

USSR

UDC 547.458.81

VIRNIK, A. D., Moscow Textile Institute

"Biologically Active Derivatives of Cellulose"

Moscow, Uspekhi Khimii, Vol 42, No 3, Mar 73, pp 547-567

Abstract: A review with 197 references covering the synthesis and the application of biologically active derivatives of cellulose. Synthesis of cellulose derivatives with antimicrobial and hemostatic (blood clotting) properties and possible areas of the application of these materials are discussed in detail as well as the synthesis of grafted cellulose copolymers and of biologically active proteins (enzymes and antigens), and the utilization of cellulose derivatives containing ionogenic or complex forming groups in medicine. The latter ones are capable of being used by themselves or as carriers for other biologically active substances.

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UDC 615.384.015.2:615.362.018:547.756

CHERNOV, G. A., SHEVCHENKO, A. N., KHOMYAKOV, K. P., and VIRNIK, A. D.

"Toxicity and Radioprotective Properties of Serotonin-Containing Polyglucin Derivatives"

Moscow, Farmakologiya i Toksikologiya, Vol 34, No 3, May-Jun 71, pp 328-330

Abstract: Compounds containing serotonin bound to the polyglucin derivatives through azomethide and amide bonds had lower toxicity than those with ion-bonded serotonin. These derivatives produced a pronounced radioprotective effect in mice comparable to serotonin-creatinine sulfate. A conclusion is reached that addition of low-molecular weight medicinal compounds to water soluble polyglucin derivatives may be one of the choice methods for improving their properties.

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UDC 677.862.531

VIRNIK, A. D. Candidate of Technical Sciences

"Utilization of Bactericidal and Fungicidal Agents in Imparting Antimicrobial Properties to Fibrous Materials"

Moscow, Zhurnal Vsesoyuznogo Khimicheskogo Obshchestva imeni D. I. Mendeleev, Vol 15, No 3, 1970, pp 321-325

Abstract: A review is presented with 83 references. Literature up to the end of 1968 is covered. Since direct treatment of fibrous materials with the above agents does not give a lasting effect, fixation may be carried out by treatment with zirconium acetate, zirconium-ammonium carbonate, dimethylthiourea, carboxymethylcellulose, or polyacrylic acid, depending on the type of fiber. Many dyes can be used to impart antimicrobial properties to the fabrics. A method which is still in the developmental stage is based on addition of bactericidal and fungicidal agents to the spinning solution of molten polymer during formation of the synthetic fiber. In some cases the antimicrobial agents are bound chemically to the polymers giving long lasting prop-

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VIRNIK, A. D., Zhurnal Vsesoyuznogo Khimicheskogo Obshchestva Imeni D. I. Mendeleev, Vol 15, No 3, 1970, pp 321-325

erties. The bonds must be of labile type in order to give adequate protection. It has been shown that clothing made of the fabric protected with antimicrobial agents helps in healing wounds, and prevents formation of odorous sweat; this type of material should be used in packaging sterile products. Finally, filters made of antimicrobially active fabrics could be used in purification of air, water, etc.

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172 019  
UNCLASSIFIED  
TITLE--CHEMICAL STATE OF THE TIN ATOM IN ORGANOTIN CELLULOSE DERIVATIVES  
STUDIED BY GAMMA-RESONANCE SPECTROSCOPY -U-  
AUTHOR--(05)-KHRAPOV, V.V.; ROCHEV, V.YA.; ARTEMOVA, YU.V.; VIRNIK, A.D.  
ZEMLYANSKIY, N.Y.  
COUNTRY OF INFO--USSR  
SOURCE--VYSOKOMOL. SOEDIN., SER. B 1970, 12(2), 145-9  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--ORGANOTIN COMPOUND, CELLULOSE, ACRYLIC ACID, COPOLYMER,  
POLYMER STRUCTURE, GAMMA SPECTROSCOPY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1992/0315  
CIRC ACCESSION NO--AP0111509  
STEP NO--UR/0460/70/012/002/0145/0149  
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0111509

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REACTION OF A CELLULOSE (I), POLY, (ACRYLIC ACID) GRAFT COPOLYMER (II) AND OF CM CELLULOSE (III) WITH (BU SUB3 SN) SUB2 O OR BU SUB2 SNCL AND THE STRUCTURE OF THE POLYMERS THEREOF WERE STUDIED BY GAMMA, RESONANCE SPECTROSCOPY. THE GAMMA, RESONANCE SPECTROSCOPIC PARAMETERS OF THE ORGANOTIN DERIVS. OF II AND III SUGGESTED THAT NEW SN CONTG. I DERIVS. HAVING BU SUB3 SN SUB2 C GROUPS WERE FORMED. THE DATA AGREED WITH CHEM. ANAL.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--ANTIMICROBIAL TIN CONTAINING CELLULOSIC MATERIALS -U-  
AUTHOR--(05)-ARTEMOVA, YU.V., VIRNIK, A.O., PLOTKINA, N.S., ZEMLYANSKIY,  
N.N., MAKAROVA, R.A.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. VYSSH. UCHEB. ZAVED., TEKHNOL. TEKST. PROM. 1970, (1), 93-6  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, MATERIALS  
TOPIC TAGS--WOOD CHEMICAL PRODUCT, FABRIC, ORGANOTIN COMPOUND,  
BACTERICIDE, STAPHYLOCOCCUS AUREUS  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3005/0746 STEP NO--UR/0324/70/000/001/0093/0096  
CIRC ACCESSION NO--AT0132848  
UNCLASSIFIED

2/2 018

CIRC ACCESSION NO--AT0132848

UNCLASSIFIED

PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CELLULOSIC FABRICS WITH 9PERCENT GRAFTED ACRYLIC ACID WERE SOAKED 10 HR AT 20DEGREES IN AQ. SOLNS. CONTG. 0.05-5PERCENT (BY WT. OF FABRIC) ME SUB3 SNOH, ET SUB3 SNOSNET SUB3, OR BU SUB3 SNOSNBU SUB3. ALTERNATELY, THE FABRIC WAS BOILED IN AN ACETONE SOLN. OF PH SUB3 SNOH. THE TREATED FABRICS INHIBITED THE GROWTH OF STAPHYLOCOCCUS AUREUS AND OTHER BACTERIA ON AGAR, AND THE EFFECT PERSISTED AFTER SEVERAL LAUNDERING CYCLES. BEST RESULTS WERE OBTAINED WITH ET SUB3 SNOSNET SUB3 AND BU SUB3 SNOSNBU SUB3. FACILITY: MOSK. TEKST. INST., MOSCOW, USSR.

UNCLASSIFIED



1/2 028  
UNCLASSIFIED  
PROCESSING DATE--11SEP70  
TITLE--THE STUDIES OF RADIOPROTECTIVE ACTION OF POLYMER SALT OF CYSTAMINE  
AND SULPHOPROPYL ESTER OF DEXTRANE -U-  
AUTHOR--TRUSHINA, M.N., KHOMYAKOV, K.P., VIRNIK, A.D., ROGOVIN, Z.A.,  
ROGOZKIN, V.D.  
COUNTRY OF INFO--USSR  
SOURCE--VOPROSY MEDITSINSKOY KHMII, 1970, VOL 16, NR 2, PP 195-198  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--RADIOPROTECTIVE AGENT, CYSTAMINE, POLYMER, DEXTRAN  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1986/0642  
STEP NO--UR/0301/70/016/002/0195/0198  
CIRC ACCESSION NO--AP0102628  
UNCLASSIFIED

2/2 028

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0102628

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RADIOPROTECTIVE ACTION OF SALT LIKE ADDUCT OF CYSTAMINE TO SULPHOPROPYL ESTER OF DEXTRANE HAS BEEN STUDIED. ADDITION OF CYSTAMINE TO POLYMER LEADS TO INCREASE IN RADIO PROTECTIVE EFFECT OF CYSTAMINE AT A SMALL DOSES INJECTED 10-15 MIN BEFORE IRRADIATION. CYSTAMINE AND DEXTRANE COMPLEX IS CHARACTERIZED BY THE PROLONGED PERIOD OF ACTION AS COMPARED TO CYSTAMINE DIHYDROCHLORIDE. THIS ENABLES THE AUTHORS TO ADMINISTRATION THE POLYMER 1 H BEFORE IRRADIATION INSTEAD OF 15 MIN AS IT TAKES PLACE FOR CYSTAMINE DIHYDROCHLORIDE.

UNCLASSIFIED

1/2 034  
UNCLASSIFIED  
TITLE--ENERGY DISTRIBUTION OF ELECTRONS AND OPTICAL PROPERTIES OF A HIGH  
FREQUENCY ARGON DISCHARGE -U- PROCESSING DATE--13NOV70  
AUTHOR--(G3)--VAGNER, S.D., VIROLAYNEN, V.A., KAGAN, YU.M.  
COUNTRY OF INFO--USSR  
SOURCE--OPT. SPEKTROSK. 1970, 28(1), 192-5  
DATE PUBLISHED--70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--ELECTRON ENERGY LEVEL, DISTRIBUTION FUNCTION, ARGON, HIGH  
FREQUENCY DISCHARGE, LUMINESCENCE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1976/0440 STEP NO--UR/0051/70/028/001/0192/0195  
CIRC ACCESSION NO--AP0042475  
UNCLASSIFIED

2/2 034

CIRC ACCESSION NO--AP0042475

UNCLASSIFIED

PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ENERGY FUNCTIONS, DETD. FOR AR AT HIGH FREQUENCY DISCHARGE (28 MHZ) AT 0.05-0.25 TORR AND 50-150 MA, AGREE QUAL. WITH THE DATA OBTAINED BY UU. M. KAGAN, ET AL. (1966). ENERGY DISTRIBUTION FUNCTIONS WERE CALCD. FOR 3P PRIMES 4S AND 3P PRIMES 4P EXCITED STATES. CALCN. FOR THE 3P PRIMES 4S STATE GAVE GOOD AGREEMENT WITH THE OBSD. LUMINESCENCE OF THE EXCITED AR ATOMS.

UNCLASSIFIED

USSR

UDC 537.525:546:293

VAGNER, S. D., VIROLAYNEN, V. A., KAGAN, Yu. M.

"Energy Distribution of Electrons and Optical Properties of High-frequency Argon Discharge"

Leningrad, Optika i Spektroskopiya, Vol 28, No 1, Jan 70, pp 192-195

Abstract: Energy distribution functions were measured for electrons in a high-frequency argon discharge at a frequency of 28 Mhz in the 0.05-0.25 torr pressure range at currents of 50-150 ma. The resultant distribution functions were used to estimate the role of various processes affecting the balance of the  $3p^5 4s$  and  $3p^5 4p$  levels of argon. Balance equations were calculated for the system of  $3p^5 4s$  levels and the system of  $3p^5 4p$  levels. The results indicate the possibility of calculating optical characteristics of a high-frequency discharge on the basis of experimentally found distribution functions. The authors thank I. S. Niskonen for assisting in the work.

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VIROVETS, O. A.

Space Physiology

50: JPRS 53801

12. Aug 71

COLEEN

REGULATION BETWEEN RENAL EXCRETION OF DIFFERENT CATIONS UNDER

570523 (Space Physiology)

Article by O. A. Virovets, N. K. Kiselev, G. P. Gusev, N. Ya. A. Lefrova and Yu. V. Kiselev; Moscow, Meditsina, Moscow, Vol. 3, No. 3, 1971, pp. 16-17, submitted 4 April 1970

The problem of maintaining water-salt equilibrium is of great importance for medical support of space flights. It has been demonstrated that weight loss by cosmonauts is caused by excess elimination of water and minerals during flight (Yu. V. Vetrobin, et al.; Ya. I. Vorob'yev, et al.; S. A. Gerasimov, N. I. Trakun). In the modeling of physiological conditions prevailing during weightlessness, in some cases man loses water and ions, especially sodium and calcium (David; Bowers, et al.; Cocca, et al.). The renal elimination of minerals can be caused by volume regulation as a result of blood redistribution (O. Gauer, J. Henry) and increased calcium secretion acting in during hypodynamic physiological states there is a parallelism in sodium and calcium excretion by the kidneys; this has given basis for some researchers to postulate that the transport of these cations is closely linked (Olendorf, et al.; Visceri; Mason).

In order to make a more thorough analysis of changes in the electrolyte balance during spaceflight it was of interest to investigate the relationship of sodium and calcium in the investigation of the state of water-salt metabolism caused by prolonged exposure to a high temperature and restricted mobility.

