

SUMMARIES OF THE ARTICLES IN ENGLISH

PHILOLOGY

P. 7. *Gordeeva Oksana I., Plotnikova Anna A.* Tomsk State University, Tomsk Polytechnic University (Tomsk, Russia). **FEATURES OF "LYRICAL ON-LINE MINIATURE" GENRE: RESULTS AND PROSPECTS OF RESEARCH.** The subject of this article is the results of the study of the genre "lyrical miniatures" in on-line communication in linguo- and metalinguistic aspects and outlines of the prospects for the research. We prove that the lyrical on-line miniature is an Internet genre. The Internet is the reason for the appearance of a new variety of text. Currently, researchers are concerned with the study of small texts, but the linguistic study of the genre of miniatures has not yet been carried out. Miniature is the genre of texts with the main distinctive feature of a small size of text. The results of the present study demonstrate the prevalence of lyrical Internet-miniatures (LIM) in on-line communication. Currently, only one on-line resource has more than 10 thousand miniatures published in one month, respectively, in a year it is more than 120,000 texts of miniatures. This fact suggests the stability of this form of speech product. So, this genre has to be studied. The purpose is to determine the nature of the genre LIM based on virtual communication in discursive and metalinguistic characteristics and to identify research perspectives of LIM. The discursive aspect of the research shows that LIM has a number of specific linguo- and metalinguistic characteristics founded at the cross of lyrical discourse and the discourse of Internet communication features. Settings of the traditional genre of literature expand the number of characteristics, besides LIM has new features or transforming features characteristic of literary miniatures, according to the new medium of communication (Internet presentation function, active reader and feedback, speech patterns of everyday consciousness, multimedia, hypertext link of genres). The metalinguistic aspect of study of the speech genre is based on the opinion that the speech genre is a model of statement in the minds of the speakers and writers, suggesting the cognitive-mental nature of the genre. Having analyzed the recipients' statements, the authors of this article concluded that there is a meta-concept of LIM: 1) the scheme of the genre, 2) the reasons to write LIM, 3) the communicative space of LIM in blogs, forums, literary sites, 4) the status and social importance of the genre. LIM on the Internet is a productive genre, people consider LIM to be not so much a literature, but a "folk art" genre. Research perspectives are the study of the phenomenon of lyricism in modern on-line communication, the category of linguistic creativity in on-line communication, to describe characteristics of the "network" recipient because the recipient's response, implicit in the traditional literature, is explicit and available for analysis. This methodology is productive for the description and study of other Internet genres.

Key words: pragmatics and peculiarities of style and speech genre; lyrical Internet-miniature; on-line communication; lyrical discourse.

P. 13. *Kuznetsova Svetlana S.* Tomsk State University (Tomsk, Russia). **COLOUR TERMS OF THE DIALECT PERSON: FUNCTIONAL-AND-SEMANTIC ASPECT.** Colour terms are culturally marked that is why they are actively researched in modern linguistics. It is topical to study them in the aspect of linguistic personality. Research of colour terms in the idiolect of a dialect speaker can add to the conception of common and regional features of these nomination class, help to reveal typological features of linguistic personality. The object of the analysis is colour terms as a part of vocabulary of a Siberian peasant woman, V.P. Verzhinina. The main material source is *The Complete Dictionary of the Dialect Linguistic Personality* (Tomsk, 2006-2012). The system of colour terms in the dialect speaker's vocabulary has 180 lexico-semantic variants (including 21 similes) for naming colour. Also we examined the usage of colour terms in the meaning of quality ('black' - 'dirty'), they are else 27 lexico-semantic variants. The goal of the present paper is to describe functions of the colour terms in the individual vocabulary. The typology of functions suggested in the article is made on the basis of semantic characteristics of the elements. Nominative function corresponds to using colour terms in literal meaning without complementary components. Colour terms in this function characterize a wide range of objects such as human eyes, hair, clothes and animals, plants. Informative function is understood as a variety of the nominative and occurs in case of semantic transformation 'colour'-quality. Additional semantic components can be different. Often it is 'illness' when the point is the colour of the skin or 'variety' if the point is plants. Evaluating function is using colour terms for expressing evaluation. The main examples are widely used in the idiolect colour diminutives. Aesthetic function is typical for comparisons, which often express positive aesthetic evaluation. Intensive function can be separated on the basis of intensive semantic component. Functions can be combined. Very often comparisons are used to underline the intensity of the colour so we can speak about the aesthetic function which interferes with the intensive function. Conclusions: colour nomination in the individual vocabulary of a dialect speaker is often joined with expressivity (evaluation, figurativeness and intensity are components of it) and expressing of subjective senses of the speaker (amicability or emotional influence on the interlocutor). Semantic transformation is typical for a dialect speaker. Unlike writers' idiolects, transformation is minimum, often it is differences between shades of meaning.

Key words: colour terms; semantics; functions; linguistic personality; Siberian dialects.

P. 17. *Melikyan Anna V.* Southern Federal University (Rostov-on-Don, Russia). **CLASSIFICATION OF SPANISH FIXED PHRASE SCHEMES ON THE BASIS OF LEXICO-GRAMMATICAL STATUS OF THEIR COMPULSORY COMPONENT.** Syntactic fixed phrase units are the communicative units characterized by such integral features as repeatability, stability, structural and semantic integrity, idiomaticity, expressivity, and also by differential features, for example, the number of units, peculiarities of their structural and semantic organization, model of their creation, mechanism and degree of phraseologisation, etc. Fixed phrase schemes are one of the most specific classes of syntactic fixed phrase units, that is why they are of great interest to linguists. Fixed phrase scheme is the communicative predicative syntactic unit that is the determinate and reproduced set syntactic scheme characterized by dictum and modus proposition, grammatical and lexical indivisibility, impermeability, lack of extension and it performs the aesthetic function in speech. Due to their features fixed phrase schemes are heterogeneous. It gives an opportunity to create the diverse aspects typology. This article is devoted to the classification of Spanish fixed phrase schemes according to lexico-grammatical status of the compulsory component. We single out three main fixed phrase scheme groups according to lexico-grammatical status of the compulsory component in the contemporary Spanish language: fixed phrase schemes with compulsory unchangeable component represented by WH-word (pronoun or adverb), notional word and conjunction. Fixed phrase schemes of each group are specific. Fixed phrase schemes with compulsory unchangeable component represented by WH-word are the most multiple ones. It is conditioned by the specific character of the unchangeable component inner form, the peculiarities of interrogative meaning in particular. Fixed phrase schemes with compulsory unchangeable component represented by notional word are rather productive. By belonging of the unchangeable component to a particular part of speech it is reasonable to divide them into several subgroups: fixed phrase schemes with compulsory unchangeable component expressed by an adjective, an adverb, a pronoun and a verb. The third group of fixed phrase schemes with compulsory unchangeable

component represented by conjunction is the least productive one. It is conditioned by the low potential of the conjunction in the aspect of different structural and semantic transformations. In whole we should point out that fixed phrase schemes confirm their phraseological units status. They correspond to one of the most effective means of colloquial speech and enable the speaker to implement diverse communicative intentions that is why they are very promising for further research.

Key words: syntactic phraseology; syntactic fixed phrase unit; fixed phrase scheme; compulsory unchangeable component; typology.

P. 24. *Rezanova Zoya I., Romanov Aleksandr S., Meshcheryakov Roman V.* Tomsk State University (Tomsk, Russia), Tomsk State University of Control Systems and Radioelectronics (Tomsk, Russia). **TASKS OF AUTHOR ATTRIBUTION OF TEXT IN THE ASPECT OF GENDER (ON INTERDISCIPLINARY INTERACTION OF LINGUISTICS AND COMPUTER SCIENCE).** The paper discusses the interdisciplinary interaction of linguistics and computer science in connection with solving the tasks of author attribution of the text in the aspect of gender. The problem areas of theory and practice of authorship expertise are defined. Since the problem of attribution of the author of the text is now addressed and resolved mainly on the material of works of art, we should solve the question of how these techniques will work if to use them on text material of other styles and discourses. There is a need to develop the problem of combining qualitative and quantitative methods of analysis and definition of the type of language units, statistical analysis of which is sufficient to identify the text. The paper points out common problem areas of gender linguistics and authorship expert works that need solutions. The authors emphasize the importance of involving findings of authorship expertise experiences in the paradigm of gender research, especially on unreflected formal attributes of the speech itself, as these are great signs of the opposition of male and female speech behaviour. There is a need in quantitative verification of features of "typical male" and "typical female" speeches selected by qualitative methods. Authorship expertise requires active use of latest gender researches in the analysis. The solution of the complex tasks stated in the paper on theoretical and practical problems will be carried out in an interdisciplinary project performed by a team of authors from the Department of Complex Information Security of Computer Systems of Tomsk State University of Control Systems and Radioelectronics and the Department of General, Slavic-Russian Linguistics and Classical Philology of Tomsk State University. A research program was designed aimed at identifying the impact on the effectiveness of the applied methods of author attribution settings of 1) areas of communication, 2) length of the fragments of communication, and 3) ratio of detected asemantic and semantic units of text structures. Solution of the problems of authorship expertise requires a special empirical basis of research. The objectives of the first phase of the project are: 1) creation of a corpus of text of various discourses and marking it in accordance with the tasks of authorship expertise (in the first phase to form a corpus of short electronic messages is planned and its linguistic marking), 2) expansion of the list of features used to identify gender and studies on determining their information capacity for the problem, which will lead to the expansion of the functionality of the software complex "Avtoroved", 3) study of meta-classifiers in order to improve the accuracy of identification of the author of the text, 4) justification of the results by mathematical and contemporary linguistic methods, 5) synthesis of the previously obtained models and techniques to identify the author of the text.

Key words: authorship expertise; gender linguistics; interdisciplinary methods of research; gender specification of author of text.

