

SUMMARIES OF THE ARTICLES IN ENGLISH

PHILOLOGY

P. 7. *Baryshnikova Olga G.* Tomsk Polytechnic University (Tomsk, Russia). **PROBLEM OF SCIENTIFIC TRANSLATION EQUIVALENCE OF TRAVELLING (BY PUBLICATIONS OF "MOSCOW TELEGRAPH" OF FIRST THIRD OF 19 CENTURY).** The translation equivalence is one of the core notions in linguistics, but the researchers mark the relativity of the given category which depends on the type of the information, intentions of the author and the translator and the type of the audience, and on the situation of the original text production and its reproduction in the target language. The magazine "Moscow Telegraph" under the editorship of N.A. Polevoy was the first type of periodicals in Russia where the content was designed for the educated reader. Translated historical articles especially from Germany were considered as one of the source of information. For example, in the magazine of 1825, part III, May, № 9 the article "Investigation of the Madgarsky ruins on the Kuma River" was published, the author of the article was the famous German naturalist and Orientalist J. Klaproth. The given publication is a fragment of his book *Voyage au Mount Caucase et en Georgie*, republished in French in Paris in 1823, but the first edition of this book *Reise in den Kaukasus und nach Georgien unternommen in den Jahren 1807 und 1808* appeared in German in 1812 in Berlin. If we compare the French and the Russian editions with the German original, it is possible to notice that in both cases there is a tendency of almost word-for-word translation of the primary source of information. The necessity of the close translation with the high equivalence is caused by its functional purpose – the scientific information transfer without the essence distortion, the consistency of the vocabulary of languages, the generality of their grammar structure, which involves the usage of equivalent syntactic structures and thus provides the invariant meaning of the original and the translation. Nevertheless, it should be noticed that there are some translation transformations made by the translator (reduction of the text on the level of ethnographic descriptions, emotional saturation of the narrative, the usage by the translator of his own stylistic devices, sometimes very distant from the strict scientific style), which can be explained by his principal and aesthetic goals, and by the dynamics of scientific thinking, which in the 19th century continues, according to the researchers, to preserve the aesthetic and ethic features without developing a final specific language and style.

Key words: scientific prose; translation equivalence; historical context.

P. 12. *Blokhinskaya Alyona V.* Amur State University (Blagoveshchensk, Russia). **ON RUSSIAN-UKRAINIAN LANGUAGES INTERACTION IN AMUR DIALECTS.** The article deals with the interaction of the Russian and the Ukrainian languages in the dialects of Amur Region, which was settled by inhabitants from the European part of Russia, Ukraine and Byelorussia in late 19th – early 20th centuries. According to the old residents of Oktyabrskiy District Russian and Ukrainian people live in these villages. Most of the population are Ukrainians, or "khokhly" as they call themselves. They realize their language identity and oppose their own language to Ukrainian and Russian. But this phenomenon is typical for old generation born in 1920s-1930s, mainly descendants of immigrants. Earlier the author described the speech portraits of Amur dialect speakers. The aim of this article is to identify the origin of language features and to define the language basis of dialects of Oktyabrskiy District villages. The author pays attention to different language levels of the dialects. At the phonetic level the following phenomena are considered: distinguishing of phonemes /a/ and /o/ in unstressed position; the use of voiced velar fricative "r", vowel "и" instead of the etymological "ѣ"; absence of transition of [e] into [ˈo]; realization of the phoneme /v/ in the sounds [в], [у], [ув] and [ѣ]; the dominance of hard consonants before front vowels; no devoicing of voiced consonants. At the morphological level the following phenomena are examined: the use of contracted forms of adjectives, ordinal numerals, pronouns, the ending -ив (-ыв) in the form of the genitive case of plural nouns, the ending [r'] of verbs in the form of the third person, prepositions "з", "до", the separation conjunction "чи", the verb *быть* (be) in the past tense has the form *быв, быў, була, було, були*, singular verbs of the third person may end in vowel -э (-е). Ukrainian lexicon is saved and used in everyday communication and folklore. Our analysis suggests that the considered features coincide with the phonetic, morphological and lexical peculiarities of the Ukrainian language and its dialects. Among them there are those, which coincide with the dialectal features of Russian dialects. However, these features are not included in the system of a distinct group of dialects or a certain dialect of Russia. In the system they are presented only in the Ukrainian language and its dialects. It suggests that the dialects of the examined villages are Ukrainian by origin. It is also confirmed by extralinguistic factors: informants' or their parents' place of birth (Ukraine), the national identity of informants (khokhol), the use of linguistic consciousness.

Key words: last settling territories; interdialect interaction; Ukrainian language; Russian language.

P. 16. *Khrabrova Anastasia V.* Tomsk State University (Tomsk, Russia). **SEARCH OF GENRE IN SHTOSS AND THE LANDLADY NOVELS: ON CREATIVE INTERACTION OF LATE LERMONTOV AND EARLY DOSTOEVSKY.** The transitional character of the epoch of 1830-40s, the changing aesthetic paradigms provide a possibility of creative search. In this article the problem of search of the genre in the works of late Lermontov (in the novel *Shtoss*) and early Dostoevsky (in the novel *The Landlady*) is considered. The experience of drawing up the whole from the parts in *A Hero of Our Time* defined in many aspects the direction of further Lermontov's search. The novel was the result of creative search, but Lermontov's last prose experience – *Shtoss* – represented the process (not the result) of creating the genre-"ensemble". The *Landlady*, as well as *Shtoss*, concluded the search of new forms of the time, and opened the way of development for the Russian menippea in many aspects. In the article an attempt to identify the diversity of genre models in the basis of genre phenomenon of *Shtoss* and *The Landlady* is realized; the role of genre models in the creative dialogue of the writers and in the epochal process in general is determined. Each genre form is identified by the type of the represented chronotope. In the article their relationship and characteristics are described. It is possible to extract such genre models from the two stories as: the novelette (as the "intermediate" genre, which corresponds to the transitional character of the epoch), the Petersburg story (Lermontov in *Shtoss* anticipated some tasks and methods of "natural school", as well as Dostoevsky's approach to depicting Petersburg by perception of the city by the consciousness of the character-dreamer), the fantasy (in the article non-conformity between the fantastic reality of Dostoevsky and the type of implicit fantasy of Lermontov is discovered), the novelist narrative, which

gave new opportunities for creative intentions of both writers. The creation of especial emotional-fantastic atmosphere in the stories, which not only affected the change in the functional characteristics of chronotopes, but also caused the occurrence and realization of the ballad genre model in Lermontov's Shtoss and the model of the "terrible story" in Dostoevsky's *The Landlady*, is considered separately. The texts complication by this narrative strategies help to identify the complex nature of the main heroes, to create new chronotope types, to make an emotional background necessary for the organic synthesis of all the elements. Thus, the problem of creative interaction of M.Yu. Lermontov and F.M. Dostoevsky is determined by the complex processes of continuity and polemic. The search of the genre is one of the areas of convergence of the two paradigms of the writers. Using the synthesis of different genre models Lermontov perceived and conveyed the emotional atmosphere, which would later appear in the early works of F.M. Dostoevsky. The attempt of various forms of genre narration, the creation of narrative strategies of the menippea, and a new approach to understanding the reality and the human types in *The Landlady* became an original projection to the creation of a new type of a Russian novel.

Key words: late Lermontov; early Dostoevsky; synthesis; search of the genre; chronotope.

PHILOSOPHY, SOCIAL AND POLITICAL SCIENCES

P. 20. *Anisimova Maria M.* Siberian Institute, Branch of Russian Presidential Academy of National Economy and Public Administration (Novosibirsk, Russia). **POVERTY OF COUNTRY PEOPLE IN ALTAI TERRITORY AS REGION OF AGRARIAN SPECIALIZATION: SCALE, DEPTH AND DYNAMICS (BY RESULTS OF SOCIOLOGICAL RESEARCH).** The article is devoted to the problem of poverty of agricultural population of regions of agrarian specialization. On the basis of results of the sociological research made in Altai Territory, scale, depth, dynamics of poverty of agricultural population of the region are considered, major factors and mechanisms of formation and overcoming of rural poverty are revealed. The methodological basis of research was the basic concepts of poverty: absolute, relative, subjective; the concept of human potential; and the estimation of experts. The urgency and the importance of the problem of poverty of country people of the region of agrarian specialization are revealed by consideration of the rating of the basic vital problems, which poor people in the village had to face recently. For complex estimation of scale, depth of poverty the value judgment of financial position of families of poor peasants, their incomes are compared with the financial position of inhabitants of the state, estimation of experts, data of official statistics. The analysis of the given sociological research has shown that at present the poverty scale is high among country people of Altai Territory, which leads to negative consequences for reproduction and sustainable development of rural community as a whole. More than half of the peasants classified themselves as poor, every eighth respondent claiming oneself the poorest. Experts estimate the abject poverty level more highly than the population. The dynamics of rural poverty in Altai Territory is characterized by essential growth of the share of the poorest among peasants for the last three years (at considerable fall of level of abject poverty in 2002 – 2008), an over 50% increase of the share of the averagely poor group that occurred in the notable decrease of the share of peasants who classified themselves as a safe group of the poor (by about one third). The analysis of factors and mechanisms of poverty formation and overcoming has shown that the principal causes of deterioration of financial position of peasants are loss of incomes (connected with reduction of jobs), employment in low-paid branches of the majority of peasants, inflationary processes. Except socio-economic factors the situation with poverty is influenced by social-demographic and social-psychological factors.

Key words: country people; poverty; region of agrarian specialization.

P. 24. *Armer Yekaterina V.* Ulyanovsk State Technical University (Ulyanovsk, Russia). **PICTURE OF WORLD AND PICTURE OF SOCIAL REALITY: FROM POSITIONS OF SOCIAL CONSTRUCTIVISM.** The "picture of the world" became the object of scientific and philosophical researches since 1970s and is actively used nowadays. The literature review has shown that in most cases there is an identification of the picture of the world with the scientific picture of the world. However, studying of the picture of the world only in the light of development of scientific knowledge, in our opinion, does not promote its comprehensive and detailed analysis. As for the picture of the social reality we can see a similar situation. Thus, the main thing escapes from our attention, namely, identification of the ontological bases of understanding the world and the social reality as a picture and also the description of the characteristic features of the whole picture of the world and the whole picture of the social reality instead of their separate types researches. That confirms the necessity of further philosophical investigation of such a phenomenon as the "picture" vision of the world and of the social reality. We agree with Heidegger that the ontological basis of understanding the world and the social reality as a picture is the result of transformation the person into the subject who takes a detached view of the universe, making its image, model, picture. If the person does not isolate oneself from the world and is inseparably linked with it, is situated inside the world as it was, for example, in Antiquity and in the Middle Ages then we should speak about outlook, not about the "picture". Thus, we depart from Heidegger's conception according to which the outlook and the picture of the world are the products of only new European science of the 17th century. The notion "picture" always fixes the opposition of the person to the world, that is why the evolution of such notions as "picture of the world" and "picture of the social reality" became possible: over time the learning subject starts to fix space between the world and its picture. It happens because of the acceptance of the constructive function of human consciousness. Such function fixes social constructivism – the new approach to investigation of human being and society. From the positions of social constructivism the person is understood not as reflecting the existing world, looking at the nature from the outside and acting in the role of the "uninterested observer", but as the participant in making the world, the creator of the social reality. Application of the social constructivist approach does not only allow to form a specific picture of the world in the centre of which there is a creative communicative person, who creates the social reality in the process of cognition and is created by it, but also helps to fill the picture of the world and the picture of the social reality with special content. The picture of the world and the picture of the social reality are understood as ideal constructs, which are necessary for schematization of understanding of the world and the social reality. These constructs are created by people and then define their lives, influence their behaviour becoming, therefore, not only a simple picture, but an actual reality.

Key words: picture of world; outlook; scientific picture of world; picture of social reality.

