

2/2 015

UNCLASSIFIED

PROCESSING DATE--30DCT70

CIRC ACCESSION NO--AP0124625

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DEPENDENCES OF (CH SUB2 CHCNCH
 SUB2 CHE(CONHCH SUB2 OH) SUBN (I) COMPN., YIELD, AND REACTION RATE ON
 THE COMPN. OF THE MIXT. OF MONOMERS, ACRYLONITRILE (II) AND
 N-METHYLCLACRYLAMIDE (III), AND ON REACTION TIME WERE DETD. MONOMER
 REACTIVITY RATIOS OF II AND III WERE 0.98 PLUS OR MINUS 0.05 AND 2.33
 PLUS OR MINUS 0.1, RESP. I WAS ENRICHED IN III COMPARED WITH THE
 ORIGINAL MONOMER MIXT. COMPN. BUT III WAS SPENT SIGNIFICANTLY FASTER AS
 COPOLYMN. PROCEEDED. COPOLYMN. RATES WERE HIGH (E.G. CONVERSION AFTER
 60 MIN FOR A 95:5 II-III MIXT. WAS 75-80PERCENT) BUT THE RATE DECREASED
 WITH TIME AND WITH INCREASING III CONC. IN THE ORIGINAL MONOMER MIXT.
 FACILITY: LENINGRAD. INST. TEKST. LEGK. PROM. IM. KIROVA,
 LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC 51

ALIYEVSKAYA, L. V., POPOVA, G. S., SHCHAPIRO, A. D.

"Mathematical-Economic Models of the Development of the Subbranches of Petroleum and Chemical Machine Building"

Sb. tr. In-t gidrodinam. Sib. otd. AN SSSR (Collected Works of the Hydrodynamics Institute of the Siberian Department of the USSR Academy of Sciences), 1971, vyp. 4, pp 149-164 (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V540)

Translation: On the basis of the existing control system, many branches of the national economy are combining so many different subbranches that it is impossible to construct a united sufficiently conceivable mathematical-economic model adequately describing all the subbranches. In this paper an effort has been made to construct models of the distribution of capital investments for the future in the petroleum and chemical machine building branch with satisfaction of the given requirements for the branch production by years. Inasmuch as in the given case the capital investments are not restrictions but must be defined, the possibility arises for consideration of each subbranch individually. For each of the investigated subbranches the problem of optimizing the capital investments is formulated in the following way: it is necessary to find the optimal capital investments (by the criterion of minimum reduced expenditures) under the condition of complete satisfaction of the demand for the production of each type for the given subbranch for all years of the planned period. The models for the formalization of the problems are selected beginning

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ALIYEVSKAYA, L. V., et al., Sb. tr. In-t gidrodinam. Sib. otd. AN SSSR, 1971,
vyp. 4, pp 149-164

with the internal structure of the subbranches and, primarily, the nature of the basic equipment. If the basic equipment of the enterprises is sufficiently specialized with respect to the subbranch, then the integral (variant) model is most adequate. For the polymer machine building subbranch, a partially integral model is constructed; in this way the nonlinear nature of the dependence of the specific capital investments on the production volumes is approximately taken into account. For the petroleum equipment production subbranch the model of linear programming is constructed which takes into account the conditions of mutual interchangeability of the types of equipment. The model is given in the continuous statement also for the subbranch of paper and cellulose machine building -- various conditions of the introduction and mastery of facilities during different periods are considered here.

2/2

USSR

UDC: 537.533.3

BOGDARENKO, Yu. V., BUDARNYKH, V. I., IL'IN, V. P., ISKOL'DSKIY,
A. M., NESTERIKHIN, Yu. Ye., POPOVA, G. S., and SHESTAK, A. F.

"Electronic-Optical Converters in Forced Light Load Operation"

Novosibirsk, Avtometriya, No 6, 1971, pp 7-14

Abstract: Forced light load operation is defined as that mode of operation of the photocathode of an electronic-optical converter in which a photocurrent of high density is picked up in recording processes 10^{-9} - 10^{-11} s in duration. In this kind of operation the obtained images are markedly distorted. The function of this paper is to take a closer look at the basic effects tending to deteriorate the image quality through experiments, the purpose of which is to investigate the effect of the electric field near the photocathode and the space charge in causing this distortion. A diagram of the experimental equipment is given and the experimental procedure explained. Photographic samples of the image distortion are shown and the reasons for the defects clarified. The authors express their gratitude to B. A. Bryzhev for his assistance in providing the equipment, and to N. N. Dikant and I. N. Zaydel.

1/1

USSR

UDC: 621.315.592

BATAVIN, V. V., MIKHAELIAN, V. M., and POPOVA, G. V.

"Nature of 1.26-1.50 eV Radiation Bands in the Photoluminescence Spectra of Gallium Arsenide With Copper Impurities"

Leningrad, Fizika i tekhnika poluprovodnikov, No 10, 1972, pp 1874-1878

Abstract: A number of earlier works have shown that in the luminescence spectra of undoped n-type GaAs in the presence of copper, radiation peaks with energies of 1.26-1.50 eV are observed. The authors of the present paper find that the nature of the recombination center corresponding to this energy band has been inadequately studied, and in this paper obtain additional information regarding the characteristics of the band, thus shedding additional light on the generation and nature of the recombination center. The experiments described were performed on n-type GaAs specimens obtained by gas-transport epitaxia in a broad range of copper concentrations and donor impurities. The acceptor concentrations and the mobility in each specimen were also measured, the latter by the van der Pau method in the 50-300° K interval. The photoluminescence spectra were obtained in the range of 4-300° K using the ILM-1 monochromator
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USSR

UDC: 621.315.592

BATAVIN, V. V., et al, Fizika i tekhnika poluprovodnikov, No 10,
1972, pp 1874-1878

with a glass prism and the LG-75 laser as the excitation source;
the receiver device for the radiation was the FEU-28.

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1/2 009 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--AZEOTROPIC DISTILLATION OF XYLENES STUDIED TO SELECT INDUSTRIAL
QUALITY ANALYZERS -U-
AUTHOR-(02)-OLEYNIKOVA, A.F., POPOVA, G.YE. *P*
COUNTRY OF INFO--USSR
SOURCE--NEFTEPERERAB. NEFTEKHIM. (MOSCOW) 1970, (1), 29-31
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--DISTILLATION, XYLENE, CHROMATOGRAPHY, AUTOMATIC CHEMICAL
PROCESS CONTROL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/0807 STEP NO--UR/0318/70/000/001/0029/0031
CIRC ACCESSION NO--AP0119714
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0119714

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A CORRELATION EXPTL. DETD. BETWEEN D PRIME20 AND M PRIME20 SUBD AND THE CONTENT OF XYLENES WAS USED FOR AUTOMATIC CONTROL OF COLUMN OPERATION WHEN THE COMPN. OF THE FEED VARIED. CONTINUOUS CONTROL OF THE PROCESS WAS PROVIDED BY MEANS OF SELECTED AUTOMATIC APP. FOR MEASURING D PRIME20 AND N PRIME20 SUBD AND BY CHROMATOG. FACILITY: NOVOKUIBYSHEVSK. FILIAL SKB ANN, NOVOKUIBYSHEVSK, USSR.

UNCLASSIFIED

USSR

UDC: 681.2.088

NEUYMIN, Ya. G., POPOVA, I. A., RYVKIN, B. L., SHKOL'NIK, B. A.

"Estimates of the Dynamic Error of Measurements"

Moscow, Metrologiya, No 1, 1973, pp 33-44.

Abstract: Standard and minimized estimates are produced for the dispersion of dynamic measurements based on the unevenness of the amplitude-frequency characteristics of a device and the moments of its weight function. The estimates are useful under conditions of incomplete information on the dynamic properties of measurement equipment both in the stage of planning and in its operation.

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USSR

UDC: 8.74

POPOVA, I. I.

"Hardware-Software Method of Expanding the Immediate-Access Memory of the 'Minsk-22' Digital Computer"

Vychisl. tekhn. v mashinostr. Nauch.-tekhn. sb. (Computer Technology in Machine Building. Scientific and Technical Collection), 1970, Dec, pp 135-140 (from RZh-Kibernetika, No 8, Aug 72, Abstract No 8V650)

Translation: A method is considered for expanding the immediate-access memory of the "Minsk-22" computer in the program-interruption mode with actuation of an auxiliary core-store stack. This provides a considerable expansion of the possibilities of the digital computer. Author's resumé.

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Acc. Nr: APC036812

PRIMARY SOURCE: Zhurnal Mikrobiologii, Epidemiologii, i Immunobiologii, 1970, Nr 1, pp. 31-35

DYNAMICS OF DISCHARGE OF TYPHOID BACILLI IN CHRONIC CARRIERS IN DIFFERENT SEASONS OF THE YEAR AND ITS SIGNIFICANCE IN THE EPIDEMIOLOGY OF THE DISEASE

S. R. Khomik, Ya. M. Ferdinand, G. I. Skirda, N. S. Kovaleva, N. S. Solovay, K. I. Paga, P. Timoshkina, M. M. Shelkovich, B. A. Plyuro, Apeykina, M. D.

