

CONTENTS

MEDICAL SCIENCE

<i>Yu. P. Stepankov, A. I. Kondratyev, N. V. Govorova.</i> Historical contribution of Department of emergency and first aid Omsk medical academy in improving pre-hospital phase medical care	5
<i>N. V. Govorova, V. N. Lukach, Yu. P. Orlov, G. A. Baytugayeva, A. V. Klementyev.</i> The problems and perspectives of specialist training in anesthesiology and resuscitation in the Omsk Region	8
<i>E. N. Kakulay, V. N. Lukach, A. O. Girsh, S. S. Stepanov.</i> Parameters associated with development of syndrome of aortocaval compression having latent current in women at operative delivery	11
<i>L. V. Ovsyannikova, D. V. Petrov.</i> Bronchial asthma in the Omsk region: dynamics of incidence and prevalence	18
<i>D. V. Petrov, N. V. Ovsyannikov, A. Yu. Kononenko, N. G. Pyannikova.</i> Idiopathic lung fibrosis: new therapy horizons	21
<i>M. M. Stukanov, T. N. Yudakova, S. V. Macsimishin.</i> The sequence of formation and structure of organ and system dysfunctions in patients with hemorrhagic and traumatic shock	26
<i>D. N. Uvarov, E. E. Antipin.</i> The efficacy and safety of prolonged infusions of local anaesthetics in operating the wound after hysterectomy	33
<i>T. N. Yudakova, A. V. Schetina, A. O. Girsh.</i> The influence of various options of nutritive support applied in complex therapy in patients with acute respiratory distress syndrome on clinical outcomes	37
<i>E. A. Varnavskikh, V. A. Lyapin, F. U. Kozyreva.</i> Forms of summer holiday and improvement of children and teenagers (review of literature)	41
<i>N. A. Zakorkina.</i> The influence of seasonal factors in the causes of death of teenagers (15–17 years) living in the territory of Omsk region	46
<i>N. A. Zakorkina, I. A. Banyushevich.</i> Economic losses associated with disability and mortality of adolescents (15–17 years) living in the Omsk region	49
<i>M. S. Korzhuk, K. K. Kozlov, S. V. Chernenko, T. N. Yudakova, A. R. Khasanov.</i> The main provisions of Damage Control treatment in polytrauma	53
<i>N. V. Terskova, V. V. Kozlov, S. G. Vakhrushev.</i> The example of methodology of scientific justification of predictive approach at chronic adenoiditis in children	57
<i>A. P. Denisov, O. A. Kun, O. A. Denisova, E. D. Filippova.</i> Medico-social characteristics of mothers of abandoned children	62
<i>O. A. Denisova, M. A. Livzan, A. P. Denisov.</i> Screening diagnosis of gastroesophageal reflux disease in elderly patients	65
<i>F. P. Kapsargin, A. V. Ershov, L. F. Zuyeva, M. P. Myltygashev, A. G. Berezhnoy.</i> Application of neural networks in choice of a method of treatment of an urolithiasis	68
<i>N. N. Kuznetsova, M. V. Shamin, V. Ya. Farbirovich, L. V. Osadchuk, I. N. Titarenko.</i> Examination of reproductive potential of Kuzbass young men and role of chronic inflammation in reproductive tract as factor of ejaculate's fertility decrease	71
<i>A. Yu. Tsukanov, E. G. Levdanskiy.</i> Disorders of genitourinary system in secondary varicose pelvic veins that developed after iliac vein thrombosis	74
<i>A. A. Yarkov.</i> Patients with primary somatic pathology and symptomatic mental disorders in practice of medico-social examination: the study of contingent and the analysis of the mental dysfunctions impact on establishment of disability in such persons	78

AGRICULTURAL SCIENCE

<i>M. G. Evdokimov, B. M. Tatina, V. S. Yusov.</i> Dependency of grains maturity in durum spring wheat on meteorofactors	83
<i>Yu. I. Ermokhin, O. V. Ilyushkina, V. N. Ilichev.</i> The value of accumulation of available soil nitrogen dynamics under plants galega and its practical use	88
<i>Yu. I. Ermokhin, O. V. Ilyushkina, V. N. Ilichev.</i> Diagnosis of mineral nutrition, fertilizer efficiency based on field experience of galega with fertilizers on gray forest soil of non-chernozem zone in the Omsk region	91
<i>Yu. I. Ermokhin, O. D. Shoykin.</i> On soil fertility and application of mineral fertilizers in the Omsk region	93
<i>A. F. Stepanov, N. R. Kinshakova, S. P. Chibis.</i> About term of sowing Astragalus galegiformis at cultivation seeds in conditions of Western Siberia	97
<i>L. V. Azarova.</i> The development of industry in Western Siberia during the 30 's early 40 's of the 20th century	101
<i>E. V. Demchuk, A. S. Soyunov, V. V. Myalo, P. V. Chupin.</i> Studies of uniform distribution of seeds of crops by combined opener	105
<i>A. V. Krasovskaya, A. F. Stepanov.</i> Effect of sowing and meteorological factors on yield and quality of soybean in subtaiga of Western Siberia	111
<i>S. K. Makenova.</i> Analysis of socio-economic factors of effective land use of Okoneshnikovo district of Omsk region	115
<i>E. V. Nekrasova, N. A. Rezanov, N. A. Rendov, D. V. Purtov.</i> Systems of herbicides in a grain-steam crop rotation for the southern forest-steppe of the Omsk region	120
<i>N. N. Tischenko.</i> Effect of zinc and copper on the yield of yarrow (<i>Achillea millefolium</i> L.) on meadow chernozem soil conditions of southern forest-steppe of Western Siberia	123
<i>O. F. Khamova, N. N. Shuliko, E. V. Tukmacheva.</i> Total microorganism number in the soil of barley rhizosphere on long-term application of mineral fertilizers, straw and seed inoculation by associative diazotrophs	127
<i>A. P. Shevchenko, A. V. Evchenko, T. M. Veremey.</i> The influence of tillage and planting on the growth and development of plants galega	131
<i>K. M. Aytchanova, A. A. Sarsenova.</i> The efficiency of application of reclamative preparations, fly ash and technical carbon on usual black earth of forest-steppe zone of Western Siberia	134
<i>A. V. Klapotovskaya, V. G. Syzan.</i> Yield and product quality varieties of shallot in southern forest-steppe of Omsk region	136
<i>N. P. Kozlenko, N. A. Popolzukhina, P. V. Popolzukhin.</i> Agroecological substantiation of cultivation of spring wheat	138
<i>E. P. Boldysheva, I. A. Bobrenko, N. V. Goman.</i> The efficiency of processing of seeds copper, zinc and manganese at cultivation of a winter rye on meadow-chernozem soil in the conditions of Western Siberia	142
<i>O. S. Epanchintseva, T. S. Dudoladova, Yu. M. Gichev.</i> The gistomorfology of cows' vagina and cytology of vaginal mucus with ovarian hypofunction	145
<i>D. B. Avdeev.</i> Intra barreled tectonics of right and left wandering nerve in field of heart basis in poultry of chicken group	149
<i>V. V. Grechko, D. B. Avdeev, G. A. Khonin.</i> Features of histologic structure the suprailiac-trochanteric muscles of hens of cross-country «Rhodonite 2» in post-natal ontogenesis	151
<i>V. V. Grechko, E. N. Kulnich, D. B. Avdeev, D. K. Ovchinnikov.</i> Morphology of growth and development of endomiziya of diameter of muscle fibers of a suprailiac -tibial muscle of hens of cross «Rhodonite 2» in post-natal ontogenesis	154