PHILOSOPHY, SOCIAL AND POLITICAL SCIENCES

P. 29. *Galkin Dmitry V.* Tomsk State University (Tomsk, Russia). **ARTIFICIAL LIFE AS SUBVERSION OF FLESH: STRATEGIES FOR HYBRIDIZATION.** The paper is devoted to ontological issues of artificial life as modification of the flesh. The author assumes that artificial life becomes possible through subversion of the biological life to the level of manipulations with raw material and creation of the hybrid forms. As a methodological foundation the author uses an original approach and applies science art (contemporary art based on scientific research and new technologies) claiming it to be a philosophical method that helps us to combine material aspects of science and technology with cultural and political meanings. The idea of hybridity is also considered as both an ontological combination of individual objects and a useful cultural metaphor for this kind of possible combinations. The author claims to prove that contemporary understanding of hybridity is rooted in the modernist world view as it is scientific transformation. Its radical version is well known to be a foundation of the Bolshevik ideology. In the paragraph "Advent of the Hybrid" there are two early and exemplary modernist scientific experiments of subverting the flesh described. One is made by transplantology surgeon Serge Voronov with sex glands and the other is experiments with crossbreeding humans and monkeys by zoologist Ilya Ivanov (both were seeking for effects of life longevity and rejuvenation). The analysis of these works allows the author to formulate major principles of hybridization. In the paragraph "Artists-Bolsheviks: strategies for hybridization" these principles are applied to the works of science artists and their ontological implications. In the project "Ear on arm" of Australian artist Stelarc the subversion of the flesh of the artist himself becomes a de-individualization of the human as a biological entity and moves to the search for alternative anatomic architecture of the human body. In the project "MEART. The semi-living artist" by science-art group Symbiotica we face the possibility of artificial life in the form of new kind of creature and development of the ontology of semi-living. Simultaneously ironical as well as absolutely literal transformation of the living organism into industrial flesh to be used as a source of energy or another utility is presented in the work of Joe Davis (project "Making fire"), James Auger and Jimmy Loiseau (projects "Carnivorous domestic entertainment robots", "Afterlife") and Tuur van Balen (project "Pigeon d'Or"). Festival of tissue and the magic of tissue transformation by means of biotechnology is demonstrated in the works of Julia Reodika (project "HymNext") and Guy Ben-Ary (project "In Potencia"). As a conclusion the author proposes a thesis that modernist scientific ambitions and our days experiments of science art as well as the formation of a new culture of artificial life are rooted in some sort of technological unconscious that can be named "the Preobrazhensky syndrome" with the reference to the characters of Mikhail Bulgakov's famous novel *Heart of a Dog* (inspired by works of Ivanov and Voronov).

Key words: artificial life; hybridization; science art.

P. 35. *Goncharenko Mark V.* Tomsk State University of Control Systems and Radioelectronics (Tomsk, Russia). **KNOWLEDGE OBVIOUSNESS AND NON-OBVIOUSNESS IN TERMS OF WILLIAM OCCAM'S EPISTEMOLOGY.** The present article gives coverage to conditionality of the modern range of problems of correlation between the phenomena of "belief" and "knowledge" from a perspective of the background (contradiction between realism and nominalism), as well as role and significance of the issue of "existence" of the non-existent thing conditioned by the irrational factor. The issue of possibility / impossibility of correlation between the reality and the abstracted and intuitive knowledge is considered. The reasons according to which different nominalistic and realistic interpretations of universals can only be conditionally called contradictory have been analyzed. In connection with the above-stated, the issue of possibility / impossibility of a single subject of all science was considered, as the nominal-real has a direct relevance to this; also the intentionality of cognition was analyzed, which in a certain way is related with abstracted and intuitive knowledge. The problem of existence of the non-existent thing is considered, it has irrational nature not only in terms of nominalism. Justification of the noniden-

tivity of universals and substances by means of impossibility of the latest to be part of utterances / reasoning once again indicates the necessity of parallelism of the phenomena: language – reality. Elements of the phenomenological method are used in research. According to the causes analysis various nominalistic-realist interpretations of the universal can be called inconsistent only conditionally; the parallelism of phenomena "language – reality" is determined by nonidentity of universals and substances. As knowledge is not an autonomous unchangeable system, there is a need to analyze the process of formation and further development of syllogistic reasoning. The fundamental problem of reality, not relevant to the creation, actualizes directly the phenomenological aspect of knowledge. This study is relevant in terms of the philosophy of science and theory of cognition; historical parallels specified in this article make it possible to explain the grounds of the inconsistency of the nominal-real in terms of the history of philosophy. The considered issue can also be of interest from the ontology discourse point of view, as the discourse of knowledge is constituted in a certain manner and a means of its expressing is a logical component, whereas non-logical components provide other means of discourse organization.

Key words: knowledge; belief; cognition; intuitive knowledge; abstracted knowledge.

P. 38. *Migurenko Raisa A.* Tomsk State University (Tomsk, Russia). **COMMON SENSE AS A MATTER OF PHILOSOPHICAL REFLECTION.** Mainstreaming of theme of common sense in modern philosophy is due to various factors, including changes in methodological principles in analyzing the production and study of philosophical knowledge, demand for potential of common sense in the philosophy of mind and contradictory positions on the role of common sense in the theoretical knowledge. On the one hand, there is a tendency of ignoring the truths of common sense in the production and substantiation of philosophical knowledge of the mind, on the other, "passion" for common sense, reflected in the active use of its sets, axioms, principles in the development of the problem of consciousness. It is necessary to identify the essence of common sense, to analyze the methods and forms of its manifestation, as one of the causes of the contradictory status of common sense at the level of philosophical reflection is the lack of clarity of the concept, identifying it with other concepts (everyday life, everyday consciousness). Parameters of philosophical vision of common sense are: an innate quality (the instinct of reasonableness); the overall quality (common feeling, common sense); universal knowledge; function (settings, axioms, principles, truth, argument, rules / regulations, output, method, etc.); logical construct; the matrix of consciousness; system such us rhizomes. For conceptualizing the problem of standards of common sense in the philosophy of mind its interpretation of various options is productive, because common sense is a complex phenomenon that can be seen as a system. The logical sequence of links within the system of "common sense" is as follows: Instinct Intelligence as the primary setup (1) → Intuition as the ability to direct vision (2) → Truth as a result and status of direct knowledge (3) → Axiom (4) → Postulate (5) → Maxim (6) → Norm (7) → Principle (8) → Set of Consciousness (9) → method (10) → intuition as the basis of the method and its results (2/11) → source of the initial installation for a reasonable arrangement of the world in instinct intelligence (1/12). Thus, 1 and 2 (11-12) are "human" at the natural level of the mind; 3-10 are intuitive truths functions of common sense. However, common sense does not operate by the "scheme", even if it has a certain logic, but as a system in which "all in all" and "all at once." It is therefore difficult to explicate the sense as a "unit." Understanding of that makes common sense possible by a set of specifications. Philosophical content of specifications of common sense and their epistemological potential is the subject to further research.

Key words: common sense; status; parameter; potential.

P. 46. *Syrov Vasily N., Agafonova Yelena V.* Tomsk State University (Tomsk, Russia). **COGNITIVE MANAGEMENT IN THE STRUCTURE OF EDUCATION AND SCIENCE: PHILOSOPHICAL AND METHODOLOGICAL ASPECTS.** Cognitive management for the purposes of this paper is part of the contemporary discourse on education involved in the field of economy and information today. Management of knowledge and competence is the main task of the institutions as well as the applied knowledge is an indispensable requirement to universities as an assessment of their effectiveness. Economic discourse confidently enters universities and begins to determine the new nature of the challenges of the system. We propose to begin from the definition of a manager responsible for this system. We can talk about managing where there is a pluralistic environment only. The need for management is established by a competitive environment, but if such an environment is absent, there is no necessity of management in the functional sense. Competition in this case requires not only the focus on the management of the environment, but most importantly on the ability to choose the target market and even generate it. That is, the function of educational institutions is not only increasing knowledge, but also determining and shaping those who are consumers of this knowledge. If translated into the language of economy, it is a matter of *marketing*. There is a need to decide what services to offer and what competencies are needed and who needs them. Theoretically, we could assume that the demand can be generated either by external environment, or it can be formed within the educational and scientific system. If we assume that educational institutions should follow the needs of the society, the essence of all innovation will be reduced to what would the consumer market come up with to sell. Obviously, all this contributes to the dominance of instrumental reason. But the product of education and science can not be measured in terms of immediate commercial benefits, as it is often not able to produce direct effect. It is also necessary to remember that education is part of the society, whose structure is not static. In that case, universities could not become a tool for achieving external purposes, but a backbone element in the construction of the social landscape. What is cognitive management? It may be, firstly, the organization of the activity of individuals and their interactions (participation in the creation of social networks), and, second, it may be the discovery of new intellectual and educational opportunities and ways to achieve them. Therefore, the function of a "cognitive manager" is to restructure the environment to release or create channels that ensure the production of knowledge. The meaning of this production is not only the knowledge which is adjusted for current needs, but also the ability of knowledge to reformat the environment. That is, we should try to use a discourse that is not constituted by the idea of adapting of the system or adaptation of the organism to the environment, but it should be the idea of environment conversion by the system or by the body. And we need to see what opportunities open up with this approach. Then the discourse of the market should be considered only as a tool to enable this displacement, but not as an expression of the goals of the existence of scientific and educational complex.

Key words: cognitive management; education; university; marketing; knowledge.

P. 52. *Faritov Vyacheslav T.* Ulyanovsk State Technical University (Ulyanovsk, Russia). **TRANSGRESSION AND TRANSCENDENCE IN MUSIC. ONTOLOGICAL ANALYSIS.** The musical material can be developed in two modes of being essentially distinguished from each other: transgression and transcendence. In the mode of transgression the basic content of music is not the musical theme, but its refraction in a stream of variations. The primary goal here is to conduct a theme from the closed and steady condition to make it mobile, fluid, constantly arising and disappearing, lost in infinite transitions and semitones. Invariant structures are erased in a stream of variations. In the mode of transcendence there is a statement of the theme. Themes of a piece of music in this case get function of the centres coordinating movement of variations and components of their invariant structure. Distinction of modes consists in accents: whether we isolate the theme as the main structural element or the accent on its transgression is transferable. During the history music is developed in two modes simultaneously. At the initial stage of

the European music transgression of the theme is carried out by means of polyphony. Realization of the theme by various voices transforms it in simulacrum as the original is erased: the theme exists only in a set of the simulating voices refracting it. Outside of this complex mobile pattern, formed by suppression of lines it does not exist. Transition in classicism to diatonic changes the transgression movement of music. Transgression of the theme is developed by movement of the theme, its numerous variations, development of collateral themes. In romanticism the theme becomes a substance, which expresses the sense other than music. Music turns to *means* for expression of every possible content of emotional sphere: feelings, experiences, moods. The last, in turn, should refer to *the subject* as to the source and carrier of all these experiences. However, having adhered music to the sphere of the transcendental subject, romanticism at the same time released it from "fetters" of classicism. Music of the 19th century is characterized by close interaction of transcendence and transgression modes with a tendency to their association. Further development of music is marked by an opposite orientation: opposition of the modes. On the one hand, there is a powerful liberation and dis-closing of transgression in musical avant-guard. The melody in its traditional understanding disappears – it is replaced by a twelve-sound number which varies during all the product in different ways. On the other hand, domination of an independent musical theme reaches maximum, the expression of becomes becomes the phenomenon of a hit. Music is entirely reduced to simple melodies which exist only for itself and completely settle the content of the musical product. An attempt of overcoming of the break is taken by the composers of post-avantguard orientation combining serial techniques of avant-guard with classical tonality. It is possible to draw a conclusion that transgression and transcendence are two ways of life of music whose interaction is shown differently in various periods of development of musical art. Specificity of this interaction is in close connection with the metaphysical orientations of the epoch shown in philosophical systems and other kinds of art.

Key words: music; music theme; transgression; transcendence; mode of being.