#### Method

The investigation was made on 11 healthy males in the age group of 21-25 years. The subjects at all times were in a chamber at a temperature of 40° for 10 days. Four experiments were carried out, in each of which three men were simultaneously in the same chamber. In each a heat regime

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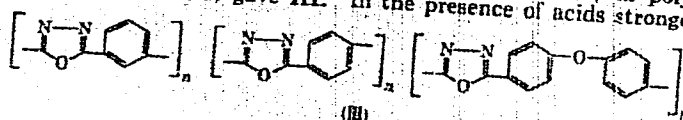
AP0052538

Abstracting Service:  
CHEMICAL ABST. 5-70

Ref. Code:

UR 0459

101159a Kinetic dependences of polycyclization in polyphosphoric acid. Synthesis of high-molecular-weight poly-1,3,4-oxadiazoles. Krongauz, E. S.; Korshak, V. V.; Virosh, Z. O.; Travnikova, A. P.; Sheina, V. E.; Lokshin, B. V. (Inst. Elementoorg. Soedin., Moscow, USSR). *Vysokomol. Soedin.* Ser. A 1970, 12(1), 135-9 (Russ). The polycondensation-polycyclization of  $\text{HO}_2\text{CRCO}_2\text{H}$  (R is 4,4'- $\text{C}_6\text{H}_4\text{OC}_6\text{H}_4$ , 1,3- $\text{C}_6\text{H}_4$ , or 1,4- $\text{C}_6\text{H}_4$ ) with  $\text{H}_2\text{NNH}_2\cdot\text{H}_2\text{SO}_4$  or  $\text{H}_2\text{NNH}_2\cdot\text{H}_3\text{PO}_4$  (I) in polyphosphoric acid (II) gave III. In the presence of acids stronger



than II the mol. wt. of III was reduced. The reaction of  $\text{HO}_2\text{CRCO}_2\text{H}$  with  $\text{H}_2\text{NNH}_2$  in the absence of strong acids was slow. High temps. accelerated the reaction, but also reduced the mol. wt. of III. The highest yields and mol. wts. were obtained when instead of  $\text{H}_2\text{O}_2\text{CRCO}_2\text{H}$  their K or Na salts were used. The optimum 1-dicarboxylic acid salt ratio was 1:1.2; the optimum temps. were 160°, 180°, or 200° for 4- $\text{NaO}_2\text{CC}_6\text{H}_4\text{OC}_6\text{H}_4\text{CO}_2\text{Na}$  - 4, 4- $\text{NaO}_2\text{CC}_6\text{H}_4\text{CO}_2\text{Na}$ , or 3- $\text{NaO}_2\text{CC}_6\text{H}_4\text{CO}_2\text{Na}$ , resp. CPJR

REEL/FRAME

19821181

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1/2 026

UNCLASSIFIED

PROCESSING DATE--23OCT70

TITLE--THE ROLE OF "FAT MOBILIZING FACTOR OF THE HYPOPHYSIS" IN  
PATHOGENESIS OF DISTURBANCES OF LIPID METABOLISM IN DIABETES MELLITUS  
AUTHOR--(03)--LEYTES, S.M., VIRSALADZE, D.K., DAVTYAN, N.K.

COUNTRY OF INFO--USSR

SOURCE--PATOLOGICHESKAYA FIZIOLOGIYA I EKSPERIMENTAL'NAYA TERAPIYA, 1970,  
VOL 14, NR 2, PP 74-79  
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--DONOR BLOOD, BLOOD SERUM, DIABETES MELLITUS, LIPID METABOLISM,  
ADIPOSE TISSUE, INSULIN, INHIBITION, PITUITARY GLAND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1988/0023

STEP NO--UR/0396/70/014/002/0074/0079

CIRC ACCESSION NO--AP0105122

UNCLASSIFIED



2/2 026

CIRC ACCESSION NO--AP0105122

UNCLASSIFIED

PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN COMPARISON WITH THE EFFECT OF LYOPHILIZED DIALYZATES OF THE SERUM (LDS) OBTAINED FROM DONORS, LDS OF PATIENTS SUFFERING FROM DIABETES MELLITUS PRODUCED A MORE PRONOUNCED EFFECT IN RESPECT TO INCREASE OF THE CONTENT OF NONESTERIFIED FATTY ACIDS (NEFA), OF BETA LIPOPROTEIDS AND PHOSPHOLIPIDS AND ALSO TO GLYCEMIA IN THE SERUM OF RABBITS TO WHICH LDS WAS INJECTED INTRAVENOUSLY. THE ACTION OF LDS WAS MORE PRONOUNCED IN RESPECT TO THE EFFECT ON BETA LIPOPROTEIDS IN DIABETICS WITH A RELATIVELY GREATER LEVEL OF GLYCEMIA AND SERUM NEFA. IN VITRO EXPERIMENTS WITH ADIPOSE TISSUE DEMONSTRATED MORE PRONOUNCED FAT MOBILIZING PROPERTIES OF LDS OF THE PATIENTS SUFFERING FROM DIABETES MELLITUS IN COMPARISON WITH LDS OF DONORS. THIS PROPERTY OF LDS IN DIABETES PATIENTS IS PARTIALLY ASSOCIATED WITH INHIBITION OF INSULIN ACTION AND NORADRENALIN ACTIVATION. IT MAY BE ADMITTED THAT THE MENTIONED ACTION OF LDS IS CONDITIONED BY LIPOMOBILIZING PEPTIDES OF THE HYPOPHYSIS. FACILITY: KAFEDRA PATOLOGICHESKOY FIZIOLOGII TSENTRAL'NOGO INSTITUTA USOVERSHENSTVOVANIYA VRACHEY, MOSCOW.

UNCLASSIFIED

VIRSHTEYN, G. M.

polymers

THE RHEOLOGY OF POLYMERS  
(Symposium in Moscow)

Lecture by Doctor of Physical and Mathematical Sciences A. Yu. Virshiteyn, Vostok Akademii Nauk SSSR, Russian, Vol. 42, No. 1, August 1978, pp. 119-121

Rheological investigations are being developed in two directions at the present time: firstly, as a component part of general physicochemical work pursuing the goal of establishment of the connection and its macroscopic properties and, secondly, as a specialization to analyze the corresponding boundary problems of flow and in solving the problems of concrete technological processes. At the regular (Seventh) Symposium on the Rheology of Polymers, organized by the Institute of Petrochemical Synthesis, Academy of Sciences of the USSR, and held on 10-14 April in Moscow, the main attention was given to the first direction of investigation. A group of scientists from East Germany, Poland, Czechoslovakia, Bulgaria, about 100 reports were heard. Discussed at the symposium was a broad complex of problems connected with the physical chemistry and mechanics of polymeric materials, study of the molecular nature of relaxation effects in macromolecular chains, and the construction of mechanical models for the quantitative description of the behavior of a polymer under different conditions of deformation with detailed comparison of the viscoelastic properties. Discussed with special interest was the problem of the liquid crystalline state and the influence of the physical structure of the system on its rheological properties.

The symposium was opened with the address of greeting of K. A. Andriyev and A. Yu. Virshiteyn, who emphasized the

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The reports of Yu. A. Golub, G. M. Viskovskiy, V. V. Anufriyev, and others were devoted to general problems of polymer physics in connection with study of the processes of viscoelastic and dielectric relaxation in different physical states and evaluation of the correspondence of those processes of viscoelasticity to the same "physical" direction in rheology. Also belonging as a result of deformation and their influence on the conditions and regime of flow of polymeric systems.

The reports of Yu. A. Golub, G. M. Viskovskiy, V. V. Anufriyev, and others were devoted to general problems of polymer physics in connection with study of the processes of viscoelastic and dielectric relaxation in different physical states and evaluation of the correspondence of those processes of viscoelasticity to the same "physical" direction in rheology. Also belonging as a result of deformation and their influence on the conditions and regime of flow of polymeric systems.

In a number of reports the structure of fluid polymers and the influence of the structure of the system on its rheological properties were discussed. Thus, A. A. Tager discussed in detail the correspondence of the structure and viscosity of solutions of polymers. The report of S. E. Faguy and co-authors presented the results of study of the rheological properties of anisotropic solutions of rigid-chain polymers which can form a liquid crystalline phase. Possible models of liquid crystals were examined by L. G. Shaliko and a hydrodynamic theory of their behavior was proposed by E. I. Aron and A. N. Bulgin. Structural problems connected with the liquid crystalline order were presented in survey form by I. G. Chistyakov, and application of those concepts to the description of the intra- and intermolecular liquid crystalline order was examined in the report of V. N. Tsvetkov and co-authors.

Also related to problems of polymer physics was the report of A. Z. Zakharenko (Poland), who told about new results obtained by him in the theory of polymeric lattices. V. B.

USSR

UDC: 621.382.002

VIRTMANIS, A. S., FELTYN', I. A., and FREYBERGA, L. A.

"Influence of Local Defects in Dielectric Films on Capacitive Characteristics of MIS Structures"

Riga, Izvestiya Akademii nauk Latvyskoy SSR -- Seriya fizicheskikh i tekhnicheskikh nauk, No 3, 1972, pp 23-26

Abstract: Noting that up until now the influence of local defects in the dielectric film in MIS structures on the capacitance-voltage curve of these devices has not been studied, the authors investigate the curve for structures in which local breakdowns have occurred. The structures investigated were made with films of silicon dioxide obtained by thermal oxidation, by reactive sputtering of the silicon in a high-frequency gas discharge plasma, by oxidation of silicon hydride in a plasma, and by the oxidation of tetraethoxysilane. Mixed films of silicon carbide and silicon oxide on silicon were also used. The measurement of the capacitance-voltage characteristic curves was conducted with equipment operating on the principle of comparing capacitive currents through the specimen tested and a standard capacitance. A range of frequencies between 1 kHz and 1 MHz was used. Several such curves are plotted, and a photograph of a burned-out electrode in one of the devices is shown.

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UDC 612.45+612.1

VIRU, A. A., KYRGE, P. K., and VIRU, E. A., Problem Laboratory Concerning the Basis of Muscle Activity, Tartu State University

"Interrelations Between Adrenal Glucocorticoid Activity, the Cardiovascular System, and Electrolyte Metabolism During Exhausting Work"

Leningrad, Fiziologicheskii Zhurnal SSSR imeni I. M. Sechenov, Vol 59, No 1, 1973, pp 105-110

Abstract: Twelve athletes repeatedly performed 1-min exercises on a bicycle ergometer up to exhaustion. The first 10 exercises increased glucocorticoid concentration in blood plasma, saliva, and urine. Subsequently, with increasing fatigue, 17-hydroxycorticoid concentration in these fluids decreased and so did the maximum arterial blood pressure. The Na/K ratio in urine decreased, while K concentration in blood plasma and K and aldosterone excretion with urine increased. There was a downward shift in the S-T segment in the EKG, which diminished with increasing K concentration in blood plasma. Since Na concentration in plasma decreased (thus excluding the effect of plasma concentration due to dehydration) and since K excretion was elevated throughout the period of exercise, it is inferred that the rise in plasma K is due to release of intracellular K and that this rise is indicative of the individual's physical fitness.

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USSR

UDC 577.164.2:612.45:612.014.45

EKKE, Kh. V., and VIRU, A. A., Chair of Sports Medicine, and Problem Scientific Research Laboratory on the Fundamentals of Muscular Activity, Tartu State University

"Change in the Ascorbic Acid Content of the Adrenal Cortex in Rats Subjected to the Combined Action of Prolonged Physical Stress and Changes in Ambient Temperature"

Moscow, Biologicheskkiye Nauki, No 9, 1970, pp 40-42

Abstract: The combined effect of prolonged exercise and temperature changes was studied in rats. The test animals were required to swim steadily for 4.5 hours at a water temperature of +30°C or for 18 hours at 7°C and were then chilled, in some cases after intramuscular injection of ACTH. The ascorbic acid content of the animals' adrenal cortex decreased to  $156 \pm 31$  mg/100 g of tissue after swimming and to  $205 \pm 9$  mg/100 g after chilling. Although the mean decrease in ascorbic acid content was greater after swimming than after chilling, there was no cumulative effect of the stressors. The ascorbic acid content of the adrenals decreased sharply (to  $102 \pm 12$  mg/100 g) in those animals that receive an injection of ACTH (4 units) before exposure to cold. It is concluded that a change in ambient temperature after prolonged physical exertion does not produce a further

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EKKE, Kh. V., et al, Biologicheskkiye Nauki, No 9, 1970, pp 40-42

decrease in the ascorbic acid content of the adrenals because of either functional depression of ACTH secretion or an inability of the adrenal cortex to react to ACTH.

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USSR

UDC 612.45+612.1

VIRU, A. A., KYRGE, P. K., and VIRU, E. A., Problem Laboratory Concerning the Basis of Muscle Activity, Tartu State University

"Interrelations Between Adrenal Glucocorticoid Activity, the Cardiovascular System, and Electrolyte Metabolism During Exhausting Work"

Leningrad, Fiziologicheskii Zhurnal SSSR imeni I. M. Sechenov, Vol 59, No 1, 1973, pp 105-110

Abstract: Twelve athletes repeatedly performed 1-min exercises on a bicycle ergometer up to exhaustion. The first 10 exercises increased glucocorticoid concentration in blood plasma, saliva, and urine. Subsequently, with increasing fatigue, 17-hydroxycorticoid concentration in these fluids decreased and so did the maximum arterial blood pressure. The Na/K ratio in urine decreased, while K concentration in blood plasma and K and aldosterone excretion with urine increased. There was a downward shift in the S-T segment in the EKG, which diminished with increasing K concentration in blood plasma. Since Na concentration in plasma decreased (thus excluding the effect of plasma concentration due to dehydration) and since K excretion was elevated throughout the period of exercise, it is inferred that the rise in plasma K is due to release of intracellular K and that this rise is indicative of the individual's physical fitness.