BIOLOGICAL SCIENCE

<i>A. A. Kislyi, A. A. Odintseva, O. A. Odintsev.</i> Small mammals of Tobolsk area	157
<i>T. A. Bespalova, O. A. Pristupa.</i> Histological and ultrastructural characteristics of pathological process in the central nervous system of animals with automutilatia	161
<i>V. V. Korniyakova, V. D. Convay.</i> Violation of purine metabolism in athletes experiencing intense exercise and its correction	165
<i>O. A. Odintsev, A. A. Odintseva, M. V. Timkina.</i> Biotopical features of population and nutrition spectre of South West Siberian taigas salientias (based on the Tyumen region)	168
<i>E. V. Remneva, D. S. Morozova, Zh. P. Korotysh.</i> Sexual dimorphism of dermatoglyphic markers related to Eysenk's personality traits	171
<i>E. A. Kiselev.</i> The frequency of occurrence of pelvic paraplegia breed of dogs	175
<i>I. V. Krainov.</i> Trophic characterization supraspecific association of bumble bees in Omsk region forest-steppe	178
<i>S. S. Nurmagonbetova, G. N. Sidorov, D. G. Sidorova, I. V. Deriglazov, A. V. Putin, A. V. Vakhrushev.</i> Features of reproduction of field mice in Omsk Irtysh region in the second half of the XX – XXI centuries	182

A. N. Fedin. Seasonal dynamics of carbon dioxide emission in forest parcels Western Siberia	187
M. R. Shayakhmetov, O. D. Shoykin, E. Yu. Fedyaeva. Study of features decoding of soil steppe zone of Western Siberia on the basis of remote sensing	191
O. P. Bazhenova, Yu. S. Chunikhovskaya. Species composition and ecological and geographical characteristics of green algae (Chlorophyta) from the plankton of lakes of the forest zone of Omsk region	194
I. A. Bobrenko, E. Yu. Pavlova. The problem of improving environmental safety in treatment of drilling wastes on the territory of Western Siberia	198
L. O. Shtripling, V. V. Bazhenov, Yu. V. Kalinin, E. A. Maltseva. Analytical method for calculation of surface layer atmosphere pollution emissions by industrial enterprises	202
E. V. Donets. Effect of oil soil pollution under the South Western part of Krapivinskoye oil field on germination of coniferous tree species	206
E. V. Donets, A. I. Grigoryev. Special features of growth of horseradish (<i>Armoracia rusticana</i> g.Gaertn) in the ash substratum and oil polluted soil under conditions of vegetal experience	210
B. Yu. Kassal. Formation of population boar <i>sus scrofa</i> in Middle-Irtysh region	213
Z. A. Tusupbekov, N. L. Ryapolova, V. S. Nadochiy. The influence of anthropogenous factors on the formation of drain off the lakes located in the territory of Western Siberia, on the example of the lake Ebeyty	218
S. B. Chachina, S. V. Boltunova, N. V. Cherkashina. Degradation of petroleum hydrocarbons using microbial preparations «Baikal-Em», «Tamir», «East»	221
S. B. Chachina, G. S. Ponochevnaya, N. V. Cherkashina. Dynamics of population characteristics of three species of earthworms <i>Eisenia foetida</i> , <i>Eisenia andrei</i> , <i>Dendrobena veneta</i> in terms of soil contamination by used oils	226
Yu. Yu. Goloschapova, B. Yu. Kassal. Environmental consequences of forest fires in the Omsk region	232
I. V. Krainov, B. Yu. Kassal. Supra-species of the association of bumble bees (Hymenoptera: Apidae, Bombini) forest-steppe priirtyshie	237
S. B. Lovinetskaya, V. G. Ereemeva, A. V. Sindireva. Estimated oil content and remediation of soils roadside areas of the city of Omsk and Omsk region	241
E. A. Maltseva. Legislative barriers in the organization of the administrative procedure of normalization of air quality	245
S. V. Syksin, S. B. Chachina. Infusion of herbs <i>Orthilia secunda</i> as a source of biologically active substances in the food industry	248
Yu. S. Chunikhovskaya, O. P. Bazhenova. Division Chlorophyta algae from plankton of different types of lakes steppe zone of Omsk Region	252

SUMMARY

MEDICAL SCIENCE

Yu. P. Stepankov, A. I. Kondratyev, N. V. Govorova
Historical contribution of Department of emergency and first aid Omsk medical academy in improving pre-hospital phase medical care

The article analyzes the contribution of corresponding department of the Omsk state medical academy in the development of municipal emergency medical services, characterized by achievements in preparation of an ambulance doctor and ways of its improvement.