CULTUROLOGY

P. 56. *Ardashkin Igor B.* Tomsk Polytechnic University (Tomsk, Russia). **TRUST IN SCIENCE AND RELIGION: ON FORMATION OF CULTURE OF TRUST.** Trust as the most important factor of development of society in the modern world is considered. The author believes that formation of culture of trust represents a necessary step in a question of preservation of mankind as a uniform community. Trust found a similar status relatively recently when science began to have a dominating impact on society development, and the religion status considerably decreased. In science trust has a conditional character, it assumes need of justification. Science as the world outlook system is constructed in such a way that its purpose is the critical relation to everything that becomes a field (subject) of its research. In scientific knowledge nothing has to be taken by trust. Knowledge becomes scientific only when it undergoes certain procedures of verification (rational or empirical). But the main thing is that science has the critical view of the world which it still should learn, and it is peculiar. It is noted that science (rationality) as the organizational impact on the society and the person form trust as a cognitive relation. Trust in that case has a conditional character. It means that a person can trust science (scientific), another person (if the message is about knowledge in general) only provided that the latter will be able to show certain confirmation of the representations by means of public discussion. The religion forms an absolutely different relation to the world of the person. It does not suppose that the person should undertake or prove something to cause trust. In the religious outlook of people it is not isolated from the world, it does not lose it as the basis and therefore it does not need to undertake any efforts to prove that its original. In religion trust has an unconditional character, it allows an assumption of preliminary belief without any proofs. Trust as a religious relation represents a certain ideal of social relations in which the human need for stability is realized. But this requirement does not assume unlike conditional trust of science of a certain reliability of representations and knowledge. It does not mean that in religion everything is obvious to the person and therefore trust is there for its natural character. It is idealization of religious relations that trust here is unconditional even in circumstances of absolute uncertainty. It is noted that formation of the source of original relations in the society requires creation of culture of trust as a complete basis for interaction between people, including both conditional, and unconditional factors of its achievement. The conclusion is drawn that formation of culture of trust is possible by the way of dialogue and coexistence of various ways of functioning of trust, instead of their opposition to each other.

Key words: trust; culture of trust; science; religion.

P. 61. *Velikanov Andrey G.* National Research University Higher School of Economics (Moscow, Russia). **CREATIVITY OF CULTURE.** Just as traditional art actively opposed the modernist experiments, asserting its identity – formal and aesthetic principles, many of contemporary artists and critics cannot call into question such categories as genre, work, author's strategy, language of the statements and boundaries of art. In spite of the fact that the declaration of the author's death was enunciated almost 50 years ago, art still remains the art of an author and defends the theoretical principles, which methodologically do not correspond to modern culture. However, there are forms of relationships of the artist, the surrounding context and the observer, which are described completely in other categories and pretend to be new forms of art. The most interesting material for such forms is information environment. Traditionally, a reaction to the statement of an artist considered not to belong to his work even if such a reaction is much more powerful than the statement itself. But in keeping with the theme of Roland Barthes (the author died in order to be reborn in the reader's head), the observer perceives any phenomenon together with the context. In addition, observation can be a creative act not implying the presence of the author, because culture as non-personalized environment is capable of producing events, which can be estimated aesthetically and rationally. As an example, the article tells the story of architect Dmitry Chechulin and the posthumous fate of the buildings he built. Those buildings gave rise to a cultural context, the ability to produce new phenomena that have independent value. The Palace of the Soviets was implemented as a swimming pool "Moscow". The project of the Aeroflot office was transformed into the Government House (White House). The project of the skyscraper in the centre of Moscow – into the hotel "Russia". The fate of Chechulin demonstrated death of the subject, and the birth of the medium, able to communicate with simulative culture. But this interpretation was not available to the author. One would assume that the author is the one who conceived and interpreted the situation. However, no one can claim it to be the only correct "awareness". Different observers with their interpretations are also included in the total field of the phenomenon, even those who, in accordance with traditional views, will consider a reaction to the statement of the artist belonging to the product itself.

Key words: author; creativity; style; method; observation.

P. 66. *Kovalenko Pavel S.* Altai State Pedagogical Academy (Barnaul, Russia). **HISTORY OF CREATION AND BASIC DIRECTIONS OF PASTORAL AND MISSIONARY ACTIVITY OF THE ASSUMPTION CATHEDRAL IN BIYSK.** The inclusion of Biysk historical and cultural monuments into the routes of educational excursions requires the study of history of every object. One of the little-studied monuments of the historical centre, defining the unique landscape, is the Assumption Cathedral. Its weak level of study is confirmed by the analysis of the historiography of the object. It is a very serious problem, which does not give the guide

an opportunity to make a good excursion of one of the main attractions of Biysk for the participants. The level of perception of the monument is reduced by the ignorance of the material, and it means that the excursion becomes less intensive in terms of information. The identified sources allowed to restore the most important pages of the Cathedral's history. At the end of the 19th century, a necessity of the construction of a spacious Cathedral appeared. The project was drawn up in Russian-Byzantine style and was approved by Khabarov, a Tomsk Province architect. Makariy (Pavlov), the Bishop of Biysk, consecrated three thrones in 1903. Archpriest Dagaev became its first Father Superior. He served in the Assumption temples of Biysk for 47 years and 2 months. The house Church in the name of Saints Constantine and Helen in Pushkin City School, Church-Parish Men's School, Parish Male and Nikolaev Female Schools were in charge of the temple in 1908. In 1918 the temple became known as the Cathedral, in the 1920s it was handed over to the updaters and became a Duomo Cathedral. In 1932, the Church was closed and used as a granary. The Church was opened the second time after the changing of the state policy in 1947. In the post-war years the Assumption Church became one of the three functioning on the territory of the region. The Holy Patriarch of Moscow and All Russia Alexey II visited the Assumption Church on May 12, 1991. Anthony, the Bishop of Barnaul and Altai region, ordered to call the temple a Cathedral in 1994. And it received the status of a Duomo Cathedral in 1998. The author of the article started collecting exhibits and documentary materials for the creation of an exposition "The Centuries-Old History of the Assumption Cathedral" from 2008 according to the concept of the Museum of the History of the Altai Spiritual Mission. On January 1, 1913 there were 418 exhibits in the thematic exhibition: the dome crosses, liturgical vestments, books with notes of hymns of the Church choir, etc. Having identified and studied archival materials, collected exhibits, oral memories, we managed to find out the centuries-old history of the Assumption Cathedral, which played a crucial role in the Orthodox life of the city and the whole region of the preservation of the Christian traditions during the years of Soviet atheism. Analyzing the above facts, it could be argued that in spite of the severe ordeals of time, the Assumption Cathedral was and remains the standard of temple architecture. It is a real decoration of Biysk, the stronghold of Orthodoxy and spirituality.

Key words: Assumption Cathedral in Biysk; Museum of the History of the Altai Spiritual Mission; Archpriest; Father Superior; Bishop.

P. 71. *Panova Olga B.* Tomsk State University (Tomsk, Russia). **CREATIVE SPIRIT OF LANGUAGE. ARTICLE 1. RING OF SILENCE.** Allocated with boundless creative energy, Language comes from primordial before-verbal Silence and in memory of this secret Silence keeps silence, bequeathed to any poet, any wise man and the Person in general. Silence is an attribute of the Universe, the sign of the highest transcendental reality, essential property of Being as such. The silence which comes from reverence for the Perfect Word (Word cult) is laid in the deep bases and in the most ancient revelations of all world cultures. The deepest understanding is understanding "without words", the heritage of Absolute Silence and an a priori condition of mutual understanding between certain people, whole nations and world cultures. Nowadays, world cultures as partners equal in rights face the necessity of rapprochement and finding mutual understanding. Achievement of it is possible, most likely, not due to overcoming of cultural and language distinctions and not to the solution of the problem of searches of a universal language, but due to returning to the sources of dialogue of revelations of ancient cultures, "silence times", the dialogue based on understanding of the fact that the true remains outside of words where experts do not speak, cannot speak; due to mastering of "lessons" of sincere and silent agreement. Language is musical in its being. Listening to the World, Language gives the chance to affect its Silence, it is such possibility. Resounding the echo of fundamental world harmony, Language reaches the Music of Silence. Initially creativity, Poetry (ποίησις) Language is at the same time the Music (μουσική), it sounds the Silence echo, staying in accord with the Soul of the World, and transfers all completeness of sounding of the Musical Beauty of the Universe. Music is not simply understood as one of art forms and not only as a total comprehensive art (Gesamtkunstwerk), but, first of all, as vital elements, elemental basis of Being/Life. The music embodying interrelation of all world phenomena, treating Love as peace-making, is perceived as a special Language, Language of Revelation of the Being, capable to transfer the deep secret meaning of Life, to capture all completeness of human spiritual life. The uniqueness of language of music consists in its ability to express inexpressible, to state something universal, clear to everyone, deeply human. Therefore, music is felt as absolute language and can be considered as a basis for Language of the World Culture of Mankind, not as a language of concepts, but as a language of understanding.

Key words: word; language; culture; creativity; poetry; music; silence.

HISTORY

P. 79. *Anokhina Yelena S.* Tomsk State University (Tomsk, Russia). **IMPLEMENTATION PROBLEMS OF CHINA'S LABOR EXPORT POLICY.** The paper is devoted to the analysis of China's labor export policy. It describes the size, structure, geography of Chinese labor migration, outlines main problems of implementation of China's labor export policy and measures taken by Chinese government to eliminate the problems, and researches labor export impact upon China's economic and social development. Labor export is one of the strategic areas of China's foreign economic policy. Development of labor export and labor migration was linked with country development trends and necessity to meet economic challenges. Since introducing reforms and "open door" policy Chinese government has changed its approach to foreign policy and foreign economic cooperation. A primary importance was assigned to modernization of the country and handling domestic problems. New approaches were applied to labor export as it became an important source of country's revenue. Chinese government uses a wide range of measures for support and promotion of labor export in China and abroad. Labor export enabled Chinese government to solve some domestic problems and became an effective mechanism to reduce pressure in domestic labor market. China increases capacity and expands channels of labor export. Annually China increases the total value of labor export contracts and expands export geography. In spite of the great strides made by China in labor export since introducing reforms and "open door" policy, China's labor export capacity is far from its peak and has a huge potential for its development. Unfulfilled labor export capacity is caused by several reasons including management problems and incomplete sectoral legislation. Administration system is undeveloped, the labor export laws in force do not fit the times and current trends of labor export growth. Other factors apart from the low level of proficiency in foreign languages by Chinese workers, insufficient qualification of Chinese workers, lack of knowledge of basic international standards and sectoral requirements, low level of pretraining of Chinese workers before they go abroad limit a lot China's capability to increase labor export. Among other problems there are protection of Chinese workers abroad, quotas imposed by importers of Chinese labor force, high requirements for obtaining working visas by Chinese citizens, non-recognition of Chinese diplomas abroad. China needs to improve its labor export administration system and eliminate legislation shortcomings in order to expand its labor export.