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Acc. Nr:

AP0047503

-Abstracting Service:

-NUCLEAR SCI. ABST. 4-70

Ref. Code:

UR0089

14093 TWO CLASSES OF REDUCING GEOCHEMICAL BARRIERS IN EXOGENIC URANIFEROUS DEPOSITS. Zelenora, O. I.; Viselkina, M. A.; Perel'man, A. I. At. Energ. (USSR); 28: 3-~~1977~~ (In Russian).

The formation of uranium and selenium ores takes place at the reducing barriers of hydrogen sulfide and gley deposits of stratum oxidation. The deposition of uranium, selenium, iron sulfides and sulfides of chalcophylic elements is a characteristic feature for hydrogen sulfides reducing barrier. At the gley barrier uranium and selenium are deposited, but sulfides of iron and chalcophylic elements are not concentrated there. (auth)

pc

REEL/FRAME  
19791062

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1/2 024  
TITLE—STATISTICS OF RECOMBINATION WITH THE PARTICIPATION OF EXCITONS AND  
LOCAL LEVELS —U—  
AUTHOR—(02)—VAYTKUS, YU., VISHCHAKAS, YU.  
COUNTRY OF INFO—USSR  
SOURCE—FIZ. TVERD. TELA 1970, 12(2), 571-6  
DATE PUBLISHED—70  
SUBJECT AREAS—PHYSICS  
TOPIC TAGS—RADIATIVE RECOMBINATION, EXCITON ABSORPTION,  
PHOTOCONDUCTIVITY, CRYSTAL LUMINESCENCE, SEMICONDUCTOR BAND STRUCTURE,  
CARRIER DENSITY  
CONTROL MARKING—NO RESTRICTIONS  
DOCUMENT CLASS—UNCLASSIFIED  
PROXY REEL/FRAE—1983/1634  
CIRC ACCESSION NO—AP0054480  
STEP NO—UR/0181/70/012/002/0571/0576  
UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0054480

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE EFFECT WAS STUDIED OF COMPETITION OF THE EXCITON MECHANISM OF RECOMBINATION AND RECOMBINATION THROUGH LOCAL LEVELS ON THE STEADY STATE CHARACTERISTICS OF PHOTOCOND. AND LUMINESCENCE. AN HOMOGENEOUS NONDEGENERATE SEMICONDUCTOR WAS CONSIDERED WITH A SPLIT VALENCE BAND. THE EFFECT ACCOUNTED FOR REPEATED ABSORPTION OF LUMINESCENT RADIATION AND FORMATION OF EXCITONS OF HIGHER SERIES. THE PARAMETRIC DEPENDENCES WERE OBTAINED FOR GENERATION AND RADIATION RATES WITH STEADY STATE CONCNS. OF NONEQUIL. CARRIERS. THE CASES OF THE GENERAL SOLN. ANALYZED ARE: (1) THE ABSENCE OF REPEATED ABSORPTION; (2) REPEATED ABSORPTION WITH ONLY 1 VALENCE BAND PARTICIPATING; (3) RADIATION OF EXCITONS OF THE 1ST SERIES IS NOT ABSORBED, BUT RADIATION OF THE 2ND SERIES IS ABSORBED TO A SIGNIFICANT EXTENT. FACILITY: VILNIUS. GOS. UNIV. IM. KAPSUKASA, VILNIUS, USSR.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--EFFECT OF SORPTION OF GASES AND LAYER THICKNESS ON THE ELECTRIC  
CONDUCTIVITY OF THIN LAYERS OF CADMIUM SELENIDE --U-  
AUTHOR--(02)-VISHCHAKAS, YU.K., MEDEYSHIS, A.S.  
COUNTRY OF INFO--USSR  
SOURCE--LIT. FIZ. SB. (LITHUANIAN COLLECTION OF WORKS IN PHYSICS), 1969,  
REFERENCE--RZH-FIZIKA, NR 11, NOV 69, ABSTRACT NR 11E796  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--CADMIUM SELENIDE, ELECTRIC CONDUCTIVITY, GAS ABSORPTION,  
VACUUM TECHNIQUE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3001/0179 STEP NO--UR/0000/69/008/05-/0875/0889  
CIRC ACCESSION NO--AR0125978  
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AR0125978

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE DEPENDENCE OF ELECTRIC CONDUCTIVITY OF CADMIUM SELENIDE LAYERS ON THEIR THICKNESS AT VARIOUS PRESSURES OF SURROUNDING GASES WAS INVESTIGATED. THE THICKNESS OF LAYERS VARIED FROM 0.03 TO 1.5. IT WAS ESTABLISHED THAT IN A VACUUM OF 10-5 MM HG THE DECREASE OF ELECTRIC CONDUCTIVITY WITH DECREASING LAYER THICKNESS IS VERY INSIGNIFICANT AND IS NOTICEABLE ONLY AT THICKNESSES SMALLER THAN 0.5. WHEN THE PRESSURE IN THE SYSTEM IS INCREASED, THE DROP IN THE ELECTRIC CONDUCTIVITY WITH DECREASING THICKNESS IS MORE ABRUPT AND IS NOTICEABLE IN THICKER LAYERS. THE FINDINGS OBTAINED ARE EXPLAINED BY THE EFFECT OF INCREASED HEIGHT OF INTERCRYSTALLINE ENERGY BARRIERS CAUSED BY THE SORPTION OF GASES. THEORETICAL EVALUATION OF THE EFFECT OF HEIGHT OF INTERCRYSTALLINE BARRIERS AND SURFACE DEFLECTION OF ZONES ON THE ELECTRIC CONDUCTIVITY OF CADMIUM SELENIDE LAYERS WAS CARRIED OUT. THE ELECTRIC CONDUCTIVITY MEASUREMENTS OF THE LAYERS WERE CARRIED OUT WITHOUT REMOVING THEM FROM A VACUUM AFTER THEIR PREPARATION.

UNCLASSIFIED

USSR

VISHCHAKAS, Yu. K.; et al (Vilnius State University)

"Electrical Conductivity of Single Crystals of Trigonal Selenium"  
Vilnius, Litovskiy Fizicheskiy Sbornik; No. 4, 1972; pp 645-56

ABSTRACT: The variation, with temperature, of the electrical conductivity and the volt-ampere characteristics in single crystals of trigonal selenium grown from the vapor phase was measured. It was found that the activation energy of the curves  $\log j = f(\frac{1}{T})$  depends on the applied field. This fact is consistent with the barrier model of conductivity if the voltage drop on the interbarrier regions is taken into account. It was established experimentally that the exponent of the volt-ampere curve increases with a decrease in temperature, which phenomenon also results from the above model.

The position of the observed maximum electrical conductivity as a function of the temperature depends strongly on the direction of the temperature variation.

1/1

USSR

UDC 681.355

SHVETSKIY, B. I., VISHENCHUK, I. M., and KRAVTSOV, R. S., Leningrad, and  
RYLIK, M. G. and CHEKHOVSKIY, E. M., Lvov Polytechnical Institute  
"A Digital Integrating Voltammeter"

USSR Author's Certificate No 347909 klh 03 K 13/20, filed 9 Aug 68, published  
4 Sep 72 (from RZh Avtomatika Telemekhanika i Vychislitel'naya Tekhnika, No 11,  
Nov 73, abstract No 11 A425P)

Translation: A digital integrating voltammeter is proposed, containing an  
input apparatus with an amplifier, a source of base voltage, switches, a timer,  
integrator, zero unit, transfer and discharge instruction shaper, cyclic pulse  
generator, phase detector, counter, sign flipflop and frequency divider, trans-  
fer apparatus, memory apparatus, binary-decimal code-to-decimal converter and  
indicator display.

To convert bi-polar voltages and improve noise resistance, the voltammeter  
contains a zero determination device, the output of which is connected through  
a switch to the input of an integrator, the output of the zero unit, and one of  
the inputs of the transferring discharge instruction shaper; the other inputs of the  
latter are connected to the output of the cyclic impulse generator, the outputs  
of the sign flipflop, and the output of the frequency dividers, respectively.

1/2

USSR

SHVETSKIY, et al., USSR Author's Certificate No 347909 K1h 03 K 13/20, filed 9 Aug 68, published 4 Sep 72

The outputs of the discharge and transfer instruction shaper are connected respectively to the apparatus memory discharge bus and the apparatus transfer bus; the sign flipflop is connected to the output of the high-order position of the counter, and its output is connected to one of the inputs of the phase-sensitive detector and to the control input of the transfer apparatus.

To reduce conversion error, the discharge and transfer instruction shaper contains flipflops, an inverter, and coincidence circuit. One set of flipflop inputs is connected to the output of the frequency divider; the other flipflop inputs (except for the first) are connected to the output of the cyclic pulse generator.

The input of the first flipflop is connected to the output of the zero unit; the direct output of the second and the inverted output of the third flipflop are connected to one coincidence circuit, to which the direct output of the sign flipflop and the output of the cyclic pulse generator are also connected. The direct output of the third and the inverted output of the fourth flipflops are connected to the other coincidence circuit, to which the inverted output of the sign flipflop and the output of the cyclic pulse generator are also connected; the outputs of the coincidence circuits are connected through an inverter to the transfer bus. Three illustrations.

2/2

- 20 -



USSR

UDC 517.43

VISHIK, M. I., and MARCHENKO, A. V. (Moscow)

"Boundary Value Problems for Second-Order Elliptic and Parabolic Operators on Infinite-Dimensional Manifolds With Boundaries"

Moscow, Matematicheskii Sbornik, Vol 90(132), No 3, Mar 73, pp 331-371

Abstract: The article studies second-order elliptic and parabolic operators on a special class of infinite-dimensional manifolds (so-called CL-manifolds). In studying the Dirichlet problem for elliptic and parabolic differential operators given on CL-manifolds with boundaries, the main thing, just as in the finite-dimensional case, is to study the corresponding boundary value problem in the half-space  $H_1^+ = \{x \in H_1 : x_1 \geq 0\}$ . In case of constant coefficients, an infinite-dimensional analog of Poisson's formula is found to solve the Dirichlet problem in the half-space. It is proved that the corresponding Poisson kernel is a measure in  $H_1^+$  (generally speaking, complex-valued). In the case of variable coefficients, the Poisson kernel obtained by freezing the initial operator makes it possible to construct its regularizer.

1/2

USSR

VSHIK, M. I., and MARCHENKO, A. V., Matematicheskiy Sbornik, Vol 90(132), No 3, Mar 73, pp 331-371

An operator of the form  $\hat{L}(x, \xi) + \zeta$  is considered on the CL-manifold  $M$ , where  $\hat{L}(x, \xi)$  is a second-order elliptic differential operator and  $\zeta \in \mathbb{C}$ . For sufficiently large  $\operatorname{Re} \zeta$  proof is given of the unique solvability of the Dirichlet problem for the operator  $\hat{L}(x, \xi) + \zeta$ . This result is used to study the corresponding parabolic problem.

The results are generalized for some classes of higher-order elliptic and parabolic operators similar to those considered in an earlier article by M. I. VISHIK and P. M. BLEKHER.

2/2

- 18 -

172 008

UNCLASSIFIED

PROCESSING DATE--18SEP70

TITLE--ELLIPTICAL BOUNDARY VALUE PROBLEMS DEGENERATING AT A SUBMANIFOLD OF  
THE BOUNDARY -U-

AUTHOR--(02)-VISHIK, M.I., GRUSHIN, V.V.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, DOKLADY AKADEMII NAUK SSSR, VOL. 190, NO 2, PP 255-258

DATE PUBLISHED-----70

SUBJECT AREAS--MATHEMATICAL SCIENCES

TOPIC TAGS--BOUNDARY VALUE PROBLEM, LINEAR DIFFERENTIAL EQUATION,  
DIFFERENTIAL OPERATOR, ELLIPTIC FUNCTION, MATHEMATIC SPACE, MATHEMATIC  
DEGENERACY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1980/0505

CIRC ACCESSION NO--AT0048749

STEP NO--UR/0020/70/190/002/0255/0258

UNCLASSIFIED

212

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CIRC ACCESSION NO--AT0048749  
ABSTRACT/EXTRACT--(U)  
EQUATION

UNCLASSIFIED

PROCESSING DATE--18SEP70

UNCLASSIFIED  
PROCESSING DATE--18SEP7  
ABSTRACT. THE SYSTEM OF LINEAR DIFFERENTIAL  
EQUATIONS  $A(x, D)U(x)$  EQUALS  $F(x)$ ,  $x$  EQUALS  $(x_{SUB1}, \dots, x_{SUBN})$   
POSITIVE) OF ORDER  $\mu$  AND DIMENSION  $Q$  TIMES  $Q$  WITH COEFFICIENTS FROM  $C$   
PRIMEINFINITY ( $\Omega$ ) IS CONSIDERED IN THE BOUNDED REGION  $\Omega$  WHERE  $C$   
PRIMEINFINITY POSITIVE) IS CONSIDERED IN THE BOUNDED REGION  $\Omega$  WHERE  $C$   
BOUNDARY CONDITION BE IMPOSED ON  $\Gamma$ ,  $\Gamma$  EQUALS  $G(x_{PRIME})$  WHERE  $B$   
IS A RECTANGULAR MATRIX OF DIMENSION  $L$  TIMES  $Q$ , CONSISTING OF  
DIFFERENTIAL OPERATORS OF THE ORDER  $R$ ;  $\Gamma$  IS AN OPERATOR RESTRICTING  
FUNCTIONS AT  $\Gamma$ . IT IS ASSUMED THAT THE OPERATOR  $A(x, D)$  IS  
ELLIPTICAL IN  $\Omega$  AND AT ALL POINTS  $\Gamma - \Delta$ , WHERE  $\Delta$  IS A  
SMOOTH SUBMANIFOLD OF DIMENSION  $N-L$  ON  $T$  AND SATISFIES THE CONDITION OF  
ELLIPTICITY OF THE PROBLEM (1), (2). CONDITIONS ARE PROVED SHOWING THAT  
ADDITIONAL CONDITIONS ARE REQUIRED FOR THIS PROBLEM TO BE SOLVABLE.  
NOETHERIAN.

