people at the first meeting with the language of Internet communication on chats and forums feel a stupor, because they absolutely do not understand this language, diametrically different from the English they were taught in educational institutions, there is also a feeling of illiteracy. Nevertheless, after analyzing some chat rooms and forums, it can be argued that this is far from it.

In messages on chats and forums many grammatical and phonetic forms are reduced. As for the temporary forms of the English language, the most common is the *Simpletenses*, although this may be incorrect from the point of view of grammar: *met him today - I have built it today* (instead of *I have met him today*), *I'm learning english for 5 years - I study English for 5 years* (instead of *I have been learning English for 5 years*).

Often these sentences without a subject are used, but not in an imperative mood: *want to practice my English* (instead of *I want to practice my English*).

There is also a simplification in writing words (*I love you - I luv u, are you - en or r u*).

It was above mentioned that the Internet language consists of a spoken language, a language of sounds, pictograms and abbreviations.

In the language of harmony there are no difficulties, some numbers and letters are consonant with words, and it takes less time to write them:

to – 2;

for – 4;

..ate.. – 8;

than.. – 10;

4u = for you;
2All – To All;
L8r – Later.

The language of abbreviations has an order of magnitude higher in complexity; it is intended only for initiates who are members of a certain community.

However, several abbreviations are familiar to all native English-speakers, so these abbreviations should be taken as part of the language:

ASAP - as soon as possible (as quickly as possible);
laughing out loud (I'm laughing!);
age sex location (Who are you, where from? (form of standard property));
be back later.

However, the inhabitants of chat rooms have almost no auxiliary means: the timbre of voice and speech, the arrangement of accents over some components of the utterance, emotional coloring, diction, gestures and facial expressions.

This "emotional deficit" is to be compensated, so the emotional reactions appeared - "smiles" (English smile - "smile"), which gained great popularity all over the world.

It should be noted that the dialed, alphabetic and symbolic pictograms express both mimic expressions (joy, anger, etc.) and various gestures.

This can be illustrated by the following examples:

:-) Your main smile;
;-) winking smile;
:-(frowning;
: -X can't speak;
: - / Skeptic;
: -o Ooh-oh.

Also, to compensate the timbre and to draw attention to a certain segment of the statement in Web-communication, "caps" is used (from the English Caps Lock - the blocking of the upper register of the keyboard, the writing of a phrase or its part by capital letters), which is understood as increasing the voice on the World Wide Web.

The phonetics of the Web language has sufficient variability. Let us take one and the same word. It can be pronounced and recorded with varying degrees of reduction. This affects the speed of typing a certain person, his features as a person and even his mood at the time of typing. Conversational speech has a high level of reduction, which strongly deforms especially frequently occurring words.

Thus, the Internet language is constantly changing, replenished with re-cited, transcribed foreign words, which leads to the emergence of a new semiotic system. But, it is quite obvious that Weblish even given its growing popularity and increase of its users' amount will still present the same informal style that the academic communication can't relate to.

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THE ROLE OF INTERROGATIVE SENTENCE IN COMMUNICATION

It is extremely important to consider any aspects of the human personality that are reflected in the language in linguistics of the late XX - early XXI centuries. Modern linguistics is looking for connections between how the statement is constructed, and how communicants are related to each other, what they are in terms of their social, psychological, national, etc. characteristics. In this article we consider not just a stable, but growing interest in modern linguistics in the communicative and pragmatic component of linguistic phenomena.

The focus of modern linguists is not a static language system, but a language in its actual functioning. Therefore it is logical to expect the appearance of works devoted to the problems of colloquial speech, various aspects of studying the communicative component of the language, especially its syntactic level, the role of extralinguistic factors in the dialogue, etc. The description and study of the characteristics of living colloquial speech at the present moment is one of the most important problems of linguistics. Even Baudouin de Courtenay once noted that "... the first and most important concern should be full and comprehensive observation and study of the phenomena of living speech for linguist " [1, p.51]. And today, many researchers agree with the stably established idea that "the evolution of language takes place in the sphere of the language of everyday oral communication" [2, p.4].

Language is a means of communication, implying the transmission of messages. But communication is broader than just the exchange of information. You waved to your friend - and he answered the same; stroked the kitten - and it rubs against your feet. In both cases communication took place, but there was no transfer of information. Signs of greeting, stroking are just elements of communication. Significantly expands the possibilities of communicating only the word. It allows not only to satisfy curiosity, but also to express an attitude towards the interlocutor and to what is happening, to express one's will, seeking its fulfillment by others - that is, to effect a verbal influence. Speech communication is typically human activity. In the word "communication", a connection with the word "general" is visible. Indeed, in communication, a person shares knowledge, opinions, feelings, desires - in other words, what was mine is made common to us. As the famous philosopher Einstein said, if we have an apple and we exchange them, then everyone will have an apple; If two people exchange ideas, then everyone will have two ideas.

The analysis of communicative situations and various forms of speech activity shows that the interrogative sentence is an important, and often dominant, form of interaction. The interrogative sentence as a form of requesting information as a way of obtaining information as a way of strategic communication planning as a way of changing the position of communicants, as a marker of the interlocutor's relationship to the speaker and / or said, as a means of introspection, self-control, self-organization. One of the important aspects of linguistic inquiry studies is the problem of the correlation of the question and the interrogative sentence, on which one should stop. Today, as a rule, they recognize that the question is a kind of speech action, communication, interrogative sentence is a form of fixing thought [3, p.190]. Despite the close relationship between the content of the questions and their external language design, these aspects certainly require a delineation for clarity and completeness of analysis. Thus, the "question" is a characteristic of the concept in its structural-semantic, content plan, and we say the interrogative sentence when we focus on the expression plan, the language specifics.

Concerning the origin of the phenomenon of questioning, the statement of Restan is widely known, saying that the genesis of the question "as the genesis of the language itself goes back to ancient times ... As a means of communication, language needed to meet the needs of social communication needed not only an incentive and narrative proposals, but also in interrogative "[4, p.27]. And to date his social role

is confirmed, including, when studying the communicative and pragmatic specifics of a vocal proposal. Thus, the analysis of communicative features interrogative sentence in speech may indicate certain changes in the sphere of everyday communication. The interrogative sentence is one of the speech indicators of the influence of social changes on the distinctive features of the speech behavior of different social groups, and so on.

In communication, dialogue takes a significant place and helps to better understand, express thoughts clearly using interrogative sentences and analyze the specifics of the use of language by modern man, allows to judge the features of speech behavior and personal characteristics of communicators. It is in the dialogue that the psychological basis of interpersonal relations of communicants is reflected. In connection with the global significance of dialogical communication in the context of the growing interest in the language person, it is the dialogical material that comes to the fore when linguistic analysis is taken. Dialogue - this is certainly an interesting object of description and an inexhaustible source of scientific inspiration for every linguist. The role of dialogue in our lives, according to Bakhtin, can not be overestimated. He is the driving force of human life: "To be means to communicate in a dialogical way. When the dialogue ends, everything ends ... Two voices - the minimum of life, the minimum of being. Questions of dialogical communication were also raised in the works of the philosophers L. Feuerbach, SL Fank, K. Jaspers, S. Kierkegaard, M. Scheler, M. Buber, etc. Despite various approaches to the interpretation of the dialogue, one can speak of their recognition of the dialogue as a way of knowing the world, the criterion of truth, the source of society's improvement and self-development. Communicative features interrogative sentence in colloquial speech or dialogue reveals their ability to reflect information about a person's attitude to speech actions, to recognize and identify communicative meanings, including implicit ones, i.e. determines their role in the choice of verbal behavior, verbal regulation of the process of communication.

Anthropocentric orientation, which is of paramount importance and relevance in modern works on language, is manifested in the communicative aspect. First, live speech with maximum completeness reflects the current processes in the language, as well as their extralinguistic features. The set of extralinguistic factors that influence the communication process, their interrelationship and actualization in the colloquial discourse are interrogative sentences that revealed new

communicative opportunities in new perspectives of analysis, within the framework of a conversational domestic dialogue.

So, the question is not only a "form", considered as an interrogative sentence, but also a "method", an "admission". Carrying out functions such as generating information, requesting information, obtaining information, presenting information, organizing information, reflecting on communicative activity, changing the position of the communicant, etc., the question is the basis of the communicative process, and possession of it ensures the success of communication. Knowing the skills and communication skills is especially important now, when our country is in a competitive environment, in conditions that require a new person – business like, flexible, oriented in new situations, ready for change, able to build contacts with other people for joint activities. To train such a person are called teachers of schools, psychologists, social educators and teachers of higher education.

Literature:

1. Boduen de Courtenay IA Selected Works on General Linguistics: In 2T. - Moscow: Nauka, 1983. - T. 2. - 390 p.
2. Tsirelson N.Yu. The interaction of initiating replicas and replicas in the dialogue: on the material of modern English: the day. ... cand. philol. sciences. M., 2002. 195s.
3. Bernstein PA, Shramm A.N. On the logical form of the question and the grammatical means of its expression. Uch. Kaliningr.pedine-ta. Вып.6, 1999.- С. 189-227.
4. Restan P. Syntax of the interrogative sentence. Universities lorlaget. Oslo, 1992. 880c

SECTION IX. Jurisprudence

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COMPARATIVE LAW CHARACTERISTICS OF CURRENT LEGISLATION ON STATE CADASTRAL VALUATION OF LANDS

Modern Russia has ample land resources which represent the national value and are protected on the constitutional level. The long period of socialistic land property depreciated land. Extensive land use along with the lack of appropriate economic protection measures caused severe damage to land resources. Thus, between 1965 and 1990s the area of agricultural lands reduced by almost 48 million hectares [7]. Such situation could not go on forever and it was time to take vigorous actions aimed at restoration of land and establishing a rational land use regime.