Key words: China; labor export; labor migration.

P. 83. *Yegorov Aleksandr I.* Dzerzhinsk Polytechnic Institute of Nizhny Novgorod State Technical University (Dzerzhinsk, Russia). **CULTURAL ASPECTS OF FOREIGN POLICY OF THE STATE IN THE POST-BIPOLAR EPOCH: GERMAN EXPERIENCE.** In the postwar period competent cultural policy is an instrument of the return of respect for Germany from the world community. With the transition to the postbipolar epoch the accents in the cultural policy of the united Germany were arranged differently. Its mission was seen in ensuring the peaceful coexistence of different cultures and mitigation of the "clash of civilizations". It was oriented on improving the quality and reliability of the German cultural communication with its partners around the world. Germany positioned itself as the bearer of the spirit of an open society that recognizes the shared responsibility for peace, sustainable development, human rights and freedoms. The last line became particularly important with the advent to power in Germany of the coalition the SPD – the Union 90/"Green". In the cultural policy of Germany it provides for the consensus between the leading political forces in the country. This facilitated the adoption of foreign policy decisions, and eventually led to the mobilization of the necessary financial resources. Steps taken in the field of cultural cooperation were considered as part of conflict management by the German authorities. It performed diagnostic function, became an instrument for early detection of deviant phenomena in the socio-economic, religious and ethnic relations. This allows to use the cultural and information policy to facilitate their return to normal. The foreign policy of Germany in the field of culture indirectly performs the function of marketing. The German language became an effective means of promoting the interests of the German capital in the world. United Germany intensified international efforts in the field of education and science, especially at universities. German support mechanism for foreign policy in the field of culture runs smoothly, its key elements are private funds and specialized institutions of civil society. They contributed to the development of humanitarian cooperation with other countries, supplying the world with the positive information about Germany. German foreign policy priorities in the field of culture were reflected in its cooperation with Russia. German-Russian dialogue on culture acquired a new quality, performing for the German side the function of intellectual call that urgently requires improvement of the forms of spiritual expression. In general, the consensus of the authorities, business and civil society, has been made in the cultural field, allowing to realize the interests of Germany in the international arena.

Key words: Germany; culture; values; open society; human rights; moral.

P. 87. *Zima Tatiana Yu.* Moscow State University of Culture and Arts (Moscow, Russia). **RECTOR OF THE IMPERIAL TOMSK UNIVERSITY N.A. GEZEKHUS AND MUSIC (BY ONE LETTER).** On September 6, 1888, classes began in the first Siberian University of the entire vast Asian territory of the Russian Empire. Young educators came to Tomsk for teaching, including the most senior physicist at the time, N.A. Gezekhus (he was 43). Here he was appointed Rector. Nikolai Gezekhus (1845-1918) graduated from St. Petersburg University in 1869. In 1871-1872 he had an internship in Berlin with G. Gelmgolts, then worked in his alma-mater, received a Master's Degree and a Ph.D. In the summer of 1888 he went to Siberia. Before coming here, on the banks of the Neva in his spare time on Fridays, Gezekhus regularly visited the home of patron Mitrofan Petrovich Belyaev (1836-1903), where in a circle of friends played music in an amateur string quartet. The whole year, being far from his native land, Professor Gezekhus greatly missed St. Petersburg circle and regularly corresponded with M.P. Belyaev reporting on his life in Siberia. One of the three authentic letters found in the archives of Glinka Museum of Musical Culture is published the first time ever in this paper. In this letter, dated November 7, 1888, Gezekhus tells his colleague in the quartet about the musical life in the remote town of Tomsk, where for almost 10 years there was a branch of the Imperial Russian Musical Society (IRMS). The analysis of the text of the letter makes it possible to determine the role of the Tomsk branch of IRMS in the occurrence and development of various forms of education of citizens through classical music and its role in the organization of the orchestra and choir, teaching students to read and write music and play the instruments. Organization of an orchestra in all provincial offices IRMS was always the weak link and a burning issue solved by all means possible. The letter mentions the names of local enthusiasts, music lovers, and first professional musicians, who did a lot of work in the field of musical enlightenment (e.g., spouses K.I. and G.S. Tomashinsky, pianist Yadviga Zaleskaya), and the names of touring musicians (cellist A. Verbov and conductor A. Tershak) instilling a taste for the latest models of foreign and Russian musical literature and leaving an imprint on the whole culture of the West Siberian province by their concert programs. The details of the letter give a picture of the formation of a specific socio-cultural environment of the Siberian city where there was a process specific to the provincial towns in Russia in the post-reform period in its history.

Key words: Imperial Siberian University; first rector; philanthropist M.P. Belyaev; Tomsk Branch of the Russian Musical Society; quartet evenings; socio-cultural environment of Tomsk; new audience.

P. 93. *Mirkin Vladimir V.* Tomsk State University (Tomsk, Russia). **TECHNIQUE AND TECHNOLOGY OF SOVIET BROADCASTING IN EIGHTH AND NINTH FIVE-YEAR PLANS.** In the development of technical means of broadcasting in this period there are several key areas. First, it is the development and implementation of more effective transmitters, antennas, microwave transmitters with frequency modulation. Second, it is modernization and efficiency of radio networks, as well as expansion of the channels of TV programs both through the use of new cable and radio links, and by sealing operating channels. In addition, during the second half of 1960s – the first half of 1970s there were widely introduced synchronous networks, and automatic control equipment quality characteristics of radio transmitters. Development of broadcasting in the 1970s came up, in the first place, on a limited number of selected for this purpose channels in the range of long, medium, short, and, in some areas, ultrashort waves. The large size of the USSR was to be considered: the presence of multiple time zones, multinational language of the population, economic development of individual specialization areas, to warrant the simultaneous operation of a large number of transmitters in different programs. The total length of wire broadcasting network in the country in 1975 was about 2 million square kilometers, it fed more than 50 million radio sets. The total power amplifiers stations and substations network was several tens of thousands of kilowatts. Even the rapid development of television and radio did not reduce the rate of growth of the wired network. The solution of scientific, technical and engineering problems of wired network pursued one goal – to create the technical media, which would be very simple, inexpensive, and, if possible, generally available. That is why wire broadcasting firmly established in the Soviet way of life, and was, in fact, considered as a usual utility. In the 1970s all the buildings under construction, both residential and public, were necessarily equipped with wired networks. Formed in the preceding period directions of development of the reception techniques did not change significantly. As before, the works were done to improve the quality of receivers and improve their production technology, the use of higher frequencies, develop a theory of reception, as well as address the challenge of noise immunity. One of the characteristic features of the development of receivers in the 1970s was their complexity due to increasing demands for basic electrical characteristics, reliability, weight and size. Thus, during the eighth and ninth five-year plan the country was provided with reliable reception of two broadcast programs in medium-, long-, short- and VHF bands. There was completed installation of radio for all settlements to be in conformity with the plan of wired broadcasting coverage. Works for automation radio stations were widely initiated. Multiprogram wired broadcasting received further development in the cities and then in the countryside.

Key words: technology; telecommunications; broadcasting and wired radio.

P. 99. *Nam Yelena V.* Tomsk branch of Kusbass Institute of Federal Penitentiary Service of Russia (Tomsk, Russia). **PERCEPTION OF SPACE IN SIBERIAN SHAMAN TRADITION.** Every cultural tradition perceives the space and time structure of the world in its own way. Space and time represent universal categories of human consciousness and special forms of reality perception. In this paper consciousness is regarded as the main attribute of being that defines the existence of man in the world. Space and time emerged at the same time as human consciousness, which was comprehended in mythological tradition as creation of the world. Space presupposes the presence of a certain structure – cosmos (as opposed to chaos), where boundaries of objects and their positions are clearly outlined. The first borderline lies within the man; it separated him from the world of nature and thus revealed the presence of consciousness. However, in early mythological consciousness the main principle was that of part and whole, rather than that of contraposition of self and non-self. Man understood himself as part of the world and perceived the part and the whole as identical. Acknowledgement of non-uniformity of space is typical for mythological consciousness. Qualitative characteristics of individual space sections are directly related to their proximity to the sacred. The most sacred is the point in space, where and when the act of creation took place, i.e., the centre of the world is the world axis. The spatial structure of the universe becomes more complex, as the relations with the sacred become more complex. On the one hand, man strives for maximum proximity to the sacred, endowing his domicile with properties of a median object in relation to the scale of cosmos. On the other hand, man always feels foreignness and danger of the other world beyond the world of human culture. Existential threat accompanying the man from the moment when he realizes his separation from the world of nature explains the need in new cultural symbols that would help reduce or mask the contradictory nature of being. That is why after the central axis was identified, the space was divided into different zones: the most sacred, i.e., endowed with maximum mystical energy, less sacred, and endowed with negative characteristics. External space endowed with negative properties lay beyond the organized space of the tribal territory. This was already an inhuman world, otherness, departure to which was equal to death. The space of traditional Cosmos was characterized by alive and pulsing structure, rather than the frozen one. During certain periods of time otherness could intrude into the human world, posing an existential threat to the man even within the familiar territory. Night and winter were the periods when negatively perceived space came close to the man's domicile. Early mythological consciousness possessed many properties, completely forgotten now, pushed out of the format defined by contemporary cultural tradition. One of the most important features of mythological consciousness is the fact that it is not limited by boundaries of an individual organism, boundaries of Ego. Smooth transformation of various forms of being one into another is a result of this. The study of altered states of consciousness in transpersonal psychology resulted in identification of such phenomena as spatial expansion and spatial narrowing of consciousness. Shaman performing controlled the return to the early layers of psyche, which also acquires the ability to go beyond the spatial boundaries of his own body turning into different animals, plants, natural elements, ability to expand or narrow his own consciousness. The study of shaman tradition of Siberian ethnic groups based on mythological world perception and structuring of space can to a large extent clarify the issue of mutual relations between consciousness and reality, go beyond the accepted world perception and present alternative solutions to the world outlook dilemmas of contemporary man.

Key words: mythological consciousness; space; structure.