The feces of forty five carriers of typhoid bacillus were examined in different seasons of the year. The greatest number of bacilli was discharged from January to May (0.1 to 960 million per gm of feces were the number of bacilli found throughout the year). Therefore, the authors recommend examination of carriers to be carried out mainly during the first half of the year.

There was established no association between the seasonal distribution of the incidence of the disease and the intensity of bacterial discharge.

D.W.

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REEL/FRAME
19721729

USSR

UDC 534.7

GAVRILOV, L. R., GERSHUNI, G. V., IL'INSKIY, O. B., POPOVA, L. A.,

"Stimulation of Human Peripheral Nerves by Focused Ultrasound"

Moscow, Akusticheskiy Zhurnal, No 4, 1974, pp 519-523

Abstract: Stimulation of the fingers, palm, and lower third of the forearm of 5 subjects by focused ultrasound at frequencies of 0.48, 0.887, 1.95 and 3.67 MHz produced 3 types of sensations - tactile, temperature, and pain. The thresholds varied with the type of sensation, being lowest for the tactile sensations. The thresholds rose as the focal range was shifted from the fingers to the palm and then to the forearm. (Ultrasound directed at certain spots on the palm and forearm produced a distinct sensation of cold, an unusual response because it is physically impossible for ultrasound to chill the tissues). The thresholds of the tactile sensations were virtually independent of the duration of exposure to ultrasound lasting 1 to 100 msec. However, they rose considerably when the duration was decreased to 0.1 msec or less. Some suggestions are made for constructing ultrasonic apparatus to be used for stimulating nerve structures.

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USSR

UDC 612.821.7+612.822.1

DANILOV, I. V., POPOVA, L. A., and KATINAS, V. A., Institute of Experimental Medicine, Academy of Sciences USSR, Leningrad

"Changes in Cat Behavior and Brain Bioelectrical Activity During Drowsiness After Polarization of Some Brain Structures"

Leningrad, Fiziologicheskii Zhurnal SSR, No 3, 1973, pp 367-372

Abstract: In chronic experiments on relatively unrestrained cats, micropolarization of various brain structures (sensorimotor, temporal, and occipital cortex) combined with electrical stimulation of hypnogenic zones (reticular formation or posterior hypothalamus) markedly altered the "ritual" of the animals' behavior (licking and washing movements) that generally precedes natural sleep. Micropolarization in the preparatory period lengthened the period of active washing movements and raised the thresholds of electrostimulation of the hypnogenic zones to induce sleep. But applied while the animals were drowsy, micropolarization accelerated the onset of sleep and made it longer and deeper. The sleep resulting from the combined effect of electrostimulation and polarization of hypnogenic zones was characterized by a change in the correlations of the slow- and fast-wave sleep phases in the various brain structures. Synchronism disappeared and the slow-wave and fast-wave phases became typical of the deep structures and cortical regions, respectively.

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UDC 669.215'292.018.5

USSR

POPOVA, I. A., Leningrad Institute of Aviation Instrument Making"

"Some Physical-Mechanical Properties of Weakly Alloyed Gold-Vanadium Alloys"

Kiev, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 8, No 2, 1972, pp 111-112

Abstract: The solid solution zone in gold-vanadium alloys extends to 60 atomic % vanadium [W. Köster, et al., *Z. F. Metallkunde*, Vol 54, No 12, 1963; H. Eicke, et al., *Z. F. Metallkunde*, Vol 55, No 9, 1964]. In a broad concentration range the alloys of this system have a negative temperature coefficient of electrical resistance which at about 1 atomic % vanadium becomes close to zero and remains constant in practice in the temperature range from -200°C to $+800^{\circ}\text{C}$. A study was made of the effect of small additions of vanadium on some of the mechanical and physical properties to obtain the optimal composition of the alloy having simultaneously low specific electrical resistance (ρ) and low temperature coefficient of electrical resistance (α). For the burden material, 99.9% pure gold and vanadium iodide were used. The electrical properties of the alloys were studied in the work-hardened state and after annealing at various temperatures in a vacuum with a residual pressure of $2 \cdot 10^{-4}$ mm Hg. The values of ρ and α were determined in the temperature range of $20-60^{\circ}\text{C}$, and the thermal emf of the alloys coupled with copper was determined in the $20-100^{\circ}\text{C}$ range.

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USSR

POPOVA, L. A., Fiziko-Khimicheskaya Mekhanika Materialov, Vol 8, No 2, 1972, pp 111-112

Even large additions of vanadium significantly increase ρ and reduce the coefficient α which with a content of about 0.25% V in the alloy passes through zero and becomes negative. The increase in annealing temperature has no effect in practice on the value of ρ and raises α insignificantly for alloys with a greater vanadium content. The microhardness and thermal emf of a gold alloy with 0.26 % V coupled with copper as a function of the annealing temperature is plotted. To a temperature of 300° C the microhardness of the work-hardened specimen remains constant and then decreases sharply and reaches a minimum at 500-600° C. The thermal emf does not change in practice on increasing the annealing temperature.

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UDC 621.376.223

USSR

PETUKHOV, A.A., POPOVA, L.A., TUFLIN, E.K.

"Switch Parameters Of Integrated Interruptor"

V sb. Elektronnaya tekhnika v avtomatika (Electronics Techniques In Automation--
Collection Of Works), Moscow, Izd-vo "Sovetskaya Radio," No 2, 1971, pp 59-64

Abstract: The results are presented of a statistical study of the parameters of the IP-1 silicon integrated interrupter [preryvatel¹] which is used as a precision analogue switch in various automatic and telemechanic devices for commutation of voltages up to 6 v. The principal electrical circuit and the numbering of the base lead outs of the IP-1 are presented. An estimated is made of the errors possible during commutation. 4 fig. 2 ref.

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UNCLASSIFIED

PROCESSING DATE--23OCT70

1/2 034

TITLE--STRUCTURE OF HIGH DENSITY POLYETHYLENE PIPES -U-

AUTHOR--(02)-KAGAN, D.F., POPOVA, L.A.

COUNTRY OF INFO--USSR

SOURCE--PLAST. MASSY 1970, (3), 32-3

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--MOLECULAR STRUCTURE, POLYETHYLENE, PIPE, MICROPHOTOGRAPHY,
BRITTLE FRACTURE, SPHERULITE, PLASTIC FABRICATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1997/0660

STEP NO--UR/0191/70/000/003/0032/0033

CIRC ACCESSION NO--AP0119568

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UNCLASSIFIED

PROCESSING DATE—23OCT70

2/2 034

CIRC ACCESSION NO--AP0119568
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE SUPRAMOL. STRUCTURE OF HIGH D.
POLYETHYLENE (1) PIPES WAS STUDIED BY MICROSCOPIC EXAMN. OF BRITTLE
FRACTURES OF 1 (15 TIMES 15 TIMES 3 MM). MICROPHOTOGRAPHS OF BRITTLE
FRACTURES SHOWED THAT THE SPHERULITES WERE ARRANGED IN A CERTAIN
DIRECTION DEPENDING ON THE EXTRUSION MOLDING CONDITIONS.

UNCLASSIFIED

PROCESSING DATE--11SEP70

UNCLASSIFIED

1/2 023
TITLE--PREPARATION OF NITROALKATRIENES -U-

AUTHOR--SOKOLOV, N.A., POPOVA, L.A.

COUNTRY OF INFO--USSR

SOURCE--VESTSI AKAD. NAVUK BELARUS. SSR, SER. KHIM. NAVUK 1970, (1), 112

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL SYNTHESIS, AROMATIC NITRO COMPOUND, BENZENE
DERIVATIVE, UV SPECTRUM, IR SPECTRUM, SPECTROSCOPIC ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1987/1076

STEP NO--UR/0419/70/000/001/0112/0112

CIRC ACCESSION NO--AP0104474

UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0104474

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ADDING 1.3 G MENO SUB2 TO 1 G NAOH IN 20 ML MEOH, FOLLOWED BY, AT 0DEGREES, 2.7 G PHENYLSORBALDEHYDE IN MEOH AND HOLDING THE MIXT. 0.5 HR GAVE ON DILN. WITH H SUB2 O AND ACIDIFICATION WITH H SUB2 SO SUB4, 95PERCENT 1,PHENYL,6,NITRO,1,3,5,HEXATRIENE, M. 106-7DEGREES. UV AND IR SPECTRAL DATA WERE GIVEN.

UNCLASSIFIED

Acc. Nr:

AP0037247

Ref. Code: UR 0301

PRIMARY SOURCE: Voprosy Meditsinskoy Khimii, 1970, Vol 16,
Nr 1, pp 101-103

TWO-DIMENSIONAL CHROMATOGRAPHY OF CORTICOSTEROIDS MIXTURE IN
THIN LAYER OF KSK SILICA-GEL

Volkova, V. I.; Gaziyev, G. A.; Popova, L. A.