P. 28. *Goncharov Dmitriy V.* Saint Petersburg Branch of National Research University Higher School of Economics (Saint Petersburg, Russia). **SOCIAL, CULTURAL AND INSTITUTIONAL FOUNDATIONS OF RUSSIA'S POLITICAL REGIME.** The proposed paper has been designed to investigate the issue of social, cultural and institutional foundations of the Post-Soviet Russia's political regime. The author considers the study of the Russian political evolution to be a part of a broader issue concerning the problem of the

Russian modernization. To describe a particular version of societal context resulted from the experience of the totalitarian project of the alternative modernization the author suggests utilizing the notion of anti-modern society. This societal model comes into being in conditions of modernization "lagging behind". It includes the proliferation of practices, which aim to imitate the institutional structure of the modern society. These practices lead to a dramatic institutional deformation, which, in turn, creates a social setting dominated by a network of informal institutions. That makes a rich soil for the system of all-embracing bureaucratic control to flourish in. The universal bureaucratic control was one of the key components of the Soviet regime. Its ineffectiveness and endemic corruption were among the most powerful reasons, which caused the collapse of the USSR. The Post-Soviet agenda for political development was defined by the program of democratization, which was to break with the anti-modern legacy of Communism. Though, this program was not successful. The Russian democratization failed and after 2000 the authoritarian backlash became a dominant trend in Russia's politics. The author believes that in this country any authoritarian political program inevitably leads to reproduction of the anti-modern system based on a personified rule and domination of bureaucracy. Any regime of this kind would support anti-modern structures of social interaction and would be unable to solve problems of modern development. The parallels with success stories cases of authoritarian modernization do not work in Russia's case, because regime actors that participated in creation of the "efficient" Latin American or Asian dictatorships are quite different from those who act in this country. Thus, the crucial condition which secures efficiency of an authoritarian system is the availability of competent bureaucracy and consolidated political elite, sharing high standards of public service and enjoying public confidence. Neither Russia's personified political leadership, nor bureaucracy meets these requirements. Their rule leads to a cyclical reproduction and aggravation of the development problems. The exit from this vicious circle could be provided by a political choice that would support transition from imitative social and political practices to a really modern structure of social interaction.

Key words: authoritarian regime; Russian modernization; anti-modern society; bureaucracy.

P. 35. *Karabykov Anton V.* Omsk Law Institute (Omsk, Russia). **PROBLEM OF "LANGUAGE" AND MIND OF ANIMALS IN PHILOSOPHIC DOCTRINES OF EARLY MODERNITY.** The reviewed paper is devoted to the analysis of approaches to solution of animals' "language" and mind problem worked out in main philosophic doctrines of the second half of the 16th – first half of the 18th centuries. Having explored the development of the European thinkers' views in a relative chronological order the author finds it externally similar to a spiral turn. Though materialists of the Enlightenment came to the ideas formally close to the late Renaissance skeptics' positions, ways of thoughts proper to representatives of those schools were principally different. That difference was caused by a powerful intellectual dynamics of the 17th century. Montaigne and his followers made a difference between human beings and animals relative proceeding from the notion of a universal animateness of the world. Also they found it incorrect to state some normative concerning manifestations of intelligence. Inclined to deny a human-like mind and language of animals the empirics showed at the same time characteristic incertitude. It is argued that roots of that incertitude laid in general principles of their epistemology. From their point of view, unlike other animals, people possess an ability to abstract and generalize sensitive data, though the source of our knowledge is not specifically human. Owing to the named ability people can create general notions which form the content of a language. With much more principality and consistency than the empirics the idea of cognitive and communicative uniqueness of a human being was maintained by the Cartesians. The rationalistic interpretation of human specifics became the result of a methodical reduction, the first stage of which was reducing all the existing to an intelligent subject. Accordingly, the second stage of that operation was reducing intelligence to a single form constitutive to it, i.e., to normal human speech. Due to the evident dogmatic character of the given statements, successive thinkers of the Enlightenment needed just to point at it and at common sense in order to refuse them. It allowed the materialists to completely include a human being in a mechanical world-picture figured by the Cartesians and eliminate the metaphysical difference between people and other animals.

Key words: language; mind; animals; Renaissance; Modernity; skepticism; empiricism; rationalism.

P. 42. *Konstantinov Dmitriy V.* Siberian State University of Physical Culture and Sports (Omsk, Russia). **ANTI-UTOPIAS: FUTURE WITHOUT MAN.** In the paper on the material of the anti-utopian novels of A. Huxley *Brave New World*, R. Bradbury *Fahrenheit 451*, Y. Zamyatin *We*, G. Orwell *1984* the mutual relations of man and culture are analyzed. The author speaks about man in the tradition of the existential-anthropological philosophy, which asserts that man is not something set, constant and completed. Man constantly tries to recreate himself in integrity on its own bases, therefore the condition of man is man insofar as he aspires to be man. However, this aspiration can be repressed by culture. As a result, man remains man only biologically, but the so-called second birth never takes place. The author characterizes such a situation as the situation of anthropological catastrophe following M.K. Mamardashvili. According to the author, this situation is modelled in the indicated anti-utopias. The author analyzes the concrete mechanisms of screening the human, presented in the anti-utopias. First, he pays attention to a certain system of prohibitions and regulations with strict control of their execution. In anti-utopia societies they prohibit science (except its possible utilitarian value), philosophy, art – those spheres of spiritual culture that possess the expressed human creating potential. In addition, the total control from the side of the ruling elite of the societies represented in anti-utopias is also directed on the sexual sphere. The author supposes that fears are caused here not by sexuality proper, but love, though not deduced from the biologically set sexual instinct but possibly crossing with it. In return, love is one of those transcendental values that constitute human life as a really human one. Second, the anti-utopias show a finer ideological mechanism of influence on one's consciousness. The concrete methods of the destructive affecting of man by means of ideological inculcation, described by the authors of anti-utopias, are diverse enough. The author shows, how such influence can be carried out through language, management of memory, ideology of consumption. As a result of the action of ideology all space of human life is occupied with set ideas, ideals, decisions and there is no place for alive man making a free choice. According to the author the danger is that the modern culture already contains pre-conditions of the societies shown in the anti-utopias. The result of their further development could be the loss of human in man. Herein is the warning to the humankind of the authors of anti-utopias.

Key words: anti-utopias; being of man; anthropological catastrophe; man and culture.

P. 49. *Makogon Tatiana I.* Tomsk City Administration (Tomsk, Russia). **TOPOLOGY OF LOCAL COMMUNITIES.** Phenomena of space, place, field test new revival. In philosophical discourse it is marked as "spatial" or "topological turn". Topology is the doctrine about a field or a place. The space is perceived as a social field or as a special atmosphere. This research gives substantial and methodological pulses for the topological analysis of local communities on the basis of regular display of values of topological, spatial interpretation, statements of questions and methods. Topological concept is one of perspective mechanisms of the description of the phenomenon of local communities, the topological understanding assumes uniform topological perception of the space of local

community. The topology enables full intercultural understanding of social processes, their properties and changes occurring in local communities, it represents a structure where these properties are shown in their set. Local communities may not be described as social units spatially homogeneous and steady in time, but only by means of various set "topos" understood as the local social orders supported and reproduced with participation of various social fields. Topology reflects what is close to each local community, namely: manufacture and transformation of social and communicative practices, their objective and subjective conditions, manufacture of events in the given place, in the given space, in the given community. The analysis of social space of local community recognizes social relevance of space, social perception and actions of members of local communities are also characterized and structured by spatial characteristics. The system model for the analysis of local communities as the network model of system, the measured concept of community is introduced, central points, interaction in networks, institutional and constructional consequences, socio-cultural distinctions in the system model are defined, consequences of scaling distinctions are given. Representation of local communities from the point of view of the system theory as a retive network system with central connections, between which there is a field space, enables to consider the location of community not as a picture opposing the person, but as a situational spatial atmosphere, the social field penetrating into people and determining their social, behaviour.

Key words: local community; topology; social spaces; network social system; local top wasps.

HISTORY

P. 56. *Zinovyev Vasily P.* Tomsk State University (Tomsk, Russia). **ON HISTORY OF RUSSIAN-CHINESE RELATIONS. TRANS-BAIKAL EXPEDITION OF 1849–1852.** The article focuses on the role the Trans-Baikal expedition headed by lieutenant-colonel N.A. Agte played in the research of the Far East. The contribution of this expedition has been largely silenced in the Russian historiography. The secret expedition was organized in 1849–1852 with the purpose of finding out the direction of the Stanovoi Mountain Ridge and of the flow of the Amur to facilitate the delimitation with the Qing Empire that had already been under way for 160 years. The delimitation became an imperative because of the aggressive moves of the European powers against China. It became clear that the Qing Empire was unable to defend its borders. In case the British demanded the freedom of navigation on Chinese rivers, the Amur could come under their control. Governor-general of East Siberia N.N. Muravyov insisted on establishing the border along the Amur. It was necessary for its reliable protection from the actions of Britain and for the arrangement of rapid supplies to Petropavlovsk-Kamchatsky and the ports of the Okhotsk Sea in case of a war with Britain. Foreign Minister Count K.V. Nesselrode insisted on retaining the border along the Stanovoi Mountain Ridge according to the Treaty of Nerchinsk of 1689 so that complications in the relations with China could be avoided. Therefore N.N. Muravyov urged for the explorations between the Stanovoi Mountain Ridge and the Amur while K.V. Nesselrode demanded that the Stanovoi Mountain Ridge should not be crossed and the secrecy be kept, with the expedition members passing themselves off as hunters. The controversy delayed the beginning of work near the Amur, and the explorations were practically launched in 1851. The expedition members went more than 20 thousand kilometers across the almost unpopulated and trackless area and discovered and mapped more than 3 million square kilometers of a hitherto unknown territory. They carried out geological, geognostic, topographic research and astronomic measurements. The major geopolitical result of the expedition was the discovery that the southern slope of the Stanovoi Mountain Ridge joined the western slope of the Bureinsk Mountain Ridge that went southwards, which gave Russia the right to claim for the territory from the Bureinsk Ridge to the Pacific Ocean without violating the Treaty of Nerchinsk. It was also discovered that the local population except for the Manegrs (the horse-riding Evenks) did not regard itself as subjects of the Qing Empire. The results of the expedition as well as G.I. Nevelskoi's activities gave the grounds for Russia to annex the territories to the left bank of the Amur in the 1850s. The article also summarizes the efforts of a number of scholars to find out the names of the expedition members. The leaders and participants of the expedition have been specified: military topographers N.A. Agte, V.E. Karlikov, S.V. Krutikov, astronomer L.E. Schwartz, mountain engineers N.G. Meglitskiy and M.I. Kovanko, mine surveyor A.A. Argunov, foreman miners A.F. Zverev, K.Kh. Pestrikov, I. Dudin, workmen S.M. Zhilin, V.A. Belovanskiy, P.E. Kudelin, K.Z. Kozlov, S. Nefediev, D. Panfilov, Ya. Kosykh, medical officer Ya. E. Sapunov from the Nerchinsk mines, the Trans-Baikal Cossacks, guides from the local population.

Key words: Agte's expedition; Russian-Chinese relations; geology; geography.

P. 61. *Kurenkov Artem V.* Tomsk State University (Tomsk, Russia). **TOMSK PROVINCIAL REVOLUTIONARY COMMITTEE – EXTRAORDINARY ORGAN OF STATE POWER (DECEMBER 1919 – OCTOBER 1920).** After Tomsk province was freed from the White Guard troops in December 1919 Bolsheviks began to restore the provincial government. However, due to the unstable socio-economic situation and the possibility of anti-soviet action, state power was concentrated in hands of the provincial revolutionary committee formed on December 25, 1919 for ten months. The committee was an extraordinary organ of state power with extensive power in the field of civil and military administration. Its members were not elected but appointed by higher authorities and, above all, the Siberian revolutionary committee, which the Tomsk revolutionary committee was under the direct subordination to. The provincial committee had a right to form revolutionary committees of counties and administrate their activity. Functioning of the provincial revolutionary committee proceeded on the basis of the Statute of the revolutionary committees approved by the Central executive committee and the Council of Defence on October 24, 1919. However, the absence of the most important questions (regarding the structure, competencies, roles and responsibilities of the revolutionary committees) noticeably reduced the legal significance of this act and did not allow to apply its requirements in practice. In the period of the revolutionary committee administrative activity the centre of Tomsk Province was temporarily moved to Novonikolayevsk. This required a very complicated organizational restructuring of the revolutionary committee. As a result, Novonikolayevsk revolutionary committee was turned into a province committee and Tomsk revolutionary committee reduced its authority to the county level. Periodical change of its members was a characteristic feature of the revolutionary committee. During the whole period of existence of the revolutionary committee some professional Bolsheviks were among its members: V. Shumkin, A. Karlov, F. Krylov, M. Levitin, N. Kalashnikov, G. Sobolevski, B. Shumyatsky, M. Sumetsky, A. Belenets, F. Orlov, J. Poznansky. Work forms of the revolutionary committee included meetings of the presidium, the revolutionary committee meeting with department heads and representatives of concerned agencies, the economic conference. All major actions that took place in the revolutionary committee were to have had the sanction of the provincial party committee. Possibility of party interference in the work of soviet authority was achieved by entry of the party members to the revolutionary committee and vice versa.