P. 105. *Chernyshov Sergey A.* Tomsk State University (Tomsk, Russia). **ANNEXATION OF WESTERN SIBERIA TO THE RUSSIAN STATE IN THE 16TH-17TH CENTURIES: TRADE-ECONOMIC ASPECT.** The reasons for the annexation of Western Siberia to the Russian State have been considered systematically in the literature. At the same time, almost all authors deem the consequences that led to the annexation of the Siberian Khanate and other indigenous state formations in Western Siberia to the Russian state. Firstly, it led to increase in significance of fur hunting and trade in the all-Siberia economy. At any rate, since the 12th-13th centuries furs were the basic feature of the Siberian export. For this purpose, in the middle of the 15th century, the Muscovy Tsar Ivan accepted some Ostyaks and Voguls' tribal unions under his protection and Siberian overlord Ediger to obtain foremost valuable furs from them. Until the time to come, the Muscovy government had been restricted with very relative relations of vassalage regardless the development of its own administrative or military deployment in the so-called fur territories. The situation changed in the second half of the 16th century and these changes resulted from the European revolution in the price for furs. At that time, historians paid attention to the drastic change in the global price situation for walrus tusks, especially for furs and leathers, therefore, Western merchants and sailors were compelled to seek new purchasing markets. Hence, it made them sail extensively across the Arctic Ocean in the second half of the 16th century. These sailings frightened the government of Ivan IV that northern Asia would become an English or a Dutch colony. The Tsar's concern was clear since the state treasury could lose its enormously rich replenishment resource. Another aspect of the foreign relations of the Siberian Khanate is partially explained by its relatively swift military defeat. As for the Bokharan states' relations with their northern partners by the end of the 16th century and entry to the market of Europe were the primary goals, hostile relations with Iran made it difficult to expand any trade turnover in Central Asia westward and southward. New distribution market would eventually be Europe, but the hostile relations between the Russian state and the Siberian Khan Kuchum significantly limited the possibility for independent transit through Siberia. Thus, the independent Siberian Khanate simply proved void in existing trade and economic relations among Europe, Muscovy and Central Asia in the second half of the 16th century.

Key words: trade; Siberia; furs; foreign policy.

ECONOMICS

P. 109. *Bezzubko Boris I.* Donetsk State University of Management (Donetsk, Ukraine). **STRATEGIC URBAN PLANNING IN THE SYSTEM OF REGIONAL AND NATIONAL PLANNING OF UKRAINE.** Strategic planning of the city received a large development in Ukraine. An important problem is the lack of coordination of strategic documents in the state, regions and cities. The article contains proposals for the harmonization of strategic planning at all levels of government: 1. Creation of a single integrated system of coordination on strategic documents. Of great importance in this process is the development of the concept of coordination of interests of local and regional authorities. 2. Efficient allocation of administrative functions, powers between the region and the local authorities. The paper identified the advantages and disadvantages of various options of relations in the core functions between the region and the city. 3. Determination of regional interests and their comparison with interests of cities in order to ensure effective implementation of policies and programs. There is a need to establish an effective relationship between the objectives of the region and the city. In the development of strategic documents it is important to consider their hierarchy. Strategy is a blueprint for future development or changes, adjustments of the following documents: – the Master Plan for the city, land use and development, general scheme of water supply, drainage, heating, transport, sanitation area; – a comprehensive program of engineering infrastructure; – a medium-term program and the outlook for economic and social development of the city, which will be deter-

mined by flow rates of state, regional and municipal budgets for the projects, which will last more than one year; – state projects and programs financed solely from the state budget; – the concept of sustainable economic and social development of the city; – investment programs and projects for the development of the city, requiring the creation of a public-private partnership (partnership of the local government with private capital); – capital investment plans, projects and programs financed from the budget of the city, as well as long-term program for the development of the target; – annual programs and plans for socio-economic development; – investment program and investment projects to be implemented in the city. The paper proposes a coordination system of strategic documents, the model of development of strategic documents. There is a need to introduce a system of agreements between regional and local authorities, local self-government, to develop a system of cooperation between municipalities on issues of strategic planning.

Key words: strategic planning; city; region; state.

P. 114. *Kichko Natalia N., Lozhnikova Anna V., Muraviev Igor V.* Tomsk State University (Tomsk, Russia). **CAPITAL-LABOUR RATIO AND MODERNIZATION OF RUSSIAN ECONOMY: DISCUSSION ON NEO-INDUSTRIALIZATION.** In the frames of the discussion of the leading Russian and foreign scientists and economists about the essence and the main directions of Russian economic policy, in which such terms as "innovative modernization", "reindustrialization", "neo-industrialization" are used, an optimal algorithm of their implementation is sought. The article analyzes the domestic and international approaches to the development of key performance indicators by measuring and controlling the capital-labour ratio indicators. The disclosed international practice (of Western Europe and the USA) of development and practical application of the "Account productivity and growth of EUKLEMS" data base ("EUKLEMS Growth and Productivity Accounts"), allows (us) to estimate the total factor of productivity in the form of the outlay – output ratio of both: labour and capital asset. The existing approaches, suggesting the application of capital-labour ratio indicators in isolation of the evaluation and control of the capital-labour ratio of Russian employees, are criticized. Various proposals of the following approaches to evaluating and controlling the capital-labour ratio in Russian economy are researched and elaborated: the capital-labour ratio of the workplace by examples of different kinds of economic activity; the technical means of production of researchers and all the personnel in the field of research and development in the Russian Federation. The urgent problem of modern economic analysis – the problem of providing a relatively deep specification of the economic activity nomenclature in the Russian Federation – is analyzed on all of its stages. The problems of achieving a relatively high capital-labour ratio in the Russian Federation, on the basis of such traditional method of capital asset reproduction as re-equipment, are studied. Neither the Tax Code, nor the Russian accounting standards disclose the nature of the economic concept of "re-equipment"; neither of them describes it as a process with coinciding mechanisms and methods of use in the firm's economy. The Tax Code tax relief for fixed assets, engaged in scientific and technical fields, is proposed to be considered as a possibility for adjusting the degree of depreciation. The isolated nature of rule, which restrains it from being applied to a wide range of taxpayers, is viewed as a problem. Today, it is impossible to estimate and take into account the obsolescence of Accounting in depreciation, even in respect of fixed assets used in science and technology. Application of aggressive schemes in the depreciation policy of a company with government's control over this process is suggested.

Key words: capital-labour ratio; technical means of production; capital asset; technological evolution.

P. 120. *Kostyrin Igor N.* Surgut State Pedagogical University (Surgut, Russia). **MOTIVES OF HIGHER EDUCATION TEACHERS' ACADEMIC ACTIVITY: INSTITUTIONAL ANALYSIS.** This article is devoted to the problem of classification and characteristics of different motives to academic activity of Russian university lecturers. The purpose of this article is representation of the results which belong to the current stage of research in the topic called "Economic and non-economic motives of university lecturers' academic activity". The purpose of this research stage is detection, classification and description of basic motives of university lecturers' academic activity. During the process of the research we applied methods of bibliographic, statistical, typological, and system analysis. The information base for analysis was represented by scientific publications of Russian and foreign economists and sociologists, fundamental classical works in economics, statistical data of monitoring of the Russian higher education sphere focused on university lecturers' labour motivation. The research is conducted in the new institutional economic theory. During the process of analysis, in the first step we formed the description of the universities' activity as a complex of transactions between two concerned parties, which are university administration and faculty members. In this case, the criteria of effectiveness of this activity was determined as the minimal level of transaction costs of each party, which is achievable by detailed differentiation of their ownership on the results of their activity and on the costs of such activity. Also, it was mentioned that for achieving the state closer to the ideal, when the costs of the process of activity are none, it is necessary to initiate the institutes of motivation in the inner processing level of university activity. This measure could allow both of the labour relations parties pursue the same goals in the achieving of effectiveness and perfection of quality of the educational product. In the next step of the analysis we formed the adapted to the higher education system descriptions of the basic concepts which are used in the article. Also we made the scientific classification of the motives according to the criteria of the place of appearance of the motive influence (inner and outer), and of the existence of the economic monetary component (economic and non-economic). As a result, eleven basic motives were detected and described, reflecting both levels of monetary income and levels of academic (non-monetary) reward. In addition to that, it has been suggested that incomplete applying of the possibilities of non-economic motives to academic activity could create preconditions to irrational and even opportunistic behaviour of new workers of the higher education sphere. This situation can be caused by the lack or limitation of information from the university administration. In the conclusion we mentioned that according to the formed classification, outer motives are comparable with the economic ones. At the same time, inner motives have similarities with non-economic motives. Analyzing the statistic data of higher education sphere monitoring in Russia, it is possible to make a conclusion that in the period of time under research, non-economic motives are more significant than the economic ones. This fact proves the necessity of further research of this topic.

Key words: motives; academic activity; higher education; teacher.

P. 124. *Lisovskaya Yekaterina G., Roshchina Galina S.* Tomsk State University (Tomsk, Russia), Plekhanov Russian University of Economics (Moscow, Russia). **RUSSIAN SCIENTIFIC THOUGHT AND WESTERN SOCIAL UTOPIANS: CONFORMITY OF VIEWS ON HUMAN TENDENCIES OF FORMATION OF THE "NEW ECONOMY".** Evolution of ideas about the model of an economic man in the framework of the Russian economic thought in a greater degree corresponds to the vector of formation of the "new economic man". In domestic research they initially emphasized the importance of the role of the social, non-economic factors. The development of the Russian economic thought of the end of the 19th – the beginning of the 20th centuries was much influenced by the historical school. For the Russian economic thought it was typical to understand economy as an integral part of the society and the state. For Western economists

economy is a self-contained system. The article shows that modernization does not coincide with Westernization. The main differences are identified between Western and Russian (non-Western) models of modernization from the point of view of the transformations in the nature of work. The crisis of Western modernization led to the alienation of labour, and the destruction of the human personality, causing the necessity of reviewing the fundamentals of its provisions. Work in the Russian economy was considered as a manifestation of the spiritual life and never came down to a simple action or skills. The basis of the Russian economic thought was the consideration of the integrity of work in three aspects: spiritual-moral, economic and organizational-technical intrinsic characteristics. The spiritual-moral component of labour played the leading role. It ensured the integrity of the person and countering the influence of the processes aimed at its destruction. In the article the peculiarities of the formation of representations about the model of economic man before the beginning of the 20th century are given. The Russian economic thought of the problem of alienation of labour understands bringing work to a simple, mechanical set of business functions, the violation of the consistency of the labour process and life aspirations of man, impoverishment of the spiritual-moral and social-economic content of work. To overcome the alienation of labour it is necessary to restore a holistic perception of the man with his characteristic aspirations to a free, independent, collective, creative work, providing the necessary and sufficient conditions for self-realization. In the works of the utopians development of man, the fullness of the implementation of its abilities (harmonious development) is considered from different points of view: from the standpoint of mental and physical labour, through the decision of the questions connected with education, the changing nature of work; improvement of personal interest in work; property relations; etc. The Russian economic thought and the Western social-utopians highlight the key essential characteristics of man, which must be taken into account in the model of the "new economic man". The need and opportunity of preservation of traditional national values and assimilation of the achievements of other civilizations were clearly shown in Japan.

Key words: model of economic man; economic thought.