The separation of artificial mixture of biologically important corticosteroids: cortisol, cortisone, their tetrahydroderivatives, corticosterone, aldosterone, 11-dehydrocorticosterone, substance S (according to Reichstein), its tetrahydroderivative, and deoxycorticosterone in thin layer of KSK silica-gel by means of two-dimensional chromatography in systems which do not induce changes in the molecule of corticosteroid. The corticosteroid content of human urine was studied.

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REEL/FRAME
19730174

USSR

UDC 612.821.2+616.89-008.46-02:616.831r

031.84

POPOVA, L. T.

Pamyat' i yeyo nerusheniya pri ochagovykh porazheniyakh mozga (Memory Disorders in Focal Lesions of the Brain), Moscow, 1972, 208 pp

Translation:

Abstract

The monograph is devoted to a neuropsychological analysis of memory impairments resulting from focal lesions of the brain. It consisted of two parts. In the first, the author examines the main stages in the study of memory and its connection with the brain substrate; psychology of memory, current ideas on the neurophysiological, biochemical, and morphological changes that may serve as a material substrate for the fixation of past experience; cerebral organization of memory with a discussion of the role of the limbic system in the mechanisms of memorizing and remembering; methods of experimental study of memory impairments resulting from focal lesions of the brain. The second part of the book sets forth the results of a neuropsychological study of memory disorders due to lesions of the limbic system, left temporal lobe, and frontal lobes of the brain. The author shows the heterogeneous structure of the defect in relation to the site of brain injury. The results of this study can be used in topical diagnosis and in research aimed at elucidating the structure of the most complex psychic function and its organization in the brain.

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USSR

POPOVA, L. T., Pamyat' i yeyo narusheniya pri ochagovykh porazheniyakh mozga, 1972, 208 pp

The monograph is intended for neuropathologists, psychiatrists, neurosurgeons, and psychologists.

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Chapter 2. Memory impairments in lesions of the left temporal lobe	153
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USSR

UDC 621.378.3

MILOVSKIY, N. D., POPOVA, L. L., Scientific Research Radio Physics Institute

"Stability of a Single-Frequency Laser in a Nonuniformly Broadened Active Material"

Gor'kiy, Izvestiya vysshikh uchevnykh zavedeniy, Radiofizika, Vol XV, No 1, 1972, pp 19-26

Abstract: The stability of the single-frequency mode of a one-dimensional model of a traveling wave laser in a uniformly broadened active material was investigated earlier [H. Risken, et al., J. Appl. Phys., No 39, 4662, 1968; Phys. Lett., No 26A, 275, 1968; N. D. Milovskiy, Izv. vyssh. uch. zav., Radiofizika, Vol 14, No 1, 93, 1971]. The study showed that as a result of multi-photon interaction with sufficiently large excess of the pumping n^0 over the threshold value n_{thresh}^0 ($\lambda = n^0/n_{\text{thresh}}^0 - 1 > \lambda_c$), the stationary mode becomes unstable. Investigation of the analogous problem for a laser using a nonuniformly broadened active material with respect to a broad class of disturbances depending on the coordinates and time in the present article demonstrates that nonuniform broadening essentially decreases the value of λ_c . A study was made of the one-dimensional model of a traveling wave laser using an active material nonuniform broadening of which arises as a result of the doppler

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USSR

MILOVSKIY, N. D., et al., Izvestiya vysshikh uchevnykh zavedeniy, Radiofizika, Vol XV, No 1, 1972, pp 19-26

shift of the natural frequency of each molecule moving in the $+\xi$ -direction with a velocity $\beta\xi_0 = v/v_\phi = v(\sqrt{\epsilon\mu}/c)$ with respect to a stationary coordinate system. The losses of the laser resonator are assumed uniformly distributed with respect to the entire volume (length l).

Analytical expressions are obtained for the shape of the "amplification line" for the spectral components of the field disturbances with an arbitrary ratio of the luminescence line width to the natural width. With an increase in this ratio the critical excess of pumping over the threshold value for which instability occurred decreases. The developed theory permits analytical investigation of the shapes of the troughs in the "amplification lines" for amplitude and phase disturbances and estimation of the frequency range within which instability can occur, establishment of the presence of three different mechanisms of amplification of the amplitude and phase disturbances and estimation of the effect of each of them on this process, finding the law of variation of the critical intensity of the stable stationary single-frequency generation as a function of $\Omega_0\beta$ and estimation of the power of this generation with respect to order of magnitude.

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Acc. Nr.: APO029104

Ref. Code: UR 0246

PRIMARY SOURCE: Zhurnal Nevropatologii i Psikhatrii, 1970,
Vol 70, Nr 1, pp 12-18

CONCERNING A LONG-PERIOD ARTIFICIAL VENTILATION PARESIS
OF THE RESPIRATORY MUSCLES FOLLOWING ACUTE POLIOMYELITIS

L. M. Popova

The author analyses the homeostatic reactions of an organism in the process of an incessant 10-year artificial ventilation in patients with paralysis of respiratory muscles. These patients following acute poliomyelitis in 1958 did not have their own respiration. The report contains systematic data on the blood gas content and acid-alkaline balance, as well as the reaction of the respiratory center to adequate stimuli (hyperkapnic gas mixtures). In paralysis of respiratory muscles an absence of respiration proper, artificial ventilation may support the life of a patient during many years. Sometimes the artificial ventilation may be excessive, that is why there may be compensatory changes in the acid-base balance. One of the complications of the hyperventilation and immobilization is nephrolithiasis. Its prevention consists of the avoidance of deep stages of hypokapnia. As experience shows the limit of allowed hypokapnia in the process of durative artificial ventilation should be considered pCO_2 equal to 26-28 mm. As a result of chronic hypokapnia an excitation of the respiratory center on normal levels of partial pressure of carbonoxide in arterial blood ensues.

REEL/FRAME

19680615

USSR

PASTUSHIKHIN, V. N., POPOVA, L. N.

"Stability of Smooth Envelopes in an Elliptical Plane with Finite Bending"

4-ya Vses. Konf. po Probl. Ustoychivosti v Stroyit. Mekh. Tezisy Dokl. [Fourth All-Union Conference on Problems of Stability in Structural Mechanics, Theses of Reports -- Collection of Works], Moscow, 1972, p 137, (Translated from Referativnyy Zhurnal, Mekhanika, No 10, 1972, Abstract No 10 V291).

Translation: The process of sudden, snap deformation and bulging of smooth shells is studied. The bending of the shell is represented by means of two coordinate functions, one of which is symmetrical relative to both axes of the plane, while the other is inversely symmetrical relative to the large axis of the elliptical plane and symmetrical relative to the small axis. A variational method is used to reduce the problem to a system of two nonlinear algebraic equations. Study of the solutions of the equation system produced shows the possibility of a symmetrical form of loss of stability with a snap. A loss of stability in "mixed" form is also discussed, consisting of a combination of symmetrical and inversely symmetrical forms of bending relative to one axis. The limiting values of initial parameters of the shell for which the "mixed" form of loss of stability represents a genuine danger for thinwall three-dimensional systems are discussed.

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USSR

UDC: 51

DONIN, L. D., POPOVA, L. P., KHOTYAKOV, M. A.

"Development of an Algorithm for Solving one of the Problems of Compiling an Operational Schedule for Intraplant Deliveries of Material Resources"

Pribory i sistemy avtomatiki. Resp. mezhved. temat. nauch.-tekhn. sb. (Automation Devices and Systems. Republic Interdepartmental Thematic Scientific and Technical Collection), 1973, vyp. 27, pp 57-62 (from RZh-Matematika, No 9, Sep 73, abstract No 9V595 by the authors)

Translation: The paper points out the failures of the existing method of providing material resources to the subdivisions of an industrial enterprise. A method is suggested for compiling an operational schedule of cargo deliveries for the plan period. The stages of compilation of the schedule are described, and an algorithm is worked out for solving the problem of one of the stages.

1/1

Mechanical Properties

1

USSR

UDC 669.14.018.8:620.18:620.17

VOZNESENSKAYA, N. M., IZOTOV, V. I., UL'YANOVA, N. V., POPOVA, L. S., and POTAK, YA. M.

"Structure and Properties of High-Strength 1Kh15N4AM3 Stainless Steel"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 1, 1971, pp 32-35

Abstract: The article describes results of a study of the effect of tempering temperature on the structural state and mechanical properties of 1Kh15N4AM3 (EP-310) stainless steel of the transition austenitic-martensitic class. Industrial electroslag-refined steel was used for the study. It was found that after tempering at 200° C the steel has higher mechanical properties (ductility, impact strength, and crack propagation energy) than widely-used structural high-strength steels (30KhGSNA) or maraging steels. The high strength is determined by a high dislocation density, the presence of twins, and the retention of a sufficient quantity of carbon and nitrogen in the solid solution. Tempering at 300-350° C causes a certain decline in strength and an increase in ductility and impact strength as a result of reduced car-

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USSR

VOZNESENSKAYA, N. M., et al., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 1, 1971, pp 32-35

bon and nitrogen content of the solid solution, with retention of high dislocation density and distortions of the second kind. No precipitations are found with the decrease in the number of interstitial atoms in the solid solution. At 450-500° C there is secondary hardening, consisting in the formation of highly dispersed particles of the chromium carbonitride M_2X , accompanied by a slight reduction in ductility and impact strength and a significant decrease in crack propagation energy. The structure is characterized by a decrease in the dislocation density and a significant decrease in distortions of the second kind. At 550-650° C there is reverse $\alpha \rightarrow \gamma$ transformation. The transformation begins at about 575° C, with the maximum amount of stable austenite forming after heating to 625-650° C for 1-2 hours. At 650-700° C there is a decrease in strength, with formation of the carbides $M_{23}C_6$ along grain body and boundaries.