Keywords: chair, emergency medical care, training of physicians.

N. V. Govorova, V. N. Lukach, Yu. P. Orlov, G. A. Baytugayeva, A. V. Klementyev
The problems and perspectives of specialist training in anesthesiology and resuscitation in the Omsk Region

The department of anesthesiology and resuscitation provide two-year residency for specialist training, one-year clinical internship and retraining courses on anesthesiology and resuscitation. The training of interns and residents is carried out according to the individual plan and program is based on the federal government standards for postgraduate studies approved by the Health Care Ministry of Russia (Acts № 1476n and 1475n). The training program comprises theoretical studies and practice. The overall training course for residents is 1512 academic hours long, and for interns is 720 hours. The analysis of many years of experience in training of anesthetists and resuscitators shows the importance of the «human factor», the role of which is not less important than the organization of the educational process. This factor stimulates trainees' motivation to acquire new professional skills and use them in their practice, and increases trainers' interest in teaching. The number of places in the residency and internship allocated by the Ministry of Education and Science is not enough to compensate for the shortage of personnel. Should the working load of the teaching staff comply with the requirements of the training program for residents and interns.

Keywords: anesthesiology and resuscitation, postgraduate studies.

E. N. Kakulay, V. N. Lukach, A. O. Girsh, S. S. Stepanov
Parameters associated with development of syndrome of aortocaval compression having latent current in women at operative delivery

Objective of this research intraoperative identification of the parameters associated with a syndrome of aortocaval compression in patients with the forthcoming operative delivery. It is revealed that after carrying out spinal anesthesia, against infusional therapy, patients have an arterial hypotension, more, caused by decrease in shock volume of heart. It is established that, decrease in shock volume of heart and increase in heart rate, against carrying out infusional therapy, after carrying out spinal anesthesia testify to

emergence of the syndrome of aortocaval compression having a latent current in the preoperative period and which isn't shown clinically.

Keywords: syndrome of aortocaval compression.

L. V. Ovsyannikova, D. V. Petrov
Bronchial asthma in the Omsk region: dynamics of incidence and prevalence

The article presents data on the incidence and prevalence of asthma in the city of Omsk. There is marked the highest total and fixed rates of asthma in the population of the Omsk region in the Russian Federation.

Keywords: asthma, incidence, prevalence.

D. V. Petrov, N. V. Ovsyannikov, A. Yu. Kononenko, N. G. Pyannikova
Idiopathic lung fibrosis: new therapy horizons

The article describes the history of the doctrine of idiopathic pulmonary fibrosis, clinical, diagnostic methods based on international guidelines, traditional and innovative methods of treatment.

Keywords: idiopathic pulmonary fibrosis, interstitial lung disease, interstitial pneumonia, nintedanib, pirfenidone.

M. M. Stukanov, T. N. Yudakova, S. V. Macsimishin
The sequence of formation and structure of organ and system dysfunctions in patients with hemorrhagic and traumatic shock

Research objective is identification of sequence of formation and structure of organ and system dysfunctions in patients with hemorrhagic and traumatic shock. It is established that emergence of a syndrome of polyorgan insufficiency in patients with hemorrhagic and traumatic shock has the unidirectional and similar character. It is revealed that the leading pathogenetic factor of dysfunction of cardiovascular system is gipovolemiya which has absolute and relative character.

Keywords: polyorgan insufficiency, shock.

D. N. Uvarov, E. E. Antipin
The efficacy and safety of prolonged infusions of local anaesthetics in operating the wound after hysterectomy

We enrolled 30 patients after open hysterectomy in a prospective, randomized study. The efficacy and safety of wound infusion of ropivacaine with systemic analgesia in comparison with only systemic analgesia were assessed. Wound infusion of ropivacaine reduces the pain intensity and the consumption of opioids and declines the incidence of the adverse effects, therefore improving the quality of analgesia and postoperative comfort of patient.

Keywords: postoperative pain, wound infusion of local anesthetic, the wound analgesia, multimodal analgesia.

T. N. Yudakova, A. V. Schetina, A. O. Girsh
The influence of various options of nutritive support applied in complex therapy in patients with acute respiratory distress syndrome on clinical outcomes

Research objective is the assessment of influence of various options of nutritive support in patients with acute respiratory distress syndrome on clinical outcomes. It is revealed that the use in comprehensive program of treatment of patients with acute respiratory distress syndrome various the mixed option of nutritive support promotes faster transfer of patients to less aggressive modes of ventilation and spontaneous breath, and also reduction in days in the intensive care unit and intensive therapy.

Keywords: nutritive support, acute respiratory distress syndrome.

E. A. Varnavskikh, V. A. Lyapin, F. U. Kozyreva
Forms of summer holiday and improvement of children and teenagers (review of literature)

The review of references about the existing traditional and alternative forms of summer holiday is presented in article. Examples of camps in territorial subjects of the Russian Federation are given, opinions of authors by efficiency of use of certain forms of rest of children and teenagers are specified.

Keywords: summer holiday, forms of organized rest, children and teenagers.

N. A. Zakorkina
The influence of seasonal factors in the causes of death of teenagers (15–17 years) living in the territory of Omsk region

The article discusses the leading causes of mortality among adolescents, special emphasis is placed on seasonal factors affecting the level of violent deaths.

Keywords: adolescents 15–17 years, seasonal factors, the rate of violent death.

N. A. Zakorkina, I. A. Banyushevich
Economic losses associated with disability and mortality of adolescents (15–17 years) living in the Omsk region

In the article the medico-social values economic losses related to disability and mortality, adolescent population (15–17 years) of Omsk Oblast.

Keywords: economic loss, mortality, disability, youth 15–17 years.