USSR

UDC 517.9

VISHIK, M. I. and GRUSHIN, V. V., Moscow State University imeni M. V. Lomonosov

"Elliptical Boundary Value Problems Degenerating at a Submanifold of the Boundary"

Moscow, Doklady Akademii Nauk SSSR, Vol. 190, No. 2, 1970, pp 255-258

Abstract: The system of linear differential equations

$$A(x, D)u(x) = f(x), \quad x = (x_1, \dots, x_{n+1}), \quad (1)$$

of order  $\mu$  and dimension  $q \times q$  with coefficients from  $C^\infty(\Omega)$  is considered in the bounded region  $\Omega \subset R^{n+1}$  with the smooth boundary  $\Gamma$ . Let the following boundary condition be imposed on  $\Gamma$

$$\gamma Bu = g(x') \quad (2)$$

where  $B$  is a rectangular matrix of dimension  $l \times q$ , consisting of differential operators of the order  $r$ ;  $\gamma$  is an operator restricting the functions at  $\Gamma$ . It is assumed that the operator  $A(x, D)$  is elliptical in  $\Omega$  and at

USSR

VISHIK, M. I. and GRUSHIN, V. V., Doklady Akademii Nauk SSSR, Vol. 190, No. 2, 1970, pp 255-258

all points  $\Gamma/\Delta$ , where  $\Delta$  is a smooth submanifold of dimension  $n - 1$  on  $\Gamma$  and satisfies the condition of ellipticity of the problem (1), (2). Conditions are proved showing that additional conditions are required for this problem to be solvable. Functional spaces are found in which the operator in the problem is Noetherian.

USSR

ZHITNIKOV, YE. I., VISHIN, M. G., and KORNEV, V. A.

UDC 621.373.52-181.48

"Generator of High-Stability Oscillations Based on Integrated Hybrid Microcircuits"

Sb. nauch. tr. po probl. mikroelektron. Mosk. in-t elektron tekhn. (Collected Scientific Works on Problems in Microelectronics. Moscow Institute of Electronics Technology), 1972, vyp.10, pp 188-193 (from RZh-Radiotekhnika, No 11, Nov 72, Abstract No 11 D267)

Translation: The authors present the results from the development of a reference generator of high stability oscillations based on integrated hybrid microcircuits and designed for the production of stable time traces. The generator has two independent quartz thermostatically controlled exciters operating on one of the frequencies of the 150-200 kc range. Daily frequency instability and hourly frequency instability are ensured at not less than  $1.5 \cdot 10^{-7}$  and  $1.1 \cdot 10^{-7}$  respectively. The design of the generator makes it possible to operate under conditions of the effect of vibrations, impacts, linear acceleration, changes in external temperature, humidity, and pressure. Resume.

1/1

AP0045018

Abstracting Service: 5/70  
INTERNAT. AEROSPACE ABST.

Ref. Code:  
4R0109

A70-22402 # A method of investigating the scattering of electromagnetic waves in the resonance range (Ob odnom metode issledovaniia rasseianiia elektromagnitnykh voln v rezonansnoi oblasti). V. V. Karnishin, V. V. Akindinov, and V. V. Vishp. *Radiotekhnika i Elektronika*, vol. 15, Jan. 1970, p. 14-20, 7 refs. In Russian.

Application of the method of characteristic waves for solving the problem of electromagnetic wave diffraction by bodies of simple geometrical shape in the resonance range of frequencies where the incident wavelength is comparable to the body's dimensions. The fields of the characteristic waves are determined by expansion in terms of multipoles with subsequent fulfillment of the boundary conditions in individual surface points of the body (collocation method). A computer is used to solve the system of algebraic equations obtained in the process. The scattered field is represented in terms of characteristic wave series. Results are given for a sphere and a spheroid.

T.M.

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REEL/FRAME  
19771914

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USSR

VISHINA, A. I.

UDC: 621.317.089.68

"Investigation of the Frequency Stability of Standard Quartz Oscillators"

Dokl. Nauchno-tekhn. seminar "Metrologiya v radioelektronike". Tezisy. Ch. 2  
(Reports of the Scientific and Technical Seminar on Metrology in Radio Electronics.  
Summaries. Part 2), Moscow, 1970, pp 35-37 (from RZh-Radiotekhnika, No 7, Jul 70,  
Abstract No 7A205)

Translation: The paper deals with the causes leading to instability in the frequency of a quartz oscillator, which may be broken down into three groups: 1) causes leading to a change in equivalent parameters of the quartz resonator; 2) causes leading to a change in the phase relationships in the quartz exciter circuit; 3) causes associated with the fluctuating phenomena in the quartz resonator and in the exciter circuit. Studies of 100 kHz quartz master oscillators developed at the All-Union Scientific Research Institute of Physicotechnical and Radiotechnical Measurements showed that the best quartz oscillators have a systematic frequency change of less than  $10^{-11}$  per day, and a mean square random variation in frequency of less than  $2.5 \cdot 10^{-12}$  per day. E. L.

1/1

USSR

UDC 669.046.5

UDC 669.046.5

PETROV, B. S., ~~VISHKAREV, A. F.~~, TYURIN, Ye. I., DANILIN, V.I.,  
SELIVANOV, V. M., and YAVCYSKIY, V. I.

"Degree of Oxidation of Stainless Steels With Oxygen Blowing"

Moscow, v sb. "Sovremennyye problemy kachestva stali" (MISIS) (Collection of Works. Modern Problems of Steel Quality) (Moscow Institute of Steel and Alloys), Izd-vo "Metallurgiya," No 61, 1970, pp 196-198

Abstract: Results are presented of a study on the degree of bath oxidation with oxygen blowing during decarburization at less than 0.20% C content (nickel-free steels with 6-8 and 14-16% Cr and steels with 14-16% Cr, and 11 and 30% Ni). It is established that the degree of metal oxidation depends strictly on carbon concentration, although the oxidation level is determined by the initial Cr and Ni concentrations. 1 figure, 2 references.

1/1

Analysis and Testing

USSR

UDC 669.046.54:66.012.1

YAVOYSKIY, V. I., LUZGIN, V. P., and VISHKAREV, A. F.

"The State of Oxidation of Steel and Methods of Testing It"

Okislennost' Stali i Metody Yeye Kontrolya [English Version Above],  
Metallurgiya Press, 1970, 288 pages

Translation of Annotation: This work studies problems of the use of the express method for determination of the activity (concentration) of oxygen, based on the use of the concentration galvanic element. Problems from the theory of concentration galvanic elements are briefly presented.

A diagram is presented and the operating principle is described of a device created at the Moscow Institute of Steels and Alloys, an activometer, which is a device for express measurement of the activity (concentration) of oxygen directly in steel making units and during pouring. Based on a large volume of research work performed under plant conditions using the activometer, the problems of the behavior of oxygen in open hearth and electric furnaces, in oxygen converters, during pouring and evacuation are studied. A comparison of the state of oxidation of metal upon completion of the cycle in converters

1/3

USSR

YAVOYSKIY, V. I., et al., *Okislennost' Stali i Metody Yeye Kontrolya*, Metallurgiya Press, 1970, 288 pages

of various capacities with the oxidation of open hearth metal is performed. The relationship between the state of oxidation of the metal and technological factors is described. Prospects are discussed for further expansion of the range of application of the method under laboratory and plant conditions. The book is designed for engineering and technical workers of metallurgical and machine building plants and scientific research institutes. 98 figures; 40 tables; 177 biblio. refs.

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USSR

YAVOYSKIY, V. I., Et al., *Okislenost' Stali i Metody Yeye Kontrolya*, Metallurgiya Press, 1970, 288 pages

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USSR

VISHKAREV, O. M., KARSKIY, N. YE., and LEVKOPULO, I. A., Central Scientific Research Institute of Technology and Machine Building  
 "Corrosion Resistance of Nickel Alloys in Sodium"

Moscow, Zashchita Metallov, Vol 6, No 2, Mar-Apr 70, pp 220-222

Abstract: Present-day nickel alloys, relative to their heat resistance, may be used in power units with sodium heat-transfer agents at 800--900°C. The basic deterrent to the wide use of these materials is their low corrosion resistance in sodium. Earlier research indicates that increasing their aluminum content to 3--6% considerably raises their corrosion resistance. This work deals with the behavior of nickel alloys with a high aluminum content in sodium. The materials involved were: heat-resistant nickel alloy with 5% Al (Kh10MhV4YuST3K5), pure nickel, and austenitic steel (Kh20N30M3B5). The testing conditions in a flow of a sodium coolant were: 900°C, 300 hours, temperature gradient in flow 20 deg/m, expenditure by volume 0.2 m<sup>3</sup>/hr, linear rate 0.05 m/sec, oxygen content in sodium 2.10<sup>-2</sup> wt%, filter-trap working temperature 135--150°C. The nickel alloy with the higher aluminum content exhibited the highest corrosion resistance. The result is attributed to the formation of a protective aluminum-rich oxide

1/2

USSR

VISHKAREV, O. M., et al., Zashchita Metallov, Vol 6, No 2, Mar-Apr 70, pp 220-222  
film. A table in the original article gives container test data at 800°C under various oxidizing conditions. A test in argon with an excess of  $\text{Cr}_2\text{O}_3$  was conducted to exclude the specific effect of sodium on nickel alloys. The decrease in the aluminum content in the nickel alloy after 2000 hours of testing is related to the separation of the surface layer. There was no separation in the absence of sodium in both open air and argon with  $\text{Cr}_2\text{O}_3$  additions. Separation increases with the increase of oxygen in the sodium. The depth of peeling increases with the duration of testing.

2/2

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USSR

UDC 620.193.46

✓  
YISHKAREV, O. M., and KAZENIN, A. P., Central Scientific Research Institute  
of Technology and Machine Building

"Stability of Kh18N9 Stainless Steel in Sodium Flow"

Moscow, Zashchita Metallor, Vol 6, No 1, Jan-Feb 70, pp 27-28

Abstract: The effect of the flow rate of sodium coolant in power energy equipment on the corrosion-erosion resistance of steels at relatively low temperatures was studied. The tests involved washers of Kh18N9 austenitic steel. Sodium coolant was passed through washer holes at flow rates of 25, 12.5, and 6.3 m/sec for 1000 hrs. at 450°C. The test data failed to show erosion on the specimens, with the exception of one of the specimens involved. There was neither pitting nor local surface damage. Metallography revealed no damage at the grain boundaries. Specimens with diffusion chromium plating or nitrided specimens showed no appreciable wear. It is concluded that the erosion effect of sodium at temperatures up to 450°C and flow rates up to 25 m/sec on Kh18N9 stainless steels may be ignored in engineering calculations.

1/1



UDC 632.95

USSR

HEL'NIKOV, N. N., SONOLOVA, YE. M., TRUKOV, P. P., VOLKONOVICH, S. D.,  
DYISHAKOVA, G. H., GOLYSHIN, N. M., ABELENTSEV, V. I., UKRALINS, H. S.,  
PEDOSEYENKO, L. G., ZAIKIN, B. A., DVURESHENSTOV, M. G., VISHNEVTSKAYA, A. H.,  
ORLOV, S. I., ZAVIZION, A. P., and TALASH, A. I.

"Polycarbazin"

V sb. Khim. sredstva zashchity rast. (Chemical Plant Protectants -- collection of works), vyp 1, Moscow, 1970, pp 95-104 (from RZh-Khimiya, No 13, 10 Jul 72, Abstract No 13N503 by T. A. Belyayeva)

Translation: The effectiveness of polycarbazin (I) on apple scab and grapevine mildew equals that of zineb (II) and polyram-combi, while on cherry-fruit gray rot it equals Bordeaux liquid (III) (1 percent), but is ahead of II. I equals II and III for Clasterosporium infection of the cherry plum and tomato macrosporiosis. The decisive factor which determines the length of action of I is precipitation, which washes the preparation off plants.