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USSR

UDC 539.5

TRANTSEVICH, Ya. V., POPOVA, L. S., POTAK, Ya. M., SUKHOTIN, A. M.,
GRIKUROV, G. N., ANTROPOV, N. P., Moscow, Tbilisi, Leningrad

"Study of Mechanical Properties of High Strength Stainless Steel of Transition Class EP288 [Kh16N6, SN-2A] at Cryogenic Temperature"

Problemy Prochnosti, No 10, 1971, pp 97-100.

Abstract: The purpose of this work was to study the properties of one of the most common chrome-nickel low-carbon steels in class EP288 at cryogenic temperatures. The studies were performed using experimental melts distinguished by their low carbon and chromium contents and varying contents of austenite in the steel structure. Heat treatment of the steel included hardening in water from 1,000°C, at which level dissolution of carbides occurs, cold treatment -70°C (2 hours) and tempering at 250°C (1 hour). The data indicated that type EP288 steel with the nominal composition, as well as all experimental melts except for one, has high ductility and impact toughness, including high impact toughness of specimens with cracks at down to -253°C. The nominal steel has high strength at both room and cryogenic temperatures, the level of which increases with decreasing test temperature.

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TRANTSEVICH, Ya. V., et al., Problemy Prochnosti, No 10, 1971, pp 97-100

It is interesting to note that the strength of EP288 steel determined under such rigid test conditions as rupture of specimens with fatigue cracks at -196°C is retained or even increased in comparison to the strength of smooth specimens.

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Acc. Nr:

AT0054511

Abstracting Service: 6-70
INTERNAT. AEROSPACE ABST.

Ref. Code:

4R 0020

7 A70-25400 # Certain regular correlations between the degree of manifestation of the skin galvanic reaction and changes in the EEG accompanying local injuries of limbic (rhinencephalic) structures of the human brain (Nekotorye zakonomernye sootnosheniia vyrazhennosti K.G.R. i izmenanii E.E.G. pri lokal'nykh povrezhdeniakh limbicheskikh /rinentsefal'nykh/ struktur mozga cheloveka). I. G. Dallakian, L. P. Latash, and L. T. Popova (Akademiia Nauk SSSR, Laboratoriia Problem Upravleniia v Organizme Cheloveka i Zhivotnykh, Moscow, USSR). *Akademiia Nauk SSSR, Doklady*, vol. 190, Feb. 1, 1970, p. 991-994. 13 refs. In Russian.

Investigation of the role of a selective injury of only one specific formation of a limbic system (or of a disturbance of certain components of the system) in the suppression of the skin galvanic reaction. A study was made of patients with various types of focal brain injuries, involving a comparison of the special features of the dynamics of the skin galvanic reaction with the nature of the changes in the EEG and the location of the pathological process in the brain. Comparisons of changes in the biocurrents in the brains of patients with injuries in various parts of the brain and with various degrees of manifestation of the skin galvanic reaction revealed some interesting relations. It was found that the skin galvanic reaction is absent significantly more often in patients with injuries of the mediobasal temporal formations, in the EEGs of whom there are signs of

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19831667

AT0054511

disturbances of the activity of similar (symmetrical) formations in the opposite hemisphere. The presence of 'mirror' foci in the EEGs of patients with convexital injuries in the temporal portion of the brain was, as a rule, not associated with the suppression of the skin galvanic reaction.

A.B.K.

2/2

CK

19831668

USSR

UDC 669.14'24'26:621.17

POPOVA, L. V., LITVINENKO, D. A., NIKITIN, V. N., and GEORGIYEV, H. N., Central Scientific Research Institute of Ferrous Metallurgy

"Resistance of Low-Alloy Ni-Cr Steel to Crack Development"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 1, Jan 74, pp 60-62

Abstract: The effect of nickel and chromium in low-alloy normalized steel on resistance to crack development under impact loading was investigated where the nickel and chromium were not alloyed together in the same steel samples. The steel investigated contained (in %): 0.2 C, 0.2 Si, 0.2 Mn and nickel contents of 0.59, 0.93, 1.80, and 2.40, and chromium contents of 0.30, 0.60, 1.40, and 2.20. Better combinations of strength and ductility properties were observed when Ni and Cr contents are less than 1%. Impact strengths were also better at the lower alloying contents, and the amount of ferrite and perlite was almost the same for these alloying component contents. As a result of the better ductility and lower tendency toward crack development for Ni contents of 0.6-0.8% and Cr contents of 0.5-0.7%, these steels are suitable for use under conditions of impact loads at positive temperatures, and of the two types of

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POPOVA, L. V., et al., Metallovedeniye i Termicheskaya Obrabotka Metallov,
No 1, Jan 74, pp 60-62

steels, low-alloy chromium steel is recommended for use inasmuch as it is not
as scarce as nickel. Four figures, one table, ten bibliographic references.

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USSR

UDC 539.4.01

GEORGIYEV, M. N., POPOVA, L. V., NIKITIN, V. N., LITVINENKO, D. A., Moscow

"Influence of Titanium on Ductility Properties of Low-Alloy Steel"

Kiev, Problemy Prochnosti, No 5, May, 1971, pp 98-100.

Abstract: The influence of titanium content in low-alloy normalized steel on its ductile properties is studied. It is demonstrated that alloying with 0.025 to 0.16% titanium causes a deterioration in ductile properties, while increasing the titanium content from 0.16 to 0.25% causes a significant increase in impact toughness, primarily by increasing the work of crack formation.

USSR

UDC 669.1.017.018.29.001.5

NIKITIN, V. N., LITVINENKO, D. A., POPOVA, L. V., and GEOGRIYEV, M. N.

"Influence of Molybdenum on Ductile Properties of Low-Alloy Steel"

Spetsial'nyye Stali i Splyavy [Special Steels and Alloys--Collection of Works],
No 77, Metallurgiya Press, 1970, pp 190-192

Translation: The influence of molybdenum on the tendency of low-alloy steel of the same basic composition (0.2% C, 0.2% Si, 1.3% Mn) toward brittle rupture in the normalized state is studied. It is demonstrated that alloying of this steel with molybdenum up to 2.0% causes continuous deterioration of a combination of ductile properties. 1 figure; 1 table; 6 biblio. refs.

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USSR

UDC 669.141.241.2'4:620.178.2

GEORGIYEV, M. N., POPOVA, I. V., and GEORGIYEVA, I. YA., Scientific Research Institute of Automobile and Tractor Materials; Central Scientific Research Institute of Ferrous Metallurgy

"Tensile Characteristics of Quiescent and Boiling Steel"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 8, 1970, pp 66-67

Abstract: This short article describes experiments made with two laboratory melts, boiling and quiescent, the latter deoxidized by aluminum. A table of the chemical composition of both substances is given. The purpose of the deoxidation was to obtain a steel with a chemical composition akin to that obtained with silicon and manganese. Ingots of each alloy weighing 10 kg were forged into rods of square cross section, 14 mm on a side, and from these, specimens of standard form were made for shock bending, type I, in accordance with GOST standard 9454-60. The tensile strengths of the specimens in fracture under this shock treatment were also determined. Results of these tests are given in the form of curves of the tensile qualities of both steel types as functions of the temperature.

Acc. Nr.

AP0055624

Abstracting Service:
CHEMICAL ABST.

6-70

Ref. Code

UR0460

S

112019f Kinetic principles of the bulk polymerization of styrene in the presence of trifluoroacetic acid. Nikolaev, A. F.; Belogorodskaya, K. V.; Dukhnenko, E. M.; Popova, L. V.; Karakash, A. F. (Leningrad. Tekhnol. Inst. im. Lensoveta, Leningrad, USSR). *Vysokomol. Soedin., Ser. B* 1970, 12(1), 24-7 (Russ). The polymn. rate (V) of PhCH:CH₂ (I) in PhEt contg. CF₃CO₂H (II) as the catalyst obeys the relation $V = k[\text{concn. II}]^a[\text{concn. I}]^b$ (k is a const.; temp., k in l. mole⁻¹ sec⁻¹, a, b , given): 0°, 9.7×10^{-3} , 1.5, 1.9; -10°, 3.2×10^{-3} , 1.2, 2.8; 20°, 18.7×10^{-3} , 2.2, 1.4. The activation energy is 9.6 kcal/mole. The decrease of a with temp. shows that the solvation of polystyrene ions with II decreases with the temp. The mol. wt. of polystyrene increases with the II concn.