M. S. Korzhuk, K. K. Kozlov, S. V. Chernenko, T. N. Yudakova, A. R. Khasanov
The main provisions of Damage Control treatment in polytrauma

The early death of injured patients often due to metabolic and physiological disorders caused in turn severe injuries and massive blood loss. Research and observations conducted by a number of foreign authors demonstrate the necessity for a multidisciplinary staged treatment for patients with polytrauma. Damage Control is successfully used to treat patients with the chest and abdominal trauma, injuries of musculoskeletal and cardiovascular systems. Timely identification of predictors of early death is also important for starting a necessary intensive care in Damage Control treatment.

Keywords: polytrauma, Damage Control, lethal triad.

N. V. Terskova, V. V. Kozlov, S. G. Vakhrushev
The example of methodology of scientific justification of predictive approach at chronic adenoiditis in children

The methodology of scientific justification provides for the implementation of multifactorial statistical analysis. In this regard, we demonstrate the possibility and describe the parameters that are involved in the procedures that implement the specified method on the example of the scientific basis for predictive approach in 388 children with chronic adenoiditis.

Keywords: the chronic adenoiditis, the logistic regression, a clinical predictor.

A. P. Denisov, O. A. Kun, O. A. Denisova, E. D. Filippova
Medico-social characteristics of mothers of abandoned children

In order to identify medical and social causes of child abandonment is conducted a comprehensive study of the reproductive behaviour of women from different types of families. To achieve this goal, data used copies of the medical records of maternity hospitals of the city of Omsk, as well as the results of an anonymous

survey of mothers of abandoned children on a specially designed questionnaire. It is established that the main causes of child abandonment were material and housing problems, his birth outside of marriage, health status and upcoming challenges of parenting.

Keywords: mother of abandoned children, the rejection of motherhood, family relationships, unwanted children.

O. A. Denisova, M. A. Livzan, A. P. Denisov
Screening diagnosis of gastroesophageal reflux disease in elderly patients

In research the estimation of informing of application of alginate test was conducted in a diagnostician GERB for elderly patients. It was exposed statistically meaningful intercommunication between the result of test and kliniko-instrumental signs of GERB. By virtue of it an alginate test can be recommended as a screening method of early diagnostics for the elderly patients of GERB.

Keywords: gastroesophageal reflux disease, elderly patients, alginate test, diagnostics.

F. P. Kapsargin, A. V. Ershov, L. F. Zuyeva, M. P. Myltygashev, A. G. Berezhnoy
Application of neural networks in choice of a method of treatment of an urolithiasis

The neural network method of a choice of tactics of treatment at an urolithiasis is suggested. Tutoring of a simulated triplex neural network of direct distribution happened according to 510 case histories and the many-dimensional vector which is characterized by 28 input data. Tutoring of a neural network consists in search of regularity of a set of parameters, a path of comparison with reference results. Testing of expert system is held on 22 examples. The neural network defines all the offered examples correctly. The expert system classifying treatment methods of with degree of confidence in 91 % is developed.

Keywords: urology, urolithiasis, nephrolithiasis, simulated neuron networks, discernment of diseases, the neural network qualifier, prediction in urology.

N. N. Kuznetsova, M. V. Shamin, V. Ya. Farbirovich, L. V. Osadchuk, I. N. Titarenko
Examination of reproductive potential of Kuzbass young men and role of chronic inflammation in reproductive tract as factor of ejaculate's fertility decrease

In the given research reproductive health of 112 young men from Kemerovo region is examined. The objective is to reveal the role of the chronic inflammation of the sexual glands in fertility reduction. It is known that infective and inflammatory factor makes up from 20 to 60 % in male sterility. The results proved that diagnostics and treatment of the chronic diseases of the urogenital system can be considered as a possible way to increase the fertility of ejaculate.

Keywords: demography, male sterility, reproductive health, prostatitis.

A. Yu. Tsukanov, E. G. Levdanskiy
Disorders of genitourinary system in secondary varicose pelvic veins that developed after iliac vein thrombosis

The purpose of research is the study of the features of disorders of genitourinary organs in patients with secondary varicose pelvic veins.

Material and methods. Total of 70 patients are examined. Diagnostic equipment consisted of clinical examination, duplex scanning of the veins. Evaluation is made on a scale of urination IPSS. Erectile function is assessed by questionnaire IIEF-5.

The Results. Urination disorders of varying severity are at 100,0 % (n = 48) patients of the main group. It is found that 76,7 % (n = 23) Men with secondary VVMT found a violation of erectile function.

Conclusions. Secondary varicose pelvic veins, formed after suffering a thrombosis of the iliac veins can cause disorders of the genitourinary system, both men and women.

Keywords: secondary varicose pelvic veins, impaired urination.

A. A. Yarkov
Patients with primary somatic pathology and symptomatic mental disorders in practice of medico-social examination: the study of contingent and the analysis of the mental dysfunctions impact on establishment of disability in such persons

Symptomatic violations of mental functions in patients with primary somatic diseases is frequently observed phenomenon in clinical and expert practice. There are studied the features of the contingent of such people, inspected in MSE offices of

overall profile in 2014. There are studied the patterns of disability assessments in this type of patients.

Keywords: medico-social examination, disability, symptomatic mental disorders.

AGRICULTURAL SCIENCE

**M. G. Evdokimov, B. M. Tatina,
V. S. Yusov**

Dependency of grains maturity in durum spring wheat on meteorofactors

The article presents the results of study of 9 varieties of spring durum wheat for grains maturity. The field experiments were done in 2010–2012 years. Intensity grains maturity, accumulation dry substance depends very much on meteorological condition, biological particularity of varieties, sowing date.

Keywords: development, maturity, phase pre milky-ripe, milky-ripe, doughy-ripe, waxy-ripe.

**Yu. I. Ermokhin, O. V. Ilyushkina,
V. N. Ilichev**

The value of accumulation of available soil nitrogen dynamics under plants galega and its practical use

The article describes the material on the dynamics of accumulation of soil available nitrogen for plant galega cultivated on gray forest soil, taking into account the action of natural factors that contributed to the enrichment of the upper horizon of the soil with nitrogen and biology culture. The method of calculating the accumulation of soil of available nitrogen by plants during growth and development is presented. The formula for calculating the accumulation of soil available nitrogen for the plant is obtained.