1/1

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UDC 632.95

USSR

PYATHOVA, YU. B., GOLUBEVA, V. A., GOLYSHIN, N. M., ~~UKRAINTS, N. S.~~  
ABELENTSEV, V. I., FEDOSENKO, L. G., VISHNEVSKAYA, A. M., PUSTOVOYTOVA, V. I.,  
and DVUKHSHERSTOV, M. G.

"Editone"

Khim. sredstva zashchity rast. (Chemical Means of Protecting Plants --  
collection of works), Issue 1-M, 1970, pp 129-134 (Referativnyy Zhurnal --  
Khimiya, No 10, (II), 1972, Abstract No 10H550 by T. A. Belyayeva)

Translation: Investigation of editone -- 3,3'-ethylene-bis-4,6-dimethylte-  
trahydro-1,3,5-thiadiazin-2-one (I) -- in laboratory conditions in vitro  
showed that I is equivalent in fungicidal property to Phygon and offers no  
threat to green plants. The effectiveness of I in countering apple scab,  
grapevine mildew, cherry-plum Clasterosporium, monilial blight, grey mold  
of cherry trees, and macrosporium in tomatoes is equal to or exceeds the  
effectiveness of zineb and copper oxychloride (concentration 0.25-0.125%)  
and of Bordeaux mixture in 1% concentration. I is not effective in combatting  
powdery mildew.

1/1

- 73 -

1/2 016 UNCLASSIFIED PROCESSING DATE--11DEC70  
TITLE--EFFECT OF TEMPERATURE ON THE SIZE AND COMPOSITION OF DROP  
ENTRAINMENT DURING MICROBUBBLING -U-  
AUTHOR--(04)-GLEIM, V.G., SHIDLOVSKIY, B.R., VISHNEVETSKAYA, A.N., KHENTOV,  
V.YA.  
COUNTRY OF INFO--USSR  
SOURCE--Zh. Prikl. Khim. (Leningrad) 1970, 43(5), 1177-8  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--HYDROLYSIS, SODIUM SILICATE, PHOSPHATE, SODIUM CHLORIDE,  
THERMAL EFFECT, LIQUID DROP MODEL  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3004/0956 STEP NO--UR/0080/70/043/005/1177/1178  
CIRC ACCESSION NO--AP0131541  
UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0131541

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. FORMATION OF 0.4 MM DIAM. BUBBLES IN BOILERS AT 200 PSI AND THEIR ENTRAINMENT WITH SUBSEQUENT CONTAMINATION OF THE STEAM WAS STUDIED BY THE TECHNIQUE OF G. (1970) IN A SO CALLED MICROBUBBLING MODEL AT 20-75DEGREES. THE TYPE AND FRACTION OF IONS CARRIED BY THE BUBBLES FROM SOLNS. CONTG. PO SUB4 PRIME3 NEGATIVE 0.5 G-L., NAOL 0.4 N, AND SIO SUB3 PRIME2 NEGATIVE 0.5 G-L. (IN VARIOUS COMBINATIONS) WERE DETD. AS A FUNCTION OF TEMP. BUBBLES CONTG. THE LEAST AMT. OF IONS WERE FORMED AT 55DEGREES. THE LARGE CONTENT OF SIO SUB3 PRIME2 NEGATIVE IN THE ENTRAINMENT WAS ATTRIBUTED TO THE HYDROLYSIS OF NA SILICATE AND POLYMN. (DISILICATE FORMATION). THE PRESENCE OF SIO SUB3 PRIME2 NEGATIVE IN THE SOLN. INCREASES THE DROP ENTRAINMENT. FACILITY: ROSTOV.-NA-DONU, INST. INZH. ZHELEZNODOROZH. TRANSP., ROSTOV-GA-DCN, USSR.

UNCLASSIFIED

1/2 006 UNCLASSIFIED PROCESSING DATE--11SEP70  
TITLE--DROP ENTRAINMENT DURING MICROBUBBLING -U-

AUTHOR--GLEYM, V.G., SHILDLOVSKIY, B.R., VISHNEVETSKAYA, A.N., KHENTOV,  
V.YA.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(2), 337-41

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--WATER, STEAM BOILER, SODIUM CHLORIDE, SODIUM SULFATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1987/0460

STEP NO--UR/0080/70/043/002/0337/0341

CIRC ACCESSION NO--AP0104073

UNCLASSIFIED

2/2 006

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0104073

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REDN. OF STEAM QUALITY IN HIGH PRESSURE BOILERS BY ENTRAPPED WATER DROPLETS WAS INVESTIGATED IN A MODELING STUDY. RATE OF BUBBLE FORMATION, MECHANISMS, AND ENERGIES REQUIRED TO BREAK UP THE BUBBLES AND THUS PERMIT THE FORMATION OF LIQ. DROPLETS ARE DISCUSSED. AN EQUATION YIELDING THE MASS (M) (G-CM PRIME<sup>2</sup> SEC) OF DROPLETS FORMED WAS DEVELOPED. DROPLET FORMATION IN THE BREAK UP OF 0.22 MM BUBBLES ON A POROUS CERAMIC PLATE (A) (BACTERIAL FILTER F5) WAS OBSD. ON A PLEXIGLAS PLATE 2 CM FROM A AT AIR VELOCITIES SMALLER THAN 0.65 CM-SEC, AND NaCl OR Na SUB<sup>2</sup> SO SUB<sup>4</sup> SOLNS. CONCNS. HIGHEST M VALUES WERE OBSD. AT VELOCITIES OF SIMILAR TO 0.1 CM-SEC AND LOW, SMALLER THAN 0.15 M, ELECTROLYTE CONCNS. FOR A 0.001M NaCl SOLN. A VALUE OF M EQUALS 680 TIMES 10 PRIME NEGATIVE<sup>6</sup> G-CM PRIME<sup>2</sup> SEC WAS DETD.; THE M VALUES AND HEIGHTS TO WHICH DROPLETS WERE CARRIED WERE LOWEST AT 0.05M NaCl AND 0.01M NaSO SUB<sup>4</sup>. CL PRIME NEGATIVE, SO SUB<sup>4</sup> PRIME<sup>2</sup> NEGATIVE AND PO SUB<sup>4</sup> PRIME<sup>3</sup> NEGATIVE WITH HYDRATION ENERGIES OF 79, 249, AND 502 KCAL-MOL YIELDED M OF 1680, 502, AND 430 TIMES 10 PRIME NEGATIVE<sup>6</sup>, RESP.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--MICROWAVE SPECTROSCOPIC STUDIES OF AQUEOUS SOLUTIONS OF CHROMIUM  
III NITRATE AND TOLUENE SOLUTIONS OF CHROMIUM III DIETHYL  
AUTHOR--(03)-VISHNEVSKAYA, G.P., KARIMOVA, A.F., LUCHKINA, S.A.  
COUNTRY OF INFO--USSR  
SOURCE--TEOR. EKSP. KHIM. 1970, 6(1), 128-33  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--EPR SPECTRUM, TEMPERATURE DEPENDENCE, SPIN LATTICE RELAXATION,  
CHROMIUM COMPLEX, NITRATE, TOLUENE, ORGANIC PHOSPHATE, ORGANIC SULFUR  
COMPOUND  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3002/1225 STEP NO--UR/0379/70/006/031/0128/0133  
CIRC ACCESSION NO--AP0128642  
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0128642

ABSTRACT/EXTRACT--(U) GP-Q- ABSTRACT. EPR LINEWIDTH (ON THE SPECTROMETER JEOL, LAMBDA EQUALS 3 CM) AND NONRESONANCE PARAMAGNETIC ABSORPTION (BY THE METHOD OF HORTER'S PARALLEL FIELDS ON Q-METER) OF TOLUENE SOLNS. OF CR(III) DIETHYL DITHIOPHOSPHATE (I) AND AQ. SOLNS. OF CR(NO SUB3) SUB3 (II) WERE MEASURED. FOR I, DELTAH WAS NOT DEPENDENT ON CONCN. (MAX. DILN. WAS 50 TIMES). TEMP. DEPENDENCE OF DELTAH WAS STUDIED IN THE RANGE 200-423 DEGREES K. BESIDES AN INTENSIVE LINE WITH G EQUALS 1.97, A WEAK COMPLEMENTARY LINE IN THE RANGE OF WEAK FIELDS WAS OBSD. FOR 200-350 DEGREES K. TEMP. DEPENDENCE OF SPIN LATTICE RELAXATION TAU L AND SPIN SPIN RELAXATION TAU SIGMA WERE STUDIED BY THE METHOD OF NONRESONANCE ABSORPTION. TAU L IS SIMILAR OR EQUAL TO 10 PRIME NEGATIVE 8 SEC INCREASES WITH TEMP. AND REACHES ITS MAX. AT 270 DEGREES K FOR I, AT 320 FOR II. TAU SIGMA FOR BOTH I AND II IS OF THE ORDER 10 PRIME NEGATIVE 9 SEC AND INCREASES WITH THE TEMP. INCREASE, TAU SIGMA (I) IS GREATER THAN TAU SIGMA (II) FOR THE SAME TEMP. DEPENDENCE OF DELTAH ON TEMP. AND CONCN. FOR II IS GIVEN. STARTING FROM 0.2M SOLNS. FURTHER DILNS. HAVE NO INFLUENCE ON DELTAH. THE SHIFT OF MAX. TO THE SIDE OF HIGHER TEMP. IN II IS MUCH HIGHER IN COMPARISON WITH I. ENERGY OF ACTIVATION FOR THE ROTATIONAL MOTION OF COMPLEXES WAS DETD.: E SUBROT EQUALS 2.0 KCAL-MOLE FOR I, 2.2 FOR II. E SUBVISC CHARACTERIZING THE TEMP. DEPENDENCE OF VISCOSITY, IS 4 AND 2.2 KCAL-MOLE FOR I AND II, RESP. FACILITY: KAZAN. FIZ.-TEKH. INST., KAZAN, USSR.

UNCLASSIFIED



1/2 030 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--MORPHOLOGY OF SUPRAMOLECULAR FORMATIONS ARISING DURING THE BULK  
POLYMERIZATION OF VINYLIDENE CHLORIDE -U-  
AUTHOR-(03)-BORT, D.N., VISHNEVSKAYA, I.N., KARGIN, V.A.  
COUNTRY OF INFO--USSR  
SOURCE--VYSOKOMOL. SOEDIN., SER. B 1970, 12(3), 176-9  
DATE PUBLISHED--70  
SUBJECT AREAS--MATERIALS, CHEMISTRY  
TOPIC TAGS--MOLECULAR STRUCTURE, POLYMERIZATION, VINYLIDENE RESIN,  
ELECTRON MICROSCOPY, NITRILE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--2000/0672 STEP NO--UR/0460/70/012/003/0176/0179  
CIRC ACCESSION NO--AP0124344  
UNCLASSIFIED

2/2 030

UNCLASSIFIED

PROCESSING DATE--30OCT7

CIRC ACCESSION NO--AP0124344

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE BULK POLYMN. OF H SUB2  
C:CCL SUB2, IN THE PRESENCE OF (ME SUB2 CCN)SUB2 N SUB2, EVEN AT  
0.1PERCENT CONVERSIONS THE FORMATION OF 2 STRUCTURAL TYPES, GLOBULES AN.  
PLATELETS, WAS OBSD. BY ELECTRON MICROSCOPY.

UNCLASSIFIED

USSR

UDC: 550.383

VISHNEVSKAYA, N. L. and ZASHCHINSKIY, L. A., S. M. Kirov Polytechnical Institute, Tomsk

"Possible Disappearance of the Earth's Magnetic Field in the Inversion Process"

Tomsk, Izvestiya VUZ -- Fizika, No 10, 1972, pp 145-147

Abstract: Inversion here is described as the change in sign of the earth's magnetic field, a process which the authors deem to have been insufficiently studied. The best that can be found in the literature on this subject is a very coarse approximation of the change in the field intensity at any point on the earth's surface. The authors of the present paper suggest that a closer approximation to the actual situation is given by a linear change in the course of the inversion rather than the abrupt discontinuity offered by the coarse approximation. Using a system of wave equations derived from the Maxwell equations for an electromagnetic field in a nonideal conductor and assuming that the earth is, in a first approximation, a uniform, semiconducting isotropic medium, the authors are led to the conclusion that the magnetic field during inversion remains analogous to a dipole field that, in the

1/2

USSR

UDC: 550.383

VISHNEVSKAYA, N. L., et al, Izvestiya VUZ -- Fizika, No 10, 1972, pp 145-147

first approximation, is quasilinear with two stable states. They suggest that serious attention be given to analyzing the effects of small fluctuations of external fields on the type of motion of the earth's magnetic field source.