As a matter of fact it was the stated circumstances that indicated the significance of carrying out a land reform. The land reform was a set of organizational and legal, economic and technological measures directed at the switch to a new agrarian system which would correspond to the character of the market economy. In late 1990 the Law 'On land reform [1]' was enacted that became a starting point in the development of land relations and formation of the agrarian system of sovereign Russia. For implementation of the land reform a special program suggesting a stage-by-stage change of land relations in Russia was developed.

The Land Code passed on April 25, 1991 became quite a significant document during the first stage of the reform. The first stage of the reform ended only in 1998 and its results provided evidence of major changes in the system of land relations. First of all, the monopoly of state ownership of land was fully and completely abolished. From now on the title to land plots could be transferred to individuals and legal entities. The second stage of the reform took place in 1999-2002. During the period the government managed to develop, introduce and implement a complex of interrelated measures aimed at enhancing the efficiency of the mechanism of regulation of land relations and state administration of land resources.

It must be noted that the land reform also affected the state land supervision which in the Soviet period was carried out in the form of state land inspection in the sphere of use and protection of land. For a long time the task of the state land inspection in the Soviet Union was to ensure the land legislation by various ministries, agencies and committees, citizens and organizations. Such control was carried out by the Soviets of People's Deputies, their executive and administrative organs as well as by the land surveying service of the system of the Ministry of Agriculture of the USSR which consisted of:

a) The Main Department of land use and land surveying of the Ministry of Agriculture of the USSR;

b) main departments (departments) of land use, land surveying, field-protective forestation and protection of lands of the ministries of agriculture of the constituent republics;

c) departments (branches) of land use, land surveying, field-protective forestation and protection of lands of the ministries of agriculture of the autonomous republics, agriculture departments of the Soviets People's Deputies of territories and provinces;

d) groups of senior surveying engineers of the agriculture departments of the executive committees of the Soviets People's Deputies of the districts.

Furthermore, the head of the Main Department of land use and land surveying of the Ministry of Agriculture of the USSR at the same held the position of main state inspector in the sphere of use and protection of land of the USSR, his deputies were the deputies of the main inspector in the sphere of use and protection of land of the USSR, and other head officers and public officials mentioned above were the correspondent main state inspectors, their deputies or district state inspectors [3].

The inspections were conducted in accordance with annual plans. Along with land law compliance inspections regarding particular matters (violations) the plans provided for one or two inspections of other enterprises, organizations or institutions regarding all basic matters of land law compliance (proper land use, carrying out activities on soil conservation, prevention of soil salinization, genesis of bog soils, bush and half-grown forest invasion of farming land, on carrying out land survey projects and other projects on land use and soil conservation, conducting land registration, garden plot use and other matters) [4].

During the land reform the tasks of the state land use and protection inspection were to ensure by all state and non-governmental organs, state and cooperative enterprises, institutions organizations, and citizens the compliance with the land law for the purposes of efficient use and protection of land.

The structure of supervisory organs and the scope of their authority changed insignificantly, but their powers were distributed among agencies. In 1992 the following organs became the dedicated government agencies which carried out the state land use and protection control:

- a) The Committee for Land Reform and Land Resources under the Government of the Russian Federation and its local agencies;
- b) the Ministry of Ecology and Natural Resources of the Russian Federation and its local agencies;
- c) the State Committee for Health and Epidemiological Supervision and its local agencies;
- d) the Ministry of Architecture, Construction and Housing of the Russian Federation and its local supervisory organs in the sphere of architecture and construction [5] (pursuant to the Regulations of 1993 – the Russian Federation State Committee for architecture and construction matters and its local agencies) [6].

The Land Code of the Russian Federation of 2001 introduced the concept of state land control over the compliance with the land law and requirements of land use and protection by organizations of any type and form of ownership, by their head officers, officials and individuals (article 71). The Code also introduced the concept of municipal, social and industrial land control (articles 72-73). Due to the fact that land is the essential component of the environment closely and conversely related to the other environmental media (firstly, to the Earth interior and hydrosphere), like other natural resources it is used and protected as the base of living and activities of the peoples occupying the correspondent territory (section 1 article 9 of the Constitution of the Russian Federation). With regard to this, the state land control (since 2011 – supervision) is a part of the state ecological control (supervision) system [2].

References

1. Law of the RSFSR of November 23, 1990 No. 374-1 'On land reform', as amended on April 28, 1993, *Gazette of the Congress of People's Deputies and the Supreme Soviet of the RSFSR*, 1990, No. 26, article 327 (repealed). [in Russian]

2. Federal law of January 10, 2002 No. 7-FL ‘On the environment protection’, as amended on December 29, 2015, *Rossiiskaya Gazeta*, 2002, January 12. [in Russian]

3. Decree of the Council of Ministers of the USSR of May 14, 1970 No. 325 ‘On approval of the Regulations on state land use control’, *Collected regulations of the Government of the USSR*, 1970, No. 9, article 71 (repealed). [in Russian]

4. Instruction of the Ministry of Agriculture of the USSR of July 26, 1974 No. 224-3/1 ‘On the procedure of state land use control carried out by the land surveying agency of the system of the Ministry of Agriculture of the USSR’, *Bulletin of regulations of the ministries and agencies of the USSR*, 1974, No. 11. [in Russian]

5. Decree of the Government of the Russian Federation of August 17, 1992 No. 594 ‘On approval of the Regulations on the procedure of carrying out the state land use and protection control’, *Rossiiskaya Gazeta*, 1992, August 2. [in Russian]

6. Decree of the Government of the Russian Federation of December 23, 1993 No. 1362 ‘On approval of the Regulations on the procedure of carrying out the state land use and protection control in the Russian Federation’, *Rossiiskaya Gazeta*, 1994, January 14. [in Russian]

7. Novikov A.I., Gubin V.A. Land reform and its logical contradictions, *Gazette of Kostromskoy State University*, 2013, No. 2, Vol. 19, P. 55. [in Russian]

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**ATTORNEY-CLIENT PRIVILEGE:
NEW CONTEXT OF THE OLD ISSUE**

The institute of secrecy (privilege) plays a great role in criminal procedure, despite publicity of the last one. On the one hand, there is investigative privilege, and on the other hand we have the attorney-client privilege which collectively ensure the adversarial principle. And while an investigator as an official did not need any supplementary guarantees, the advocacy institution could do with some of those just a while ago. The current situation has been changed by the Federal Law No. 73-FZ of April, 17, 2017 ‘On the introduction of amendments to the

Criminal Procedure Code of the Russian Federation'. A new article 450.1 regulating certain investigative activities in respect of an attorney was incorporated into the Criminal Procedure Code. The new regulations are to be applied not only to office premises but also to dwelling premises which are used by an attorney for carrying out legal practice.

The analysis of article 450.1 of the Criminal Procedure Code of the Russian Federation shows that the following mandatory requirements for carrying out these investigating activities may be distinguished:

1. *Initiating criminal proceedings against an attorney or bringing him into the proceedings as a defendant.*

It must be noted that this requirement does take place whereas general requirements for carrying out mentioned investigating activities are not that severe. Pursuant to section two, article 176 of the Criminal Procedure Code of the Russian Federation investigation of a crime scene, documents or objects may be carried out before the initiation of criminal proceedings. During verification of a report of a crime section one, article 144 of the Criminal Procedure Code of the Russian Federation grants, inter alia, a right to demand and obtain documents and objects, seize them, investigate a crime scene, documents, or objects, require documentary inspections, audits, examination of documents and objects, engage specialists in these measures.

Before the initiation of criminal proceedings against an attorney or bringing him into the proceedings as a defendant investigation of dwelling or office premises used for carrying out legal practice may be performed only in the event that in specified dwellings the essential elements of a crime have been discovered.

2. *Judge's decision on permission to execute a search, examination and (or) seizure.*

Examination of dwelling may be carried out only with the consent of persons living in the premises or pursuant to the court ruling (section five, article 177 of the Criminal Procedure Code of the Russian Federation).

Section two, article 182 of the Criminal Procedure Code of the Russian Federation provides that a search shall be executed based on the investigator's order, and only a search of dwelling shall be executed by the court ruling (section three, article 182 of the Criminal Procedure Code of the Russian Federation). The said rules shall also apply to seizure.

A judge's ruling on permission to execute a search, examination and (or) seizure in respect of an attorney includes data, which serve as the ground for executing the said investigative activities, as well as particular declared objects. Any other objects shall not be seized excluding objects and documents which refer to *res extra commercium* (section two, article 450.1 of the Criminal Procedure Code of the Russian Federation). During the execution of a search, examination and (or) seizure of dwelling or office premises, used by an attorney for carrying out legal practice, seizure of the attorney's case files or information regarding his or her clients as well as photography, cinematography, videography and other recording of such files and information are prohibited.

At the same time the general rules provide that during a search subjects, documents and valuables which may be essential for the criminal case shall be subject to seizure (section five, article 182 of the Criminal Procedure Code of the Russian Federation). Furthermore, section six of the said article permits breaking into any premises during the execution of a search in the event that the owner refuses to do it voluntarily.

3. *Presence of a member of the council of the bar association of a constituent of the Russian Federation on the territory of which the said investigative activities are being executed, or presence of any other representative duly authorized by the president of the said bar association, who ensures inviolability of subjects and information classified as an attorney-client privilege.*

Regarding premises of organizations, an examination of such, as a general rule, shall be executed in the presence of a representative of an administration office of the corresponding organization (section six, article 177 of the Criminal Procedure Code of the Russian Federation). But at the same time a reservation is made stating that in the event that participation of the representative in the examination may not be ensured the relevant entry shall be made in the record.