By the autumn of 1920 the situation in the province allowed to move the administration from extraordinary organs of state power to the constitutional ones. At the first Congress of the provincial councils held on October 25-28 the provincial executive committee of soviets of workers, peasants and Red Army deputies was elected. The revolutionary committee gave full power to the new institution and ceased to exist.

Key words: Tomsk province; revolutionary committee; Civil War.

P. 65. *Miroshnikov Sergey N.* Tomsk State University (Tomsk, Russia). **"VOLUNTEER FREEDOM CORPS" – UNREALIZED AMERICAN "COLD WAR" PROJECT.** For the first time in the Russian historiography this article analyzes Eisenhower's administration project to create a combat-ready battle formation – "Volunteer Freedom Corps" – made from the migrants from the Eastern Europe and USSR. On 18 February 1953 the question of the creation of the combat formation filled by the refugees from the Eastern bloc countries was discussed at the NSC, and approved for implementation. The core of the project was the creation of the corps from the young single men that had fled from the Soviet bloc countries. The main feature of those enlisted at the corps would have been the desire to fight for freedom, for the liberation of their home countries from the rule of the totalitarian communist regimes. Financing of the project would have been carried out by the Congress through the funds allocated by the "Kersten Amendment". The corps would have consisted of battalions and auxiliary detachments created mostly on the national basis from the refugees from Eastern Europe and USSR and under the command of an American or, in particular cases, a UN officer. But the negative reaction from the governments of France and Germany caused the project to be up in the air by August 1953. Eisenhower's administration desire to implement this project faced serious obstacles both inside and outside of the United States. Republican administration had to decide the future fate of the plan. Fall of 1953 seems to be the breaking point for the corps. Eisenhower's administration postpones the implementation of the project till the clarification of the EDC ratification and ending of Berlin conference of the foreign ministers planned for the beginning of 1954. After the EDC ratification was failed by French parliament Eisenhower made another attempt to create the corps almost completely changing its initial nature and goal. The idea to create a serious battle formation that can help substitute American soldiers, disburden American budget, and become a magnet of attraction for all fighters with tyranny in Eastern Europe turned into the idea of a semi-covert project for the creation of the basis for the formation of the battle groups made up by refugees from the communist countries during the war time and without any perspectives of its usage during the peace time for the propaganda sake. The reason for the failure of the project seems to be in the double-faced character of the whole Eisenhower's policy. Desire to pursue more active and most importantly "productive" foreign policy conflicted with the unwillingness to start a new world war. That led the administration to engage in negotiations with the USSR and therefore called for the halt and then total rejection of such actions that might have provoked conflict between super powers, and project of the "Volunteer Freedom Corps" was one of such actions without doubt.

Key words: Cold War; Foreign Policy of the USA; D. Eisenhower Administration; Eastern Europe.

P. 72. *Mitiukov Nicolay V.* Izhevsk State Technical University (Izhevsk, Russia). **IDENTIFICATION OF PARAMETERS OF SPANISH 120-MM GUN IN NG-53 MOUNTS.** The author developed a method of complex historical reconstruction of the artifacts, using the throwing principle of destruction, which is a system of "gun" – "shell" – "target". Previously, the author used this technique to identify the parameters of the Spanish 120-mm gun of NG-53 mount of destroyer "Oquendo" and published a monograph. The bibliographic study proved the validity of our conclusions. In isolation, each block is described by fairly well-known equations and systems of equations, but the integrated treatment of all three blocks of the system acquires a new quality of its missing blocks when you work autonomously. This opens up new vistas of historical reconstruction, and allows to obtain new information using conventional-discriminatory methods of historical research. Studies have shown that the method is suitable for both reconstruction of ancient weapons (arrows), and modern weapons (rifled artillery). Despite the available information that the weapon set NG-53 represented in the standard model of the Spanish fleet Vickers-Armstrong Mk F with a simple increase in barrel length from 45 to 50 caliber, the study and numerical simulations showed that the gun had to suffer more serious alterations. In the work of Camon del Valle containing a detailed technical description of the weapon information is available, for example, the use of a removable liner, which automatically means a thorough modernization. Thus, documentary evidence was obtained of deep modernization of weapons of NG-53 mount, which confirmed our earlier conclusion by mathematical modelling. This proves the effectiveness of the developed technique of complex historical reconstruction as an example of rifled artillery weapons – 120-mm gun of NG-53 mount. Next historical reconstruction was carried out of the upgraded guns, which showed that compared with the basic variant of 120-mm gun Vickers-Armstrong Mk F the exterior-ballistic performance of NG-53 weapons have improved slightly. Probably as a result this gun was removed from service and replaced by the American counterpart – Mk-32 with 127-mm gun Mk-12 still in service during World War II. Thus, from a constructive point of view the 120-mm gun of NG-53 should be considered as the last attempt of the Spanish to produce a weapon, compatible in properties with similar foreign models.

Key words: history of Spain; history of technology; artillery; historical reconstruction; mathematical model.

P. 75. *Naslednikov Ivan G.* Tomsk State University (Tomsk, Russia). **BOATING IN TOMSK: HISTORY OF DEVELOPMENT.** Boating is an affordable and popular type of outdoor activities, which combines elements of knowledge, healing, physical culture and sports. The article highlights the key stages in the development of water tourism in Tomsk. In 1961, students of Tomsk Polytechnic Institute, led by V.A. Krasilnikov, organized and conducted the first alloy on a wooden raft on the Khamsara River in Tuva. In 1967 Krasilnikov founded a section of water tourism at the regional council for tourism and excursions. At the same time in the city centre an amateur equipment rental, kayaks and boats, was set up, which followed the work of water tourists. In universities and enterprises of Tomsk tourist sections and clubs formed. Active water tourists were brothers Kraft, V. Klimov, V. Kaigorodov, M. Kolchevnikov, A. Levashnikov, N. Panichev, A. Fomin, A. Pastor, V. Lahtikov, S. Chesnokov, R. Goloshchapov, S. Prorokov, D. Shiryaev, F. Zverev, they ran clubs, had intensive exchange of experience. On the basis of the tourist club of Tomsk Polytechnic Institute they conducted training for boating. By the end of the 60s the rivers of Gorny Altai, Sayan, Baikal region and Transbaikalia, the Far East and South Yakutia were passed. 1970-80s was the "golden period" of Tomsk boating, its popularity grew at strong pace. There are new names of the leaders of water tours: A. Yanchuk, A. Fedorov, V. Zamotrinsky, L. Shangina, V. Chernenko, I. Denisov, S. Potanin, P. Kuzmin, L. Steptsura, I. Akhunov, V. Stolyarenko, S. Zhabin, A. Bogdanov, V. Klassman, Yu. Zverev, V. Bartenev, R. Yakupov, A. Gorbunov, T. Sogneva, S. Kharlamov, B. Shuvalov, N. Ryazanov, V. Gerasimov, V. Volozhankin, A. Zaporozhsky, K. Erickson, L. Erickson. Tomsk people passed the most difficult rivers: the Bashkaus, the Argut, the Chulyshman, the Sensing-Katun (with Mazhoy cascade), the Kitoi, the Shahdara – almost all of them were with the elements of path breaking. In 1975 Tomsk citizens won bronze, in 1977 – silver, and in

1980 – gold medals in the All-Union competition for the best camping trip. Later, Tomsk water tourists actively conquered the rivers of the South Baikal, Altai, Tuva, Northern Tien-Shan, South-Western Pamirs. From 1981 to 1990, the development of water tourism in Tomsk and its region continued. There is a new school of leaders: P. Nikitin, O. Utev, M. Buyanov, S. Prokhorenko, Yu. Kirillov, S. Marukhin, S. Pakhomov, E. Rynkov, E. Godunov, Yu. Sobyenin, P. Almendinger, A. Gritsenko, M. Malyarenko, etc. The geography of trips expands, the rivers of Tien Shan, the Far East, Junggar Alatau, the Caucasus, Yakutia, Rudny Altai are conquered. In the early 1990s in Tomsk, as elsewhere in the former Soviet Union was a sharp decrease in groups of water tourists. It was possible to save amateur boating owing to enthusiasts working in the institutions of supplementary education for children and adolescents. Late 1990s – early 2000s is a period of revival and rise of amateur boating. New enthusiasts are I. Levashov, V. Chesnokov, E. Karpitsky, E. Kovalevsky, Sh. Makhmudov R. Makhmudov, G. Maznev, E. Yachmenev, etc. Today, boating is recognized as the most massive, dynamic, and successful of all kinds of Tomsk tourism with the best achievements of the number of trips and competitions, received titles and categories, ongoing educational work.

Key words: boating; history of development; Tomsk.

P. 78. *Rodcheko Yulia I.* Tomsk State University (Tomsk, Russia). **HISTORY OF FIRST TOMSK THEATRE (BY NEWSPAPERS "TOMSKIE GYBERNSKIE VEDOMOSTI" AND "SIBIRSKAYA GAZETA")**. The article analyses the main periods of the first Tomsk theatre development on the material of local critics and journalists' reports and reviews, published in Tomsk newspapers at the end of the 19th century. History of the first theatre of this city can be investigated from two basic sources: unofficial part of the first Tomsk periodical "Tomskie Gybernskie Vedomosti" (1857–1917) and the first private newspaper of the famous Tomsk enlightener and philanthropist P.I. Makushin "Sibirskaya Gazeta" (1881–1888). The first Tomsk theatre was founded in 1848–1850 in the city grove (which later will be called University grove) in the place of the modern main building of Siberian State Medical University. To construct the theatre building the city head and well-known gold industry entrepreneur A.E. Filimonov raised a subscription and himself made the biggest cash input. The City Authorities allowed using the land for theatre under the condition of returning it back when the first Siberian University would be built. That is why it was decided to construct a wooden theatre building instead of a permanent one. Opening of the first theatre in Tomsk in summer of 1850 became an important event in the cultural life of the whole city: local spectators got an opportunity to get in touch with the theatrical art and to develop their aesthetic sense. Unfortunately, during the first decades of its existence Tomsk theatre was non-demanded for a number of reasons. First of all, there permanently appeared long intervals (which could last for years) between the visits of touring companies, because entrepreneurs were still afraid to rent the outback theatre building for the winter theatrical seasons. Secondly, at that time Tomsk theatre did not have the contingent of devoted theatre-lovers, ready to visit performances regularly. In the third place, local spectators had no desire to visit theatre, because it had no appropriate conveniences. After losing all his money A.E. Filimonov gave theatre under the authority of the City Council, but it also did not look after the theatre building. It became dilapidated and was determined for demolition in the early 1880s. On the 18 of July 1882 an insertion about an auction sale of the theatre was published in the newspaper "Sibirskaya Gazeta". Final auction took place on the 17 of August in the building of Public Meeting. As a result, in the summer of 1882 the first Tomsk theatre, which had existed for thirty two years, ceased to exist.

Key words: theatre; entrepreneur; company; repertoire.

P. 82. *Severyanov Mikhail D.* Siberian Federal University (Krasnoyarsk, Russia). **STATE LAND POLICY IN SIBERIA IN 1920S-1980S**. This article analyzes the land system in the USSR and Siberia in the 1920-80s that had no legal basis of fundamental differences. The author divided the 70-year history of the land system in the USSR into three periods. Their common feature was the state ownership of land. Nationalization of land defined all land relations in the USSR and Siberia. Due to the nationalization of the state withdrew a huge fund of land, which allowed the government to establish a system of state guardianship of agricultural population, to intervene in the economy of the land user, to lead the process of farming. In the first phase of the land system (1920–1928) individual peasant farming dominated. During this period, power in the land policy implemented social-class approach by: a) the refusal from the Stolypin agrarian reform with its emphasis on the creation of two social groups of private land owners and landless population, b) the elimination of certain categories of holders of land and transfer of these land to the peasants, mostly landless, c) the introduction of collective and state land management forms. During this period, in Siberia, there was the strengthening of communal forms of land use, all taxable differences of rural citizens were destroyed, during the relocation interests of old-timers, immigrants, and the nomadic travellers were taken into account, landless people were given land. In the second period (1929–1934) – a period of complete collectivization – there was an active process of forming the collective and state land use types by land indication and simplified (incomplete) land management, in fact, individual land management was eliminated. In general, the collectivization of land destroyed the old relations. Instead, there was collective form of communal land tenure. The third period covers the State Land Policy in 1935 – the second half of 1980s. On February 17, 1935 the new Model Rules of the Agricultural Artel collective land use as an independent land-legal institution received its legal registration. During this period of primary interest are the mechanisms of functioning and sustainability of the new economic and social structure, its ability to reproduce itself in the most optimal form and the most optimal way. The most important milestones in the national land policy were: the creation of stable land use by state and collective farms, overcoming the legacy of land use and land management of the first third of the 20th century, ordering of household land, consolidation of collective farms, development of a network of state farms (sovkhoz), including the virgin ones. In general, the agrarian policy of the state during 1935 – the second half of the 1980s despite all its contradictions and inconsistencies provided the forward movement of the society towards self-sufficiency in food, and industry – with raw materials. The second half of the 1980s in connection with the transition to a liberal model of economy witnessed a new period in the history of the land system, which requires separate analysis.