2/2

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1/2 031 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--WELDABILITY OF FTOROPLAST-4M TETRAFLUOROETHYLENE POLYMER -U-  
AUTHOR-(03)-MATSYUK, L.N., VISHNEVSKAYA, N.V., KOTOVSHCHIKOVA, O.A.  
COUNTRY OF INFO--USSR  
SOURCE--PLAST. MASSY 1970, (6), 74-5  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR  
TOPIC TAGS--POLYTETRAFLUOROETHYLENE, ADHESION, PLASTIC FILM, ANNEALING,  
WELDABILITY, CONSTRUCTION MATERIAL/(U)FTOROPLAST 4M FLUORINE PLASTIC  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3007/0704 STEP NO--UR/0191/70/000/006/0074/0075  
CIRC ACCESSION NO--AP0136143  
UNCLASSIFIED

2/2 031

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0136143

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE ADHESION OF FTOROPLAST-4M (I) FILMS OR PANELS, MADE BY SINTERING COLLOIDAL I DEPOSITED ON A WIRE MESH, DECREASED WHEN THESE MATERIALS WERE ANNEALED IN THE AIR AT 230-40DEGREES. HEATING I AT 262-340DEGREES CAUSED A LOSS OF 0.03 WT. PERCENT, NO CHANGE IN THE MELT FLOW INDEX OR IR SPECTRA, 1-3PERCENT SHRINKAGE, AND LESS THAN OR EQUAL TO 30PERCENT LOSS IN STRENGTH. THESE CHANGES APPEAR NOT TO BE CAUSED BY DEGRADATION, BUT BY THE STRUCTURAL REORDERING OF I. THE CHANGES OF THE SURFACE RELIEF ("SMOOTHING OUT") CAUSE A DECREASE OF THE ADHESION.

UNCLASSIFIED

USSR

UDC 611.419:612.014.48

VSEVOLODOV, E. B., LITVINOVA, L. D., and VISHNEVSKAYA, S. S., Institute of Experimental Biology, Kazakh Academy of Sciences

"Efficacy of Chemical Protection Against Radiation Shortly After Exposure in Relation to Stages of the Mitotic Cycle"

Alma-Ata, Izvestiya AN KazSSR, Seriya Biologicheskaya, No 3, 1973, pp 84-90

Abstract: Rats were administered aminoethyl thiouranium (AET) 10 minutes before irradiation at 50 or 100 r and sacrificed 3 and 6 hours later to obtain smears of bone marrow suspensions for histoautographic examination. Cells irradiated in the S phase were better protected against interkinetic death than the other cells and better protected against chromosomal aberrations than those irradiated in the G<sub>2</sub> phase. AET provided no protection against aberrations in cells irradiated in the G<sub>2</sub> phase. The number of anaphases and telophases with chromosomal aberrations among the dividing cells irradiated in the S phase decreased 6 hours after a dose of 50 r by a factor of 1.7 and 3 and 6 hours after a dose of 100 r by a factor of 1.2 and 1.1 respectively. With an increase in the dose from 50 to 100 r and after the injection of AET, there was a change in the relative contribution of cells irradiated 1/2

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USSR

VSEVOLODOV, E. B., et al., Izvestiya AN KazSSR, Seriya Biologicheskaya, No 3, 1973, pp 84-90

in various phases of the mitotic cycle, in the index of aberrations, in the mitotic index, and in the number of interphase degenerating cells.

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1/2 030  
UNCLASSIFIED  
TITLE--THE SIGNIFICANCE OF STUDIES OF THE EYE GROUND IN HEMORRHAGIC  
STROKES -U- PROCESSING DATE--300CT70  
AUTHOR--(03)--VISHNEVSKAYA, YE.S., NIKIFOROV, B.M., TEPLITSKIY, F.S.  
COUNTRY OF INFO--USSR  
SOURCE--ZHURNAL NEVROPATOLOGII I PSIKHIATRII IMENI S. S. KORSAKOVA, 1970,  
VOL 70, NR 6, PP 820-824  
DATE PUBLISHED--70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--BRAIN, HEMORRHAGE, EYE, ANEURYSM, BLOOD PRESSURE, DIAGNOSTIC  
MEDICINE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAHE--3001/0920 STEP NO--UR/0246/70/070/006/0820/0824  
CIRC ACCESSION NO--AP0126579  
UNCLASSIFIED

2/2 030

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0126579

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE PAPER DEALS WITH THE STUDY OF THE EYE GROUND IN 584 PATIENTS WITH HEMORRHAGIC STROKES WITH DIFFERENT LOCALIZATIONS: IN THE HEMISPHERES, CEREBELLUM, THE STEM, AND THE SUBARACHNOID SPACE. IN 86 CASES (14.7PERCENT) THERE WERE CHANGES IN THE EYE GROUND: IN 9PERCENT THERE WAS CONGESTION, IN 3.6PERCENT, HEMORRHAGES AND IN 2PERCENT, CONGESTION WITH FOCI OF HEMORRHAGES. SYMPTOMS OF CONGESTION WERE MORE FREQUENTLY SEEN IN HEMORRHAGES OF THE SUBARACHNOID SPACE, DUE TO A RUPTURE OF THE ANEURYSMS AND IN HEMORRHAGES. SYMPTOMS OF CONGESTION WERE MORE FREQUENTLY SEEN IN HEMORRHAGES OF THE SUBARACHNOID SPACE, DUE TO A RUPTURE OF THE ANEURYSMS AND IN HEMORRHAGES INTO THE CEREBELLUM. THE HEMORRHAGES INTO THE EYE GROUND WERE USUALLY DEPICTED IN RUPTURES OF THE ANEURYSMS IN THE ANTERIOR PART OF THE CIRCLE OF WILLIS AND DID NOT DEPEND UPON THE STATE OF ARTERIAL PRESSURE. FOR PURPOSES OF DIAGNOSIS AND PRUGNOSIS HEMORRHAGES INTO THE EYE GROUND WERE MORE IMPORTANT THAN SYMPTOMS OF PAPILLA EDEMA.

FACILITY: PEDIATRICHESKOGO MEDITSINSKOGO

INSTITUTA, LENINGRAD.

UNCLASSIFIED

Military Medicine

USSR

VISHNEVSKIY, A., Col Gen Med Ser Member of the USSR Academy of Medical Sciences, Professor; SHRAYBER, M., Maj Gen Med Serv, Professor; and LISITSYN, K., Col Med Serv, Professor

"Military-Field Surgery"

Moscow, Krasnaya Zvezda, 12 May 71, p 4

Abstract: The scientific technical revolution has brought great advances in military medicine, especially in the USSR. Blood transfusion was an early advance in the treatment of wounds and shock. Methods of quick freezing blood have been developed. Specialized substances are also made from blood. Scientists are now working on a completely artificial blood substitute to perform all of the functions of blood. New antibiotics are being created. The creation of artificial organs such as kidneys is also important. An apparatus for blood circulation is being used in operations and to assist weak hearts and lungs. Metal support pins are used to reinforce broken bones. Specialists are testing a type of adhesive for bones, and ultrasonic methods have been developed. There have been great advances in the treatment of burns. Skin transplants are among the most important methods. A special instrument called a dermatom is used here. Work is also being done on trans-

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USSR

VISHNEVSKIY, A., et al., Krasnaya Zvezda, 12 May 71, p 4

planting tissues and organs. The stitching of wounds and operations is being automated. New types of local and general anesthetics, and artificial methods of maintaining breathing and blood circulation have also appeared. Electronics, especially new x-ray and television equipment, is also changing medicine.

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USSR

UDC 621.38:61

IAGUNOVA, I. G., LIKHOVETSKAYA, L. L., ~~VISHNEVSKIY, A. A.~~, ROZENFEL'D, E. B.,  
RAZYGRIN, B. A., VANYUKOV, M. P., and MALYSHEV, B. N.

"Irradiation of Metastases of Melanoma By Pulsed Laser"

V. sb. Ispol'z. optich. kvant. generatorov v sovrem. tekhn. 1 med. Ch. 203  
(Use of Lasers in Contemporary Technology and Medicine. Parts 2-3 -- Collec-  
tion of Works), Leningrad, 1971, p 102 (from RZh Elektronika i yeye Primeneniye,  
No 2, Feb 72, Abstract No 2A508)

Translation: Melanomas are first among primary malignant tumors which metastasize  
to the skin. Use of laser emission in such cases is advisable in view of the  
possibility of simultaneous irradiation of several dozen tumor sites. Type  
GOS-500 and GOS-1000 pulsed neodymium lasers operating in a free pulse  
generation modes were used for irradiation. The output energy of the pulse  
fluctuated from 100 to 500 joules. The total density of the incident energy  
at the metastatic tumor varied from 1,000 to 5,000 joules/cm<sup>2</sup>. Summary.

1/1

USSR

UDC 533.92:621.039.61

ALEK SIN, V. F., BIRYUKOV, O. V., VISHNEVETSKIY, V. N., GEORGIYEVSKIY, A. V., GROT, Yu. I., DIKIY, A. G., ZISER, V. Ye., KITAYEVSKIY, L. Kh., KONOTOP, P. I., POGOZHEV, D. P., PELETNINSKAYA, V. G., SERGEYEV, Yu. F., SMIRNOV, V. G., SUPRUNENKO, V. A., TOLOK, V. T., TARAN, V. M.

"Development and Production of the Magnetic System of the 'Uragan' Stellarator and a Study of Magnetic Surfaces With Large Shear"

Fiz. plazmy i probl. uprav. termoyader. sinteza. Resp. mezhved. sb.  
(Plasma Physics and Problems of the Controlled Thermonuclear Fusion. Republic Interdepartmental Collection), 1972, No. 3, pp 73-112 (from RZh-Fizika, No 11, Nov 72, Abstract No 11G279)

Translation: This paper concerns the study of the magnetic system of the three-loop "Uragan" stellarator-racetrack. Considerations concerning the selection of optimal parameters of the magnetic system of the stellarator are discussed. The equipment of the "Uragan" is briefly described. An experimental study of the magnetic surfaces made with the aid of low-energy electron beams showed that in the "Uragan" stellarator-racetrack with

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USSR

ALEKSIN, V. F., et al, Fiz. plazmy i probl. upravl. termoyader. sinteza.  
Resp. mezhved. sb., 1972, No. 3, pp 73-112

individually controlled cylinders there are closed magnetic surfaces with high shear values ( $\sim 0.09$ ) and angle of rotational conversion ( $\sim 240^\circ$ ). The experimental data are compared with calculated values obtained on the BESM-6 computer.

2/2

USSR

UDC 533.9

VISHNEVETSKIY, V. N., VOYTENKO, D. A., VOLKOV, YE. D., DIKIY, A. G., ZALKIND, V. M., KONOTON, P. I., MOISEYEV, S. S., PAVLICHENKO, O. S., PASHNEV, V. K., SUPRUNENKO, V. A., TOLOK, V. T., TERESHCHENKO, F. F., TONKOPRYAD, V. M., and TARASENKO, V. P., Physico-Technical Institute of Academy of Sciences Ukrainian SSR, Kharkov

"Energy Losses of Plasma in a 'Uragan' Stellarator With Large Shear"

Kiev, Ukrainskiy Fizicheskiy Zhurnal, Vol 16, No 8, Aug 71, pp 1320-1323

Abstract: Investigations of the rate of energy losses in plasma have shown that the holding time of particles significantly exceeds the energy life time when the plasma is of collision type. This article discusses the results of investigations on the rate of energy losses of collision-type plasma for the "Uragan" stellarator. The authors study the dependence of energy life time of the plasma on the amount of shear and the angle of conversion. They make extensive use of graphs to illustrate their findings and find that the experimental points lie on a straight line. The authors conclude that the results may be explained on the basis that a temperature-drift instability develops in the plasma. The article contains 5 figures and 8 bibliographic entries.

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USSR

UDO 621.385.623.4

ALFEROV, V.N., VLADIMIRTSEV, M.B., VISHNEVSKAYA, A.M., KOTOV, V.I., PROSIN, B.V.,  
SHOHELKUNOV, G.P., YAMPOL'SKIY, I.R.

"Concerning Phase Stability Of Power Klystron"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology.  
Scientific-Technical Collection. Microwave Electronics), 1970, Issue 11, pp 136-139  
(from RZh--Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2A171)

Translation: Data are presented characteristic of the dependence of the phase of  
the output signal on the magnitude of the anode voltage, the exciting power, the  
focusing regime, the filament voltage, and the temperature of the cooling water.  
The apparatus for phase measurements is described. The experiments were conducted  
on Type KIU-12AM klystrons. 2 ref. Summary.

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USSR

UDC 621.385.623.4

ALFEROV, V.N., VLADIMIRTSEV, M.B., VISHNEVSKAYA, A.M., KOTOV, V.I., PROSIN, B.V.,  
SHCHELKUNOV, G.P., YAMPOL'SKIY, I.R.

"Concerning Phase Stability Of Power Klystron"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology.  
Scientific-Technical Collection. Microwave Electronics), 1970, Issue 11, pp 136-139  
(from RZh--Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2A171)

Translation: Data are presented characteristic of the dependence of the phase of  
the output signal on the magnitude of the anode voltage, the exciting power, the  
focusing regime, the filament voltage, and the temperature of the cooling water.  
The apparatus for phase measurements is described. The experiments were conducted  
on Type KIU-12AM klystrons. 2 ref. Summary.