Keywords: nitrogen, galega, nitrogen balance, the mobilization of nitrogen.

**Yu. I. Ermokhin, O. V. Ilyushkina,
V. N. Ilichev**

Diagnosis of mineral nutrition, fertilizer efficiency based on field experience of galega with fertilizers on gray forest soil of non-chernozem zone in the Omsk region

This article is presented for determination of the effectiveness of the use of mineral fertilizers and their combination on galega. The studies proposes formula for determining the approximate dose of fertilizer application under galega allow target specific dose to view the content available elements in the soil.

Keywords: galega, optimal dose, fertilizers, batteries, productivity, return on investment.

Yu. I. Ermokhin, O. D. Shoykin

On soil fertility and application of mineral fertilizers in the Omsk region

This article deals with the summary of information about the soil fertility in the Omsk region and a deficiency of the plants nutrients. The authors explicate necessity of the use of mineral and organic fertilizers for agricultural crops.

Keywords: fertilizers, long-term studies, the yield, nitrogen, phosphorus, potassium.

**A. F. Stepanov, N. R. Kinshakova,
S. P. Chibis**

About term of sowing Astragalus galegiformis at cultivation seeds in conditions of Western Siberia

The article presents facts on the study of nine terms of sowing Astragalus galegiformis in Western Siberia. The best conditions for the formation of herbage and maximize the yield of seeds are for sowing culture of early spring with the May 5–15. The yield of seeds is reduced from early to late terms of sowing.

Keywords: Astragalus galegiformis, period of sowing, the length of the inflorescentia, herbage, yield of seeds.

L. V. Azarova

The development of industry in Western Siberia during the 30 's early 40 's of the 20th century

In the article on the basis of specific documentary sources and archives, statistics analyzes the development of industry in Western Siberia. It identifies the main factors influencing the development of it industries. It compares the main economic indicators of the development of the industrial structure of the industry. The result of the study is to determine changes in the sectoral structure of industry and geography that is the subject

of the study of economic and social geography of the region in geographical and non-geographical specialties.

Keywords: Western Siberia, hosting, industry factors, industry.

**E. V. Demchuk, A. S. Soyunov,
V. V. Myalo, P. V. Chupin**

Studies of uniform distribution of seeds of crops by combined opener

In joint seed crops with fertilizers there is the risk of salt effect and the toxic effects of fertilizers (chemical burn). To eliminate this risk it offers combined opener with separate fertilizer deeper seeding. Investigations of the uniform distribution of cereal seeds for sowing coulters combined with the modeling process, the distribution of seeds to a feeding area. There is installed rational design parameters combined opener.

Keywords: combined opener, multilevel seeding uniformity of seed.

A. V. Krasovskaya, A. F. Stepanov

Effect of sowing and meteorological factors on yield and quality of soybean in subtaiga of Western Siberia

Experiments on the effect of sowing date and meteorological factors on yield and quality of soybean conducted in 2004–13 years showed that in the area of Western Siberia subtaiga the amount of active temperatures sufficient for growth, development and yield formation of soybean 1,60–1,72 (up to 2,74–2,81) t/ha. Optimal conditions for grain filling, protein accumulation and the formation of high seed sowing qualities are added in the early crops — until May 20.

Keywords: soybean grain yield, protein content, the influence of meteorological factors, the duration of the period.

S. K. Makenova

Analysis of socio-economic factors of effective land use of Okoneshnikovo district of Omsk region

This article analyzes the state and use of the land of Okoneshnikovo area of Omsk region and determines the main directions of the efficiency of land use.

Keywords: socio-economic factors, rational and efficient use of land.

E. V. Nekrasova, N. A. Rezanov, N. A. Rendov, D. V. Purtov

Systems of herbicides in a grain-steam crop rotation for the southern forest-steppe of the Omsk region

The study of a number of systems of herbicides in crop rotation empty field-wheat-wheat-wheat showed that the annual use of herbicides in a crop rotation keeps weediness of agro phytocoenosis culture at low level. With twice-processing of crops for crop rotation the share of weed increases to an average degree. When single treatment of herbicide, but using desiccation of wheat the weediness of crops in average degree also. Application of fertilizers increases the mean proportion of weed for crop rotation. The differences between the systems of herbicides on grain yield from 1 ha of crop rotation are not great.

Keywords: crop rotation, spring-sown wheat, herbicides, fertilizers, productivity of grain, weeds.

N. N. Tischenko

Effect of zinc and copper on the yield of yarrow (*Achillea millefolium* L.) on meadow chernozem soil conditions of southern forest-steppe of Western Siberia

A study of effects and aftereffects of zinc and copper on the yield of yarrow (*Achillea millefolium* L.) is done. The relationships between doses used zinc and copper and yield yarrow are obtained.

Keywords: yarrow, trace elements, zinc, copper, productivity.

O. F. Khamova, N. N. Shuliko, E.V. Tukmacheva

Total microorganism number in the soil of barley rhizosphere on long-term application of mineral fertilizers, straw and seed inoculation by associative diazotrophs

The influence of long-term fertilizer application, straw bringing and also seed inoculation by associative diazotrophs on the total soil microorganisms' number in the barley rhizosphere on leached chernozem in the southern forest-steppe of Western Siberia are presented. The dependencies between defined microorganisms' groups are expected, a close connection between barley productivity and number of some microorganisms' groups in the rhizosphere's soil is shown.

Keywords: microorganisms, fertilizers, straw, inoculation, barley, rhizosphere.

A. P. Shevchenko, A. V. Evchenko, T. M. Veremey
The influence of tillage and planting on the growth and development of plants galega

Outlines the data there are obtained in the study of the effect of tillage, crop growth and development galega in the year of sowing on gray forest soils subtaiga zone of Western Siberia.

Keywords: galega, plowing, cultivation, milling, sowing method.