Key words: nationalization; land use; land management; relocation.

P. 87. *Sidorenko Maksim A.* Novosibirsk State Pedagogical University (Novosibirsk, Russia). **DISGRACE OF NICOLAS FOUQUET AS ACT OF LOUIS XIV'S REPRESENTATIVE POLICY**. Arrest of Nicolas Fouquet, the Superintendent of Finances of Louis XIV, which took place on September 5, 1661, is one of the key events not only of the reign period of this monarch (1643–1715) but also in the history of whole France because since that moment the independent government of Louis XIV begins. However, this event should be considered not only as a political action but as a representative deed, as one of the image-making element of Louis. Until now when we speak of representation of the king it is accustomed to present court ballet, festivals, construction of Versailles and other king's residences and buildings, construction of mounted and foot statues of the king on the main squares of the largest cities in the kingdom as

example. The representation also may include theatrical productions of Moliere and Racine, music of Lully and other composers of the Great Ages, literature and art of the time. All this suggests that the public image of Louis XIV, so carefully and painstakingly created by the king himself and his team throughout his reign, was varied and all encompassing. Also, some events of his rule (not just the war events) may also be considered as part of the royal representation, as evidenced by the display of the fall of Fouquet in Le Brun's program, designed for the ceiling of the Mirror Gallery of Versailles. Using the convenient political situation (the death of Mazarin and, as he thought, the immaturity of the monarch) Fouquet tried to break the "monopoly" of the king, in the role of the chief patron of arts, and the main representational images. The construction of the Vaux-le-Vicomte castle, which outbid all the king's residences with its beauty, the conception of its interior décor (for example, the image of the sun near Fouquet's emblem) in our opinion should be regarded as a real challenge to Louis XIV. The historians found the manifestation of the jealous temper of Louis in his reaction to the observed things. However, we are sure that the king could not behave otherwise but remove Fouquet if considering this from the representative point of view. Arrest and the trial of Fouquet permitted Louis XIV not only to get rid of a major obstacle on his way to monarchy (if we can say so) and to form his own management team but also to approve himself as a sovereign, who pointedly follows the rule of law, which fundamentally disagrees with the customary view on the way of governing named "absolutism". This becomes the sign of coming of the age of stability and prosperity in the kingdom, which had long been in the state of internal instability. Later Louis XIV will act the same way about the wars. All of his wars will not have imperialist character, as it sometimes seems to historians. In the eyes of the public in France and other European countries those wars look as attempts to defend the legitimate rights of the king or his relatives.

Key words: Louis XIV; absolute monarchy; power representation; consolidation of royal power.

P. 91. *Solovenko Igor S.* Yurga Technological Institute, Branch of Tomsk Polytechnic University (Yurga, Russia). **DYNAMICS OF PROTEST ACTION OF MINERS OF KUZBAS IN TRANSITION TO MARKET RELATIONS (1992–1999)**. Protest movement of miners of Kuzbas during the transition to market relations had its rise (1992-1996), culmination (1997-1998) and decline (1999). This dynamics, in general, coincide with the evolution of the strike movement in Russia in the 1990s. During the rise of the protest movement in the Kuzbas region (1992-1996) the activity of the miners was expressed, first of all, in the increase of the number of strikes, active participation in nationwide strikes. Back in the beginning of 1992 in the mines of the region spontaneous strikes began, which gradually began to acquire an organized system character. In subsequent years, there were new, including radical, forms of protest action of miners – under-the-earth strike, hunger strikes, pickets, demonstrations, threats of mass suicide, "rail war", etc. Protest of miners did not only increase quantitatively, but changed qualitatively. So, for example, in the mid-1990s, along with economic demands, began to appear political ones. The climax of the protest movement of miners of Kuzbas during the transition to market relations was the period of 1997-1998. In the spring of 1997 there was a sharp aggravation of social tension in all the coal-mining regions of Russia, especially in Kuzbas. The most important features of the protest action of miners of Kuzbas were radicalism, duration, growth of solidarity, attraction of public attention. Miners began to use radical forms of protest, first of all, the blockade of the railway. "Rail war" became the most effective control measure for miners to defend their rights and interests, as it was followed by an immediate reaction from the authorities. The picketers immediately received guarantees of repayment of debts on wages. The example of miners was used not only in Kuzbas, but also in other regions of Russia. Since 1999, the protest movement of miners of Kuzbas has a marked negative dynamics. Of all the forms of struggle they mainly used the strike. In cases when the workers used radical measures (for example, went on hunger strike), the number of participants was small. The miners did not demand only the reduction of wage debt, but also allocation of funds for reconstruction of the enterprises and development of new technologies. In general, the dynamics of protest action of miners of Kuzbas during the transition to market relations corresponded to the dynamics of reforms in the coal industry of Russia. The growth of protest activity caused a new wave of reforms in the key sector of the economy. Meanwhile, the long-drawn struggle had a negative impact on the socio-professional structure of the miners, their leadership in the labour movement, the total solidarity of the workers at the level of the region and the country.

Key words: transition to market; Kuzbas; miners; protests; dynamics.

LAW

P. 97. *Akhmedshina Nataliya V.* Tomsk State University of Control Systems and Radioelectronics (Tomsk, Russia). **ON PREVENTION OF OFFENCES IN RUSSIAN FEDERATION**. The article considers the debatable questions from the bill "On bases of system of prevention of offences in the Russian Federation". The conformity of the norms in the bill to the principles established in it is analyzed. The necessity of adoption of a law on preventive maintenance of offences in general and prevention of crimes, in particular, in modern conditions of the growing crime is obvious. In 2000 the Government of the Russian Federation in the State Duma introduced a bill "On bases of the state system of prevention of crimes", which later was not considered. From the moment of publication the bill received considerable public reaction, both negative and positive. In turn it would be desirable to pay attention to the positions that need some completion. It is strange enough that the developers of the bill have not used the terminology accepted by criminology science, which actually is engaged in working out of the theory of crime prevention. Article 6 of the bill "Principles of functioning of system of preventive maintenance of offences" fixes the principle of scientific validity. Thus, the definition given in Item 3 of Article 2 seems incomplete: preventive maintenance of offences is measures of social, legal, educational and other character directed at neutralization or elimination of the reasons and conditions of fulfilment of offences, consisting in purposeful, precautionary influence on persons with antisocial behavior, both in their own interests, and in interests of the society, and also directed at decreasing the risks of persons to become victims of criminal encroachments. In other words, preventive influence according to the bill, will be imposed only on persons with antisocial behavior whereas it is known that preventive maintenance of offences in general and prevention of crimes, in particular, is a multilevel system of state and public measures directed at elimination, easing or neutralization of the criminality determinant. The legislation on preventive maintenance of offences is accepted in many subjects of the Russian Federation. It is necessary to hope that the federal law will not keep itself waiting and will represent the document containing a complete system of preventive maintenance of offences in the country.

Key words: prevention of offences; crime prevention; victimization prevention.

P. 99. *Larionov Ilya A.* Tomsk State University (Tomsk, Russia). **ON SOME MEASURES OF PREVENTING ILLEGAL MIGRATION ORGANIZATION.** It has been possible to achieve some noticeable results in the sphere of counteraction against illegal migration lately due to the combined efforts of legislative and executive bodies of power in the Russian Federation. The development of migration legislation in the sphere of maximum possible simplification of the process of acquiring by foreign citizens the legal status of staying on the territory of the Russian Federation, simplification of the mechanism of job placement has become one of the main guidelines in the activity aimed at counteraction against illegal migration. At the same time the migration policy in the Russian Federation needs some serious amendments. To maintain the present population the country should receive 700000 immigrants annually. This work should be done taking into account the peculiarities of social demographic development of different regions. It is necessary to meet and place immigrants but to avoid the establishment of new territorial ethnic formations in the Russian Federation. To regulate the labor force stream in Russia effectively, it is necessary to introduce immigration quotas on professional, medical, language, educational qualifications and take only those who can exert a real beneficial influence on the economy of the country. There is a necessity nowadays to work out a legal act, determining the tasks and directions of activity in the sphere of prevention and restraint of illegal migration. This document should contain the mechanisms of prevention and restraint of illegal migration; enumerate the reasons for performing such an activity, means and measures of preventive influence, of revelation and prevention of violation of the above mentioned category; determine the competence of subjects in the sphere of prevention and restraint of illegal migration and control their activity. In connection with the fact that the organization of illegal migration is acquiring a transnational character, connected with the manifestation of terrorism, extremism, separatism that threaten the foundations of the constitutional system and security of the Russian Federation, we propose to refer this crime to the group of serious crimes. This circumstance will enable the officers of operational divisions to organize and carry out the whole complex of operational search actions to prove by documents the criminal activity of groups specializing in illegal migration. The effectiveness of preventive influence on criminality depends in many aspects on mutual, coordinated actions of the subjects of prevention. Solution of tasks in the field of migration stipulates the necessity of constructing an integrated system of interaction of a number of law enforcement agencies in this direction of activity. The organization of such an interaction can be one of the decisive factors of increasing the effectiveness of state regulation of migration processes.

Key words: organization of illegal migration; prevention of crimes; precaution; general social and special criminology measures of prevention.

P. 102. *Petrushin Artem I.* Tomsk State University (Tomsk, Russia). **ACCESS TO JUSTICE AS ELEMENT OF MECHANISM ENSURING DEFENCE OF PERSONAL RIGHTS AND FREEDOM IN COURTS.** The problems of correlation of notions "access to justice" and "defence of personal rights in court" are under consideration in the present article: the legal nature, content and functional purpose of the above mentioned categories are determined. On the basis of consideration of different approaches to understanding of the defence of personal rights in court, the author comes to a conclusion about the possibility of consideration of the notion as a mechanism of legal regulation ensuring the protection of rights and legal interests via justice. While examining the functional significance of the mentioned notions the author concludes that access to justice is called to ensure both the absence of excessive obstacles for initiation and further development of criminal procedure and the possibility of the injured party to influence its course and results. Thus, the tasks of the mechanism of ensuring access to justice are considered to be intermediate as compared with the tasks of the defence of personal rights and freedoms in court which, in the end, can be the same as the tasks of criminal procedure. The difference of functional significance of the mechanism of ensuring access to justice and the defense in court presupposes non-coincidence of their content. Institution and development of criminal proceedings depends in many aspects on the realization of the mechanism ensuring the effectiveness and fairness of the preliminary investigation and trial. And if the injured party has an opportunity to be actively involved in the investigation and trial it ensures their impartiality, fairness, fullness and legality. But it is hardly possible to assume that availability of justice is a sufficient circumstance for a fair and legal disposal of a case. At the same time, not all mechanisms ensuring fairness in criminal procedure are connected with the ensuring of access to justice. For example, the right of a person not to testify against close relatives or the right not to be repeatedly prosecuted on the same conviction is not covered by the content of access to justice. Interrelation of the mentioned elements of court defence can not serve as a basis for acknowledgment of their identity as it is a system characteristic. Having examined the specified problems the author comes to a conclusion, according to which "access to justice" and "defence in court" are interrelated as the part and the whole. Access to justice should be considered as an independent element of the mechanism, ensuring the defence of personal rights and freedoms in court.

Key words: access to justice; defence in court; fairness in criminal procedure.