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19840926

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UDC: 533.652/.661.013

VERESHCHAGIN, I. F., POPOVA, M. I., SEMENOV, S. G.

"Some Cases of Motion of an Aircraft With a Complete Internal Program"

Uch. zap. Perm. un-t (Scientific Notes of Perm' University), 1971, No 239, pp 171-181 (from RZh-Mekhanika, No 7, Jul 71, Abstract No 7B342)

Translation: An aircraft is considered as a system of several connected bodies, one of which is a platform. It is assumed that the laws of motion for all these bodies relative to the platform are known. Some special cases are considered: 1) the system consists of a shell within which a sphere rotates at a constant angular velocity, the ellipsoid of inertia of the system being a sphere; 2) the vehicle is a solid of revolution within which a sphere rotates. For the given cases, integrals are derived which define the motion of the vehicle about the center of mass. G. S. Aronin.

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USSR

UDC 632.95

KRON, YE. M., POPOVA, M. N., STEPANOV, D. YE., KALABINA, A. V.

"Thylation of Aroxynorbornenes"

Irkutsk, Khimiya aromat. i nepredel'n. soyedin.--sbornik (Chemistry of Aromatic and Unsaturated Compounds -- collection of works), 1971, pp 305-310 (from RZh-Khimiya, No 10, May 73, Abstract No 10N533 by T. G. Chkareva)

Translation: Compounds of general formula (I)

[R = Bu, Ph, MeCO, (MeO)₂PS, (EtO)₂PS, R' = aryl] are produced by thylation of aroxynorbornenes. Examples: 5.5 g of PhSH is added by drops to 10 g of 4-cresoxynorbornene. Catalyst is HCl (gas). The mixture is held for 3 hours at 45-50°C, and 9.3 g of compound I is isolated by vacuum distillation (R = Ph, R' = 4-MeC₆H₄), boiling point 162-5°C/0.01, n_D²⁰ 1.5985, yield 63%.

BuSH is added analogously, but at 85-90°C. Addition of (MeO)₂PSSH and (EtO)₂PSSH is done without a catalyst. The following type I compounds are synthesized (given are R, R', boiling point in °C/mm, n_D²⁰, d₄²⁰, yield in %): MeCO,
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USSR

KRON, YE. M., et al., Khimiya aromat. i nepredel'n. soyedin.--sbornik, 1971, pp 305-310

2-MeC₆H₄, 145-8/0.03, 1.5585, 1.1464, 54; MeCO, 3-MeC₆H₄, 142-5/0.03, 1.5581, 1.1456, 69; MeCO, 4-MeC₆H₄, 160-2/0.03, 1.5608, 1.1424, 62.2; MeCO, 4-ClC₆H₄, 210-5/1, 1.5684, 1.1266, 69.6; Ph, 2-MeC₆H₄, 153-9/0.03, 1.6015, 1.1420, 56.5; Ph, 3-MeC₆H₄, 152-3/0.03, 1.6019, 1.1429, 59.7; Ph, 4-ClC₆H₄, 129-33/0.08, 1.5413, 1.112, 50.1; Ph, 4-BrC₆H₄, 172-4/0.08, 1.6184, —, 54; (MeO)₂PS, 2-MeC₆H₄, —, 1.5655, 1.1849, 95.5; (MeO)₂PS, 3-MeC₆H₄, —, 1.5547, 1.1630, 98; (MeO)₂PS, 4-MeC₆H₄, —, 1.5665, 1.2005, 94.4; (MeO)₂PS, 1-naphthyl, —, 1.5995, —, 99; Bu, 2-MeC₆H₄, 142-7/0.06, 1.5465, —, 62; Bu, 4-MeC₆H₄, 141-4/0.03, 1.5451, 1.0328, 65; Bu, 3-MeC₆H₄, 150-2/0.06, 1.5443, 1.1004, 67; Bu, 4-ClC₆H₄, 200-3/0.03, 1.5545, 1.3006, 60; (EtO)₂PS, 2-MeC₆H₄, —, 1.5545, —, 97.9; (EtO)₂PS, 4-MeC₆H₄, —, —, —

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KRON, YE. M., et al., Khimiya aromat. i nepredel'n. soyedin.--sbornik., 1971, pp 305-310

1.5541, 1.1546, 99; (EtO)₂PS, 3-MeC₆H₄, —, 1.5552, —, 98.2; (EtO)₂PS, 4-ClC₆H₄, —, 1.5619, —, 97.8; (EtO)₂PS, 2-MeCOCC₆H₄, —, 1.5549, —, 99. Compounds I have acaracidal properties, but are not up to the accepted standards for activity. It is shown that the acidity of the corresponding thiol determines the ease with which the reaction takes place.

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USSR

UDC 621.372.413.001.5

POPOV, A. V., POPOVA, M. N.

"Diffraction Losses of a Dielectric Open Resonator"

Moscow, Radiotekhnika i Elektronika, vol 16, No 12, Dec 71, pp 2175-2181

Abstract: The parabolic equation method is used to study electromagnetic oscillations in a dielectric prism with mirrors on the ends assuming that the wavelength is short compared with the dimensions of the prism and the index of refraction is equal to or greater than unity. The problem is formulated as follows. Let an infinite prism $|x| < l$, $|y| < a$ be filled with a dielectric with permittivity ϵ and permeability μ such that $n = \sqrt{\epsilon\mu} \geq 1$. The ends $|x|=l$ are closed by ideally conducting mirrors, and the faces $|y|=a$ are in direct contact with a vacuum. The authors find the two-dimensional (independent of the z-coordinate) electromagnetic oscillations with frequency $\omega = kc$ in the dielectric and surrounding space. The authors thank S. A. Khozioskiy and N. G. Vakhitov for constructive criticism. Two figures, bibliography of six titles.

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USSR

UDC 621.382.323

POPOVA, M. V., STAFEYEV, V. I.

"The Injection FET. Static Characteristics in a Common-Base Circuit"

Moscow, Radiotekhnika i Elektronika, Vol 16, No 10, Oct 71, pp 1904-1911

Abstract: The paper is a continuation of research by these authors on the injector FET (cf. *Radiotekhnika i Elektronika*, 1971, Vol 16, No 10, 1894). On the basis of expressions developed in the first part of the work, the authors analyze the current-voltage curves of the collector-base and emitter-base loops. Analytic expressions in parametric form are found for these curves. The results of computer analysis are presented for the effect of basic parameters on the behavior of these curves. The ruling principles found in the experimental work on N-triodes are compared with the theoretically determined behavior. The results show qualitative agreement. Six figures, bibliography of five titles.

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USSR

UDC 621.382.323

POPOVA, M. V., STAFEYEV, V. I.

"The Injection FET. Static Characteristics in a Common-Emitter Circuit"

Moscow, Radiotekhnika i Elektronika, Vol 16, No 10, Oct 71, pp 1894-1903

Abstract: The authors present the fundamentals of a quantitative theory and calculate the static current-voltage curves in the common-emitter circuit of a new semiconductor device which consists essentially of four layers with a leak connected between the emitter layers having a resistance which depends on the voltage applied to the collector layer. This leak is what provides the proper current-gain dependence required for operation of the four-layer structure. While the device combines the action of the conventional bipolar injection transistor and the FET, it also has a number of new properties, in particular, it has negative differential resistance of N-type in the collector current-voltage curve, and S-type in the emitter current-voltage curve. The paper contains the results of computer analysis of these curves for a number of combinations of basic parameters of injection FET's. It is shown that the N-triode is similar to the injection FET. Seven figures, bibliography of five titles.

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1/2 022 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--EFFECT OF HEAT ON TRYPTOPHAN RECOVERY FROM THE CULTURE MEDIUM OF
CANDIDA, TORULOPSIS, UTILIS STRAIN 295T -U-
AUTHOR--(02)--POPOVA, M.V., DAMBERGA, B. P
COUNTRY OF INFO--USSR
SOURCE--PRIKL. BIOKHM. MICROBIOL. 1970, 6(2), 178-82
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--YEAST, CONTINUOUS CULTURE, CULTURE MEDIUM, TRYPTOPHANE,
BIOSYNTHESIS, CHEMICAL SEPARATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0346 STEP NO--UR/0411/70/006/002/0178/0182
CIRC ACCESSION NO--AP0126102
UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0126102

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EVAPN. OF THE FILTRATE FROM T. UTILIS STRAIN 295T CULTURE MEDIUM MUST BE CARRIED OUT AT LOW TEMP. FOR BEST TRYPTOPHAN (I) RECOVERY. EVAPN. OF THE FILTRATE, PH 7.5-8.0, EITHER IN AIR OR N SUB2, LEADS TO 2PERCENT LOSS OF I AT 70DEGREES, 6-12PERCENT AT 100DEGREES, AND 25-27PERCENT AT 140DEGREES. MAINTAINING THE DRIED RESIDUE FROM THE EVAPN. AT 70DEGREES LEADS TO 20PERCENT DEGRADATION OF I IN 10 HR. INASMUCH AS CRYST. DL,I IS MORE STABLE TO HEAT THAN THE I PRESENT IN CULTURE MEDIA, DEGRADATION IN THE LATTER CASE IS ATTRIBUTED TO SOME COMPONENTS OF THE MEDIA.