K. M. Aytchanova, A. A. Sarsenova
The efficiency of application of reclamative preparations, fly ash and technical carbon on usual black earth of forest-steppe zone of Western Siberia

This article is devoted to the agro-ecological assessment to apply carbonic product on the basis of fly ash and black carbon. The new reclamative product application allows to solve ecological problems to utilize waste products in Omsk region; problems of degradation and soil exhaustion of agricultural uses.

Keywords: new reclamative products, fly ash, black carbon, spring wheat, barley.

A. V. Klapotovskaya, V. G. Syzan
Yield and product quality varieties of shallot in southern forest-steppe of Omsk region

The article presents results of studying of shallot varieties. The comparative characteristic varieties of biometric indicators, level of productivity and product quality are shown.

Keywords: shallot, crop season, biometric indicators, yield, product quality.

N. P. Kozlenko, N. A. Popolzukhina, P. V. Popolzukhin
Agroecological substantiation of cultivation of spring wheat

The studies reveals the adaptive capacity of new breeding lines of spring soft wheat, the optimum agrotechnical methods of cultivation of wheat in the conditions of forest-steppe of Northern Kazakhstan. Selected promising accessions G 140/00 (Voloshinka) is undergoing national performance trials in Russia and Kazakhstan.

Keywords: spring soft wheat, variety, grain yield, terms and norms of sowing, predecessors, state trials.

E. P. Boldysheva, I. A. Bobrenko, N. V. Goman
The efficiency of processing of seeds copper, zinc and manganese at cultivation of a winter rye on meadow-chernozem soil in the conditions of Western Siberia

Studying cultivation in field experiments of a winter rye on meadow-chernozem soil reveals that plants positively respond on dusting of seeds salts of microfertilizers. The influence of fertilizers on size and structure of a crop of this culture is established. Positive influence of microfertilizers on quality of grain of a winter rye is noted.

Keywords: zinc, copper, manganese, microfertilizers, winter rye, productivity.

O. S. Epanchintseva, T. S. Dudoladova, Yu. M. Gichev
The gustomorfology of cows' vagina and cytology of vaginal mucus with ovarian hypofunction

There have been performed a histological and cytological studies of the vaginal mucosa in cows with clinical signs of ovarian hypofunction. There are established dystrophic, necrobiotic and immunoreactive changes in the epithelium of the vagina and cytogramme of vaginal mucus.

Keywords: vagina, cows, hypovarianism, histological and cytological studies.

D. B. Avdeev
Intra barreled tectonics of right and left wandering nerve in field of heart basis in poultry of chicken group

In scientific work some features of micromorphology of the wandering nerve in the field of the heart basis in chicken of cross-country «Hayseks white» are opened.

Keywords: chicken, vagus, histological studies, aviculture, structure.

V. V. Grechko, D. B. Avdeev, G. A. Khonin
Features of histologic structure the suprailiac-trochanteric muscles of hens of cross-country «Rhodonite 2» in post-natal ontogenesis

In work features of post-natal development and histologic structure the suprailiac-trochanteric muscles are stated.

Keywords: histology, miosatellitotsita, ontogenesis, poultry farming.

V. V. Grechko, E. N. Kulinich, D. B. Avdeev, D. K. Ovchinnikov
Morphology of growth and development of endomiziya of diameter of muscle fibers of a suprailiac -tibial muscle of hens of cross «Rhodonite 2» in post-natal ontogenesis

In this article features of post-natal development and histologic structure of a suprailiac -tibial muscle are stated.

Keywords: suprailiac -tibial, endomiziya, muscles, peremiziya.

BIOLOGICAL SCIENCE

A. A. Kislyi, A. A. Odintseva, O. A. Odintsev
Small mammals of Tobolsk area

Small mammals and one of the main methods of determining their species diversity, abundance and distribution is studied. These figures may indicate the dynamics of anthropogenic stress and changes in climatic conditions of the location. Resumed after a break of twenty years small mammal population studies of Tobolsk area will reflect the changes of the population of small mammals limiting factors.

Keywords: small mammals, theriology, population abundance, distribution, spatial organization, dynamics and faunal composition.

T. A. Bespalova, O. A. Pristupa
Histological and ultrastructural characteristics of pathological process in the central nervous system of animals with automutilatia

There are the results of years of research to identify the pathomorphological changes in the central nervous system of animals infected with native material and material from patients automutilatia (self-gnawing) filled passaged fur-bearing animals. Ultrastructural study of the cortex experimentally infected self-gnawing Golden hamsters revealed considerable ultrastructural changes accompanied by destruction of synapses, vacuolar shoots and perikaryon nerve cells, increase of fibrillar structures in nuclei, swelling processes and perikaryon astrocytosis, formation of neural tissue Lysis. Important role in nervous tissue discomplex played its processes of deterioration of structural elements in areas bordering macroglia. On location shoots and nonstructural cavities appeared oedematous cord axons and macroglia land self digestion of the nervous tissue forming the so-called «status spongiosus» zone. Results from electron microscope studies of materials from samopogryzaniem animals are the patients further confirmation of infectiousness of the disease.

Keywords: automutilatia, contamination biological, ecosystems natural, ultrastructural changes, «status spongiosis», mesocricetus auratus.

V. V. Korniyakova, V. D. Convay
Violation of purine metabolism in athletes experiencing intense exercise and its correction

Intense exercise in athletes swimmers often leads to the development of fatigue, reduces the effectiveness of the training process. This phenomenon is due to the excessive accumulation of lactate in the tissues, promote catabolism of purine nucleotides to hypoxanthine. Further oxidation of the last xanthine oxidase to urate is associated with excessive production of this enzyme active oxygen metabolites, depleting fund antioxidants, that reduce the effectiveness of enzymes antiperoxidant protect and leads to damage of membrane structures of various cells, including red blood cells. The important role in the development of this process is played by the lack of effective reutilization of hypoxanthine in purine nucleotides, associated with a lack of generation in the pentose cycle ribose-5-phosphate. Reception of athletes ribose contributes to lower the intensity of catabolism of purines and its associated lipid peroxidation of membrane structures.

Keywords: intense exercise, erythrocytes, ribose, antioxidant system.