ECONOMICS

P. 105. *Babenko Anna V.* Tomsk State University (Tomsk, Russia). **ON MANAGEMENT OF ART MARKET IN FINE ARTS.** In modern terms the sphere of culture and art are treated as an independent industry functioning to satisfy cultural and spiritual needs of Russians. Management of long duration and current culture processes aimed at reaching the cultural goals requires a complex of culture-generating institutions called to provide extended reproduction of intellectual products and cultural-educational services, creative staff, modern tools and innovative technologies. To develop it multilevel administrative strategy and tactics in the area of culture and art regulating the socio-cultural processes in Russia is essential [3]. It will allow to show the new level of the art market and its modern image. In our time culture and art became a sphere of economic activity, production of goods and services. The modern picture of development of culture and art is characterized by the necessity of the use of economic resources – material, financial, labour, cognitive, intellectual, among which a large stake belongs to the expenses on the "living labour" and means to pay it off. Art market is the system of socio-cultural and economic relations related to the turn of goods and services in performing works of art. It is an important component of culture because it forms the financial background of development of art, substantially influences the creation, distribution and use of art works. According to historical art science, the term "art market" implies any form of financial reward and stimulation of artistic labour. There are similarly concepts of primary and secondary art market. In primary art market the artist as a "producer of goods" is the direct participant of market relations. In secondary art market the work of art is alienated from the creator and exists in the market regardless of the author as a "product". The traditional mechanisms of art market are sales of works of art at mediation of agents through shops, galleries and salons, by means of auctions and lotteries. The major element of art market is work of the artist with the

buyer/customer directly, or via the agent [4]. The segment of the Soviet market of art were salons of the Union of Artists. The wide spectrum of local art was offered to the private user for any pocket and taste: from a thematic picture to the souvenir hand-made articles. Here it was possible to find works of more or less known artists, get a collection of "quiet graphic arts" and purchase all the necessary for beauty and comfort of one's home.

Key words: artistic market; management; culture; art; fine art.

P. 110. *Kozlovskaya Oksana V., Elmurzaeva Raisa A.* Tomsk Polytechnic University (Tomsk, Russia), Tomsk State University (Tomsk, Russia). **POSSIBILITY OF USING LOGICAL FRAMEWORK APPROACH TO REGULATORY IMPACT ASSESSMENT.** Use of the Logical Framework Approach to regulatory impact assessment is of considerable practical interest for information support of the goals and priorities for policy making. The article provides specific analytical directions of study stakeholders, problems, objectives and options for regulatory impact. First, in practice, the regulatory impact assessment in Russia stakeholder analysis has received little attention. Such an analysis is necessary in context of a specific list of groups, numerical and qualitative characteristics of the stakeholders in the regulatory impact. While public consultations are a way to test the critical expectations of key stakeholders that need to be taken into account at the planning stage of regulatory impact. Second, the analysis of the problem situation would show a change problem, if not to exercise control or justify the failures of existing government regulation. The core of the analysis is to identify the root causes of the problem field and associated restrictions and identification of possible partnerships, the role of the regulatory effect of each of the stakeholders and a collection of resources that are necessary and available to solve the problem. Third, the analysis of the objectives will set the vector logic regulatory impact in addressing and eliminating (reducing the impact) of its root causes. Finally, analysis of alternative regulatory impact assessment aims to determine the optimal form of regulation and likely social, economic and environmental effects. This requires expanding the range of available institutional options to overcome market failure by cooperation of economic agents (both voluntary and regulatory framework). To assess alternatives to regulation it is useful to define and agree on a set of criteria by which they can be configured: – the possible positive and (or) negative consequences for stakeholders; – duration and irreversibility of introducing regulatory impact; – stability of regulatory impact; – compliance with current regulatory practices and standards of behavior in a particular field of activity and frequency of changes in regulatory impact; – availability and accessibility of resources (human, material, financial and information) necessary to achieve the goal; – allocation of responsibility (liability) to address the problem of self-ascending to government intervention; – changes in the behavioral characteristics of the interested parties. Thus, strengthening coordination and communication with the stakeholders in the development of regulatory measures is a condition of the quality of management decisions. It also coordinates the interaction between the institutions of state policy.

Key words: public policy; regulatory impact assessment; Logical Framework Approach.

P. 112. *Tanyushcheva Nataliya Yu.* Astrakhan State University (Astrakhan, Russia). **FINANCIAL ASPECTS OF ANTI-MONEY LAUNDERING METHODOLOGY.** The methodology of formation of the modern anti-money laundering (AML) system is based on the principles of self-organization, globality and mutual control. The principle of self-organization is implemented at two levels – the level of self-organization of countries (the supranational level) and the level of self-organization of financial institutions (national level). The mechanisms through which countries are involved in the global AML system is based on the principle of globality. In practice, this principle is realized in voluntary and forced basis. The European Union and the United States, *concerned about the* rising crime in their countries, voluntarily joined their efforts in this direction. On their initiative, FATF was formed, an international committee, which has developed 40 anti-money laundry recommendations and nine recommendations about using financial monitoring in order to stop the financing of terrorists. The countries involvement in the AML process is based on conducting mutual evaluations of countries for compliance with national laws and current practices in the field of FATF's anti-money laundering recommendations, as well as to make a "black list" of countries that do not pay enough attention to the fight against money laundering. FATF includes countries in the "black list" to impose economic sanctions on them. Severity of the sanctions force the state to implement the FATF's recommendations. The most important contemporary problem is the closing of financial information in offshore countries. For these countries, income from financial services is most part of their national income. Involvement in AML procedures, as well as economic measures for evasion, will have a negative impact on such countries, most of them having no other areas of development. Given this fact, these countries are given an opportunity to find ways to involve them in the AML international system (regional approach). A regional approach aims to integrate a number of states, which reas neighbours and have common features in the economy, culture, national mentality, to FATF-style organizations. By 2011, all countries were grouped into eight regional FATF-style groups. The modern role of these associations is mixed. Especially those that include off-shore countries, actively used by transnational criminal organizations to launder their income or to finance terrorists. The fragmented implementation of FATF recommendations not aimed at tangible results in enhancing their participation in the exchange of information on the money movement would have been subjected to economic sanctions, if we were talking about one or several countries. But a group of countries has the ability to use a regional office in the FATF for delaying the expanding AML processes on their territories. A three-level structure of the international AML slows unification of approaches to implementing the anti-money laundering recommendations, respectively, the costs of financial institutions and national budgets do not still bring the expected results. The global financial crisis has shown that inefficient burden on financial institutions, sooner or later become serious problems. It should go from the stage of an experimental model to a fully operational mechanism of AML.

Key words: money laundry; AML; FATF; financial intelligent; Egmont Group.

PSYCHOLOGY AND PEDAGOGICS

P. 117. *Karakulova Olga V., Bogomaz Sergey A.* Tomsk State University (Tomsk, Russia). **EVALUATION OF BASIC VALUES REALIZABILITY IN LOCAL SETTINGS (TOMSK) BY ARTS- AND SCIENCE-ORIENTED UNIVERSITY STUDENTS.** It has been stated that "success" of urban development is affected, in particular, by what the residents understand about their city mission and its potential, by how leadership is spread among them, by possibilities of their creative participation in the urban development. In this regard, it is relevant, in our opinion, to study characteristics of university students' evaluation of urban environment as a potential for their professional and personal development. The study was conducted in the city of Tomsk whose local authorities positioned it in Siberia as a promising educational and innovation centre. The study involved 181 university students: master and doctoral students majoring in humanities (N = 96) and their science-oriented counterparts (N = 85). To evaluate the urban environment potential of

Tomsk, the Basic Value Realizability technique was used, which is based on the semantic differential method and enables to identify subjects' opinions on realizability of 20 basic values as a specific environment parameter of their personal development. The Self-Organization of Activity questionnaire and that of Career Anchors were applied to analyse the study participants' personal potential. It has been found that university students, in general, evaluate basic value realizability in Tomsk positively. Therefore, it can be concluded that the city, in their opinion, has an essential potential for their professional and personal development. However, master and doctoral students take the city of Tomsk, first of all, as a place favourable for love and marriage. The results revealed significant between-group differences among the samples under study in the following scales of Basic Value Realizability: to succeed in profession and career; to achieve desired goals; to make sense of life; to assert oneself; to be unique and original; to have power. The identified between-group differences indicate that the same environment is viewed differently by young people with different career orientations (a humanitarian or science profile). Arts-oriented university students feel more optimistic about the city (but, likely, more illusive). The study samples did not differ greatly in their scores on the Self-Organization of Activity questionnaire and that of Career Anchors. However, they are specific as indicated by the results of correlation analysis carried out separately for each group. It has been revealed that science-oriented young people with career orientation towards "service" take Tomsk more positively in regard to its potential. Thus, the results obtained enable us to put forward a hypothesis that the socio-cultural environment of Tomsk can to a greater degree meet the needs of arts-oriented individuals. It has been shown that personal characteristics of science-oriented university students can significantly affect their evaluation of basic values realizability and, hence, their evaluation of the urban environment potential of Tomsk. Meanwhile, the more they are inclined to planning, purposeful and persistent, the more positive Tomsk is viewed in the context of possibilities for their professional growth and career development, self-assertion and making sense of life.

Key words: basic values; urban environment potential; purposefulness; persistence; inclination towards planning; career orientations.

P. 121. *Makeeva Irina A.* Vologda State Pedagogical University (Vologda, Russia). **USE OF INTERACTIVE METHODS OF MUSEUM ACTIVITY IN CIVIL EDUCATION OF ORPHAN CHILDREN (FROM EXPERIENCE).** The urgency of civil education increases owing to its special importance for development of the identity of orphan children as the phenomenon integrating in intellectual, emotional and sensual, and activity spheres. The main objective of civil education consists in orientation of younger generation to values of domestic culture, formation of the value-oriented attitude to the Homeland, its cultural and historical past, in development of a moral and civil liability of the personality, readiness for self-development and moral self-improvement. High-grade socialization of orphan children is possible only under condition of priority of personal development of pupils, under condition of system changes in the organization of educational activity, promoting formation of independence, initiative, responsibility, civil competence of the personality, active living position of orphan pupils in the condition of creation of a uniform educational space. Now the role of the museums being an integral part of the system of social education, which represent a specific, integrating type of cultural institution combining various functions both scientific and social and pedagogical, cultural and educational considerably increases. Therefore, it is necessary to reconsider and define the possibilities of cultural institutions, in particular, a museum taking into account the variety of potential kinds of activity and the new museum technologies promoting new social roles acquisition by children and teenagers that enriches them with experience of informal communication developing cognitive interests, giving cultural values on the basis of a free choice of activity types and forms. Interactive forms of social and educational character influence the emotional sphere of the young, ability to cause various experiences connected with understanding of these or those phenomena; creativity and imagination development are the most acceptable activity types. Forms of implementation of programs of museum activity are diverse, differentiated, complex, including research, cognitive, creative, communicative and practical components. Conditionally they can be divided into theoretical (lectures, conversations, excursions, creative parties, meetings with interesting people, quizzes, etc.) and practical – master classes. As the experience of museum and pedagogical activity shows, each of these forms has an interactive component that allows considering museum not only as an institution of social memory – "storage of antiquities", a collection of subjects of old times, but also as a dynamic integration space participating in realization of an important task – socialization of orphan pupils.

Key words: orphan children; museum; interaction.

P. 126. *Obdalova Olga A., Soboleva Alexandra V., Numan Evgeni A.* Tomsk State University (Tomsk, Russia), Tomsk Polytechnic University (Tomsk, Russia). **COGNITIVE STYLE AND ITS ROLE IN INDIVIDUAL COGNITIVE SPHERE IN TEACHING FOREIGN LANGUAGE.** The article is aimed to examine cognitive style and to clarify its role and place in the system of individual cognitive activity in the process of teaching a foreign language. The term "cognitive style" came into being as a result of juncture of two psychological branches: personality psychology and cognitive psychology. Initially the term was used to describe both individual differences of information processing and personality types based on characteristic modes of their cognitive spheres. The definition of the term "cognitive style" is closely connected with the term "individual style". Individual style functions as a fundamental component that characterizes the system of operations the person is predisposed to due to personal individual characteristics. Cognitive style is a subsystem of the individual activity style. It includes the gnostical components – the ways of information perceiving and processing – that appear in specific mode of cognitive processes, and influences all levels of mental hierarchy, including personal peculiarities. The undertaken analysis has revealed that cognitive style should be referred to as one of the basic personality characteristics. On the one hand, it occurs in the result of complex combination of biological and sociocultural factors that influence both intellectual and psychological processes. On the other, cognitive style influences individual style of activity and at the same time depends on it. Being an "intermediary" between psychic and personal levels of "integral individuality", cognitive styles function as the ways to build a picture of the world, including linguistic. We define cognitive style as a general notion that characterizes a cognitive personal sphere and consists of individual preferences in information processing such as perceiving, analyzing, structuring, organizing and evaluating. Since the language is an integral part of cognition and personal mental activity, the approach to teaching foreign languages based on cognitive styles can contribute considerably to implementing the principles of individualization and differentiation within a common educational system. It will facilitate motivational and cognitive spheres of learners and help to promote learning a foreign language as a means of intercultural communication.

Key words: cognitive style; cognitive activity; personality; learning a foreign language.