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1/2 022 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--ESSENTUKI HEALTH RESORT TREATMENT OF PATIENTS SUFFERING FROM TOXICO  
CHEMICAL AFFECTON OF THE LIVER -U-  
AUTHOR--(05)-KONCHALOVSKAYA, N.M., VISHNEVSKIY, A.S., KHODYKIN, A.V.,  
POPOVA, T.B., VISHNEVSKAYA, YU.S.  
COUNTRY OF INFO--USSR

SOURCE--KLINICHESKAYA MEDITSINA, 1970, VOL 48, NR 3, PP 65-69

DATE PUBLISHED--70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--LIVER DISEASE, MINERAL, WATER, MUD, LIPID METABOLISM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

ROXY REEL/FRA--3001/0905

STEP NO--UR/0497/70/048/003/0065/0069

IRC ACCESSION NO--AP0126564

UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--30OCT70

IRC ACCESSION NO--AP0126564

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS INVESTIGATED THE EFFECTIVENESS OF HEALTH RESORT TREATMENT IN 64 PATIENTS SUFFERING FROM TOXIC CHEMICAL AFFECTION OF THE LIVER CAUSED BY ORGANIC COMPOUNDS. UNDER THE INFLUENCE OF A COMPLEX HEALTH RESORT TREATMENT THE PATIENTS SHOWED A FAVORABLE DYNAMICS OF SUBJECTIVE AND OBJECTIVE INDICES; SPECIAL MENTION SHOULD BE MADE OF THE FAVORABLE EFFECT OF A COMPLEX OF CARBONATE SULFUR BATHS AND FANGOTHERAPY ON THE PROTEIN FORMING, PIGMENTARY, ENZYMIC AND FATTY LIPID FUNCTION OF THE LIVER. FACILITY: PYATIROSKOG NAUCHNO-ISSLED. INSTITUTA KURORTOLOGII I FIZIOTERAPII, INSTITUTA GIGIYENY TRUDA I PROFZABOLEVANIY AMN SSSR, MOSKVA.

UNCLASSIFIED

Acc. Nr.: **AP0029818**

Ref. Code: UR 0475

PRIMARY SOURCE: Vrachebnoye Delo, 1970, Nr 1, pp 119-122

ON EXPEDIENT TERMS OF HEALTH-RESORT TREATMENT  
OF BOTKIN'S DISEASE RECONVALESCENTS

Vishnevskiy, A.S.; Khodykin, A.V.; Vishnevskaya, Yu. S.;  
Kazachok, G.I.; Finchukova, Ye.F. (Yessentuki)

A Study of 286 Botkin's disease reconvalescents made in 1958—1968 indicates that complex health-resort treatment of this category of patients showed best immediate and long-term results in those reconvalescents who were sent to health-resorts at early terms following discharge from the hospital (from 1 to 6 months).

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REEL/FRAME  
19681504

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USSR

UDC 616.5-003.6.05-085.849.19-091

VISHNEVSKIY, A. A., Jr., KHARITON, A. S., MUZYKANT, L. I., and SHERPUTOVSKAYA, K. Ye., Moscow, Department of Pathological Anatomy and Department of Pulmonary Surgery, Institute of Surgery imeni A. V. Vishnevskiy, Academy of Medical Sciences USSR

"Morphological Changes in the Skin After Irradiation With a Pulsed Laser to Remove Tattooing"

Moscow, Arkhiv Patologii, Vol 35, No 4, 1973, pp 59-63

Abstract: A pulsed neodymium laser (wave length 1.06 A and energy density 80-120 J/cm<sup>2</sup>) was used to remove tattoos in 113 persons aged 18 to 60. The irradiated skin was covered with a boric ointment dressing until the pigmented tissue was completely lysed and rejected (5-20 days) and then with Vishnevskiy's ointment dressing to promote granulation (3-5 days). The final healing took place under the naturally formed scab. Biopsy samples of pigmented with adjacent normal skin were taken prior to and at various periods up to 60 days after irradiation. Morphological and histochemical examinations of the samples revealed a mild inflammatory reaction, frequent absence of demarcation boundaries, infiltration by lymphocytes and histiocytes, and a moderate development of granulation tissue. Epithelialization proceeded mainly from the edges of the wound, with new epithelial cells containing large glycogen granules and a  
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USSR

VISHNEVSKIY, A. A. Jr., et al., Arkhiv Patologii, Vol 35, No 4, 1973, pp 59-63

considerable amount of mucopolysaccharides. In 3-4 weeks, the wound was healed completely (approximately the same period as with clean surgical wounds), and fine, smooth, pink, mobile scar tissue of the contour of the tattoo was formed. The underlying young connective tissue was rich in acid mucopolysaccharides but contained no elastic fibers. In 1 year, the scar became quite unnoticeable.

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USSR

UDC 615.849.19.015:612.46

OGNEV, B. V., VISHNEVSKIY, A. A., Jr., TROITSKIY, R. A., POLONSKIY, A. K.,  
VAL'TER, E. O., TIMIKHINA, N. I., KASSIN, V. Yu., and CHERKASOV, A. V.  
Institute of Surgery imeni A. V. Vishnevskiy, Academy of Medical Sciences USSR,  
Moscow

"Investigation of the Action of Gas Laser Rays on the Kidney Under Experimental  
Conditions"

Moscow, Urologiya i Nefrologiya, No 2, Mar/Apr 73, pp 33-36

Abstract: Laparotomy was performed under local anesthesia in rabbits, and the left kidney was transected with a focused impulsed neodymium laser beam. The transection was bloodless, and renal temperature rose to 42-48°C for a brief period. Penicillin was applied in the abdominal area, and the kidney and the abdomen were closed with sutures. During the uncomplicated postoperative month, the animals were sacrificed at intervals. Histological examination of renal tissue taken 1 hr after surgery revealed a wedge-shaped crater on the surface, 216  $\mu$  wide and 90  $\mu$  deep, from which cracks extended up to 110  $\mu$  deep into the renal cortex. The crater was covered with a homogeneous, foamy coagulate. The lesion was surrounded by a thin layer of necrotic tissue. In 1 day, the edges of the fibrous capsule were peeled off 500  $\mu$  from the center of the crater. The necrotic zone was 360  $\mu$  wide and 300  $\mu$  deep, and it was 1/2



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OGNEV, B. V., et al., Urologiya i Nefrologiya, No 2, Mar/Apr 73, pp 33-36

surrounded by an infiltrated layer separating it from healthy tissue. On subsequent days, the necrotic zone enlarged to a maximum of 900 //, but no hemorrhages or suppurative inflammation developed. On the 10th day, the surface of the lesion was covered with a thin connective tissue capsule which gradually grew thicker. New capillaries formed in the parenchyma. On the 20th day, the lesion was filled with scar tissue whose thickness diminished to about 100 // on the 30th day. The right kidney was free of pathology throughout the experimental period. Thus, transection of the kidney with laser is bloodless and causes strictly local morphological changes, leaving surrounding tissue intact. Organization of scar tissue is not completed in 30 days.

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VISHNEVSKIY, A. A.

SO: JPRS 53702  
28 JUL 71

UDC: 617:007+621.3

SOME NEW APPLICATIONS OF CYBERNETICS AND ELECTRONICS IN SURGERY

A.

[Article by A. A. Vishnevskiy, Moscow, Vestnik Akademii Meditsinskikh Nauk SSSR, Russian, No. 6, 1971, pp. 46-50]

In the last decade, medicine has moved to a qualitatively new stage of development, a stage marked by the intensive penetration of the achievements in the precise sciences into its different branches: physics, chemistry, mathematics, electronics, and even cybernetics. In our country this new direction has been afforded broad capabilities following the well-known decisions of the Party and Government pertaining to the development of science in general and medicine in particular.

We shall take the liberty of discussing only the problems which concern us most particularly and in the development of which our institute has already achieved some results.

We are all aware of the role of modern electronic instruments and apparatus in wide use in surgical practice. However, all of the capabilities of electronic engineering permits not only objective evaluation of the condition of the living organism, but also discloses new means of pathogenetic treatment aimed at restoring lost functions or developing compensatory mechanisms.

Increasing attention is being given all over the world to the use in biology and medicine of cybernetic methods which permit automatic control of diverse systems. We know that control is based on the succession of two main processes: determination of the condition of the object under study and development of optimum influence on a given state. If we consider the focal problem in medicine from this point of view, i.e. the therapy problem, it too contains two analogous processes: determination of the patient's condition and institution of the most effective therapy. Precisely herein lies the main content of the new direction which we now call medical cybernetics.

In 1960, for the first time in the Soviet Union, a laboratory of medical cybernetics was established at the Institute of Surgery. In it diagnostic cybernetic systems have been created for a number of surgical diseases: congenital and acquired heart lesions, diseases of the liver and stomach. These diagnostic

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UDC 617-089.843-06:616-021.2

VISHNEVSKIY, A. A., KOLESNIKOV, I. S., BALLYUZEK, F. V.,  
PORTNOY, V. F., KOSTIN, E. D., PECHERSKIY, V. I., KOLOMIYETS,  
S. G., and KHUNDANOV, L. L., Institute of Surgery imeni A. V.  
Vishnevskiy Academy of Medical Sciences USSR, and Hospital  
Surgery Clinic Military Medical Academy imeni S. M. Kirov

"Causes of Early Functional Incompetence of Allotransplants"

Moscow, Eksperimental'naya Khirurgiya i Anesteziologiya, Vol 1,  
Jan/Feb 71, pp 3-8

Abstract: Causes and effects in postoperative developments were  
analyzed, which enabled us to systematize the factors responsi-  
ble for early functional incompetence of a transplanted organ.  
Factors in four etiological categories were considered: 1.  
Organization and Tactics: each of availability of funds for  
establishing transplantation centers; lack of the required  
equipment, instruments, and drugs; absence of a central list of  
potential recipients; and inadequate cooperation between trans-  
plantation surgeons and reanimation specialists.  
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VISHNEVSKIY, A. A., et al., Eksperimental'naya Khirurgiya i Anesteziologiya, Vol 1, Jan/Feb 71, pp 3-8.

2. Physiological Anatomy: poor estimation of the anatomical and physiological reserves of the transplant; and shortcomings in surgical techniques. 3. Pathophysiology: deteriorated state of the recipient; poor health of the donor; injury to the transplant; excessive functional load on the transplant; and inadequate prevention of operative and postoperative complications. 4. Immunobiology: poor matching of donor and recipient; high immunological potential in the recipient; inadequate prevention of stimulation of immunological reactions in the recipient; and mistakes committed in immunosuppressive therapy.

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1/2 025

UNCLASSIFIED

PROCESSING DATE--18SEP70

TITLE--A TECHNIQUE FOR DETERMINING THE DYNAMICS AND RATE OF PORTAL  
CIRCULATION WITH THE AID OF A PLATINUM AND HYDROGEN ELECTRODE -U-  
AUTHOR--(04)-VISHNEVSKIY, A.A., VOLYNSKIY, YU.D., DANILOV, M.V., BERDIKYAN,  
S.YA.

COUNTRY OF INFO--USSR

SOURCE--KHIRURGIYA, 1970, NR 4, PP 97-99

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BLOOD CIRCULATION, LIVER, VEIN, HYPERTENSION, PLATINUM  
ELECTRODE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1983/1219

STEP NO--UR/0531/70/000/004/0097/0099

CIRC ACCESSION NO--AP0054114

UNCLASSIFIED

272 025

CIRC ACCESSION NO--AP0054114

UNCLASSIFIED

PROCESSING DATE--18SEP70

ABSTRACT/EXTRACT--(U) GP-D- ABSTRACT. THE AUTHORS PROPOSE A NEW METHOD OF STUDYING THE PORTAL CIRCULATION BY MEANS OF A CATHETER WITH A PLATINUM ELECTRODE INTRODUCED INTO THE HEPATIC VEIN. ASCORBIC ACID SOLUTION WHICH WAS INTRODUCED INTRASPLENICALLY. THE PLATINUM ELECTRODE RECORDS THE INDICATOR DILUTION CURVE IN THE HEPATIC VEIN. THE REFERRED OT TECHNIQUE ENABLES ACCURATE DETERMINATION OF THE RATE OF PORTAL HYPERTENSION AND THE CHARACTER OF INDICATOR EVACUATION FROM THE PORTAL CHANNEL, AS WELL AS HELPS TO ASSESS THE DEGREE OF CIRCULATION IMPAIRMENT THROUGH THE LIVER AND COLLATERAL CIRCULATION.

UNCLASSIFIED

therapy

USSR

UDC 616-006.81-033.2-085.849.19

LAGUNOVA, I. G., VISHNEVSKIY, A. A., Jr., LIKHOVETSKAYA, L. L., ROZENFEL'D, E. B., and RAZYGRIN, B. A., Institute of Surgery imeni A. V. Vishnevskiy, Academy of Medical Sciences USSR, and Moscow Scientific Research Institute of Roentgenology and Radiography

"Possibility of Treating Melanoma Metastases With Laser Radiation"

Moscow, Eksperimental'naya Khirurgiya i Anesteziologiya, No 5, 1971, pp 50-53

Abstract: In a 22-year-old female with multiple metastatic melanomas that did not respond to X-irradiation or chemotherapy, neodymium laser radiation resulted in the rapid destruction of 52 of 58 tumors (90%). During the following 4 months recurrences occurred in only 3 nodes. There were eight radiation sessions extending over a period of 6 weeks, with 10 to 20 tumors treated each time. The patient's condition remained satisfactory throughout. The eschar produced by the radiation fell off spontaneously 14 to 25 days later, revealing a pink soft scar at the tumor site which fell off after 1 to 2 months. The color of the underlying tissue was the same as that of the surrounding skin. Neither combination of X- and laser rays nor multiple-field irradiation produced as good immediate results as did laser radiation alone.