O. A. Odintsev, A. A. Odintseva, M. V. Timkina
Biological features of population and nutrition spectre of South West Siberian taigas salientias (based on the Tyumen region)

This article discusses the population features of some amphibians inhabiting the territory of Western Siberia and the nutrition spectrum depending on their habitat. Amphibians have an important biocoenosis value, especially in agrocenoses. Nutrition and biocoenosis value of native amphibian not studied enough. This work is one of the few purposefully considers trophism of some amphibians.

Keywords: amphibians, biotope, nutrition spectrum, biocoenosis, agrocenosis.

E. V. Remneva, D. S. Morozova, Zh. P. Korotysh
Sexual dimorphism of dermatoglyphic markers related to Eysenk's personality traits

This article contains the results of research of correlation between dermatoglyphic features and such personality traits as extraversion and neuroticism. The tendency to have opposite directions for most of the signs among men and women is shown (for example, complex pattern's dominance correlates with increasing extraversion in men but decreasing extraversion in women). Supposition about reflection of specific neurophysiologic processes in men and women's brain related to Eysenk's personality traits and dermatoglyphic patterns organization is discussed.

Keywords: dermatoglyphic features, ridge count, extraversion, neuroticism, sexual dimorphism.

E. A. Kiselev
The frequency of occurrence of pelvic paraplegia breed of dogs

A similar by clinical manifestations of the spine lesions in dogs the various of phenotypic groups have varying etiology and pathogenesis that is caused by various conditions of operation. This should be taken into consideration as in the prognostic evaluation, and in the choice of treatment methods.

Keywords: pelvic paraplegia, biomechanics of the skeleton.

I. V. Kraynov
Trophic characterization supraspecific association of bumble bees in Omsk region forest-steppe

In the forest-steppe of Irtysh region at the beginning of flight activity of bumble bees their main food plants are 28 species at the end of flight activity — 32 species. Types of bumblebees competing for food plants form groups, the number and diversity of which depends on the period of flight activity.

Keywords: supraspecific Association, bumblebees, feeding activity, Omsk forest-steppe, fodder plants.

S. S. Nurmagonbetova, G. N. Sidorov, D. G. Sidorova, I. V. Deriglazov, A. V. Putin, A. V. Vakhruşev
Features of reproduction of field mice in Omsk Irtysh region in the second half of the XX–XXI centuries

The paper based on the field of 1975–2014 gg. 7517 survey of individuals and field mice set the starting date of reproduction of these animals in the Omsk region. It is established that with an equal number of animals ratio sexes become three times lower than long-term average: $0,6 \pm 0,2$ ind. 100 trap-nights. There is found the average number of embryos per breeding female and limits of this indicator: $6,6 \pm 0,2$ (1 to 12). It is determined that the maximum fertility in Omsk Irtysh region observed in the southern areas during the high number of animals. A significant relationship between the state of the numbers of field mice and their fertility is found.

Keywords: Omsk region, field mouse, male, female, abundance, fertility.

A. N. Fedin
Seasonal dynamics of carbon dioxide emission in forest parcels Western Siberia

The article presents the results of a study determining the CO₂ emissions from the soil in forest parcels of Western Siberia in 2013 and 2014. The data on the intensity of carbon dioxide emissions at different times in a birch and aspen parcel, which show no difference integral characteristic intensity of microbiological processes in the soil as in 2013 and 2014.

Keywords: soil, CO₂, forest birch, forest aspen, seasonal dynamics.

M. R. Shayakhmetov, O. D. Shoykin, E. Yu. Fedyaeva
Study of features decoding of soil steppe zone of Western Siberia on the basis of remote sensing

This article is first published novel approaches to soil decoding remote sensing by differential synthesis of images in different frequency ranges of the steppe zone of Western Siberia.

Keywords: remote sensing, soil cover, the steppe zone.

O. P. Bazhenova, Yu. S. Chunikhovskaya
Species composition and ecological and geographical characteristics of green algae (Chlorophyta) from the plankton of lakes of the forest zone of Omsk region

The species composition of green algae (Chlorophyta) polytypic lakes of the forest zone of the Omsk region is presented. It shows

its ecological and geographical characteristics. The data obtained are used for bio-indication of water quality of lakes.

Keywords: phytoplankton, Chlorophyta, species composition, bioindication, lake forest zone, Omsk region.

I. A. Bobrenko, E. Yu. Pavlova
The problem of improving environmental safety in treatment of drilling wastes on the territory of Western Siberia

The article considers the problem environmental safety of wastes disposal of drilling waste on the territory of Western Siberia, for example, the largest oil company OJSC «Surgutneftegas». The analysis of alternative options for the treatment of drill cuttings is done.

Keywords: environmental safety, drilling mud, alternatives.

L. O. Shtripling, V. V. Bazhenov, Yu. V. Kalinin, E. A. Maltseva
Analytical method for calculation of surface layer atmosphere pollution emissions by industrial enterprises

This work is devoted to the analysis of the existing system for monitoring the state of atmospheric air major settlements. It demonstrates that the monitoring system based on instrumental methods of control at stationary posts does not show real current state of pollution and does not make a credible picture of determining background concentrations throughout the municipality.

It is proposed to combine the current control method based on Gaussian dispersion model and existing methods of tool control that will be used to assess the accuracy of calculations on actual data recorded at fixed positions.

Keywords: air pollution, monitoring, background concentration.

E. V. Donets
Effect of oil soil pollution under the South Western part of Krapivinskoye oil field on germination of coniferous tree species

The article examines the impact of oil pollution of soil on germination of seeds of coniferous tree species in terms of the growing experience.

Keywords: seeds, conifer species of woody plants, germination, seedlings, oil pollution of soil.

E. V. Donets, A. I. Grigoryev
Special features of growth of horseradish (*Armoracia rusticana* G.Gaertn) in the ash substratum and oil polluted soil under conditions of vegetal experience

In the work there are given the results of experimental studies of those of for the first time carried out in the conditions of vegetal experience with the use of ashes and oil polluted soil, selected in the North Western industrial center of Omsk city.