P. 132. *Finchenko Stanislav N., Kapilevich Leonid V., Vasilyev Vladimir N.* Tomsk State University (Tomsk, Russia), Tomsk Polytechnic University (Tomsk, Russia). **EFFECT OF CONTRAST MESSAGE ON CHARACTERISTICS OF VISUAL AND SOMATOSENSORY EVOKED BRAIN POTENTIALS.** We studied the effect of contrast message on the characteristics of visual

and somatosensory evoked potentials. It is shown that the contrast massage is accompanied by an increase of the amplitude of the main components of the VEP. In the central-occipital part the increase of the amplitude of negative components was about 10%, whereas the amplitude of the positive component has almost doubled. In the left occipital part, in contrast, the amplitude of the negative components doubled, while the amplitude of the positive component increased by a third. The most significant increase – from 0.04 to 1.13 uV – was in the component of N135 in the right occipital part. The values of the latent periods have not changed. In the SEP an opposite dynamics was found. As seen in Figure 2, after a course of contrast massage the number of both early (P8-N9) and late (N20-P23) components reduces. This is confirmed by the results of statistical analysis. As Table 2 shows, the amplitude of the component P8-N9 of the SEP, both on the right and on the left reduced by 35-40%. Particularly expressed was the oppression of components N20-P23 in leads Erb'i-Erb'c on both sides – SSEP amplitude decreased by 4-5 times. The method of contrast massage is different from the traditional classic massage. The most important is the principle of contrast. It consists in alternation of strong and weak manipulations, which differently influence the nervous and muscular cells, causing various response. During massage, first of all, the numerous and various teloneurons are affected in different layers of skin, connected with the somatic and vegetative nervous system. In this case there is the first stage of transformation of mechanical energy of massage movements into the energy of nervous excitement, which gives rise to a complex chain of reflex reactions. Due to the massage impact on the deep tissues and organs, irritation from skin receptors (exteroceptors) sums with that of the receptors in tendons, joint capsules, ligaments, fascia, muscles (proprioceptors), with irritations of receptors of vessel walls (angioreceptors) and internal organs (interoceptors). They all are transferred to the central nervous system and reach the cerebral cortex where all these centripetal afferent impulses are synthesized in the general complex reaction of the body shown in the form of certain functional changes in various organs and systems of the body. The expressed increased VEP contrast after a course of massage reflects its effect on the function of the higher central nervous system. SSEP oppression can be seen as a manifestation of the protective suppression of afferent level of the nervous system. These results suggest that the effect of contrast massage techniques aimed at reducing the BMI is associated with effect on both the peripheral units, and the central nervous system.

Key words: contrast massage; figure correction; evoked potentials.

P. 135. *Sharafeeva Alla B.* Tomsk State University (Tomsk, Russia). **CONTENT OF PROFESSIONAL COMPETENCIES OF RECREATIONAL ACTIVITY OF SPECIALISTS IN PHYSICAL CULTURE AND SPORT.** Career success today requires excellence, activity, creativity, depth of knowledge and skills, both subject-professional and specific, related to the peculiarities of professional activity, from the specialist in physical education and sport. The modern university graduate should be able to organize and carry out activities in sports and recreation targeted at different groups. These activities, part of the educational standards, are designated as recreational. Recreational activities aimed at satisfying recreational needs, restoration and development of physical and mental abilities, intelligence, and self-improvement is characterized not only by the result, but also by the process. Recreational activities are an integral part of the professional in the field of physical culture. To perform their duties specialists in physical culture and sport must have certain skills, knowledge, personal qualities and moral values, most of which they acquire while training for their future careers. In other words, experts in the field of physical education and sports should have a certain level of competence, which will allow them to carry out their activities. The competence-based approach in the global educational practice is the main one. It emphasizes the importance of development of the ability to act in different situations, including random. To separate the general and individual we must distinguish two commonly used concepts of "competence" and "competency". Competence includes a set of interrelated skills (knowledge, skills, lifestyle) defined with respect to a certain range of objects and processes, and required for qualified productive activities in relation to them. Competency is possession of a competence, including one's personal attitude to it, and the object of activity. Selection and structuring of the content of the educational material, development of software and methodological support for the training of future professionals in the field of physical culture and sports to solve the problems of recreational activities and the formation of special professional competencies requires the development of their essential components, describing the skills necessary to deal with professional issues of recreational activities. In the competence model of recreational activities of specialists in physical education and sports, we chose five profiles of competencies – gnostic, communicative, design, planning, organizing. Each profile has its essential characteristics: knowledge, skills that the future specialist in physical education and sport is to master. The progressive development of skills in the learning process should be carried out in several stages. We distinguish four stages of forming a recreational competence of future bachelors in physical education. Thus, the content of each competency of recreational activities can influence the pedagogical process filling it with concrete content appropriate for the competency, make use of approaches, methods and tools to achieve a guaranteed result – formation of recreational competence of future specialists in physical education and sports.

Key words: specialist; physical culture; professional competence; recreational activity.

P. 139. *Yadrovskaya Marina V.* Don State Technical University (Rostov-on-Don, Russia). **MODELS IN PEDAGOGICS.** The procedure of modelling as an objective and universal gnoseological procedure is widely applied in pedagogics. In this connection it is important to analyze experience of usage of modeling in pedagogics as means of the solution of theoretical and practical tasks with the help of models. I believe, it is impossible to construct strict and unequivocal classification of such models. But it is possible to note some basic directions of application of modelling in pedagogics and to consider models, which are built according to these directions. Such analysis will promote conceptual and terminological definition of models and will serve to purposeful usage of the method of modelling in pedagogics. In pedagogics, as well as in other scholar disciplines, the research model can arise in several ways: as a result of observation of the phenomenon and its comprehension; as a result of process of deduction as a special case of some model; as a result of process of induction as generalization of some model. Models are used either as research reception of performance of researched pedagogical object with the purpose of its explanation, study, specification; or as the tool, which allows to influence on its construction or functioning on the basis of the analysis of modelling performance of a pedagogical object. There are major categories of pedagogics in the basis of ordering of models: instruction, education, training allowing to find out all the variety of models built. In the study of educational space the models of optimization of organization and management of education, education, educational process and result of educational process can be studied. When modelling educational process some models are under construction: models of training, of process of training, of teaching and doctrine, models of pedagogical interaction, models of pedagogical situation, models of content of training, models of delivery of educational information, models of knowledge of a subject domain, models of pedagogical system, etc. As training is indissolubly connected with the reception, processing, storage and reproduction of information, an integral part of model of training should be the model of delivery of educational information. More often teachers deal with application of information modelling in preparation and transfer of educational content. Thus, a special role is played by information models as a means of

illustration, mastering, coding of educational content and organization of research activity. Modelling can become a powerful tool of research in hands of the teacher who understands that modelling is not only a scientific method of knowledge, but also art, which consists of creative search of models that adequately describe the object and allow to get new knowledge. It is important to emphasize that the model used in the pedagogical theory and practice should be focused on concrete functions: illustrative, logic, analyzing and synthesizing, reconstructive, explanatory, predicting, measuring, cognitive, interpretative, transmitting, classifying, approximative, practical, communicative, technological, management, training, trial, which are defined by the purposes of its creation.

Key words: education; educational space; pedagogical modeling.

SCIENCES ABOUT EARTH

P. 144. *Antonov Yuriy A.* Tomsk Polytechnic University (Tomsk, Russia). **DISTRIBUTION PATTERN OF PROVED GOLD ORE RESERVES OF DIFFERENT GRADES IN PRODUCTIVE STRATUM OF BOLSHEVIK DEPOSIT (WEST KALBA).** Bolshevik deposit is located in Bakyrchik ore district of West Kalba gold ore belt in Bolshoi (Great) Altai. It is confined with the Western flank of Kyzyl shear zone and historically divided into 4 sections: Western Bolshevik, Bolshevik, Chalobai, and Kholodny Klyuch (Cold Spring). The deposit main ore-control and ore-confining structure is represented by a series of contiguous sub-lateral ruptures with the northern pitch at 30-50° angles. The ore-grade gold is represented by vein-impregnated pyrite-arsenopyrite ores. The ore-hosting rocks are carbonic sandstone, siltstone, and argillites of Bakyrchik stratum where dikes with marmorate composition of Kunush igneous complex are interposed. Most minable mineralization at the deposit is confined to the main producing horizon consisting of mixite, alternation of sandstone with siltstone and argillites, which were converted into tectonites, tectonoshales, and mylonites. At different sections of the 4-km-long deposit, the horizon is characterized by various productivity in terms of facies changes, dislocation, physical-mechanical properties of the contained rocks, and presence and control of sidewall diagonal faults. The proved reserves of gold-sulphide ores at Bolshevik deposit (C₁ and C₂ categories) outlined at the wall boundary of 3 g/t amount to 4.9 mln t with the average metal content of 6.4 g/t. The use of the data on the structure of gold concentration statistical distribution at Bolshevik deposit allowed dividing all proved ores into 4 grades: precious (wall of 1.8 g/t), run-of-mine (wall of 1.2 g/t), poor (wall of 0.6 g/t), and lean (wall of 0.3 g/t) ores. Their outlining with such notional conditions showed that at the wall boundary of 1.8 g/t all 24 proved lenses of ore at the deposit are united into 3 fields (Western, Central, and Eastern) with the length of 1,310, 1,450, and 630 m, respectively. They are controlled by anticlinal folds of second order from the Kyzyl ore zone sidewall. When using other boards, all mineralization is geometrized into one large field No.1 (or "field-structure"). Its length along the zone extension is 3,910 m. There are 58.3 and 11.4% of precious and run-of-mine gold ore reserves concentrated there. Poor ores are developed at the sidewall and footwall of precious and run-of-mine ores. Their portion in the overall balance amounts to 48.7% of ore and 19.3% of gold. Precious and run-of-mine ores, as well as bordering poor ores build up the main gold-ore productive stratum of Bolshevik deposit. They account for 60.2% of ore and 86.4% of gold reserves estimated by the author. Lean ores concentrated on the boundaries of mineralized producing horizon build up the external zone of mineralization. There 39.8% of ore and 13.6% of gold are concentrated as compared to the reserves of all ore grades estimated by the author. The results of the conducted re-estimation of reserves in terms of distinguished ore grades now allow to significantly (by 3.6 times) expand the prospects of Bolshevik deposit and promote it to the category of Kazakhstan major gold-ore sites. From this point on, the acquisition of the distinguished ore types in accordance with their modes of occurrence and parameters can be performed separately. The use of the obtained results for the adjacent similar but greater deposit Bakyrchik will allow promoting it to the category of global giant gold field.

Key words: Bolshevik; deposit; Kyzilovskaya ore zone; productive horizon; stocks; ore; gold.

P. 148. *Naymushina Olga S., El-Shinnawi Abdel Aziz.* Tomsk Division of Trofimuk Institute of Petroleum-Gas Geology and Geophysics, SB RAS (Tomsk, Russia); Tomsk Polytechnic University (Tomsk, Russia). **HYDROGEOLOGICAL CONDITIONS OF LOWER PART OF TOM RIVER BASIN.** Hydro-geological features of the lower part of the Tom River basin with the detailed description of the main water-bearing horizons and complexes, their capacity, structure, water conductivity, composition, etc. are considered. Special attention is given to conditions of recharge and discharge of groundwater. By the results of the carried-out analysis of the hydrodynamic mode of waters under natural conditions, prior to the beginning of operation of Tomsk and Seversk water intakes, and now, the main tendencies of its change under the influence of anthropogenic loads are revealed. The territory of research is located within the lower part of the Tom River basin at the joint of two large hydro-geological structures: West Siberian artesian basin and Kolyvan-Tomsky folded zone. By conditions of arrangement, circulation, recharge and discharge in the area the following water-bearing complexes are allocated: of Neogene-Quaternary deposits; of Paleogene deposits; of Upper-Cretaceous deposits; and fissured water-bearing zone of Paleozoic formation. The water-bearing complex of the Neogene-Quaternary deposits includes hydraulically interconnected water-bearing horizons of lake and marsh deposits, deposits of floodplains of the rivers; over-floodplains terraces, ancient hollows of drain and accumulative plains. The water-bearing complex of Paleogene deposits is the main source of the centralized water supply of Tomsk and partially of Seversk. The water-bearing complex of Upper-Cretaceous deposits is widespread within the characterized area, being absent only in the southeast part of the Ob-Tom interfluvium. Underground waters of fissured water-bearing zone of Paleozoic formation are widespread everywhere, appearing on day surface on the right bank of the Tom River and disappearing in the northern and northwest directions. The main role in recharge of groundwater of all water-bearing horizons and complexes is played by the infiltration of atmospheric precipitation with formation of a watershed of underground waters and the radial direction of their movement towards the main areas of discharge – the Ob and the Tom. The draining influence of Tomsk and Seversk water intakes during their functioning led to a decrease in the level of groundwater of the Neogene-Quaternary water-bearing complex with the shift of isolines towards the watershed and to the formation of a depression funnel. The structure of the filtration stream of the water-bearing horizons of the Paleogene complex is similar, but has smoother lines. The filtration stream radially dispersing under natural conditions (till 1973) was essentially broken by the work of Tomsk water intake. It was particularly evident at the sites adjoining the water intaking lines. Thus, long-term operation of Tomsk and Seversk water intakes led to a decrease in levels of groundwater of the Paleogene and the Neogene-Quaternary water-bearing complexes with formation of depression funnels having essentially changed the conditions of their recharge and discharge.