P. 132. *Fyodorova Lyudmila N.* Novosibirsk State University of Economics and Management (Novosibirsk, Russia). **ON THE CONTENT OF THE COURSE OF ECONOMIC THEORY AND ITS PLACE IN GENERAL EDUCATIONAL BACHELOR PROGRAM.** In the article it is noted that the tendency of the last years is the multidirectional movement of scientific thought on the subject of the economic science, on the one hand, and practical activities on composing working programs of the course, on the other. The critical analysis of the content of the course of Economic Theory based on the neoclassical direction is given. The dissatisfaction with an official rate economics is connected with extremely narrow subject domain covering only the market in its superficial forms of manifestation. The modern economic theory leaves outside of the analysis the person with their irrational forms of behaviour, does not address to the dynamic aspect of the market relations, limits the subject to the analysis of functional dependences. Making a start, in particular, from the ideas of the classics of sociology, history, institutionalism, the author proves the point of view, according to which already at the present stage of development of the economic science an organic synthesis of the ideas belonging to interdisciplinary sciences and directions is possible. At the heart of such approach can be the understanding of the object of as economic activity of economic subjects on creation of economic benefits. Such an approach satisfies the tendency of interdisciplinary researches and allows to carry out organic synthesis of ideas and directions. An important methodological precondition, allowing to represent the relations of production as the subject of economic theory deeper, is the layering of the system of relations of production including the external, superficial and deep relations. The value of the institutional theory in development of the economic science from the point of view of the author is, first of all, that it is means of an operationalization of the system of relations of production. Institutes as the central concept of institutionalism, which are meant as rules and standards of behaviour of economic subjects structuring their interaction, serving as a peculiar restrictive framework of behaviour, in the best way are suitable for performance of such a function. The author calls a number of questions of the course of economic theory whose study can be based on combination of representations of economics, political economy, institutionalism, sociology. Among them are the processes of formation of average profit and price of production, profit forms, analysis of categories of utility and limiting sizes, research of the problem of economic power. A number of concrete remarks in connection with the development of the course of Economic Theory according to the Federal Educational Standard are given.

Key words: object of science; subject of science; postulates; interdisciplinary.

P. 136. *Chernyavskiy Sergey V.* State University of Management (Moscow, Russia). **DISADVANTAGES OF USING MINERAL EXTRACTION TAX AT FLAT RATES AND DIRECTIONS OF ITS IMPROVEMENT.** The article deals with the consequences that result in the use of extractive industries, especially in hydrocarbon extraction, tax on the extraction of minerals at the flat rate. These include the fact that mining is now carried out only in those wells, the minimum flow rate of which provides cost-effective production. The specified minimum yield is 84 tons per day. At lower flow rates, production becomes unprofitable and well preserved. This led to the fact that in Russia's oil industry, there is a big share of non-performing wells ("Lukoil" - 15%, of "Yukos" - 35%, "Sibneft" - 45% of the existing wells, data are given for the first years of use of tax on the extraction of minerals at the flat rate), which, in turn, leads to a sample (often predatory) development of more productive reservoirs. As a consequence, the current recovery factor (SIF) in Russia decreased in comparison with the Soviet planned economy by more than 2 times - from 50-55 to 20-25%. The use of a flat tax on the extraction of minerals leads to the fact that outside of the economic interests of subsoil users are hard-to-stock deposits located in extreme environments, deposits with elaborated high yielding deposits and watered stocks. At the same time in the US, deposits can be profitable even if the well production rate is 300 liters per day. The reason is that there is a differentiated approach to the taxation of subsoil use. In addition, in the US there is a legally enforceable definition of marginal wells, which are periodically reviewed to decrease flow rates. Therefore, a number of companies operate wells, production of which is about 1 bbl. / day. Another disadvantage of the mineral extraction tax (MET) is the fact that it performs a fiscal function, but does not perform the compensation and incentive functions. So, it almost does not apply to rental income arising under more favourable economic conditions, and does not interest subsoil users in more efficient use of natural resources. In order to eliminate the effects, the article suggests a mechanism of withdrawal a mining rent, based on the principles of settlement prices, in which the removal of mining rent tax is in isolation from the rest of subsoil users. Also, the use of our proposed mechanism for removal the mining rent will solve the problem with the use of transfer pricing and other tax optimization techniques to reduce the tax base and tax evasion. The need for transfer of pricing will simply disappear, because oil will be redeemed at the fields immediately after its production at predetermined group average prices.

Key words: mining rent; settlement prices; oil recovery factor; average daily production rate of wells; mineral extraction tax; flat rate; mechanism of mining rent.

PSYCHOLOGY AND PEDAGOGICS

P. 140. *Kapilevich Leonid V., Karvunis Yulia A.* Tomsk State University (Tomsk, Russia). **RECREATIONAL AND SIGHTSEEING POTENTIAL OF WALKS BY BIKES IN THE CITY.** The paper analyzes the entertainment and recreational potential of cycling and sightseeing city tours. Current popularity of bikes in Europe is the result of government policy, as the promotion of bicycles helps to unload the centres of cities from cars, improve the environment and health of people. To popularize the bicycle and cycling, the following measures must be taken: to make bike lanes and other infrastructure, and to facilitate the use of bicycles in combination with public transport. Over the past ten years, the number of bicycles in Tomsk has increased dramatically. However, the existing road network, approaches to planning and traffic management, and the absence of urban development policies of cycling led to the poor conditions of use of bicycles in the city for cyclists. At the same time, there is evidence for the theory that one of the main factors affecting the safety of cyclists is their total number on the roads. In addition, it was shown that in Western countries the positive impact on the health of the biker by far outweighs the risks to health from getting into an accident. There is a subjective feeling of safety on a bicycle, and more people start using it. In Tomsk there are no special lines for cycling. A number of companies offer bicycle rental service and maintenance. However, all these routes are based only on the entertainment and recreational component and do not contain a cognitive component of the tour. At the same time Tomsk can offer a range of recreational and tourist routes, which include natural and historical objects. Cycling as a form of recreation is more comfortable as it does not require a dedicated time – a walk can be combined with other activities, going by bike to school, etc. However, in order for cycling to become popular among young people, it requires institutional support. There is a need to develop a network of bike routes, make information available to young people on bicycles about peculiarities of the routes and their load, provide medical and physiological rationale for the choice of routes and modes of cycling with the health and physical shape.

Key words: cycling; excursions.

P. 144. *Sharafeeva Alla B.* Tomsk State University (Tomsk, Russia). **SCORE SPORTS AND RECREATIONAL COMPETENCE OF FUTURE SPECIALISTS IN PHYSICAL CULTURE.** The analysis of student achievement, testing and assessment of their knowledge, identifying the level of formation of professional competence are a necessary aspect of the learning process, forming part of the content of each of its stages. Throughout the process of formation of recreational skills it is necessary to provide feedback, the presence of which is a characteristic feature of technological learning. Moreover, the more perfect the feedback, the more successfully any process is managed. Test control increases its efficiency. In the final stages of training forms and methods of assessment vary considerably. It is insufficient to do test control. It complements the written test answers in the form of credit. It is necessary to analyze all student's achievements, including, of course, the quality and the amount of knowledge and skills, their functionality and creative transfer [1]. The process of formation of sports and recreational competence is gradual and level. We distinguish four stages of forming a recreational competence of future specialists in physical culture: tentative motivational, educational academic, educational and practical, reflective [2]. To analyze the degree of development of physical culture and recreation experts developed four levels: low, average, good, and high. The basis of the selected levels are quantitative characteristics corresponding to each level. System criteria are an ideal model, with which to compare the real phenomenon and establish their compliance [4]. Our proposed criteria can be attributed to objective, because with their help, we set as a future specialist in physical education in the relevant professional imperatives of its recreational component. We have identified the criteria and indicators of formation of sports and recreational competence of students: motivational and evaluative (the formation of the professional motive, training activities), cognitive (volume, fullness, systematic knowledge of the theoretical foundations of physical recreation, sustainability of knowledge, formation of the cognitive activity of students), subject-professional (ready for practical application of knowledge in educational and professional activities, for independent, creative solution of the professional goals), analytical and reflective (ability to analyze and evaluate their own activities, activities engaged in training and adjustments), communicative (formation of professional and pedagogical skills of communication and speech training). Educational technology (methods to develop competencies) and evaluation methods of formation of these competencies (evaluation tool) are the inextricably linked aspects of learning. Forms of control should be a continuation of the teaching methods, allowing students to more clearly understand their achievements and problems, to correct their own activity, and the teacher is a guide for the student in the required direction.

Key words: specialist; physical education; assessment; sports and recreational competence; recreational activity.

SCIENCES ABOUT EARTH

P. 148. *Garms Yevgenia O., Sukhova Maria G., Romashova Tatiana V.* Institute for Water and Environmental Problems SB RAS (Barnaul, Russia), Tomsk State University (Tomsk, Russia). **BIOCLIMATE RECREATION ASSESSMENT OF CROSS-BORDER AREA OF ALTAI.** An obligatory condition of healthy life is a recreational activity, which means the totality of the phenomena and relationships arising from the use of free time for recreational, educational, sports, cultural and recreational activities of people in specialized areas that are outside the place of their permanent residence. Multifunctionality of recreation is manifested in the fact that it contributes to the development of physical, aesthetic, psychological, and other qualities of the person. One of the most interesting regions attracting tourists and ecotourists is the Altai mountain system, which includes the neighboring regions of Russia, Kazakhstan, China and Mongolia. The mountain system includes the Mongolian Altai, Gobi Altai and Russian Altai – the highest part of the mountain range, which is located on the territory of Russia and Kazakhstan. Today, this part of the country is divided into the Mountain (Russian) Rudny Altai and Altai. The assessment of natural recreational resources of the area should begin with the assessment of its bioclimatic conditions, since it determines the specific bioclimate placement and organization of recreation. Climate and recreation potential areas are an important factor in identifying the suitability of areas for recreational development, reflecting the ease of landscape-climatic conditions and the possibility of their use in outdoor and recreation practice. The optimally adapted to mountain conditions is a methodology based on a landscape approach. In the resulting estimates of the Altai transboundary landscape typing the prevailing bioclimate can serve as the basis for zoning. Separate areas, then, will serve as a unit of assessment of other natural recreational resources (hydrological, biological, etc.). The resulting scientific, informational basis will develop recommendations to streamline and coordinate the development of a recreational nature in cross-border mountain areas. The evaluation of comfortable bioclimate and subsequent zoning can conclude that the most favourable bio-climatic conditions for the organization of year-round recreational activities are in Tigireksky, Baschelaksky natural recreational areas, for the summer and part of winter – Katunsky, Katonkaragay, Markakolsky, West Altai, Kurchum natural recreational areas.

Key words: transboundary Altai; recreation; bioclimate; landscapes.