UNCLASSIFIED

USSR

UDC 5911145335

GAR, K. A., KHEYMAN, V. A., and BOLOVA, N. A., All Union Scientific Research Institute of Chemical Means of Plant Protection

"Biochemical Mechanisms of the Resistance of Insects to DDT at Elevated Temperatures"

Moscow, Doklady Akademii Nauk SSSR., Vol. 196, No 5, 1971, pp. 1241-1244.

Abstract: DDT is toxic to insects because it inhibits oxidative phosphorylation and the formation of ATP. However, DDT toxicity decreases when temperature rises above 31.4°C. Some investigators believe that at higher temperatures DDT is metabolized and detoxified at a faster rate. This study was performed to determine the degree of oxidative phosphorylation inhibition after addition of DDT and other insecticides. The tests were done in the Warburg apparatus on the mitochondria of weevils (*B. punctiventris*) after the insects had been incubated, without insecticides, at +17°C (cold) and +27°C (warm) for various 1/2

USSR

GAR, K. A., KHEYMAN, V. A. and POPOVA, N. A., Doklady Akademii Nauk SSSR, Vol 196, No 5, 1971, pp 1241-1244

periods. After addition of DDT, phosphorylation was inhibited 20% in "warm" weevils and 90% in "cold" weevils. Oxidation was accelerated by a factor of 1.5 in both preparations. Chromatography revealed that all DDT was absorbed by the mitochondria and that there were no DDT metabolites in either group. In the presence of other insecticides, the differences were less pronounced or absent. It was concluded that the preceding incubation at different temperatures changed the susceptibility of mitochondria to DDT.

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POPOVA, N. B.

UNCLASSIFIED

SECTION V 501 SELECTED RESEARCH RESULTS

Name: Institute of Photosynthesis, Pushchino
Description:

PCS-89
JUNE 71

photosynthesis
(U) During this quarterly reporting period, one new article was located from the Institute of Photosynthesis in Pushchino. On the basis of this 1970 article on plant growth, it was possible to associate three new persons with the institute: S. G. Khruslova, V. L. Simeleva, and Ye. F. Yegorova (3/3). To the present time it has not been possible to identify very many persons with the institute; however, the complete listing of staff members identified to date is given below:

All-List of PHOTOGRAPHERS

- Akulova, Ye. A.
- Gavrilova, V. A.
- Khruslova, S. G.
- Lebedev, A. I.
- Nakarov, A. D.
- Pal'yan, A. N.
- Nobhin, Ye. N.
- Olovyanitskaya, G. D.
- Popova, N. B.
- Prokhorova, L. I.
- Sadovnikova, N. D.
- Simeleva, V. L.
- Sidorov, A. N.
- Stakhov, L. F.
- Stolovitskiy, Yu. M.
- Surovtsev, V. I.
- Yegorova, Ye. F.
- Yavritskiyev, V. B.

II
I N I N I A C C I E I E N

BIOLOGY
Agriculture

USSR

BOYKO, I. B. and POPOVA, N. G., Uzbek Scientific Research Institute of Sanitation, Hygiene and Occupational Diseases

"The Effect of Some Organophosphorus Pesticides on the Biological Value of Vegetable Crops"

Tashkent, Meditsinskiy Zhurnal Uzbekistana, No 9, Sep 70, pp 35-37

Abstract: Organophosphorus chemicals, now being widely used on plants for pest, disease and weed control because of their rapid hydrolyzation, wide range of action, and good pesticide properties, are highly toxic for man, entering into his system through products containing residual amounts of these chemicals. They also affect the quality as well as various biological and sanitary indices of the products. A study was made of the stability of the organophosphorus compounds ftalophos, antio + bazudin, and their effect on the ascorbic acid content, carotene and total sugar content in several vegetables. The vegetable specimens were collected for laboratory tests 3 to 5 days after treatment. It was demonstrated that changes in the organoleptic properties of the vegetables were retained for 3-5 days after the use of pesticides. Residual amounts of pesticides were retained in the vegetables from ten to 35 days. The pesticides reduced the ascorbic acid

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BOYKO, I. B., et al, Meditsinskiy Zhurnal Uzbekistana, No 9, Sep 70, pp 35-37

content in cucumbers and tomatoes, raised the carotene content in carrots, and raised the sugar content in carrots and beets. After the vegetables become free of residual amounts of the chemicals, the biological indices returned to normal.

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USSR

UDC 612.006.3

POPOVA, N. K., Institute of Physiology, Siberian Department, Academy of Sciences USSR, Novosibirsk

"Symposium on 'Adaptation of Man and Animals to Extreme Environmental Factors'"

Leningrad, Fiziologicheskiy Zhurnal SSSR, No 10, 1971, pp 1,563-1,564

Translation: A symposium on "Adaptation of Man and Animals to Extreme Environmental Factors" was held in Akademgorodok, Novosibirsk, from 12 to 17 October 1970. It was organized by the Institute of Physiology, Siberian Department, Academy of Sciences USSR, and the Combined Scientific Council for "Human and Animal Physiology."

More than 200 persons attended the symposium. Among them were 16 foreign scientists from 10 countries (England, Bulgaria, Holland, India, Poland, United States, West Germany, Czechoslovakia, Sweden, Yugoslavia). There were 10 sessions, at which 75 reports and communications were presented. There was also a conference on the International Biological Program as well as a meeting of the section "Adaptation of Man" that was attended by Prof. 1/7

USSR

POPOVA, N. K., Fiziologicheskiy Zhurnal SSSR, No 10, 1971, pp 1,563-1,564

Weiner (England), general secretary of the section, and Prof. Z. I. Barbashova (Leningrad), chairman of the Soviet National Committee.

Papers were presented at the first session of the symposium on the central mechanisms of physiological adaptation. B. Anderson (Sweden) and D. Blye (England) discussed the participation of biogenic amines in the hypothalamic mechanisms that regulate body temperature. Interesting facts were reported by Ye. V. Naumenko (Novosibirsk) on the role of serotonin and the catecholamines in regulating the processes of adaptation. In a wide-ranging paper, A. D. Slonim (Novosibirsk) was the first to generalize the results of long-term studies on the role of conditioned reflexes, habituation, and memory in physiological adaptation. The significance of temperature conditioned reflexes in temperature adaptation was the subject of a paper by R. P. Ol'nyanskaya and V. B. Kulikov (Leningrad). A. M. Ugolev et al. (Leningrad) discussed the effect of some stressors, specifically temperature, on small intestine enzymatic activity.

The next session examined the problem of heat production and thermoregulation, devoting considerable attention to the role of contractile and noncontractile
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USSR

POPOVA, N. K., Fiziologicheskiy Zhurnal SSSR, No 10, 1971, pp 1,563-1,564

thermogenesis in regulating body heat. K. P. Ivanov (Leningrad) cited data suggesting that muscle contractions play a leading role in all thermoregulatory functions. Equally convincing data were presented by K. Brück, et al. (West Germany) and P. A. Korniyenko, et al. (Moscow), who emphasized the importance of the biochemical mechanisms of temperature adaptation. Some aspects of this approach were discussed by V. V. Khaskin (Novosibirsk) in his paper "Thermodynamic Characteristics of Adaptive Changes in Animal Muscles." This session also heard an original paper by M. Gembchinski (Poland) on "Behavioral Thermoregulation" in rodents and an interesting communication by S. Dzhelineo (Yugoslavia) on adaptive changes in basal metabolism and chemical thermoregulation in small mammals and birds in relation to seasonal influences.

O. Adholm's (England) paper aroused a great deal of interest at a session devoted to cold adaptation. He presented the results of many physiological studies conducted in the Antarctic. N. I. Kalabukhov (Astrakhan), Ya. Gurški, et al. (Poland), L. Novak (Czechoslovakia), and others discussed the role of chemical thermoregulation in adapting to the ambient temperature. Yu. F.

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POPOVA, N. K., *Fiziologicheskiy Zhurnal SSSR*, No 10, 1971, pp 1,563-1,564

Pastukhov (Magadan) described an experimental model of so-called "accelerated" adaptation of animals to cold.

A special session was set aside for hibernation. The interesting papers of P. Morrison (Alaska), M. B. Shtark (Novosibirsk), M. G. Kolpakov, et al. (Novosibirsk), G. M. Daudova (Leningrad), and others discussed a number of matters pertaining to the functioning of several systems and metabolic peculiarities in hibernating animals during and after sleep. Important facts were reported by M. N. Yurisoa (Novosibirsk), who showed that the process of slow activation of the hypothalamic-neurosecretory system starts in the period of deep sleep in red-cheeked susliks.