Key words: water-bearing horizons and complexes; recharge of groundwater.

P.153. *Podobina Vera M.* Tomsk State University (Tomsk, Russia). **DEPENDENCE OF REGIONAL STRATIGRAPHY ON TECTONIC MOVEMENTS (BY EXAMPLE OF UPPER CRETACEOUS AND PALEOGENE OF WESTERN SIBERIA).** Studies on Cretaceous and Paleogene foraminiferal zones of Western Siberia, their correlation with the zones of the adjacent regions (Kazakhstan, East-European Platform) resulted in establishing the omission of the most part of the Campanian, the Danian and the top of the Priabonian stages and some other strata. This phenomenon is supposed to result from tectonic movements of different directions and scopes. Movements of the significant range (these of the first order) are suggested to be responsible for submergence or emergence of almost the entire territory of Western Siberia. In declining tectonic movements and transgressive cycles, marine sedimentary rocks accumulated. The ascending tectonic movements of the first order activated uplifting of the territory of Western Siberia and disintegration of emergent rocks formed previously. A new sediment body derived from subsequent transgressions was superimposed on the washed-out surface of previous deposits. The omission of almost whole stages corresponds chiefly to periods of changes in the direction of transgressions (boreal transgression to southern and conversely). This resulted in the formation of non-evident stratigraphic non-conformities identifiable by correlations of foraminiferal zones with the coeval ones of adjacent regions. The tectonic movements of the second order are responsible for omissions of a part of strata from the section, and also to origination of straightens (the Yenisei, Mariinsk, and other straightens) in different times, which assured ways for foraminiferal fauna to migrate to adjacent areas and backwards. The activity of tectonic movements of the second order is assumed different in the western and eastern parts of Western Siberia. The border line between them is supposed to coincide with the location of the Koltogorsk-Urengoy Rift. The formation of different suites of the Ipatovskian Horizon exemplifies varied manifestations of the tectonic movements of the second order in this territory. In the unidirectional transgression, these tectonic movements seem to be responsible for the omission of single foraminiferal zones composing a small part of a stratum (e.g. the top of the Thanetian Stage). The Yenisei riverside strait seems to form in the late Cenomanian, when almost the whole territory of Western Siberia was a continent. This strait connected the northern boreal and south-eastern basins. This is evidenced by the finds of the identical late Cenomanian foraminiferal assemblages in these basins. The Mariinsk Strait was tracked by the finds of Santonian inherent southern foraminiferal species together with the agglutinated forms in the south-east Western Siberia. The constantly manifesting oscillating tectonic movements of the third order elicited deepening of the basin, as well as widening or some constricting of marine basins against the background of extensive transgressions.

Key words: stratigraphy; foraminiferal zones; tectonic movements; Western Siberia.

P. 157. *Savichev Oleg G., Paromov Vladimir V., Kopylova Yulia G., Khvashchevskaya Albina A., Guseva Natalia V.* Tomsk State University (Tomsk, Russia), Tomsk Polytechnic University (Tomsk, Russia). **ECOGEOCHEMICAL CONDITION OF SURFACE WATERS IN KATUN RIVER BASIN (GORNÝ ALTAI).** Research of the ecogeochemical condition of surface waters in the Katun River basin is made. The initial information was the data of long-term observation of the Russian Federal Hydrometeorology and Environmental Monitoring Service (posts at the Katun River in Tyungur and Srostki villages) and materials received by authors in 1997-2012. The objects of research were the Katun River from Small Yaloman village up to Verkhkatunskoye village, the Chuya, the Sema, the Ursul, the Chibit, the Belgumen, the Tyungur, and the Aktru Rivers, the Vodopadny, Left and Small Aktru glaciers and also ground waters of the Quaternary and the Cambrian sediments. The researches included: 1) field works on selection and preservation of samples of river and glacial waters for the further definition of their chemical composition in the accredited hydrogeochemical laboratory of Tomsk Polytechnic University (TPU), organic substances – in the Institute of Petroleum Chemistry SB RAS, definition in field conditions of concentration of quickly changing components; 2) generalization and statistical analysis of the received materials. The analysis of the received information has shown the following. First, the ecogeochemical condition of surface waters in the Katun River basin is characterized as satisfactory and formed mainly under the influence of natural factors. Second, the basic features of the mechanism of formation of the ecogeochemical condition of surface waters consist in the following: 1) in mountain-glacier areas there is a long-term accumulation of atmospheric precipitation such as snow and ice; 2) during the seasonal melting of glaciers and snow the river network receives a lot of fresh and ultrafresh water capable to dissolve a plenty of minerals and organic-mineral substances; thus, in the water environment the content of the biogenic and other substances promoting development of microflora grows, therefore, the concentration of organic substance and products of its transformation increases; 3) with longer time of interaction between the water and the minerals and organic-mineral substances the chemical composition of water is stabilized, poorly soluble substances are separated from the solution and microelements are sorbed on particles of river sediments and underground waters enter the river system; 4) as a result of rainfalls and abnormal snow cover formation there is an incidental additional deviation from hydrochemical composition. The influence of anthropogenic factors on the quality of superficial waters in the Katun River basin and in mountain-glacier areas is connected with the atmospheric transfer of substances of anthropogenic and nature-anthropogenic origin. Besides, local pollution of river and underground waters by organic and biogenic substances in villages is also possible.

Key words: ecogeochemical condition; the Katun River; glacial and river waters.

P. 162. *Filippov Vladimir V.* Lomonosov Moscow State University (Moscow, Russia). **EXPERIENCE OF COMPARATIVE MORPHOLITHOLOGICAL ANALYSIS OF HILL FORMS IN UPPER DNEIPER VALLEY.** One of the features of morphological structure of the Upper Dnieper valley along its sublatitudinal section from Dorogobuzh to Orsha is the series of specific hill forms, which have a big elevation above the valley bottom and are separated from the interfluvial surfaces of floodplain and first terrace levels. There are two hills in the centre of attention of this research – near village Korovniki and near village Katyn-Pokrovskoe, which are 100-km away one from the other (along the valley) and have surprising morphological resemblance. Firstly, this is resemblance of hill plan shapes (including elongation of both forms along the Dnieper valley) and elevations above the low stage of the Dnieper (about 30 m). Secondly, there are sudden turns of modern channel in these points, which is the evidence of important influence of hills on morphodynamics of the Dnieper. Thirdly, each of these hills is rounded by a modern stream bed from the one (right, if to look down the stream) side, and by a wide hollow, which has morphological indications of a big, but non-functioning at present paleochannel, from the other (left) side. The results of alluvial surfaces boring demonstrate a difference between the thickness of alluvium of modern floodplains and paleochannels rounding the hills: near v. Korovniki the floodplain alluvium is more than twice thicker than the paleochannel alluvium, and paleochannel alluvium is almost twice thicker than the floodplain alluvium thickness near v. Katyn-Pokrovskoe. At the same time the paleochannel near v. Korovniki and the floodplain near v. Katyn-Pokrovskoe are of socle type (alluvium is bottomed by moraine, whose top lies above the low stage of the Dnieper). Based on the results of morpholithological analysis we can conclude, that the "jump" of the Dnieper over the hill near v. Korovniki took place before the beginning of the Late Valdai (after which this paleochannel could only be an additional channel of melt water run-off from the Late Valdai glacier), and by the

hill near v. Katyn-Pokrovskoe that "jump" occurred in the Late Valdai period. Such "jumps" were most likely conditioned by features of redistribution of the river run-off in the Late Glacial period: multibranch channels of powerful run-off of melt glacial waters were formed in the river valley, and after the fall of water-level separate branches in these channels dried, overgrew and changed into segments of the floodplain and later – into terraces above the floodplain. Hills near v. Korovniki and near v. Katyn-Pokrovskoe formed by moraine covered by a rather thin (1-5 m) layer of sand, rounded extensively by modern channels and paleochannels and elongated along the river valley can be characterized as erosion cut-off hills separated from the surrounding interfluvial by river flows.

Key words: Dnieper; Late Pleistocene; paleochannel; cut-off hill.

P. 168. *Tsibulnikova Margarita R.* Tomsk Polytechnic University (Tomsk, Russia). **SPECIFIC FEATURES OF EVALUATION OF NATURAL CAPITAL OF TERRITORY AS INDICATOR OF SUSTAINABLE DEVELOPMENT.** Natural resources are of great importance for social and economic development of resource regions. Primary production makes a significant contribution to Gross Regional Product. The use of natural capital of the territory is the basis of primary production. The term "natural capital of the territory", which significantly expands opportunities of economic analysis of environmental management, is more and more frequently used in planning and evaluation of regional development. According to UN approach the value of natural resources (natural capital) is defined as capitalized annuity for the period of their full depletion. At the same time taking into account the fact that there are no clear guidelines for natural capital evaluation, experts use available information about world market prices or so called expert estimates, which are based on expert's subjective opinion. The results of appraisal of the same object obtained by different experts may differ significantly. This fact reduces the scope of application of this analysis technique for regional development appraisal as well as for intersectoral and interregional comparison. This paper gives comparative analysis of calculation of the value of oil reserves in Tomsk Oblast based on the internal and external market prices. Dynamics of the value of reserves, annuity, internal and external market price change is considered. It is suggested to include indicators representing the change of natural capital in the number of macroeconomic indicators of regional development. The necessity of continuous monitoring of these indicators as a part of indicators of regional development as well as the possible use of an index which represents the difference between the prices on regional and federal levels as an additional indicator of regional development sustainability is substantiated. Regional appraisals of natural capital of the territory, where production of fuel and power resources is a dominating sector is to be started with evaluation and comparison of annuity flows on regional and federal levels. The analysis performed made it possible to make a suggestion that it is necessary to transform institutional conditions in the sphere of use of subsurface resources on the basis of development of mechanisms of reinvestment of natural annuity into social and economic development of the region.

Key words: natural capital; oil price; natural rent; cost of stocks; reinvestment of natural rent; sustainable development.

BIOLOGY

P. 172. *Inisheva Lidia I., Berezina Natalia A.* Tomsk State Pedagogical University (Tomsk, Russia), Lomonosov Moscow State University (Moscow, Russia). **ORIGIN AND DEVELOPMENT OF MIRE FORMATION PROCESS IN WEST-SIBERIAN PLAIN.** The researches date the origin and development of mire formation in West-Siberian Plain back to the Holocene and, according to M.I. Neyshtadt, it is 10-12 thousand years old. The most ancient peatland on the territory of Western Siberia is 9900±100 years old. M.I. Neyshtadt traced the rate of mire formation process by example of the peat moss mire Bakcharskoe. According to this result the reduction of mire formation area is noted for the last 2000 years. It is connected with the spreading of most mires on the adjoining territory. Originally, Bakcharskoe mire was a system of small independent mires, which in the Holocene became a single mire with the area of about 2.3 thousand km². Such regularity is typical for the whole territory of West-Siberian plain. The peat gain for the entire period of the Holocene by the results of absolute dating of the lower and upper bounds of layers of peat deposits of the corresponding power is considered. The maximum size of linear speed of peat accumulation in the Holocene is established for mire systems of subtaiga (1.1 mm/year). In the southern, which belongs to the zone of excess moistening, the intensive peat accumulation is caused by more favorable climatic indicators and rather high biological efficiency of biogeocenoses of pine suffruticous-sphagnum type (raised bogs). In the southern taiga the exception is only low indicators of linear speed of peat accumulation (0.3-0.36 mm/year) in buried Holocene peat bogs in valleys of the rivers where there was a strong pressing of peat thickness. Comparison of results of activity of peat accumulation with the climate of Western Siberia in the Holocene is carried out. Natural evolution of mires is considered. Now mire formation process as a whole has slowed down. Processes of natural bogging are most active on the periphery of mire systems. As S.V. Vasilyev notes, during the modern period the minimum peat accumulation is observed in the North and maximum – in the south. In Western Siberia its speed can be higher – 0.9 mm/year.