This raises the question: what caused the creation of the status of an independent observer from a bar association during the execution of search investigative activities in respect of an attorney? The legal nature of such status is based on opinions of both the European Court of Human Rights and the Constitutional Court of the Russian Federation.

The European Court of Human Rights repeatedly stated in its decisions that during the execution of a search in a law office the presence of an independent observer ensuring the inviolability of objects referring to the professional secrecy is obligatory (Judgment of the

ECHR of April, 9, 2009 in the case of Kolesnichenko v. the Russian Federation, claim No. 19856/04). In addition, the European Court of Human Rights emphasizes that the seizure of objects and documents shall include the selection procedure the application of which is dictated by the necessity of providing the protection against interference with professional secrets.

This is what causes the prohibitions of seizure of documents protected by the attorney-client privilege, and the supervision over a search by an independent observer who can determine independently of the investigators which documents are protected under the legal professional privilege (Decision of the ECHR of September, 27, 2005 in the case of Sallinen and others v. Finland, claim No. 50882/99 and Judgment of the ECHR in the case of Tamosiyes v. the United Kingdom, claim No. 62002/00; Decision of the ECHR of May, 22, 2008 in the case of Iliya Stefanov v. Bulgaria).

The Constitutional Court of the Russian Federation in its Decision of December, 17, 2015 No. 33-II 'In the case of testing of constitutionality of paragraph 7, section two, article 29, section four, article 165, and section one, article 182 of the Criminal Procedure Code of the Russian Federation upon the complaint filed by A.V. Balyan, M.S. Dzyuba and others' stated the attorney's case materials relative to the attorney's client which shall not be subject to examination by prosecuting authorities and seizure during a search, including those containing information beyond not only provision of professional legal services regarding the criminal case where the attorney acts as a defense lawyer but also regarding other cases that the attorney works on.

Pursuant to the said provisions the Council of the Federal Bar Association of the Russian Federation by its decision of 16.05.2017 established the guidelines to be followed by a representative of a bar association during the execution of a search, examination or a seizure in respect of an attorney (Protocol No. 2)

Due to the fact that the main function of a bar association representative during the participation in an investigative activity is to ensure the inviolability of the information classified as the professional secrecy and not stated in the operative part of the judicial decision as the objects or documents to be found, the main authorities of a representative are as follows:

1. To examine the court decision on the execution of a search, examination, or seizure in the dwelling or office premises used by an attorney for carrying out legal practice, as well as to make copies of the

decision using his or her own technical means or write in any necessary information.

2. To make objections to the actions of an investigator both during the execution of investigative activities (a search, seizure, or examination) and after the execution of such measures by putting an entry in the protocol of investigative activities.

3. To talk with the attorney whose dwelling or office premises are under a search, seizure, or examination, for the purposes of determination of objects and documents protected by the attorney-client privilege and prevention of their divulging.

4. To examine the objects, documents and information which may contain the information classified as the attorney-client privilege before their examination by the investigator in order to eliminate those which may not obviously be referred to as the subject of a search (seizure, or examination), to ensure the confidentiality of the privileged information, and to give an opinion on the possibility or impossibility of their seizure.

5. To examine the protocol of an investigating activity and make his or her observations on it.

6. To complain against actions or omissions to act as well as against decisions of the investigator which limited or made impossible the realization by the bar association representative of his or her functions involving ensuring inviolability of objects and documents under the attorney-client privilege.

Although the newly introduced amendments have been in effect just for a short period of time there has been certain judicial practice on their realization so far.

The Moscow city court reversed the decision of the Presnenskiy district court of Moscow that found lawful the searches in the attorney's premises executed before the receipt of sanction. The investigators of the Investigative Committee of Russia with the assistance of employees of the Federal Security Service carried out four searches of the office, house and country house of the attorney Maksim Zagorsky who is being accused of committing crimes prohibited by articles 306 and 309 of the Criminal Code of the Russian Federation (complicity in false denunciation, bribery, or compulsion of evidence).

The execution of the investigative activities involved presence of Robert Zinovyev, a member of the Council of the Bar Association of the city of Moscow and the chairman of the Commission on protection of attorneys' rights, who recorded many procedural faults in the protocols of the investigative activities. Moreover, he made a separate written

statement, entered into the case file, expressing the grounds for inadmissibility of seizure of an attorney's objects and materials as the evidence in the criminal case due to the fact that they had been obtained with severe violations of the criminal procedure laws.

The complaint stated that the investigator selectively enforced the rules provided by article 450.1 of the Criminal Procedure Code of the Russian Federation. Thus, he invited a bar association representative to participate in the execution of the searches but herewith he disregarded the requirement regarding the obligation to previously receive the court sanction for execution of the searches. Furthermore, before the searches the investigator had assured the bar association representative that he had such court decisions.

The vice-chairman of the Commission on protection of attorneys' rights of the Council of the Bar Association of the city of Moscow Aleksandr Pikhovkin specified that it was emphasized in the complaint that article 450.1 of the Criminal Procedure Code of the Russian Federation did not provide for the investigators the possibility to choose the time of receiving the court sanction for the execution of a search of an attorney's premises. In other words, legally this norm does not include any legal details or contradictions. Article 450.1 of the Criminal Procedure Code of the Russian Federation requires the advanced court sanction for the execution of a search, examination, or seizure in respect of an attorney and additionally stipulates the enforcement of this requirement in the cases stated in section 5, article 165 of the Criminal Procedure Code of the Russian Federation.

Upon considering the claim on September, 19 the Moscow city court agreed with the arguments of the defense that decisions issued by the Presnenskiy district court of Moscow sanctioning the searches in the attorney's premises were unlawful and satisfied the claims.

In this case the attempt of the investigation and the court of first instance to legalize the practice which was in direct conflict with the law led to declaring such court decisions unlawful. Court sanction comes first, and then follow the searches of an attorney's premises. Otherwise, evidence collected during these activities may be held inadmissible by court.

To summarize the above-mentioned it has to be noted that the amendments regarding the supplementary guarantees of protection of the attorney-client privilege have a positive effect. In fact, they act as a necessary element of provision of the right of defense and the adversarial principle as well as conform to the international rules and standards. However, the other side of the medal is still present: the new

model of execution of investigative activities in respect of an attorney creates the situation where an investigator can hardly be named as the person in control of the investigative activity. An investigator's powers are strictly limited by the bounds set by a representative of the Bar association.

Although the introduced amendments solve certain issues regarding the protection of the attorney-client privilege, they raise a new question the answer to which will come with the practice: will the bar association representatives take the advantage of the granted powers?

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**FAIR ELECTIONS ACCORDING
TO THE INTERNATIONAL MODEL**

Annotation: The article is devoted to the problem of honest counting of votes during the election period. The conducted analysis of the electoral legislation regulating the procedure for counting votes, the statistics of the violations revealed in the counting process are given. In order to ensure an honest vote count, the author suggests improving the electoral system.

Key words: international standard, unfalified elections, honest counting, counting of votes.

International legal acts, in the sphere of electoral law and process, are the result of international organizations on questions of suffrage and are named International Electoral Standards.

Today, the international community has developed a huge set of international norms and institutions that are included by States in their national legal system. The Russian Federation is no exception in this respect and transforms domestic legislation in accordance with international standards. International suffrage has significant political and legal value, as it regulates relations directly related to human rights and citizenship and elaborates the most important principles of the electoral process and elections.

In modern Russia, the issue of compliance with domestic electoral legislation and the practice of its application to international electoral standards is very topical. Being democratic in form and lawful in accordance with the constitutional principles of the state, it cannot exist without democratic elections corresponding to generally recognized international norms.

In the doctrine, international election standards are considered as universally recognized principles and norms of international law relating to the electoral rights of citizens, as well as the organization and holding of democratic, genuine, free and fair elections and referenda. They are of a general nature, setting forth the principles and norms that States must follow. The Guidelines for Monitoring Women's Participation in Elections (OSCE / ODIHR, Warsaw, 2005) refer to international electoral standards as "obligations of states directly related to elections" [5, p. 702].

Much attention in international documents is paid to the authenticity of elections and honest counting of votes. Thus, the Universal Declaration of Human Rights refers to "unfettered elections" (Article 21), and the Convention on the Standards of Democratic Elections, Electoral Rights and Freedoms in States notes, "in genuine elections, the freely expressed will of the people and its direct implementation are revealed" (clause 1 of article 9) [2]. On this basis, it is possible to speak about an honest count of votes as an element of an international electoral standard - the authenticity of elections.

A feature of an honest vote count is its perfect evidence. Due to this, in some documents it is not even formalized as an independent principle. Thus, in the Federal Law "On Basic Guarantees of Electoral Rights and the Right to Participate in a Referendum of Citizens of the Russian Federation" of 12.06.2002, we do not observe it among the fixed principles.

In the Russian legislation, the procedure for counting votes by precinct election commissions is rather strictly regulated. Thus, the sorting of ballots during the count is made with the announcement of the contents of the ballot and the presentation of the ballot to observers for visual inspection, the ballots are counted strictly by shifting in such a way that presenters can see the voter's mark (see Article 68 of the Federal Law "On Basic Guarantees of Electoral Rights and the Right to Participate" in a referendum of citizens of the Russian Federation. "Nevertheless, as practice shows, legal prescriptions are not always fulfilled, for example, in the elections of the State Duma deputies on December 7, 2003 The OSCE / ODIHR mission was assessed

negatively in 27% of the polling stations observed, 31% noted significant procedural errors or omissions, and it was separately noted that in 48% of polling stations visited, the contents of the ballots were not disclosed [6, p. 22-23].