P. 156. *Lukyanova Natalia A., Timoshok Yevgeniy N.* Gorno-Altai State University (Gorno-Altai, Russia), Institute of Monitoring of Climatic and Ecological Systems SB RAS (Tomsk, Russia). **POSSIBILITIES OF PHYTO-INDICATION OF SEASONAL GLACIAL SPHERE IN THE MOUNTAIN-GLACIAL POOL OF AKTRU (NORTH CHUISKY RIDGE, CENTRAL ALTAI).** Direct measurements of the seasonal glaciophere, which includes snow cover and ice fields, require long-term special and scrupulous work during the winter-spring time and are rather challenging due to hard access to mountain areas. At the present time in our country the number of networks of hydrometeorological stations is getting smaller, and a big part of them is located near the valleys of the rivers, therefore the data for correct substantiation of dependences of characteristics of the snow cover for considerable areas, especially for the mountainous ones, are not enough. The ecosystems in nival-glacial conditions of high mountains sensitively react to various climate changes, that is why in order to receive the characteristics of the seasonal glaciophere it is possible to use phytoindication because phytocenosis and separate plants can keep "traces" of influence of factors of the habitat. By means of the method of phytoindication we found out the height and the water stock of the snow cover, and also the distribution of ice fields (capacity and areas). The analysis of references, and the materials of the field research implemented on the campus of the Problem Research Laboratory of Tomsk State University serve as the basis of this paper. As a result of the research it was revealed that in order to define the average capacity of the snow cover in the mountain-glacial pool of Aktru it is possible to use the height of the bushes mostly located in the valley: the rotundifolious birch (*Betula rotundifolia*), and willows (*Salix saposhnikovii*, *S. Vestita*, *S. coesia*). The most statistically significant results have been received for *Salix vestita* (the factor of correlation of the thickness of the snow cover and the height of the bush is 0.87). For other species the correlation factor is lower (less than 0.85), which limits the possibility of their practical use. Some kinds of willows are not suitable for the indication of the level of the snow cover: *S. Coesia*, *S. pyrolifolia*, *S. hastata*, *S. arctica*, *S. rectijulis*, *S. Divaricata* because their sprouts quite often survive without the snow cover. On the icy sites the most widespread kinds are the following families: *Asteraceae*, *Poaceae*, *Cyperaceae*. Bush vegetation occupies the greatest areas covered with ice fields and characterized by the places with the most powerful deposits of ice fields. The following species are widely spread: *Salix coesia* (10%), *S. saposhnikovii* (10–25%), *S. pyrolifolia*, *S. hastata*, *S. arctica*, *S. rectijulis*, *S. divaricata* are not widely spread. A considerable part is presented by *Betula rotundifolia* (10%), *B. fruticosa* (5%). Moss cover and horsetail – *Equisetum variegatum* – are widespread on ice platforms, about 50% is located on a more rigid ground ice fields, so it is possible to conclude that horsetail is the indicator of ice phenomena.
Key words: snow cover; phytoindication; vegetable cover; seasonal glacial sphere.

P. 161. *Makarenko Nikolay A., Arkhipov Aleksandr L., Yemelyanova Yelena V.* Tomsk State University (Tomsk, Russia). **PETROGEOCHEMICAL AND PETROGENETIC CHARACTERISTICS OF THE DEVONIAN VOLCANIC ROCKS OF SOUTH-EASTERN PART OF CHEBAKOVO-BALAKHTINO DEPRESSION OF MINUSINSK INTERMOUNTAIN TROUGH (NORTHERN KHAKASSIYA).** The paper considers peculiarities in the distribution of petrogenic oxides and trace elements within the lower Devonian volcanic rocks of Northern Khakassiya. Dominating rocks, namely basaltoids, belong to the subalkaline series and are assigned to medium-aluminiferous, medium-Ti, K-Na varieties. On plots of normalized distributions of rare-earth elements, they are characterized by steep slopes of the geochemical spectra at the account of high concentrations of light lanthanoids (mainly La and Ce). The spider diagrams demonstrated the proximity of microelement composition to the model standard of subalkaline intraplate basalts (OIB), from which the studied basites differ by the reduced Th, Ti, Ta, Nb, Hf concentrations and higher Rb, Ba, Sr concentrations. Geochemical spectra of basaltoid differentiates (trachyrhyolites and trachytes) vary noticeably in the behaviour of europium minimum, the discordance between negative and positive anomalies, microelements content. This results in the absence of the direct succession between the normalized concentrations of admixed elements in volcanites of acidic and medium composition. On the binary diagrams $\Sigma\text{REE}-\Sigma\text{R}$ и $\Sigma\text{REE} - \Sigma(\text{Sr}+\text{Ba})$, two autonomous basite fields were established (B-1 and B-2), which are noticeably distinguished by a number of characters: by a mean content of the norm nepheline – 2.3% in field B-1 and 4.8% in field B-2; by different concentrations of rare and rare-earth elements; by the content of $\Sigma(\text{Sr}+\text{Ba})$. This enables considering the basites of the established fields as self-dependent genetic objects connected with different igneous sources, which work simultaneously but differ in the alkaline levels and in the quantitative sets of element-admixtures. The late basaltoid differentiates form two spatially segregated geochemical trends connected closely with field B-1 (trachyrhyolites) and with field B-2 (trachytes). Each of the trends was found to possess individual features, namely: different levels of accumulation of rare and rare-earth elements in allied rocks; distinct geochemical habits of final differentiates; the principally distinctive behaviour of the Sr – Ba sum in the process of the geochemical evolution. This suggests that the late differentiates are formed owing to dissimilar basaltoid melts. The evolution of these latter might have resulted in the formation of two coincident bimodal associations of the basalt-trachyrhyolitic and trachybasalt-trachyte compositions.
Key words: volcanites; basite fields; late differentiates; rare and rare-earth elements.

P. 168. *Panin Andrey V., Matlakhova Yekaterina Yu.* Lomonosov Moscow State University (Moscow, Russia). **IMPULSES OF HIGH RIVER RUNOFF IN THE CENTRE OF THE RUSSIAN PLAIN DURING THE VALDAI (WEICHSELIAN) GLACIAL EPOCH.** Past changes of river discharges may be detected from their traces in river valley morphology as well as from the tendencies of valley development. Indicators of river runoff higher than the present are large palaeochannels in river floodplain and low terraces, including big meanders – macromeanders, and episodes of regional incision of drainage net. The paper describes such phenomena in a number of river valleys where they are found and dated by radiocarbon and OSL methods. Rivers Seym (the middle Dnieper catchment) and Khoper (the middle Don catchment) are taken in the deep incision about 30-35 ka BP (hereafter in calendar years). Low terraces (12-16 m) were formed composed of alluvium dating to 50-80 ka BP. Deepening of river valleys between 35-15 ka BP was found also in the Moskva and Protva Rivers (the Oka catchment). Runoff increase is evident from the concurrent development of incised macromeanders. Occurrence of higher (20-25 m) terraces within macromeander necks points at possibility of an earlier, probably 60-70 ka BP, start of incision. Low terraces of the Seym and Khoper Rivers are covered by aeolian sands up to 3-4 m thick, which indicates cryoarid environmental settings. Absolute (OSL) dates from aeolian sands range within 20-23 ka BP, i.e., the cryoarid conditions lasted no longer than for several millennia and coincided with the Last Glacial Maximum (LGM). LGM sand covers descend from terraces to the modern floodplain level and is buried by the Holocene overbank fines, which proves the rivers had been entrenched below modern channels already before LGM. Alluviation during LGM produced the "intermediate terrace" only 1-2 m higher than the Holocene floodplain. Between 13-18 ka BP, the last incision occurred accompanied by formation of macromeanders. Active channel migrations produced wide valley floors of southern rivers (the Seym, the Khoper) that now have excessive floodplain width (5-10 km) compared to sizes of modern rivers. Big parts of these floodplains had been formed in the pre-Holocene times and are composed of the Late Glacial alluvium covered by the Holocene overbank fines. In the Moscow Region (the Moskva, the Protva), pre-LGM incised macromeanders continued

active development in the Late Glacial. Few neck cut-offs of macrobends occurred between 15-18 ka BP, but most of them had survived throughout the Late Glacial. In the Holocene, river discharges decreased considerably, river channels stabilized and passively inherited the Late Glacial macrobends. The above results evidence that the characteristic feature of the Valdai (Weichselian) epoch was occurrence of high-amplitude alterations of river discharges that had left marked traces in valley morphology and sedimentary record. Time intervals 13-18 and 30-35 ka BP (and probably earlier) were characterized by runoff severalfold as high as its present-day values, and the interval of 20-23 ka BP (LGM) was noticeable for its aridity and high activity of aeolian sedimentation in river valleys.

Key words: fluvial geomorphology; palaeohydrology; palaeochannels; macromeanders; river incision; river runoff; Valdai epoch; Weichselian epoch; Late Glacial; Russian Plain.

P. 175. *Khromykh Vadim V., Khromykh Oksana V., Yerofeev Aleksandr A.* Tomsk State University (Tomsk, Russia). **LANDSCAPE APPROACH TO DETACHMENT OF WATER-SECURING ZONE OF RIVER USHAIKA BASED ON GIS-MAPPING.** The authors offer a technique of detachment of small rivers water-securing zones within large urbanized areas, the basis of which is made by the landscape analysis of apron plains of small rivers with the usage of methods of geoinformation mapping. The object of research is the apron plain of the Ushaika within the limits of Tomsk. The subject of research is the internal-valley differentiation of landscape systems based on the index of the potential environmental impact risk. There are used both the traditional methods of research in physical geography (including field expedition methods) and the newest methods of Geographic Information Systems mapping and complex spatial analysis based on remote sensing data and digital elevation models. At the first stage of activity a large-scale digital landscape map was built on the basis of field researches, topographic maps and high resolution remote sensing data. The digital elevation model of the apron plain of the Ushaika was further built. The digital elevation model was built on the basis of Delone triangulation in format TIN (Triangular Irregular Network) with the help of the module ArcGIS 3D Analyst of GIS-software ArcGIS by ESRI Inc. For the morphometric analysis of landscape systems the digital elevation model was converted to the format GRID with the help of the module ArcGIS Spatial Analyst by ESRI Inc. At the second stage a detail morphometric analysis of landscapes on the basis of digital elevation model was conducted. The mean slopes of landscape systems were counted and the scale of mark estimation of steepness of declines was designed. On the basis of the factors of the mean slope of the landscape system, the condition of green and soil substrata the integral parameter of potential ecological danger was counted, by assigning the degree of danger of disturbance. The rules of land use in the given terrain were shown, and in cases these rules are already disturbed by a cardinal mode the necessity was stated of application of a complex of engineering systems adjusting surface sinks. In a computed result of factors of potential ecological danger the map of water-securing zone was built. The designed technique has demonstrated the urgency and necessity of its practical usage in the analysis of consequences of vernal inundations in Tomsk in 2008–2012. In a number of relevant parameters it is more effective and less wasteful than the existing techniques, and actuation of the modern GIS-software in processing of the statistical data has considerably allowed the automation of all the process and made it more impartial.

Key words: water-securing zone; landscape analysis; GIS-mapping.