Key words: West-Siberian plain; bogging; climatic factor; mire formation process.

P. 180. *Kryshchenko Vladimir S., Golozubov Oleg M., Sakhbiev Ilnaz A., Litvinov Yuri A.* South Federal University (Rostov-on-Don, Russia), Kazan Federal University (Kazan, Russia). **APPLICATION OF GIS TECHNOLOGIES FOR MONITORING LANDS OF ZAINSK STATE VARIETY TESTING AREA OF REPUBLIC OF TATARSTAN.** The object of the monitoring is Zainsky variety-testing area located in the East Zakamye of the Republic of Tatarstan. To study the application of GIS technologies for monitoring nutrients data were collected from 1977 to 1987. The base for creating a digital soil map of the study area is the method of forming digital soil maps developed by the Department of Soil and Land Evaluation of the Southern Federal University. The methodology is the use of free software and remote sensing data available from open sources. The method of step by step studying of the soil science information technology courses block is described. The work was conducted in the environment of GIMP, Google Earth, XML Notepad, Soil_Countur, MS Access, ArcMap, ArcReader programs. On the basis of the programs we carried out preliminary editing of images, georeferencing images on the area, creating a list of qualifiers, vectorizing data, entering attribute data, editing of files. We also estimated the constructed digital terrain models using the methods of interpolation and geostatistics. Thematic batteries content cartograms built without application of interpolation methods for monitoring indicators of soil fertility in general may not be suitable because they are the least informative and carry the discrete values of soil properties. At the same time, these cartograms have the property of the statics of feature of the elementary sampling site. Construction of approximating interpolation surfaces according to data of different years using geostatistical approach proved sufficiently clear changes in the content of nutrients for the ten-year period

of intensive agricultural use. Interpolation surfaces were constructed by the method of universal Kriging with the account of global trends. Given the global trends in the content of nutrient elements interpolation surfaces were constructed for each indicator of soil fertility. To analyze the effect of trends in the construction of interpolation models we compared models built with the presence of residual trends and models with remainders of trends. Most of the models with trends described the distribution of nutrients to the surface more correctly. In general, by 1987 the state of potash and phosphoric area worsened. By the content of easy hydrolyzable nitrogen the opposite is true: in 1977 its content was significantly higher compared to 1987. By pH values of the salt extract values are almost identical, in 1987 the reaction of arable soil horizons was weak acidic or close to neutral.

Key words: archival materials; GIS technology; interpolation of surface.

P. 184. *Mamin Rustem G., Shilova Lyubov A.* Research Institute under the Ministry of Education and Science of the Russian Federation and the Russian Academy of Sciences (Moscow, Russia), Moscow State University of Civil Engineering (Moscow, Russia). **ASPECTS OF INNOVATION STRATEGY FOR INDUSTRIAL WASTE MANAGEMENT.** From year to year Russia's territory is subjected to emission of wastes from different industries: energy, construction, transport, defense, agriculture and utilities. In addition, the environmental risks associated with environmental pollution, the causes of which are related to the natural resource, technology, urban development and other human activities are steadily increasing at present. Environmental risks constantly spring up in Russia because of irregularities in the operation of the main and infield pipelines, industrial restructuring, placing environmentally hazardous industries by foreign investors, worsening of the technological state of hydropower facilities, unauthorized waste disposal, etc. However, the main problem of environmental risk in Russia could become a possibility to locate foreign firms' hazardous industries and the introduction of environmentally dangerous technologies. The problem of collecting, recording, processing, recycling of household and industrial waste is the main objective for the protection of the environment in all republics and regions of our country. The analysis of experience of modern research in the area of waste utilization and treatment has shown the expedience of waste processing and in some cases development of new mechanisms of industrial waste management, including the sphere of insurance connected with scientific and technological progress and innovation, with investments to energy, metallurgy, chemical industry, and to areas of activity that could be potentially dangerous for natural resources and the environment (transport, pipelines, construction, landfills and facilities for processing and storage of production and consumption waste). In the thesis, the scientists from Moscow State University of Civil Engineering carry out implementation of innovation methods of waste management for nature management logs either in Russia or in other countries. The authors believe that such research is very promising and can positively influence the waste management strategy both at the national and the regional levels.

Key words: external debt; national policy; Sustainable Development Concept; wastes; environmental risks; ecological conversion.

P. 188. *Shvabenland Irina S. N.F. Katanov* Khakass State University (Abakan, Russia). **GEOBOTANICAL DESCRIPTION OF SOILS OF TECHNOGENIC LANDSCAPES OF EAST BEISK COAL DEPOSIT.** There are cases of adverse environmental and economic effects after the formation of soils of technogenic landscapes. In this context the study of processes occurring in the soil of technogenic landscapes in the course of all the cycles of their creation and development, as well as their geobotanical description is a very important technologically and ecologically justified task. In Khakassia there are four fields of Minusinsk coalfield (Beisk, Chernogorsk, Izykh, Askiz) with 5.3 billion tons of coal in it, of which 3.6 billion tons are suitable for open-pit mining. In this regard, the development of the national program of integrated development of coal resources, as well as exploring the issues of production, coal processing and the impact of coal mining on the environment, is topical. Coal enterprise Vostochno-Beisky Strip-Mine, LLC extracts coal at Beisk field of Minusinsk coalfield. In the process of work the method of random samples and route method were used to carry out geobotanical researches of soil of technogenic landscapes. Chemical characteristics of soils of technogenic landscapes was carried out according to generally accepted methods. In the course of geobotanical survey, it was found that close to the source of pollution (50-150 m) synanthropic plants grow (green amaranth), farther from the source typical representatives of the herb-grass meadow steppe (couch grass, white sweet clover) dominate. The species composition at all sites has no significant differences. The dominant species within 50 m from the pollution source are green amaranth and creeping thistle, within 150 m – silky wormwood and Siberian snow grass; within 300 m – woods draba, within 500 m sweet clover grows at all sites except the South-West, South-East and East directions. In all areas of study, the mean total density of coverage at sites within 50 m of sanitary protection zone ranges from 40 to 50%, within 150 m – from 45 to 60%, within 300 m – from 55 to 75%, within 500 m – from 60 to 90%. The minimum 40% value of the total projective cover is within 50 m to the north and north-east, and the maximum 90% - within 500 m to the north. North-eastern and southern areas have relatively low rates of projective cover. The highest values of total projective cover was observed at the sites of the northern direction. Abundance of species in all directions uniformly increases depending on the remoteness of the source of pollution. The vital condition of plants at sites in 50-150 m from the sanitary protection zone in all directions is depressed, characterized by uncharacteristic low height, darkening, yellowing of the leaf blades, in 300-500 m plants have a healthier look. Disposal areas of overburden are most favorable for the formation of vegetation. They consist of clays mixed with soil and have optimum hydration. Disposal areas are characterized by uniform pH, for overburden close to 6-7, for substrate of percarbonic layers close to 3-4.

Key words: recultivation; man-caused landscapes; geobotanical description; technology of cultivation; dumps of overburden.

CHEMISTRY

P. 194. *Babkina Olga V., Novikov Victor T., Knyazev Alexey S., Alekseenko Kira V.* Tomsk State University (Tomsk, Russia). **METHOD OF PRODUCING GLYCOLIDE FROM GLYCOLIC ACID WITH HIGH CONVERSION.** Glycolide is an ester with limited applications due to its high hydrophilic properties. Nevertheless, these properties allow using glycolide as a basis to produce biodegradable polymers and products for medical purposes. To produce glycolide (1,4-dioxane-2,5-dione) synthesis from glycolic acid was chosen. The method contains polycondensation of glycolic acid, production of oligomer and its depolymerization. The developed method of glycolide production comprises the oligomerization and depolymerization stages with heating in vacuum. A 64-65% glycolic acid produced from 40% glyoxal (*Newchem Ltd.* (Tomsk, Russia)) was used for synthesis. Polycondensation of glycolic acid comprises water removal from glycolic acid in rotary film evaporator. Initially glycolic acid is put into rotary film evaporator. Then water removal is carried out at 120°C and atmospheric pressure. It was stated that to receive high yields of glycolide (~90%) it is necessary to perform

water removal procedure for 3-4 hours gradually creating the vacuum to up to 300 Mmgh and increasing the temperature of the solution up to 140-150°C. When 225-230 ml of distillate is received, the vacuum relief is carried out. 0.3-0.5%mass. of ZnO catalyst is added into the condensed glycolic acid. Then the mixture is supplied into the rotary evaporator. Vacuum is increased, the temperature is raised up to 175-185°C. Water removal is carried out for 4-6 hours. Then the heating of rotary evaporator is stopped, vacuum relief takes place and nitrogen supply is shut off. The reaction mass of oligomer is poured to the enamel capacity, the condensate of volatile compounds is poured to holding capacity. Oligoglycolic acid is formed as an intermediate product in pure glycolide synthesis. The cooled mass of oligomer is weighted, then 0.5-1.5%mass of Sb_2O_3 catalyst is added and the mixture is ground in mortar. The resulting mixture is loaded into the vacuum distillation unit. The nitrogen purging, heating of electromagnetic stirrer up to 270-280 °C as well as 10-15 Mmgh vacuum are used. The mixing of reaction mass is carried out by bubbling with dried nitrogen. Glycolic acid is removed in the form of transparent or yellowish oil in one hour after the start of the synthesis. The run-down drum was cooled with ice. The process is carried out until the releasing of crude glycolide is completed. The resulted product was crystallized in receiving flask. Depending on the quality of initial glycolic acid the crude glycolide with melting temperature of 70-75 °C was produced. The yield was ~90%. The purification of the received crude glycolide from oligomers, glycolic acid and other impurities was carried out using triple recrystallization from ethyl acetate. The drying of the product was carried out in vacuum drying box under nitrogen blanket at 45-50 °C. White crystals of glycolide with melting temperature of 95 °C were received. The further storage of glycolide is performed in airless and water- and vaporless atmosphere. It was shown that the resulting glycolide can be used to produce highly molecular polyglycolide (with molecular mass of more than 100,000), having wide application, as well as manufacture various copolymers, in particular, polyglycolide-lactide copolymer used to produce biodegradable sutures.

Key words: glycolide; biodegradable polymers; method of synthesis.

P. 197. *Batalova Valentina N., Skvortsova Lidia N., Naumova Lyudmila B., Mateiko Inessa O.* Tomsk State University (Tomsk, Russia).

STUDY OF POSSIBILITY TO PRODUCE HYDROGEN IN PROCESS OF PHOTOCATALYTIC DEGRADATION OF ORGANIC WATER POLLUTANTS USING FE-CONTAINING COMPOSITES. The photocatalytic decomposition of water for hydrogen production is considered as one of the most important approaches to solving the world's energy crisis. Given the economic and environmental factors, water pollutants or components belonging to the waste water of various industries are preferable as "consumable" organic reagents. Organic compounds act as electron donors, they are gradually oxidized to CO_2 , absorbing the photogenerated holes and/or oxygen thus increasing the rate of hydrogen production. Iron-containing 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, Fenton-Raff, ferrioxalic system, etc.) by combining heterogeneous and homogeneous catalyses. Thus, Fe-containing composition of silicon nitride and boron nitride, and iron-modified peat and zeolites we previously studied showed high catalytic activity in the processes of degradation of some organic pollutants: oxalic acid, formaldehyde and phenol compounds – just as sources of iron for the combined catalysis. In the present study, we investigated Fe-containing composites for simultaneous photochemical generation of hydrogen. The objectives of the study were: selection of reagents most promising for the generation of hydrogen and estimation of hydrogen production rate by gas chromatography depending on the concentration of pollutants, weight of the catalyst, the phase composition of the catalyst, its surface area. H_2 -production rates (mL/h) and the performance of the investigated composites for hydrogen evolution (mkmol/h·g) under UV irradiation of aqueous solutions of formic and oxalic acids, hydrazine, phenolic compounds were estimated. It is shown that there is principal possibility of using natural sorbents: peat and zeolites modified with iron for hydrogen production, however, the efficiency of this process is not high and requires further optimization. In the case of synthetic boron nitride and silicon nitride with the phase of iron hydrogen evolution is more efficient. The optimal conditions (mass of sample composites, concentration of organic chemicals and auxiliary chemicals – hydrogen peroxide or sodium ethylenediaminetetraacetate) were estimated. It has been found that production of hydrogen is the most effective in the aqueous solutions of formic acid and hydrazine with boron nitride.

Key words: photocatalysis; degradation of pollutants; hydrogen production; silicon nitride; boron nitride; peat; zeolites.