It should be noted that such violations are due to a number of reasons. One of them is the low legal culture and weak qualifications of members of some electoral precinct commissions and executive officers, who actually control the process. However, there are a number of objective reasons.

The work of the precinct election commission starts at 8 am. Voting ends at 8 pm. 12 hours of tedious work passed before the most responsible part of the elections. Many polling stations are not equipped with electronic automated equipment, which further complicates the task of counting. Also, it should be noted that the load on the polling stations is different, and this is another factor that causes a large number of violations.

In our opinion, an additional set of measures is needed that will strengthen the rule of law and the rule of law at the stage of counting votes in the electoral process. It is necessary to pay more attention to the training of members of election commissions, to pay higher wages for them. However, the most important and global item on this list will be the formation of a legal culture and internal awareness of the importance of its activities among the members of the polling stations of commissions and employees of executive bodies.

Thus, we can conclude that this international principle is implemented in the legislation of the Russian Federation, is recognized as absolute and unshakable, but there are a number of problems in its application that need to be addressed.

References

1. Federal Law "On Basic Guarantees of Electoral Rights and the Right to Participate in the Referendum of Citizens of the Russian Federation" of 12.06.2002 N 67-FZ // The Legal System "ConsultantPlus".
2. Convention on the Standards of Democratic Elections, Electoral Rights and Freedoms in the CIS Member States: Documents and Materials / Resp. Ed. IN AND. Lysenko. - M. 2008.
3. International Public Law: Textbook / Otv. Ed. K.A. Bekiashev. - 5 th ed., Processing and add. - Moscow: Prospekt, 2009.
4. International electoral standards and their implementation in the legislation of the Russian Federation / Fomin A.A. // Representative power - XXI century: legislation, comments, and problems. 2004 - Issue No. 4 (58).

5. International Electoral Standards: Sat. documents / Resp. Ed. Dr. of Laws. V.V. Lysenko, M., 2009.
6. Russian Federation. Elections to the State Duma December 7, 2003. Report of the OSCE / ODIHR Election Observation Mission. Warsaw, January 27, 2004.
7. The Russian Federation. Elections to the State Duma on September 18, 2016 Final Report of the OSCE / ODIHR Election Observation Mission. Warsaw December 23, 2016.

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**HUMAN RIGHTS NON-GOVERNMENTAL ORGANIZATIONS
AS THE SUBJECTS OF INTERNATIONAL COOPERATION
IN THE SPHERE OF CRIMINAL PROCEEDINGS**

Abstract: Human rights non-governmental organizations participate in activities on protection of human rights and freedoms carried out on the national and global levels therefore it is necessary to define their status as subjects of international cooperation in the sphere of criminal proceedings.

Involvement of Human Rights NGOs in the international cooperation in the sphere of criminal proceedings is a guarantee of upholding human rights and freedoms.

Key words: non-governmental organization; human rights and freedoms; criminal proceedings; international cooperation.

In legal literature of former Soviet Union there is no consensus on the term and classification of subjects of international cooperation in the sphere of criminal proceedings. In our opinion the reason for the differentiation lies in the lack of conventional understanding of the essence of the parameters of this institution, its directions and correlations.

However, there is a paradox according to which all researchers of issues of international cooperation in the sphere of criminal proceedings having completely opposite opinions on the majority of questions unanimously declare the protection of human rights and freedoms to be

the integral structural element of the cooperation system but gloss over the bearers of this function [1, p. 76-79; 7, p. 49-55; 8, p. 91-95].

We are talking about human rights non-governmental (non-commercial) organizations (human rights NGOs) without the activities of which the international cooperation in the sphere of criminal proceedings in the current conditions is not possible.

Our strong statements are based on the following circumstances.

Pursuant to article 1 of the Criminal Procedure Code of the Republic of Azerbaijan (hereinafter, CPC) the purpose of criminal procedure legislation is "...to establish the presence or absence of the event of a crime, the guilt or innocence of the person charged with a crime as well as legal procedures of criminal prosecution and defense of a person suspected of or charged with committing an act prohibited by the criminal law", "...to create the opportunity for enhancing the rule of law and respect for the rights and freedoms of man and citizen" [6, p. 1].

Ensuring the protection of rights and freedoms of man and citizen against cases of illegal limitation of rights and freedoms (article 9.1.2 of CPC) and carrying out criminal proceedings with participation of representatives of the people (article 24 of CPC) were declared as the basic principles and conditions of criminal proceedings [6, p. 12, 20].

Article 71 of chapter III of the Constitution of the Republic of Azerbaijan "Basic rights and freedoms of man and citizen" states that upholding and protecting the rights and freedoms of man and citizen embodied in the Constitution are obligations of legislative, executive and judicial authorities; no one shall limit the exercise of the rights and freedoms of man and citizen [3, p. 17].

Pursuant to article 26 of the Constitution of the Republic of Azerbaijan everyone has a right to protect their rights and freedoms by any legal ways and means [3, p. 8].

Pursuant to article 58 of the Constitution of the Republic of Azerbaijan everyone has a right to join others, form any non-governmental organizations independent activities of which are guaranteed [3, p. 15].

On December 9th, 1998 by the resolution 53/144 the United Nations General Assembly passed the "Declaration on the Right and Responsibility of Individuals, Groups and Organs of Society to Promote and Protect Universally Recognized Human Rights and Fundamental Freedoms".

Pursuant to article 5 of the Declaration for the purpose of promoting and protecting human rights and fundamental freedoms,

everyone has the right, individually and in association with others, at the national and international levels:

- (a) To meet or assemble peacefully;
- (b) To form, join and participate in non-governmental organizations, associations or groups;
- (c) To communicate with non-governmental or intergovernmental organizations.

Pursuant to article 6 of the Declaration everyone has the right, individually and in association with others:

- (a) To know, seek, obtain, receive and hold information about all human rights and fundamental freedoms, including having access to information as to how those rights and freedoms are given effect in domestic legislative, judicial or administrative systems;
- (b) As provided for in human rights and other applicable international instruments, freely to publish, impart or disseminate to others views, information and knowledge on all human rights and fundamental freedoms;
- (c) To study, discuss, form and hold opinions on the observance, both in law and in practice, of all human rights and fundamental freedoms and, through these and other appropriate means, to draw public attention to those matters.

Pursuant to article 7 of the Declaration everyone has the right, individually and in association with others, to develop and discuss new human rights ideas and principles and to advocate their acceptance.

Pursuant to section 4 of article 9 of the Declaration to the same end, and in accordance with applicable international instruments and procedures, everyone has the right, individually and in association with others, to unhindered access to and communication with international bodies with general or special competence to receive and consider communications on matters of human rights and fundamental freedoms [2].

Given the provisions mentioned above it may be claimed that there are legal grounds for referring human rights non-governmental organizations to the subjects of international cooperation in the sphere of criminal proceedings.

One of the forms of participation of human rights NGOs in international cooperation in criminal proceedings is based on the resolution of the PACE No. 1900/2012 of 03.10.2012 entitled "Definition of political prisoner" the enforcement of which is not possible without domestic and international human rights organizations [4].

It must be noted that protection of human rights and freedoms as a direction of international cooperation in the sphere of criminal proceedings has several aspects, according to one of which it is the background for the activities and according to the other one – it is the goal.

References

1. Volevodz A.G. Legal grounds for new directions of international cooperation in the sphere of criminal proceedings, Dis. ...doctor of juridical science, M., 2002. [in Russian]

2. Declaration on the Right and Responsibility of Individuals, Groups and Organs of Society to Promote and Protect Universally Recognized Human Rights and Fundamental Freedoms. [Electronic source]. Available at: http://www.un.org/ru/documents/decl_conv/declarations/defender.shtml. [in Russian]

3. Constitution of the Republic of Azerbaijan. Amended and supplemented as of 2015, Baku, 2016.

4. Resolution of PACE No. 1900/2012 of 03.10.2012 “Definition of political prisoner”. [Electronic source]. Available at: [http://www.coe.int/T/R/Parliamentary_Assembly/\[Russian_documents\]/%5B2012%5D/%5BOct2012%5D/Res1900_rus.asp](http://www.coe.int/T/R/Parliamentary_Assembly/[Russian_documents]/%5B2012%5D/%5BOct2012%5D/Res1900_rus.asp). [in Russian]

5. Tamayev R.S. International cooperation in the sphere of crime control (political issues of legislative regulation of legal assistance). Dis. ... candidate of juridical science, M., 2002.

6. Criminal Procedure Code of the Republic of Azerbaijan (Amended and supplemented as of November 15, 2016), Juridical literature, Baku, 2016

7. Feoktissova E.E. International cooperation of criminal preliminary investigation bodies: procedural and criminalistic aspects, Monograph. [Electronic source]. Available at: <https://studfiles.net/preview/4603072/page:2/>. [in Russian]

8. Scherbakov V.V. Exercise of rules of international law in the activities of preliminary investigation bodies. Dis. ... candidate of juridical science, M., 2004.

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**COMPARATIVE CHARACTERISTICS
OF THE "RIGHT TO HOUSING"
IN THE CZECH REPUBLIC AND RUSSIA**

A feature of the Constitution of the Czech Republic is the absence of a chapter devoted to the legal status of a person, a citizen. In detail, the basic rights and freedoms of Czech citizens are regulated by the Charter of Fundamental Rights and Freedoms, that (according to the Constitution, Article 3) is in fact an integral part of it. Thus, the "right to housing" in the Czech Constitution has not been reflected. In the Charter, Article 12 states that the dwelling is inviolable. The search of a dwelling is allowed only for the purposes of criminal proceedings on the basis of a written motivated order of a judge, exceptions to the principle of inviolability of dwellings can be established by law only when it is necessary in a democratic society to protect life or health, rights and freedoms of others or to prevent a serious threat to public security and order. If the dwelling is used either for entrepreneurial or other economic activities, invasion into it may be permitted by law also in the cases when it is necessary for the purposes of public administration tasks.