BIOLOGY

P. 179. *Perova Oksana V., Agulova Lyudmila P., Volkotrub Lyudmila P.* Siberian State Medical University (Tomsk, Russia), Tomsk State University (Tomsk, Russia), Siberian State Medical University (Tomsk, Russia). **CORRELATION INCIDENCE OF RESPIRATORY TUBERCULOSIS WITH ECOLOGICAL AND SOCIO-ECONOMIC FACTORS IN TOMSK REGION.** High incidence of tuberculosis observed in different regions of Russia and in Russia in general from early 1990s to the present time is associated with the changing socio-economic conditions of the population, migration, malnutrition. Recently, some researchers identified an additional risk factor – pollution. The work to identify the causes of tuberculosis, typically unidirectional, either studies the connection of the disease with a set of socio-demographic and economic factors, or – environmental. However, to maximize the impact of research it is advisable to use an integrated approach, given the multifaceted nature of tuberculosis. We studied the incidence of pulmonary tuberculosis in the administrative territory of Tomsk Region for the period from 1992 to 2010 and its relation to socio-economic, demographic and environmental factors. The incidence of tuberculosis was studied on form number 2 "Information on infectious and parasitic diseases", which covers all cases with the newly diagnosed in the territory, including those with no fixed abode. We analyzed the territories in terms of the risk of tuberculosis of the respiratory system. The north and north-west of Tomsk Region has the lowest incidence of tuberculosis, and the south and south-east – the highest. Correlation analysis showed that the territorial differences in incidence are related to socio-economic and ecological conditions of the population in the districts. Tuberculosis is associated with socio-economic (average salary, the cost of health care and education) and demographic (performance burden on the working population) factors. It is shown that the incidence of TB has a combined effect of socio-economic and environmental factors, among the environmental ones air pollution is major. The disease of tuberculosis, uncomplicated by elimination of bacilli, can be triggered by factors of both types, and the emergence of tuberculosis by elimination of bacilli is linked to socio-economic conditions of the population and the quality of medical services.

Key words: tuberculosis of respiratory system; socio-economic and environmental protection.

P. 183. *Suchkova Svetlana A., Taranova Tatyana P., Zhunusbaeva Zhazira K., Zueva Tatyana I.* Tomsk State University (Tomsk, Russia), Tomsk Crop Testing Station (Tomsk, Russia), Al-Farabi Kazakh National University (Almaty, Kazakhstan), Tomsk State University (Tomsk, Russia). **CROP PRODUCTIVITY AND GRAIN QUALITY OF SPRING WHEAT IN TOMSK REGION.** Wheat is one of the most important food crops in the world. It is cultivated on different continents in various climatic zones, often in places with unstable climate and severe weather during the growing period. This causes great differences between the years in crop productivity and grain quality of spring wheat. This issue is getting worse these days due to deficiency of energy resources, hard environmental situation in biosphere, shortening of fertilizers usage and so on. That is why great attention should be paid to make horticulture more biologic by means of using the adaptive forms that have a wide range of reactions to various environmental conditions; that can realize its genotype potential of productivity. The most important factor of increasing crop productivity is variety. The main criterion of estimating the varieties of spring wheat is the index of steadiness between years and between variable climatic conditions. For crop productivity increasing agrotechnics is important, but crop productivity itself is determined by heritable biologic properties of a given variety. Today the most reliable way to estimate adaptive properties of crops is quality testing in appropriate climate conditions, specifically on quality testing stations. The purpose of this work is to estimate adaptive potential of spring wheat varieties by their crop productivity and grain quality in the conditions of Tomsk region. Experiments and their production checks took place at Tomsk Quality Testing Station, branch of

Federal State Commission of Russian Federation for Selection Achievements Test and Protection, and Department of Agronomy of Tomsk State University. Studies have shown that in years favourable by the climatic factor wheat crop productivity is high, the average value between the varieties is about 3460 kilograms per hectare, but can vary from 2820 to 4420 kilograms per hectare. In years non-favourable by the climatic factor crop productivity can drop down to 860-1920 kilograms per hectare. Mass of 1000 kernels can vary from 27.4 to 31.0 grams. Index of lodging resistance was found to be 4.4. It was found that wheat was highly damaged by *Oscinella pusilla* Mg. The growing season is up to 10-23 days shorter. In arid years grain is formed with high manufacturability properties. The content of gluten and protein was found to be high. The content of moist gluten varied from 24.3% to 32.5% between wheat varieties. Irgina (32.3%), Novosibirskaya 29 (32.3%), Novosibirskaya 31 (32.3%), Krasnoufimskaya 110 (31.9%), Novosibirskaya 15 (31.4%), Tulunskaya 50 (30.4%) demonstrated the highest content of moist gluten. Gluten was found to be in the 1st and 2nd quality groups. The vitreousness of the kernels of all the varieties were of class 2. In average, in the years of research, the most productive and ductile varieties were Tuleevskaya, Novosibirskaya 31, and Sudarushka.

Key words: spring wheat; variety testing; crop productivity; grain quality; Tomsk Region.

CHEMISTRY

P. 187. *Alekseenko Kira V., Batalova Valentina P.* Tomsk State University (Tomsk, Russia). **DEVELOPMENT OF PHENOL MEASUREMENT TECHNIQUES BY VOLTAMMETRY IN WASTE AND REGULATORY EFFLUENTS.** The opportunity to obtain analytical signal of phenol on glassy carbon electrode and the background of 0.003 M solution of NaOH is discussed. In these conditions, the peak of phenol was observed at the potential of 0.52 V during the investigation of the electrode process of phenol oxidation by cyclic voltammetry. The experimental conditions to determine phenol were optimized. The current analytical signal of phenol oxidation process is linearly dependent on the concentration in the range of 0.001 - 1.0 mg / l with the accumulation time of 30 s, electrolysis potential of 0.1 V, and scan rate of 30 mV / s. The correctness of the technique was tested by the "entered - found" method.

Key words: cyclic voltammetry; phenol; waste water.

P. 190. *Skvortsova Lidia N., Chukhlomina Lyudmila N., Gormakova Nadezhda A., Kozubets Margarita S.* Tomsk State University (Tomsk, Russia), Tomsk Scientific Center SB RAS (Tomsk, Russia), Tomsk State University (Tomsk, Russia). **INVESTIGATION OF B-N-FE AND SI-N-FE CATALYSTS ABILITY TO REMOVE PHENOL COMPOUNDS FROM WATER IN PRESENCE OF OZONE AND UV IRRADIATION.** Catalytic oxidation methods involving reactive HO radicals are perspective for dissolved organic matter (DOM) removal from water. Ozonation and catalytic oxidation under UV are common sources of HO radicals if oxygen-containing catalysts are used. Transition metal oxides doped with platinum group metals possess high activity in the oxidation of DOM exposed to UV irradiation. Raff-Fenton systems, ferric-oxalate complexes in presence of hydrogen peroxide both have photo activity in homogeneous catalysis. Iron catalysts are attractive not only from the economic point of view – they are environmentally friendly and are of interest to create a variety of catalytic systems (Fenton, Raff-Fenton, ferric-oxalic, etc.) by combining heterogeneous and homogeneous catalysis. Thus, the iron composition of silicon and boron nitrides studied previously showed high catalytic activity in the processes of oxalic acid and formaldehyde degradation – they are a source of iron for the combined catalysis. In the present study, we investigated the possibility of using such catalysts for water purification of a number of phenolic compounds (phenol, hydroquinone, catechol). For this purpose the following tasks were performed: evaluation of adsorption and catalytic activity of B-N-Fe and Si-N-Fe compositions in the degradation of phenolic compounds in ozone and UV radiation as a function of the phase composition and dispersion of the composites, time of exposure, quantity of oxalic acid added, estimation of phenol end products oxidation, testing the most active catalysts on real objects. It is shown that the catalytic activity of the tested materials is virtually independent of their phase composition, but increases with decreasing dispersion. The highest degree of degradation of pollutants studied (100%) is achieved by ozonation in the presence of B-N-Fe composites. Oxidation of phenolic compounds (90%) under UV is also achieved in the presence of B-N-Fe composites with oxalic acid addition, due to formation of photoactive ferric-oxalate complexes. It is revealed by GC-MS that the end products of phenol degradation in ozonation are *p*-quinone, hydroquinone (<10⁻⁴%). Ferric-oxalate system produced 2-hydroxypropanoic and oxalic acid (<10⁻³%), *o*-benzoquinone and catechol (<10⁻⁴%). Boron nitride based composites were tested in ozonation for phenol removal from wastewater in Tomsk companies. Residual concentrations of pollutants in water after its catalytic oxidation do not exceed the "statutory limit reset" (0.02 mg/L).

Key words: phenol; hydroquinone; pyrocatechol; catalytic ozonation; photo catalytic oxidation; boron nitride; silicon nitride.

P. 194. *Yanovsky Vyacheslav A., Churkin Ruslan A., Andropov Mikhail O., Kosova Natalia I.* Siberian Physical-Technical Institute of Tomsk State University (Tomsk, Russia), Tomsk State University (Tomsk, Russia). **SYNTHESIS AND STUDY OF PROPERTIES OF EMULSIFIERS FOR REVERSE EMULSIONS BASED ON DERIVATIVES OF ACIDS OF TALL OIL DISTILLATE AND ETHANOLAMINES.** A number of emulsifiers for reverse emulsions, which are amides, amidoesters or esters of fatty and resin acids of tall oil, were synthesized by the method of azeotropic distillation of water in presence of an acid catalyst from DTO (distillate tall oil) and various ethanolamines. For the obtained products the values of the relative amount of the formed water during the reaction, a.n. (acid number) and h.n. (hydroxyl number), which show a high degree of conversion of the starting materials, were determined. The side reaction of intramolecular cyclization of diethanolamide of DTO into morpholilamide was found during obtaining diethanolamide of DTO. This reaction leads to a decrease of h.n. of the product, consequently to a decrease of number of hydroxyl groups. It is shown that the side formation of morpholilamide significantly reduces the emulsifying ability of the resulting product, because morpholilamide of DTO is practically not able to stabilize the inverse emulsions. The emulsifying ability of the obtained emulsifiers was investigated; the tests on stability of inverse emulsions were conducted at 25°C. It is shown that the most stable emulsions are formed by emulsifiers containing free hydroxyl groups, such as amides of mono- and diethanolamine and monoester of triethanolamine. The stability of these emulsions is over 100 hours. Fully substituted amidoesters of mono- and diethanolamine and triester of TEA do not practically have the emulsifying ability. On the example of diethanolamide of DTO the dependence of the stability of inverse emulsions on the content of the hydrocarbon phase was obtained. It is shown that this dependence has a maximum in the range of 10-15% of the hydrocarbon phase. For diethanolamide of DTO the dependence of the stability of inverse emulsions on the content of the emulsifier was obtained. The dependence is continuously increasing, but it has two sites with different steepness of slope. On the site with 0-3% of emulsifier the smooth increase of stability of the emulsion is observed. For the emulsion with 3% of emulsifier the stability is about 240 hours. Then the emulsion stability increases sharply: for the emulsion with 5% of emulsifier it already reaches approximately 2000 hours.

Key words: inverse emulsion; emulsifiers; emulsion stability; tall oil distillate; ethanolamides.