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USSR

UDC 615.849.19.015.4:612.35

OGNEV, B. V., VISHNEVSKIY, A. A., TROITSKIY, R. A., KEGUM, E. V., RAZYGRIN, B. A., and FEDOTKIN, G. F., Institute of Surgery imeni A. V. Vishnevskiy, Academy of Medical Sciences, Chair of Operative Surgery and Topographical Anatomy, USSR, and Central Institute of Advanced Training of Physicians, Ministry of Health USSR, Moscow

"Effect of Laser Radiation on Rabbit Liver"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 6, 1972, pp 20-23

Abstract: Following laparotomy, the right lobes of the livers of rabbits were exposed to either pulsed or continuous laser waves. The pulsed waves produced a local burn and coagulation necrosis of the tissue together with hemorrhages and thrombosis of the blood vessels. Continuous laser irradiation resulted in bloodless incision of liver parenchyma and formation of a scar at the site of entry 5 days later. Vascularization was restored within 15 to 30 days with the formation of blood vessels possessing an atypical structure (narrowed, enlarged, amputated, bent, etc.).

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USSR

UDC 621.385.032.213

VISHNEVSKIY, A. I.

"Technical and Economic Efficiency of Thermionic Cathode"

Vestn. Kiyev. politekhn. in-ta. Ser. radioelektron. (Bulletin Of Kiev Polytechnical Institute. Radioelectronics Series), 1970, No 7, pp 3-5 (from RZh--Elektronika i yeye primeneniye, No 1, January 1971, Abstract No 1A70)

Translation: The formula is derived for determining the technical and economical efficiency  $E_k$  for a thermionic cathode:

$$E_k = \frac{I_e \tau_k}{C \alpha_k + h P_h \tau_k}$$

where  $I$  is the saturation current;  $\tau_k$  is the cathode lifetime,  $C \alpha_k$  is the cost of manufacturing the cathode;  $h$  is the cost of a unit of electrical energy;  $P_h$  is the power of the cathode heater. It is recommended that this formula be used for the most generalized evaluation of the technical and economic efficiency during a comparison of variations of cathodes which have been developed. In addition, this formula can be taken as a basis for economical and effective cathodes. 2 ref. G.B.

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USSR

UDC 621.387

VISHNEVSKIY, A. I., SOLDATENKO, A. I., SHENDAKOV, A. I.

"To the Computation of Cathode-Magnetic Control in Indutrons with a Cold Cathode"

Vestn. Kiyevsk. politekhn. in-ta. Ser. radioelektron. (Bulletin of the Kiev Polytechnical Institute. Radioelectronics Series), 1969, No 6, pp 3-6 (from RZh--Elektronika i yeye primeneniye, No 7, July 1970, Abstract No 7A155)

Translation: The results are presented of a theoretical and experimental investigation of the principles of cathode-magnetic control in gas-discharge devices of the indutron type. Variations of the angle of burning are obtained in the form of a function of the magnetic field intensity at the cathode with various d-c and a-c plate voltages of an indutron with a cold cathode. The possibility is shown of phase, amplitude, and amplitude-phase control of the output voltage of a rectifier in wide limits. It is noted that the indutron can find use in circuits for rectifiers, inverters, modulators, and others. 2 ref. L.A.

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USSR

Vacuum Tubes

UDJ 621.314.65

VISHNEVSKIY, A.I., SOLDATENKO, A.I., SHENDAKOV, A.I.

"Improvement Of  $\cos \phi$  Of Power Supply Network In Electrical Circuits With A Device Of The Indutron Type"

Vestn. Kiyevsk. politekhn. in-ta. Ser. Radioelektron. (Bulletin Of The Kiev Polytechnical Institute. Radio Electronics Series), 1969, No 6, pp 7-9 (from RZh--Elektronika i yeye prizenaniye, No 6, June 1970, Abstract No 6A179)

Translation: The operation of a rectifier is considered in which a gas-discharge device with a cold cathode and with crossed electrical and magnetic fields (indutron) is used as a rectifier [tube]. Expressions are obtained by the method of harmonic analysis of the curves of the rectifier current, for the first harmonic of the anode current and the angle of displacement between the anode voltage and the first harmonic of the anode current  $\phi_1$ . It is shown that with specific conditions the angle  $\phi_1$  can be a lead angle, which makes it possible to improve  $\cos \phi$  of the power supply network of the amplifier. V.M.

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USSR

UDC: 535.231.62-1

BABUSHKIN, V. V., VISHNEVSKIY, A. K., DOLGIKH, I. I., LIEOVA, I. V., All-  
-Union Scientific Research Institute of Metrology imeni D. I. Mendeleev

"Investigation of the Energy and Spectral Sensitivity of Receivers in the  
Near-Infrared Spectral Region"

Leningrad, Issledovaniya v Oblasti Opticheskikh i Svetovykh Izmereniy,  
Trudy Metrologicheskikh Institutov SSSR, No 114(174), 1970, pp 141-146

Abstract: The paper presents the results of an investigation of the  
energy and spectral sensitivity of BSC-2 and BKM-5 semiconductor bolometers  
and the type BMK-3 metallic bolometers. The measurements were made in  
the spectral region from 1 to 8 microns. The measurement procedure and  
equipment are described. Four figures, two bibliographic references.

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USSR

VISHNEVSKIY, A. P.

"Synthesis of Multistable Automaton Based on Polylogical Elements"

Mnogoustoych. Elementy i ikh Primeneniye [Multistable Elements and Their Applications -- Collection of Works], Moscow, Sov. Radio Press, 1971, pp 105-111, (Translated from Referativnyy Zhurnal, Kibernetika, No 2, 1972, Abstract No 2 V421).

NO ABSTRACT.

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1/2 022

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--ESSENTUKI HEALTH RESORT TREATMENT OF PATIENTS SUFFERING FROM TOXICO  
CHEMICAL AFFECTION OF THE LIVER -U-

AUTHOR--(05)--KENCHALOVSKAYA, N.M., VISHNEVSKIY, A.S., KHODYKIN, A.V.,  
POPOVA, T.B., VISHNEVSKAYA, YU.S.

COUNTRY OF INFO--USSR

SOURCE--KLINICHESKAYA MEDITSINA, 1970, VOL 48, NR 3, PP 65-69

DATE PUBLISHED--70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--LIVER DISEASE, MINERAL, WATER, MUD, LIPID METABOLISM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3001/0905

STEP NO--UR/0497/70/048/003/0065/0069

CIRC ACCESSION NO--AP0126564

UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--300CT70

CIRC ACCESSION NO--AP0126564

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS INVESTIGATED THE EFFECTIVENESS OF HEALTH RESORT TREATMENT IN 64 PATIENTS SUFFERING FROM TOXIC CHEMICAL AFFECTATION OF THE LIVER CAUSED BY ORGANIC COMPOUNDS. UNDER THE INFLUENCE OF A COMPLEX HEALTH RESORT TREATMENT THE PATIENTS SHOWED A FAVORABLE DYNAMICS OF SUBJECTIVE AND OBJECTIVE INDICES; SPECIAL MENTION SHOULD BE MADE OF THE FAVORABLE EFFECT OF A COMPLEX OF CARBONATE SULFUR BATHS AND FANGOTHERAPY ON THE PROTEIN FORMING, PIGMENTARY, ENZYMATIC AND FATTY LIPID FUNCTION OF THE LIVER. FACILITY: PYATIROSKOGG NAUCHNO-ISSLED. INSTITUTA KURORTOLOGII I FIZIOTERAPII, INSTITUTA GIGIYENY TRUDA I PROFZABOLEVANIY AMN SSSR, MOSKVA.

UNCLASSIFIED

Acc. Nr:

AP 0047683

Abstracting Service:

CHEMICAL ABST. 5/70

Ref. Code:

4R0032

104772f Determination of the size of a deformed layer in germanium after polishing. Vishnevskii, A. S.; Datsenko, L. I.; Firshtein, L. A. (Inst. Sverantverdykh Mater., Russ. USSR). *Zavod. Lab.* 1970, 36(1), 33-5 (Russ.). A double crystal spectrometer is used to follow the broadening of the swaying curve of the  $hkl$  reflection which is responsible for the existence of nonorientated mosaic blocks. The 28-30 half-width of the reflection curve [111], obsd. on a surface treated many times with an etching agent, is taken as the criterion for the absence of a deformed layer. In order to decrease the exptl. error due to non-coincidence of the at. plane with that of the sample, an adjustment of the sample crystal is made which consists in giving the crystal such a position that the angle  $\theta$  between the incident ray direction and that of the sample plane is  $\theta = \theta_B + \alpha$ , where  $\theta_B$  is the tabular value of the Bragg angle for the given reflection and  $\alpha$  the max. angle of deflection of the sample plane from the at. one. The dependence of the half-width of the [111] reflection on the deformed layer thickness found during stepwise etching is presented.

J. Hejduk

REEL/FRAME  
19791259



Acc. Nr.: **AP0029818**

Ref. Code: UR 0475

PRIMARY SOURCE: Vrachebnoye Delo, 1970, Nr 1, pp 119-122

ON EXPEDIENT TERMS OF HEALTH-RESORT TREATMENT  
OF BOTKIN'S DISEASE RECONVALESCENTS

Vishnevskiy, A.S.; Khodykin, A.V.; Vishnevskaya, Yu. S.;  
Kazachok, G.I.; Pinchukova, Ye.F. (Yessentuki)

A Study of 286 Botkin's disease reconvalescents made in 1958-1968 indicates that complex health-resort treatment of this category of patients showed best immediate and long-term results in those reconvalescents who were sent to health-resorts at early terms following discharge from the hospital (from 1 to 6 months).

mk

REEL/FRAME  
19681504

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Biophysics

USSR

FISHMAN, S. N., KHODOROV, B. I., and BOL'KENSHTEYN, M. V., Institute of Molecular Biology, Academy of Sciences, USSR, Moscow; Institute of Surgery imeni A. V. Vishnevskiy, Academy of Medical Sciences, USSR, Moscow

"Molecular Mechanisms of Changes of the Ionic Permeability of an Electrically Excitable Membrane. II. Model of the Activation Process"

Moscow, Biofizika, Vol 17, No 4, 1972, pp 611-617

Abstract: A model of activation of the Na-conductivity of an excitable membrane during a positive shift of the membrane potential is considered. This model assumes that activating particles exist in the membrane and that due to the effect of the field, these particles undergo a transformation related to the charge displacement. This transformation also brings about a change in the number of calcium ions sorbed by the membrane from solution. By means of the model, it becomes possible to explain the shape of the curve of the relationship of the peak Na-conductivity to the potential on the membrane, the value of the shift of this curve along the voltage axis with a change of the  $Ca^{++}$  concentration in the surrounding solution. The model also permits explanation of the influence of an increase of  $(Ca)_0$  upon kinetic effects, such as retardation of the growth rate of membrane conductivity  $g_{Na}(t)$  during membrane depolarization, and an acceleration of the rate of decrease of  $g_{Na}(t)$  during repolarization.

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VISHNEVSKIY, A.V.

# Reanimation + Protein Synthesis

### REANIMATION AND PROTEIN SYNTHESIS

Interview with staff members of the Institute of Surgery, ~~Imeni A. V. Vishniakovskiy~~ "Dental Postponed", Moscow, ~~Znaniye SSSR~~, Russian, No 7, 1972, pp. 6-71

71.115 57.106

2 November 1972

In special publications -- *Voprosy Khimicheskoy Fizicheskoy Khimii* (problems of Medical Chemistry), *Trudovyye Materialy Nauchnykh Konferentsiy i Seminarii* (Scientific Materials of Conferences and Seminars), *Trudovyye Materialy Nauchnykh Konferentsiy i Seminarii* (Scientific Materials of Conferences and Seminars), in the transactions of scientific meetings and conferences, as well as in the foreign press -- the Varna attendees have appeared describing work that does not fall quite within the scope of ordinary being conducted at the Institute of Surgery named N.V. Vishnovsky of the USSR Academy of Sciences.

Our correspondent met with its authors -- Professor Anna Semenovna Koniakova, head of the Biochemistry Laboratory, Doctor of Biological Sciences Antonina Viktorovna Pogodova, and Surgeon Vasily Illich Mikhailin. The light, spacious rooms of the laboratory, the latest equipment, an excellent 17-story building recently constructed at Serukhovskaya, even the still new looking office of Professor Koniakova, whose the conversation took place, all emphasized its purpose that the results obtained were essentially only the beginning of a long road.

Question: Anna Semanovna, why have you started to study at this institute, where people are brought back to good health and life, death and even that which takes place after it?

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[I - USSK - C]