Three sessions were devoted to hypokinesia and adaptation to muscular activity. Many of the reports and remarks made at the symposium threw light on various aspects of these problems. For example, K. M. Smirnov (Novosibirsk) and S. F. Manziy (Kiev) cited convincing data that can be used to evaluate hypokinesia by determining the optimum motor activity characteristic of a given individual or species of animal. In doing so the assessment of hypokinesia is based on the biological characteristics of the species. This

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POPOVA, N. K., Fiziologicheskii Zhurnal SSSR, No 10, 1971, pp 1,563-1,564

is a very interesting and promising approach. A. B. Gandel'sman (Leningrad), Z. I. Barbashova (Leningrad) and others voiced approval of the comprehensive ecological-physiological approach to the study of adaptation to physical stresses. A. B. Gandel'sman said that the environmental factors (e.g., temperature) that influence the effectiveness of motor and autonomic functions are exceptionally important.

I. P. Bel'skaya (Novosibirsk), V. V. Vinogradov (Novosibirsk), A. D. Soboleva (Novosibirsk), and A. Yu. Yunusov (Tashkent) presented papers on adaptation to the arid zone. They cited many factors relating to the effect of high ambient temperatures and limited water. They showed that the morphological and physiological changes observed in animals under these conditions vary with the ecological characteristics of each species. Original data were presented by A. D. Soboleva (Novosibirsk), who found adaptive morphological changes in the lungs of rodents following a water deficiency.

J. S. Weiner (England) presented new data on the activity of the gonads. Dragnev (Bulgaria) discussed the activity of the cutaneous glands in cattle caused by adaptation to high ambient temperatures.

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USSR

POPOVA, N. K., Fiziologicheskiy Zhurnal SSSR, No 10, 1971, pp 1,563-1,564

A series of reports dealt with the physiological-genetic aspects of adaptation of animals to extreme environmental factors (Yu. O. Raushenbakh, et al., Novosibirsk).

Papers were read at the section devoted to adaptation to mountain conditions and hypoxia by M. M. Mirrakhimov (Frunze), L. G. Filatov, et al. (Frunze), A. G. Zhironkin and I. S. Breslav, Leningrad), and many others. They described the results of long-term studies and discussed some problems concerning various aspects of alpine and hypoxic adaptation. A somewhat different paper was read by S. Tromp (Holland) on the effect of ambient temperature and barometric pressure on asthma in man.

The attention of investigators has recently been drawn to neural and endocrine mechanisms of population interrelationships. The papers of R. Andrews (United States) and N. K. Popova, et al. (Novosibirsk) dealt mainly with the functioning and role of the hypophysis-adrenal system in the interrelationships. A related report by E. R. Uzhdavini (Ufa) discussed the effect of community existence of animals on the toxicity of some compounds.

6/7

USSR

POPOVA, N. K., Fiziologicheskiy Zhurnal SSSR, No 10, 1971, pp 1,563-1,564

One session was set aside for a discussion of the adaptation of aquatic animals to environmental factors. The focal point was energy metabolism in fish at different ambient temperatures and rates of movement (V. A. Matyukhin, Novosibirsk; I. V. Ivleva, Sevastopol; many others).

The proceedings of the symposium were conducted in a businesslike atmosphere. There was a broad and lively discussion at all the sections. The papers and discussions gave those present a fairly complete idea of the current status of the problems touched on at the symposium.

The proceedings of the symposium will be published in the form of thematic collections.

7/7

Acc. Nr: AP0051951

Ref. Code: UR0297

PRIMARY SOURCE: Antibiotiki, 1970, Vol 15, Nr 4, pp 357-359

EXPERIENCE WITH LOCAL USE OF GLYCOCYCLINE IN CERTAIN LOR DISEASES

N. V. Gaspodnova, A. I. Kuzmina, V. S. Moshkevich, N. N. Popova, S. I. Eydelshtein

F. E. Dzerzhinsky's Polyclinic, Moscow

Acquous solutions of glycoycline at a concentration of 500 to 20.000 Units/ml and powders were used locally as ear drops, solutions for washing the sinus cavities and aerosol inhalations in the treatment of 144 lor cases with microflora sensitive to tetracycline. 110 patients suffering from exacerbated chronic pharyngo-laryngitis, sinusitis, chronic otitis and tonsillitis showed satisfactory results. The antibiotic applications were satisfactory tolerated by the patients. No severe side effects were observed.

REEL/FAME
19820438

cc2

1/2 016

UNCLASSIFIED

PROCESSING DATE--20NOV70

TITLE--CATALYTIC REDUCTION OF NITROBENZENE DERIVATIVES -U-

AUTHOR--(03)-SOKULSKIY, D.V., BABENKOVA, L.V., POPOVA, N.I.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(6), 1299-310 (CHEM)

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--NITROBENZENE, CLAY, CHEMICAL REDUCTION, HYDROGENATION, NICKEL, PLATINUM, CATALYST ACTIVITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/0216

STEP NO--UR/0020/70/191/006/1299/1301

CIRC ACCESSION NO--AT0132488

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--20NOV70

2/2 016

CIRC ACCESSION NO--AT0132488

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

ABSTRACT. KINETIC DATA WERE SHOWN

GRAPHICALLY FOR REDN. OF ARNO SUB2 ON NI-BENTONITE CLAY CATALYST USING
FOLLOWING AR: M, O SUB2 NC SUB6 H SUB4, M, HCOC SUB6 H SUB4, M, HOC SUB6 H
SUB4, P, MEC SUB6 H SUB4, P, ETOC SUB6 H SUB4, P, HOC SUB6 H SUB4. THE
CATALYSTS USED WERE NI-BENTONITE CLAY AND NI-CU-FE-BENTONITE CLAY. THE
RATE OF HYDROGENATION WAS FOUND TO INCREASE WITH DECREASING VALUE OF THE
CATALYST POTENTIAL VS. SCE, AND A LINEAR RELATION WAS FOUND BETWEEN THE
SHIFT OF THE CATALYST POTENTIAL, CHARACTERISTIC OF RELATIVE ADSORPTION
ABILITY OF THE VARIOUS NITRO COMPS., AND THE REACTION RATE. THE SAME
RELATIONSHIP WAS FOUND BETWEEN REACTION RATE COEFFS. AND THE HAMMETT
SUBSTITUENTS CONSTS. IN THE SUBSTRATES. THE RESULTS INDICATE A HIGH
ENERGY OF BONDING OF THE ADSORBED H BY THE NI CATALYSTS ON THESE
SUPPORTS, WHICH BRINGS SUCH CATALYSTS INTO THE AREA OF ACTION OF PT
CATALYSTS. FACILITY: INST. KHIM. NAUK, ALMA-ATA, USSR.

UNCLASSIFIED

1/2 013 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--REDUCTION OF NITROBENZENE ON LOW PERCENTAGE PALLADIUM AND PLATINUM
PALLADIUM CATALYSTS ON ALUMINUM OXIDE -U-
AUTHOR--(03)-SAVELYEVA, G.A., SOKOLSKIY, D.V., POPOVA, N.M.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK KAZ. SSR, SER. KHIM. 1970, 20(2), 25-31
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--NITROBENZENE, CHEMICAL REDUCTION, PALLADIUM, CATALYST
ACTIVITY, PLATINUM
CONTROL MARKING--NO RESTRICTIONS.
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3001/0266 STEP NO--UR/0360/70/020/002/0025/0031
CIRC ACCESSION NO--AP0126038
UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0126038

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. REDN. OF PHNO SUB2 WAS STUDIED IN
ETOH, H SUB2 O AND MECH, DIOXANE, NH SUB4 OH AT 20 DEGREES OVER PD CATALYSTS
ON AL SUB2 O SUB3 (0-5 AT. PERCENT PD). ONLY CATALYSTS WITH LARGER THAN
1 AT. PERCENT PD WERE ACTIVE; ACCORDING TO THERMAL DESORPTION CURVES,
THESE CATALYSTS CONTAINED H DISSOLVED IN PD LATTICE. BY ADDN. OF PT
(AT. PERCENT PD PLUS PT REMAINING CONST.), THE ACTIVITY AND STABILITY OF
THE CATALYSTS INCREASED. FACILITY: INST. KHIM. NAUK, ALMA-ATA,
USSR.