Keywords: the ash pollution of soil, ash disposals, oil polluted soil, horseradish.

B. Yu. Kassal
Formation of population boar *sus scrofa* in Middle-Irtysh region

For seven years in the period 1981–1987 years was realized in the development stage of introduction of the wild boar population in the Middle Irtysh region, with a gradual increase in the number of issues and due to natural breeding individuals, with mean annual number of 289 individuals, the rate of change in the number of 77 individuals / year, with average annual growth in the number of 14,3 %.

Keywords: Middle-Irtysh's region, wild boar, reintroduction, population, development stages.

Z. A. Tusupbekov, N. L. Ryapolova, V. S. Nadtochiy
The influence of anthropogenous factors on the formation of drain off the lakes located in the territory of Western Siberia, on the example of the lake Ebeyty

The main causes of the lake Ebeyty's depletion are considered. The water balance at present state of anthropologic influence upon the lake's Ebeyty's reception basin is determined.

Keywords: water balance, evaporation, water reception, degradation, brine, lake's ecological conditions.

S. B. Chachina, S. V. Boltunova, N. V. Cherkashina
Degradation of petroleum hydrocarbons using microbial preparations «Baikal-Em», «Tamir», «East»

In a laboratory experiment there is investigated the ability of three microbiological preparations «Baikal-Em», «Tamir», East

to degradation of polycyclic aromatic hydrocarbons. The most effective of the studied biopreparations for the decomposition of polycyclic aromatic hydrocarbons is the «Baikal Em» ensured the destruction of oil 37–41 % when the concentration of oil in the soil to 100 g/kg.

Keywords: bioremediation, soil pollution by oil, microorganisms the oil destructor.

S. B. Chachina, G. S. Ponochevnaya, N. V. Cherkashina
Dynamics of population characteristics of three species of earthworms *Eisenia foetida*, *Eisenia andrei*, *Dendrobena veneta* in terms of soil contamination by used oils

The most resistant to soil contamination by low concentrations of waste oil (20 g/kg) is Californian worm. The number of worms increased in 6,7 times, compared with baseline, and *dendrobaena* 6 times. Manure worm is recorded lower figures, the number has increased in 3 times. The most resistant to contamination of soil average concentrations of used oil (40 g/kg) is *Eisenia Andrei*. The number of worm *Eisenia fetida* has increased in 3,3 times, *Eisenia Andrei* — in 3,1 times, and *Dendrobena veneta* in 2,6 times.

Keywords: earthworms, *Eisenia fetida*, *Eisenia Andrei*, *Dendrobena veneta*, biological treatment, removal of petroleum hydrocarbons.

Yu. Yu. Goloschapova, B. Yu. Kassal
Environmental consequences of forest fires in the Omsk region

The middle class is a forest fire danger in the Omsk region averages 4.0. Causes of fires are agricultural burns and careless use of fire by the local population. The total number of forest fires in the Omsk region in 1992–2013 years is 7784, or 354 cases per year, every year covering an area up to 6190 hectares, the loss of standing timber 81 695,3 m³/year, 131,7 million Rubles/ear. Vast areas of forest fires and their frequent recurrence result in substantial transformation and the impoverishment of forest ecosystems, loss of plant ecosystems, the long period of recovery or growing deforestation of large areas.

Keywords: Omsk region, wildfire, quantity, causes, environmental impacts.

I. V. Krainov, B. Yu. Kassal
Supra-species of the association of bumble bees (Hymenoptera: Apidae, Bombini) forest-steppe priirtyshie

Basis supraspecific association bumble-steppe Irtysh comprises 14 species with strong associative. It is supplemented by four kinds of middle-associative. Another 16 species of bumble bees in this area in its supra-association are not included. Most have 7 types of associativity. Most associated habitats bumblebees form groups of half-open and open habitats; the number of species in supraspecific Association and Association of habitats bumblebees decreases from steppe and dry meadows to meadows with bushes, forest edges from sparse birch and aspen and birch forests to fields inside them.

Keywords: supra-species of the association, bumblebees, forest steppe, Middle-Irtysh's region.

S. B. Lovinetckaya, V. G. Ereemeeva, A. V. Sindireva
Estimated oil content and remediation of soils roadside areas of the city of Omsk and Omsk region

There is estimated oil content in soils roadside areas of the city of Omsk and Omsk region. Factors affecting the oil content in the soil are presented. The quality of phyto - and bioremediational works is assessed.

Keywords: soil roadside areas, petroleum products, phytoremediation, bioremediation.

E. A. Maltseva
Legislative barriers in the organization of the administrative procedure of normalization of air quality

Regulation of emissions of pollutants into the air is based on the approval of the special projects of standards. In the development and approval of these projects, there are many complexities and legal barriers. As part of the article will present a systematic mistakes list performed of regulations and a list of practical recommendations for prevention. This information will be useful for beginners and practicing ecologists environmentalists as the practical application of the above recommendations will reduce the terms of coordination of projects and potential costs.

Keywords: protection of ambient air, pollutants, emission permit.

S. V. Syksin, S. B. Chachina
Infusion of herbs *Orthilia secunda* as a source of biologically active substances in the food industry

They study the qualitative and quantitative content of biologically active substances in the infusion of *Orthilia secunda* (1g rigging in 100 ml of water). The results show the presence of different groups BAS having multiple curative and preventive properties by updating their use in the food industry.

Keywords: *Orthilia secunda*, infusion, spectrophotometry, biologically active substances.

Yu. S. Chunikhovskaya, O. P. Bazhenova
Division Chlorophyta algae from plankton of different types of lakes steppe zone of Omsk Region

The species composition of green algae (Division Chlorophyta) from six different types of plankton Lakes forest-steppe zone of Omsk region is considered. It shows their ecological and geographical characteristics, established the dominant and rare species. The data obtained are used for bio-indication of water quality of lakes.

Keywords: phytoplankton, Chlorophyta, species composition, bioindication, lake forest-steppe zone, Omsk region.