By giving a comparative description of the right to housing in Russia compared with the Czech Republic, we note the first difference: the right to housing in Russia is enshrined in the Constitution of the Russian Federation in Art. 40 and is specified in other normative acts. The content of the right to housing in both countries is also different. Only the right to inviolability of the home is guaranteed and exceptions to this principle are fixed in the Czech Republic. In Russia, the state not only guarantees the inviolability of the home, but also enables citizens to have a home and acquire it by all means not prohibited by law, the support of state is guaranteed, and housing is guaranteed free of charge or for an affordable fee for certain categories of citizens established by law.

Either in the Czech Republic or in Russia the state pursues a socially oriented housing policy. In the years 1993-1996 state aid programs for citizens were adopted to improve housing conditions in the Czech Republic. One of them is the program of housing and construction savings. Another is subsidizing the interest rate on mortgage loans. We will give a little attention to these programs.

Under the program of housing and construction savings, a significant state subsidy was originally envisaged, aimed at reducing the interest rate on loans to 6%. The main form of the state subsidy was a premium in the amount of 15% of annual savings.

Under the program of housing and construction savings, a significant state subsidy was originally envisaged aimed at reducing the interest rate on loans to 6%. The main form of the state subsidy was a premium in the amount of 15% of annual savings.

Since 2005 a new state program for granting state loans to newlyweds has been launched. The program is implemented through the Czech State Fund for Housing Development. The Fund provides concessional loans for up to 300 thousand CZK for up to 20 years at 2% per annum. These loans can be provided for:

- 1) spouses, if at least one of them is under 36 years old;
- 2) non-family persons who have not reached the age of 36 and who have at least one child (including an adopted child) in their care.

In accordance with this program, the borrower has the right to choose the following loan conditions: deferment of repayment of principal for 10 years, during this time only interest is paid. The loan provided by the fund can be used for financing: construction and purchase of apartments in multi-unit buildings; construction and purchase of individual houses; construction apartments through the reconstruction of the building, which was originally used for non-residential purposes; payment of membership dues in a housing cooperative.

The concept of housing policy adopted by the Czech government in March 2005 proclaimed the following basic approaches to solving the housing problem of citizens:

1. the citizens with an income level above the average - solving housing problems with the help of a mortgage loan;
2. the representatives of the middle class - participation in the program of housing and construction savings;
3. Low-income families - providing housing in the non-profit housing sector formed from the resources of municipalities;
4. families with the lowest incomes - the provision of municipal housing, the construction and maintenance of which will be carried out through the resources of the Ministry of Regional Development of the Czech Republic and the State Fund for Housing Development.

For more secure lending to the population, banks offered their solution - the creation of cooperatives for the construction and exploitation of apartment buildings. Cooperatives solved the difficulties

associated with obtaining a classic bank mortgage: banks' claims to the collateral value and solvency of creditors were transferred from private persons to legal entities - housing cooperatives that were the real owner of real estate. A member of the cooperative is a collective owner of the property belonging to the cooperative. He uses the apartment on the basis of lease relations, and the owner of the apartment is a cooperative.

By giving a comparative description of the housing programs of the Czech Republic and Russia, it should be noted that they have a number of similar provisions:

- they are aimed at improving the living conditions of citizens with different levels of income. There is a differentiation of state aid depending on the income of the family;

- support for young families with children (up to 36 years);

- for the citizens with low incomes housing is provided at the expense of the state's resources.

The programs of granting loans and subsidies in Russia have been implemented since the introduction of the Federal Target Program "Housing" to the present. Within the framework of the federal target program "Housing":

- a) the subprogram "Provision of housing for young families";

- b) the subprogram "Implementation of state obligations to provide housing for categories of citizens established by federal legislation";

- c) the subprogram "Stimulation of development programs for housing construction in the constituent entities of the Russian Federation";

- d) the subprogram "Provision of housing for certain categories of citizens";

- e) the subprogram "Modernization of communal infrastructure facilities".

The differences in the regulation of the "right to housing" were identified as follows:

- In Russia the right to housing is enshrined in the Constitution of the Russian Federation, and in the Czech Republic - in the Charter, that is an integral part of the Constitution;

- the development of cooperative housing construction in Russia is carried out at a relatively weak pace due to the weak legal certainty of the rights of members of the cooperative;

- the development of the program of housing and construction savings, also has not received adequate development in Russia. As their development requires strong state support and a stable banking system.

The state cannot provide citizens with loans for such a small percentage as in the Czech Republic.

Thus, to make a conclusion we note that the right to housing is realized through housing programs in the Czech Republic and Russia. The experience of organizing housing and construction savings in the Czech Republic is possible to integrate in Russia in our opinion, but it needs state and bank support.

SECTION X. Educational Sciences

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PRINCIPLES OF CONSTRUCTIVE FEEDBACK IN RESEARCH TEACHER'S PRACTICE

Feedback is one of the main ideas and guiding principles in the process of teaching pupils. The quality of feedback is a key issue in any teaching, and indeed, in development process in general. In today's school, Teacher does not surprise pupils with new information - they get it by pressing the necessary button on keyboard. And how can the pupil surprise his parent, when, after a whole day in school, asked: "Well, what are the results? What grade did you get?" - he shrugs his shoulders puzzled and says: "It seems all right "or" I did not understand what was required of me, myself" ...

Teacher's value is exactly the fact that he can deploy a powerful stream of information received by children and direct them in the right direction, comment on his actions in a specific situation through constructive feedback. Insights and break through of pupils that help to understand the essence of material being studied are results of properly organized feedback. It makes for significant results not only in learning, but also in formation of personal and leadership qualities. And not only the pupil's personal growth, but also of teacher and parents who are interested in the success of children, depends on teacher's perspectives and knowledge, professional skills related to proper planning and organization of feedback during the lesson.

Current practice in an age of the International Bachelor's programme confirms that the relevance of the feedback-related issue is not closed; on the contrary, it requires detailed study and consideration in terms of experience. Frequently arising questions related to feedback can be classified as follows:

Actual questions: What is feedback? Who can give feedback? What stages of the lesson feedback is made on?

Conceptual questions: What is the best way to get an effective feedback? The value of feedback for pupils, teachers, parents?

Discussion questions: Is feedback a reflection?

The most acceptable definition of feedback is the following: "Feedback is a tool that gives an idea of how the learning process is going, informs the teacher about the achievements and problems of pupils, allowing to determine the level of achievement of the goal and the solution of the learning tasks"[1].

Feedback is provided according to the following scheme: teacher - pupil, pupil - pupil, pupil - teacher and, as indicated in the definition, based on specific tasks and assignments, actions and controversial issues arising during the lesson. It is very important that these actions and situations are not chaotic, but properly planned and organized in accordance with the purpose of lesson and expected results, with properly selected tasks. And only on the basis of correctly formulated tasks and assignments, teacher can provide pupils with feedback at all stages of the lesson: at the stage of challenge, understanding and reflection.

Practice confirms that effective feedback is provided on the basis of specifically formulated evaluation criteria for assignments and situations, since not only the usefulness and productivity of the task depends on properly formulated evaluation criteria, but also the achievement of expected results and the purpose of the lesson in general. With proper application, formative evaluation performs the feedback function in the lesson.

So, with properly organized feedback, teacher adheres to the following principles: *provides information on what has been done and what is not*, focusing on expected results, assignment of task and evaluation criteria.

Here is an example of assignment feedback: "Write a text - description on the topic of "10 things I'm grateful for", based on evaluation criteria: contains at least 10 ideas; corresponds to the text-description typewrites in accordance with the rules of calligraphy.

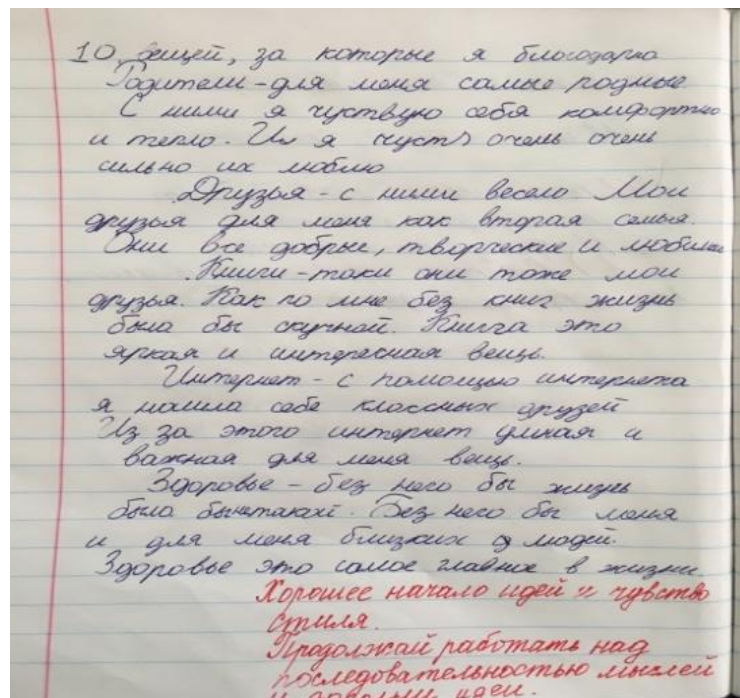


Fig. 1.

Provides information about the pupil's work, and not about the pupil himself. Undesirable comments like: "You a good pupil!", "Well done!", Instead: "The answer is informative, very good ...";

Provides specific ideas how to improve learning: "This needs to be corrected," you can say: "You could have corrected this if you did this ...".

Motivates pupils to correct mistakes, immediately after the task is done in the class: "It would be great if you immediately start ...".

Comments what was done well first, and not what was done wrong. In order not to discourage pupil from learning, to establish a trusting relationship, after praise everyone is able to accept criticism.

Provides feedback clearly and in sufficient numbers so that pupils understand what needs to be done, but not so much that the work is not performed after them.

Provides feedback, taking into account the characteristics of the pupil, excluding subjectivity and bias. In no case should there be an expression in the feedback like "Do as Daniyar did" or "Stupid answer", "How could you think of this?", "You spoke so quietly that you cannot be heard at all". Such expressions affect the personality of the pupil.

Feedback can be provided in spoken and written form. Here are examples of written feedback:

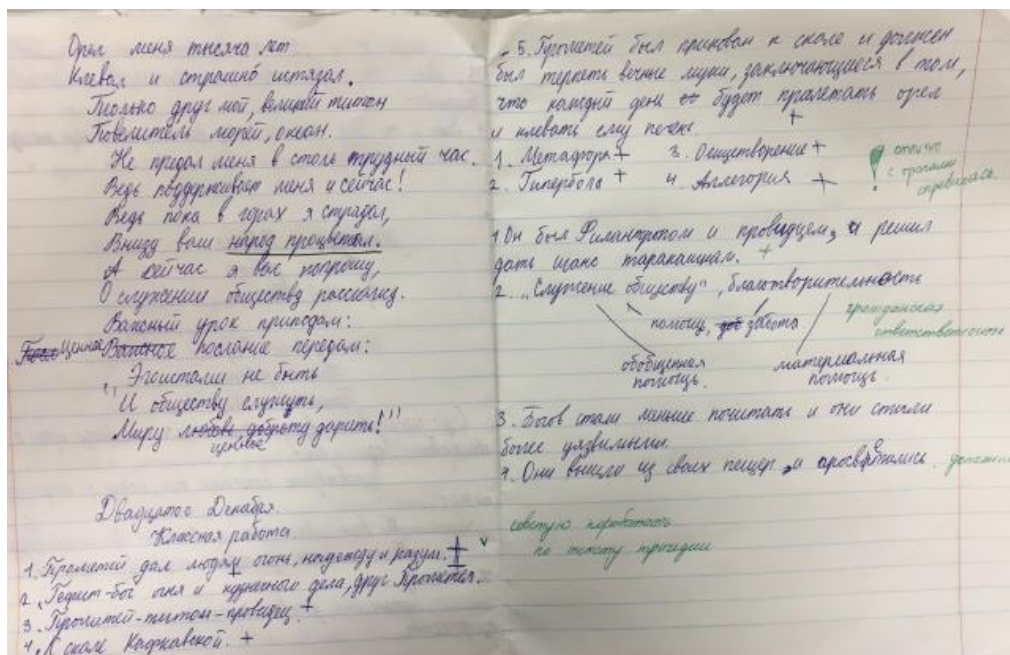


Fig. 2.

Constructive feedback, in the first place, allows **pupils** to get an answer to 3 questions: *At what stage of learning am I? How will I achieve the result? What do I need to work on to fill in the gaps?* **Teachers** can get answers to the following questions: *How is the assessment process going? Where did the pupils make progress? How to plan the work in future to improve the learning process?* **Parents** are provided answers to the following questions: *What are the achievements and disadvantages of my child in the learning process? How much I understand and support my child? Do I feel calm about reporting from the school?*

Touching on the discussion issue of the article: "Is feedback a reflection?", we believe that feedback is a dual-track process that involves interaction between the one who commented and evaluated and those who was deep in thought, made conclusions and revised the work. The pupil's internal monologue over the results of the work done, we recommend to consider as a reflection. The point of intersection of feedback and reflection is the moment when the pupil focuses on evaluating the results of his work on the basis of the criteria and, when he reflects, argues how well it was. Where his thinking and rethinking begins is a reflection ...

In feedback, in our opinion, the teacher should show an example of how to provide the correct feedback and eventually weaken control, thereby teaching pupils to effectively provide feedback to themselves based on specific criteria.

Thus, the feedback contains information that allows pupil to bridge the gap between the current and desired result.

References

1. Мышкова А.П. Использование эффективных приемов обратной связи, взаимоконтроля и самооценки учащихся на уроках физики. [Electronic source]. URL: <https://multiurok.ru/blog/ispol-zovaniie-effektivnykh-priemov-obratnoi-sviazi-vzaimokontroliia-i-vzaimootsienki-uchashchikhsia-na-urokakh-fiziki.html> (accessed date: 13.09.2017).

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INTEGRATION OF EDUCATIONAL AND THERAPEUTIC WORK IN A CHILDREN'S SANATORIUM AS A PEDAGOGICAL PROBLEM

Abstract. The results of a comprehensive theoretical analysis of the problem of integration of educational and therapeutic work in a children's sanatorium in the philosophical, psychological and pedagogical literature revealed methodological approaches to integration of educational and therapeutic work in a children's sanatorium, have developed a theoretical model of integration of educational and therapeutic work in a children's sanatorium. The author explores the approaches of Russian scientists to the problem of integration. Highlighted areas, separate levels of integration. It is concluded that the physiological and psychological study of the mechanism of integration possible on the basis of two concepts – the associative-reflexive nature of mental activity and the theory of the gradual formation of mental actions.

Key words: integration into the educational and therapeutic work, children's sanatorium.

The basis of the pedagogical concept of the modern educational system in children's health formed the ideas of "treatment through education" (V. P. Kashchenko), anthropological approaches (p. P. Blonsky, L. S. Vygotsky), social rehabilitation and purposeful influence

of the environment on personality (A. S. Makarenko); the results of studies of the compensatory function of residential care (B. Bettelheim, J. Korczak) and modern educational systems (Karakovsky V. A., Novikova L. I., N. L. Selivanova), etc.

Based on the analysis of the characteristics of levels of teacher integration in the works of M. N. The Berulava we have identified the levels of integration of educational and therapeutic work in a children's sanatorium: low – coherence (coordination) of efforts of teachers and doctors in a children's sanatorium, where each expert performs a specific job, keeping continuity in the work of other specialists; the level of synthesis of educational and therapeutic work, suggesting that, in addition to specific activities, teachers and doctors perform partially characteristic functions [2].

That is, the teacher is well aware about the diseases of the child, the nature of their occurrence and builds the educational process, taking into consideration the rehabilitation of the child, and medical staff are deeply enough aware of age psychological features of children and in addition to the tasks of treatment and recovery (of course, dominant in his work), solves the problem of psycho-pedagogical support. And the highest level of integrity, reflecting the application of integrative Sciences and arts, in terms of the children's sanatorium realizes this curative education, art therapy and a range of modern health, health technology, for example, therapy, game-based rehabilitation etc.

Approval Khripunkova O. V. integration of educational and therapeutic work in a children's sanatorium is based on modern humanistic paradigm of education, the system of methodological approaches under the leadership of an integrated approach that combines student-centered, anthropological, axiological, activity, system, competence, justifying the position of the content of the educational process and implementation of the regulatory function of activities of medico-pedagogical staff [4].

In this regard, we developed a theoretical model of integration of educational and therapeutic work in a children's sanatorium, which includes 3 units: methodology, procedure and model of readiness of pedagogical staff to integrate educational and therapeutic work in a children's sanatorium.

Methodological block defines the characteristics of a procedural block that includes the target, content and operational-activity components of models of integration of educational and therapeutic work in a children's sanatorium.

The targeted component involves the creation of a system of interaction between medical and educational personnel.

A substantial component reflects the content of interrelated educational and therapeutic work at different levels of integration; at the level of coordinating the work of the medico-pedagogical personnel (low level), at the level of synthesis of educational and therapeutic work (intermediate level) and integrity level (highest level).

Operationally-activity component is represented by a set of technologies: educational, therapeutic, integrative, including appropriate forms of organization and methods of education and training, as well as treatment and prevention. In children's sanatorium effectively used primarily pedagogical (educational) health-saving technology as leading. Other technologies are an integral, important, but are coupled (integrative) nature.

In our developed model provides both traditional and innovative teaching methods: active methods and interactive. Methods of education of children in children's sanatorium in the theoretical model of integration of educational and therapeutic work represent, according to the classification by G. I. Shchukina, methods of formation of consciousness of personality, methods of organization of activity and formation of experience of the behavior (exercise), methods for encouraging behaviors and actions (motivation).

Analysis of literature revealed the following treatment-and-prophylactic technologies in the conditions of the children's sanatorium: water - and mud cure, magnetotherapy, laser therapy, speleotherapy, cryotherapy, inhalation, ozone therapy, biofeedback therapy, and the technology of preserving and promoting health, which include stretching, dynamic pause, mobile and sports games, a relaxation; dynamic gymnastics, corrective, orthopedic, etc. of Integrative technologies based on the interaction of educational and health care technologies. To them, as shown by the analysis of pedagogical and medical literature, include technology training, healthy lifestyle and correctional technology. Reflexive resultative component suits the purpose: adaptation, biological, and social well-being of the young child (healthy, sick or with disabilities). The efficiency of integration of educational and therapeutic work in a children's sanatorium depends on the level of professional readiness of medical and training personnel. In this regard, the third block is the model of preparedness of medical and training personnel to integrate educational and therapeutic work in a children's sanatorium, in which the characteristic of readiness of the

pedagogical staff for its implementation and the conditions of formation of this readiness.

The model of readiness of pedagogical staff to integrate educational and therapeutic work in a children's sanatorium consists of three interrelated components: personal, information, cognitive and practical, under the leadership of the personal component. The willingness of medical and training personnel to integrate educational and therapeutic work in a children's sanatorium is formed through various forms of organization of professional training, which are organically connected to our developed model with learning methods, among which we have identified traditional (explanatory-illustrative exposition, narrative presentation, demonstrations, illustrations, etc.) and active methods (analysis of specific situations (case-study), standard and nonstandard, basket-method (simulated situation), discussion methods presentation, etc.) and interactive methods (pair work, case method, business games, clusters, etc.) (I. G. Abramov, Y. S. Arutyunov, A. A. Verbitsky, B. N. Gerasimov, V. F. Komarov, V. V. Krayevsky, A. P. Panfilov, Y. M. Torgovnik, V. I. Rybalsky, A.V. Khutorskoy and others).

Thus, the accuracy of the scientific results provided by the original methodological position, based on classical and modern achievements of philosophical, medical and psychological-pedagogical science; validity of use of set of methods of pedagogical research, adequate to its object, subject, goals, objectives and logic; continuity and interrelatedness of the results obtained at different stages of the study, the representativeness of the sample of participants of the pedagogical experiment, persuasiveness and conclusiveness of the obtained data, their statistical significance, a combination of qualitative and quantitative analysis of the experimental work.

References

1. Baranova N. A. Baranov A. E. Educational system of children's medical institutions: socio - pedagogical rehabilitation of children with impaired health. The humanistic educational system yesterday and today / N. Baranov, A. E. Baranov. – M., 1998.
2. Berulava M. N. Integration processes in education. Integration of educational content in a pedagogical University / M. N. Berulava. – Biysk, 1994. – S. 5-10.
3. Klinkberq Z. Unterrichtsprozeß und didaktische Fragestellung Studien und Versuche Volk und Wissen Volkseiqener Verlaq / Z. Klinkberq. – Berlin, 1982. –256 s.

4. Khripunkova O. V., The analysis of the concept of medical-pedagogical integration in the domestic pedagogical literature. The Strategies of Modern Science Development: Proceedings of the IX International scientific-practical conference / O. V Khripunkova. North Charleston, USA, 16-17 October 2015. - North Charleston: Create Space, 2015. - 142 p., p.113-118.

SECTION XI. Art Criticism

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EURASIAN NEOARCHAISM AS CREATIVE CONCEPT IN THE ARTWORKS OF KAZAKHSTANI COMPOSERS ON EXAMPLE OF «MISTY DREAMS' FLOW» BY T. NILDIKESHEV

Artistic implementation of ethnic archaic images is characteristic of the avant-garde trend in the art of many countries in general. Speaking about the music of modern China, V. Kholopova notes the importance of the ethnic component in the style of avant-garde compositions [1, p. 250], V. Yunusova draws attention to the fundamentally national character of many avant-garde compositional techniques in the works of Asian composers [2, p. 198] and the influence of religious and philosophical views of the so-called Eastern traditions (Hinduism, Buddhism, Taoism, Sufism) [3, p. 27]. In modern Kazakh music, these features (reliance on traditional art and connection with religious and philosophical views) are manifested specifically. It was reflected in such phenomena as romanticization and artistic comprehension of the nomadic way of life, the search for common spiritual roots in the deep past of mankind (neoarchaism, neo-Tengrianism) [4].

In our opinion, the dialectical term – neoarchaism – can unite various vivid works of Kazakh (and wider – Eurasian) cinematography,

fine arts, literature and music into a single artistic trend: the Eurasian neoarchaism. For a detailed substantiation of our statement, a large-scale international interdisciplinary study will be required. In this article, we outline the contours of this direction in the musical art of Kazakhstan.

V. Nedlina notes: “Neoarchaism manifests itself in the subjects and in reliance on archaic sound ideals, which is realized in three ways: through the tones of traditional instruments (for example, *Quartet for violin, cello, piano and dombra with voice* by S. Abdinurov, 1990), through imitation of their timbre and the methods of playing the European instruments (the transcription of “*Korogly*” Dauletkerei’s kuy for the vibraphone and piano by B. Amanzhol, 1989), in experimental music using electronics (“*The Soul of the Shaman*” by A. Raimkulova, 1999) [5, p. 15]. As we can see, the timbre becomes the key mean of expressiveness in the works of the neo-archaic trend, and the main techniques are based on mixing timbres of ethnic and European musical instruments and a kind of “*timbre mimicry*”¹ – the use of the European instrument “in the role” of the traditional one.

The most often timbre mimicry occurs in the works of Kazakh composers for cello. This instrument is similar in timbre and performing techniques to the Kazakh stringed chordophone – *kylkobyz* (or *kobyz*). Kobyz in the culture of nomadic Kazakhs was strongly associated with the tradition of *baksylyk* - shamanism. The instrument, in addition to the wooden body itself and the strings of unbound horsehair, also includes a leather membrane and metal pendants, allows one to extract a rich in timbre and overtones sound.

The shamanic ritual is built on imitation, mimicry. “Mimesis allows us to represent the structure of events through their deliberate reconstruction and imitation, providing an exchange of knowledge and experience” – M. Winkelmann says on this property of the ritual [6, p. 79]. Intentional (or intuitive) imitation of the kobyz voice on the cello becomes the starting point for the creative reconstruction of the shamanic ritual. Through it the composer / performer plays the part of a shaman in a stage work. All this makes special demands on the score and performer, which consist in the aleatory character of the fixation of the musical text, the expansion of the arsenal of performing techniques, theatricalization of the cellist’s stage behavior. We propose to consider this on example of a particular artwork.

¹ We propose to use this term as a definition denoting the replacement of an ethnic instrument with a similar sound reproduction by the European one or vice versa.

The *Misty Dreams' Flow* by T. Nildikeshev (2015), according to our information, is the first duet of cello and *kyl-kobyz*. Constructed on spectral and sonoristic methods, the work expresses the idea of transformation, transition. The author consciously avoids contrasting the timbres of the two instruments, arranging the form on the alternation of episodes on the principle of “similarity-difference”. Techniques such as playing on open strings, at the stand, glissando are acoustically similar, while the melodic (pitch-determined) phrases, strikes on the body and strings reveal the timbre differences of the instruments.

The composer retains the right to considerable freedom for the performers, aleatorically fixing in the score only approximate pitch and rhythm. These parameters of the musical language are not paramount for him, since the main mean of artistic expressiveness is the timbre. Its fixation is relatively rigor: the notes give clear instructions on the methods of sound extraction, the position of the bow, strokes. Due to this, the score gets a graphic look.

Example. Misty Dreams' Flow: climax section

In general, the duet for cello and *kobyz* by T. Nildikeshev is characterized by a multifaceted transformation, interpreted not narratively, but intro-musical: the “dialogue” of instruments is presented not as a dialogue of cultures (implying some alienation of the subjects), but more as their syncretism [7]. The timbre “game” of the composer appeals both to theatricality and to the new archaic, which in this interpretation reflects a sense of the perceptive relativity of the historical process: the archaic kuy “*Akku*”, cited in the climax, stands as a symbol of eternally actual universalities in art. This relativity of temporal thinking (inherent in the whole nomadic worldview) can also be attributed to one of the properties of the Eurasian nearchaism. Its

manifestation is observed not only in music, but also in theatrical plays (for example – the “Medea. Material” by R. Begenov and S. Baiterekov [8]).

So, modern artworks of Kazakhstani composers reflect the sensation of a new common culture of Eurasia, the search for common spiritual roots and a single path of development while preserving the ethnic cultural heritage. The regularities in the artistic thinking discovered in this paper allow us to prove the legitimacy and perspective of introducing the concept of “Eurasian neoarchaism” on the basis of academic music performed in Kazakhstan and abroad and internationally recognized.

References

1. Холопова В. Н. Китайский авангард: от Сан Туна до Тан Дуна // В кн.: М. Е. Тараканов: Человек и Фоносфера: Воспоминания. Статьи. Москва, Санкт-Петербург: Алетейя, 2003. С. 243-251.
2. Юнусова В. Н. О национальной природе музыкального авангарда Азии. Т. Вып. 2. // В кн.: Памяти Романа Ильича Грубера. В мире истории музыки : Статьи. Исследования. Переписка. Москва: Московская государственная консерватория им. П.И. Чайковского., 2011. С. 195-216.
3. Юнусова В. Н. Феномен буддийской медитации в традиционной музыкальной культуре и восточном авангарде //Музыковедение: журнал, приложение к периодическому изданию «Музыка и время» / гл. ред. НН Гилярова. – 2012. – № 5. – С. 27-33.
4. Недлина В. Е. Реинтерпретация культурного наследия в Казахстане в 1980–2010-х годах на примере музыкального искусства // Обсерватория культуры, No. 2, 2015. pp. 47-52.
5. Недлина В. Е. Стилистические тенденции в академической музыке Казахстана 1980–2010-х гг. К вопросу о национальном авангарде // Музыковедение, No. 1, 2015. С. 12-18.
6. Winkelman M. Shamanism: A Biopsychosocial Paradigm of Consciousness and Healing. – ABC-CLIO, 2010. – 309 p.
7. Соколов А. С. Музыкальная композиция XX века: диалектика творчества. Исследование. Москва: Издательский Дом "Композитор", 2007. 272 с.
8. Демитерко Е. Применение методов музыкального анализа в экспериментальном театре (на примере спектакля «Медья. Материал» Р. Бегенова и С. Байтерекова // Saryn art and science journal. №2(15) 2017. – С. 51-58.

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SECTION XII. Ecology

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PRODUCTION OF POTABLE WATER AND PURIFICATION OF THE WATERS OF THE WORLD OCEAN

Abstract: The article discusses the extraction of drinking water and purification of water of the world ocean. The prevention of pollution of water is the best way to maintain clean water. Special attention is given to a whole range of cleaning methods.

Key words: purification, water resources, process, filtration and waste water.

Water production and purification methods

Water is one of the basic substances needed by a man.

In extreme conditions water supply becomes one of the top-priority tasks to be completed by a human in order to stay alive.

There are several methods of water production and neutralization:

1. Collection of water condensate:

This section includes: collection of dew, drawing condensate from the tree branches, collection of condensate using a film.

1. Using natural water resources:

- springs;
- water reservoirs (rivers, lakes, swamps);
- consuming birch and maple sap;
- consuming rainwater;
- defrosting of snow and ice;
- filtration and purification of water.

There are three methods of water purification:

- filtration;
- chemical treatment;

- boiling.

Let us examine each of the water purification methods step by step.

During filtration all foreign impurities (sand, cleanings, etc.) are being removed from the water. Filtration does not include complete treatment of water (from bacteria, radiation, chemical wastes).

As a filter you may use a filter bought at the store or made using materials at hand in the forest.

Purification of waters of the world ocean

The pollution of waters of the world ocean has reached frightening levels. Currently the scientists from all over the world massively search for the ways and methods of purification of the World Ocean. Furthermore, in some cases despite the stupendous achievements of modern science nowadays it is still impossible to eliminate certain types of chemical and radioactive contamination. The situation with oil pollution is slightly better.

At the moment there are several physico-chemical and mechanical methods of removal of oil spills occurred as a result of oil carrier accidents.

Many countries have special vessels fitted out with units skimming oil spilled on the sea (Picture 1).



Picture 1. Unit for skimming oil from the surface of the sea

The skimmer is composed of a high-duty pump and a crude settling drum where the oil-contaminated water is being loaded. Oil being the lighter substance comes to the top while the treated water goes back to the sea. Such an oil garbage collector may collect up to 170 tons

of oil in 6 hours [1]. It is expected that in the coming years all cargo, passenger and fishing vessels will be equipped with such skimming units. Some companies created small vessels which are delivered by an airplane to the place of tankers accident. Each such vessel may intake 1.5 thousand liters of the oily mixture per minute separating more than 90 % of oil and pumping it into special bladders afterwards towable in-shore [3].

In the USA there is a special commission that deals with the pollution matters. The US Congress also actively participates in the sea water protection. In 1974 in France a vessel for purification of river and port waters was developed. It has special equipment that intakes coarse wastes and litter floating in the water. The Japanese created and tested a unique technology using which a giant oil stain may be removed in a short time. KANSAI Corporation produced a reagent ASWW the basic component of which is rice husk specially treated.

Special attention should be paid to the Israel waste water purification technology. The concept of it is that for purification of water it suggests using sand. After the waste water has been purified on a regular basis it is being filtered through the sand which means the additional, natural filtration. It significantly improves the quality of water, and as a result it may be used for any type of irrigation.

According to the experts of the United Nations similar waste water treatment systems may be set up in other countries as well including the developing states.

Currently the process of preliminary water treatment undergoes improvement which will help to avoid the fall-outs of sand filtration. Besides that, the innovations are intended to improve the quality of the purified water itself. In particular, it is planned that from now on it will be possible to remove drug residues which previously could not have been removed from the waste water during the purification [5].

The new Israel technology allows for the recycling of the sewage materials and production of paper and plastic.

The sewage materials mostly include water and different, mostly organic wastes, and one of the challenges that organizations face when trying to re-use the water is the separation of water from the wastes and the filter cleaning. Previously the dirty water recycling was more difficult due to the fact that the wastes would always quickly plug and damage the filters. Moreover, they were not used in the production. In Israel a technology of fast water and wastes separation and further recycling of both products of such separation was developed.

Conclusion: The consequences of the wasteful and negligent attitude of the mankind to the Ocean are terrifying. The destruction of plankton, fish and other inhabitants of ocean waters is just the beginning. It may cause far more damage. In fact, the World ocean has the global Earth functions: it is a powerful moisture rotation controller and the Earth's thermal environment controller as well as the controller of the Earth's atmosphere circulation. Pollution may cause substantial changes of all these characteristics which are vital for the climate and weather regime on the whole planet.

References

1. Belova V.S. Environmental Protection, Moscow "Higher school", 1991. [in Russian]
2. Rogaleva L.V., Dementyev, A.A., Installation for sewage purification from petroleum products: non-destructive testing and diagnostics of environment, materials and industrial products. Mezhvuz. Coll., vol.6., SPb., 2002, P. 71-74. [in Russian]
3. Klyachkov V.A. Purification of natural waters, V.A. Klyachkov, I.E. Apeltsin, M.: Stroyizdat, 1971, 579 p. [in Russian]
4. Habibrahmanova F.R. Ecology: Some Problems of Environmental Pollution
5. Makeeva M.N., Gvozdeva A.A., Tsilenko I.P. Ecology Today

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RADIATION SAFETY OF ANIMAL AND CROP PRODUCTION

As is very well-known, on April 26 1986, the most severe technogenic disaster in human history occurred. The Chernobyl accident has had its serious consequences in a number of countries around the globe, but its main impact fell upon the lot of the Republic o Belarus.

As a result, Belarus has been forced to involuntarily gather a unique experience in post-nuclear accident management of large territories affected by long-term radioactive contamination, part of which has been irretrievably lost for the national economy.

The large-scale contamination of farm lands involved in intensive agricultural production is one of the most severe consequences of the Chernobyl disaster in Belarus. Such conditions require special management of these territories over a long period of time to maintain radiological safety of locally produced foodstuffs.

If you have a look first at the map of radionuclide contamination in Belarus as of 1986 and then at the forecast ones, you will see 1.5 and 2.4 times reduction of contaminated areas in 2016 and 2046 respectively, as against contamination in 1986.

The natural decay is obviously not the only factor that contributes to the reduction of contamination levels in various agricultural produce. It is implementation of the complex system of protective measures that makes it possible to deliver regulatory safe foodstuffs, raw materials and feeds.

There is a well established radiation control system in Belarus designed to exercise continuous monitoring over the levels of radioactive contamination in agricultural products and raw materials.

All crop and animal farm produce is subject to control. Radionuclide concentrations are checked in all vegetables and fruits, milk and meat products. The commodities within the safety limits proceed to being used for consumption purposes. Otherwise, contaminated products are subject to processing or disposal.

Starting from 1990, the national post-Chernobyl recovery strategy has been put into effect via implementation of special State Chernobyl Programs financed from the republican budget. Currently, the state is running the Fifth Chernobyl program designed for 2011–2015 and for the period for up to 2020.

Within the structure of national expenditures, 60 % of the budget allocated for PROTECTIVE MEASURES in agriculture is spent on purchase and application of mineral fertilizers.

With the course of time, the cases of excess levels of contamination in dairy and beef products from the national agricultural sector occur less and less often.

A similar tendency can be observed in the private farming sector. Over the last 15 years, the number of settlements with cases of excess cesium-137 contamination levels in milk has dropped by over 30 times.

In animal farming, an effective countermeasure against high cesium concentrations in milk and meat would be to use ferrocyn-based cesium binders.

Introduction of such binders leads to 90% reduction of cesium concentrations in milk.

Whole milk processing into cream, sour cream and cottage cheese, significantly reduces radionuclide concentrations in end products.

One of the effective countermeasures in crop production is technical processing of yields into oil, alcohol, flour or groats.

According to studies, graded use of contaminated forages along with the so called re-specialization of farms from dairy into beef farming provide for 40 times reduction of total collective doses among the residents of the affected areas (from 1 112 mSv down to 40 mSv).

Additionally, the use of contaminated grains for poultry/beef/pork feeds, rather than consumption purposes, gives up to 30 times dose reduction.

Since 1986, the national reference levels for radionuclide concentrations in foodstuffs have been revised 5 times already. Each time, they were further cut down which made them stricter and stricter. The present-day plans are to lower the permissible level for cesium-137 in meat and meat products down to 180 Bq/kg.

Belarus exercises the most strict limits for radionuclide concentrations levels in foodstuffs as compared with the EU and former Soviet countries.

Emergency relief and recovery efforts, rehabilitation and revival of the affected territories – these are the main milestones of Belarus 30-years heroic journey of Chernobyl. All the way from confused commotions of the first days, startling consciousness of the fact itself and then of the enormous scales of the catastrophe, appeal to the international community for environmental disaster relief assistance – to developing ways of human and environmental protection, creating dedicated state and union-state post-Chernobyl recovery programs, – and finally to the stage of rehabilitation, revival and social-economic development of contaminated areas, with re-introduction of former abandoned and now recovered farmlands into agricultural use.

Today, after thirty years under the mark of Chernobyl, Belarus can proudly commemorate that memorable day with the quality transition from the victim state most affected by the disaster to the status of the expert state that have accumulated a unique and full-scale experience of unquestionable value. Scientific knowledge acquired so far is widely practiced for the sake of development of “Chernobyl” territories, to train

younger professionals who show their commitment participate in building up their home land's future, to share this valuable experience with the international community.

Lessons learned from the Chernobyl relief and recovery in Belarus can and must be used for the benefit of the whole humanity