UNCLASSIFIED

1/2 016 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--GLASS FORMATION IN GERMANIUM, SELENIUM AND IODINE AND SILICON,
SELENIUM AND IODINE SYSTEMS -U-
AUTHOR--(02)-DEMBOVSKIY, S.A., POPOVA, N.P. P
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(1), 138-40
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--SELENIUM GERMANIUM GLASS, IODIDE, GLASS CRYSTALLIZATION,
CHEMICAL STABILITY, CHALCOGENIDE GLASS, SILICON
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1984/0098 STEP NO--UR/0363/70/006/001/0138/0140
CIRC ACCESSION NO--AP0054895
UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0054895

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE GE, SE, I AND SI, SE, I SYSTEMS WERE INVESTIGATED IN AN ATTEMPT TO FIND NEW REGIONS OF GLASS FORMATION. FURTHERMORE, AN ATTEMPT TO FIND NEW TERNARY COMPS., ANALOGS OF THE CHALCOGENIDES, WAS MADE. SOME 20-25 COMPS. WERE SYNTHESIZED IN EACH SYSTEM. GLASS FORMATION OCCUPIES VERY BROAD REGIONS. IN BOTH SYSTEMS, THE GLASS FORMATION REGION GOES FROM THE SE CORNER DEEP INTO THE SYSTEM. GLASSES ADJACENT TO THE GLASS FORMATION REGION CRYSTALLIZE EASILY AND ARE OF LOW STABILITY. GLASSES OF THE GE, SE, I SYSTEM ARE MORE STABLE IN AIR AND HAVE A LOWER CRYSTN. CAPABILITY THAN GLASSES OF THE SI, SE, I SYSTEM. THE LATTER ARE UNSTABLE IN AIR. ALL 3 TERNARY COMPS. (GESEI SUB2, GE SUB2 SE SUB3 I SUB2, AND GE SUB2 SEI SUB6) HAVE O ANALOGS. THE PROPERTIES OF THESE COMPS. ARE COMPARED WITH THOSE OF GESE SUB2, SISEI SUB2, AND GEI SUB2.

UNCLASSIFIED

USSR

UDC 612

NAUMOVA, T. S., and POPOVA, N. S., Moscow Institute of Medical Stomatology, and Brain Institute, USSR Academy of Medical Sciences USSR, Moscow

"Role of the Analysors in System Activity"

Moscow, Uspekhi Fiziologicheskikh Nauk, No 2, 1972, pp 54-115

Abstract: The activity of the analysors is examined in the light of P. K. Anokhin's theory of the functional system. The authors cite the literature and results of their electrophysiological studies to demonstrate that in the formation of defensive conditioned reflexes, the conditioned signal and adjacent analysors are included with the unconditioned reflex analysor in the operational structure of the functional system. These analysors are shown to participate in all the key mechanisms of the functional system — afferent synthesis, preparation for and decision making, correction of the results of action, and so forth. Signs of trace processes and forward reactions are evident at all levels of the analysors. Multisensory influences converge in the cortical and brainstem portions of these analysors. All levels of the analysors beginning with the first switching relays serve as a substrate to integrate heterogeneous excitations. This substrate is the basis of their participation in the key mechanisms of the functional system.

1/1

USSR

UDC 612

NAUMOVA, T. S., and POPOVA, N. S., Moscow Institute of Medical Stomatology, and Brain Institute, USSR Academy of Medical Sciences USSR, Moscow

"Role of the Analysors in System Activity"

Moscow, Uspekhi Fiziologicheskikh Nauk, No 2, 1972, pp 54-115

Abstract: The activity of the analysors is examined in the light of P. K. Anokhin's theory of the functional system. The authors cite the literature and results of their electrophysiological studies to demonstrate that in the formation of defensive conditioned reflexes, the conditioned signal and adjacent analysors are included with the unconditioned reflex analysor in the operational structure of the functional system. These analysors are shown to participate in all the key mechanisms of the functional system -- afferent synthesis, preparation for and decision making, correction of the results of action, and so forth. Signs of trace processes and forward reactions are evident at all levels of the analysors. Multisensory influences converge in the cortical and brainstem portions of these analysors. All levels of the analysors beginning with the first switching relays serve as a substrate to integrate heterogeneous excitations. This substrate is the basis of their participation in the key mechanisms of the functional system.

1/1

USSR

UDC 669.017.12

LEVI, L. I., BALABANKIN, V. Ye., ~~POPOVA, N. Yu.~~, and SKAZIN, V. Ye., Moscow Institute of Steel and Alloys, Scientific Research Institute of Electrical Engineering

"On the Problem of Improving Nickel-Calcium Alloys"

Ordzhonikidze, Tsvetnaya Metallurgiya, No 1, 1972, pp 109-111

Abstract: The deoxidation of nickel and nickel-calcium alloys by blowing the surface of the liquid bath with hydrogen and continuously evacuating gas from the furnace chamber was investigated on brands NP-2 and NO nickel. It was found that 8-12 l/min hydrogen blowing for 20 min guarantees sufficiently complete deoxidation of nickel (0.003-0.001% O₂), regardless of initial oxygen concentration. With purging temperatures of 1530° and higher, the ingots showed large grains; with a temperature of 1480° equiaxial small-sized grains predominated. The typical structure of the produced NIKA alloy is discussed by reference to its microstructure. These alloys contain fewer impurities than existing alloys. Two illustrations, nine bibliographic references.

1/1

USSR

UDO 621.385.032.213.6

BALABANKIN, V. YE., KULESHOVA, T.F., NIKONOV, B.P., POBOVA, N.YU.

"Multilayer Materials Based On Nickel With Calcium Or Strontium For Cores Of Low-Temperature Oxide Cathodes"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron SVCh (Electronic Technology, Scientific-Technical Collection. Microwave Electronics), 1970, Issue 9, pp 110-116 (from RZh--Elektronika i yeye primeneniya, No 1, January 1971, Abstract No 1A68)

Translation: A multilayer core is proposed for an oxide cathode, operating at temperatures of $850-1050^{\circ}$ K, with the object of stabilizing the speed of entry of an activator into the oxide layer. The multilayer core is made in the form of a band of nickel with addition of calcium or strontium, covered from both sides by a film of pure nickel. An alloy of nickel with calcium or strontium and nickel of mark NVK serves as a starting material for the production of such bands. The joint of the billet is accomplished on the unit for diffusion welding A 360.08 in a vacuum at a temperature of $850 \pm 25^{\circ}$ C and a specific pressure of $0.8-1.0$ kg/mm². The welded billets are rolled without heating, with intermediate annealings in a vacuum (or in an H₂ atmosphere) at a temperature of

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USSR

BALABANKIN, V. Ye., et al., Elektron. tekhnika. Nauchno-tekhn. sb. Elektron SVCh 1970, Issue 9, pp 110-116 (from RZh--Elektronika i yeye primeneniye, No 1, Jan 1971, Abstract No 1A68)

800 ± 25°C after a total reduction in area of ~50%. The maximum gas evolution of the multilayer bands containing Ni with the addition of Ca and which is heated to 1000°C in a vacuum (pressure $\leq 10^{-6}$ mm mercury) for 20-30 min was observed at 800-850°C and did not exceed 4 cm³/100 g. Under identical conditions of test, bands containing nickel with the addition of strontium gave off the maximum quantity of gases at a temperature of 900-950°C. 5 ill. 4 tab. 9 ref. G. B.

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- 109 -

USSR

POPOVA, O.

"Altitude and Health"

Moscow, Rabochaya Gazeta, 6 Feb 70, p 4

Translation: Mountains are attracting increasing numbers of scientists with very different specialties - from geologists to astronomers and space explorers. From mountains they can observe the sky without the interference created by the dense layer of atmosphere on flat ground and study man's ability to adapt to rarefied air.

However, the conditions under which the investigators have to work in the mountains are fairly difficult. The experience of international mountain climbers and scientific expeditions in the Himalayas, in the region of the highest peak on earth, Jomolungma, shows that the maximum level at which man can stay for any length of time is about 5500 meters above sea level. This is exactly the altitude of Elbrus. That is why the gaze of many Soviet scientists is fixed on the Caucasus. Here excellent natural conditions for all kinds of research are to be found.

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USSR

POPOVA, O., Moscow, Rabochaya Gazeta, 6 Feb 70, p 4

Expeditions of the Institute of Physiology imeni A. A. Bogomolets, Academy of Sciences UkSSR, have been working in the Elbrus region for many years. They are directed by Professor Nikolay Nikolayevich Sirotonin, who has devoted 35 years of his life to studying the effect of high altitudes on the human body. Understandably, physiologists must be the first to speak on the "man-altitude" problem, and it is they who must pave the way for others.

The scientists started from scratch, with observations on lower animals. They had to do that in order to perform all kinds of experiments, to study the effects of an oxygen deficiency on a living organism. Snakes, fish, and turtles were found to be fairly tolerant of altitude, although they adapt poorly to its effects. Then followed work with rabbits and dogs and, finally, man.

Scientists accompanied a group of mountain climbers as they scaled the peaks and observed their condition. They found that human beings, unlike animals (especially the lower ones), are quite sensitive to high altitudes but much more adaptable to new conditions.

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USSR

POPOVA, O., Moscow, Rabochaya Gazeta, 6 Feb 70, p 4

Moreover, training enables them to acquire resistance to an oxygen deficiency. What are the mechanisms of adaptation to high altitudes?

The answer to this question was particularly important for medicine, for an oxygen deficiency or hypoxia is associated with many diseases. Once a way was found to increase resistance to hypoxia, a start could be made on the prevention and treatment of some very serious diseases.

However, a great deal of work was required before the group of Ukrainian scientists under the direction of N. N. Sirotinin found the most effective approach to mountain acclimatization. Professor Sirotinin suggested that it be done in stages, with pauses at certain sections of the climb. During these pauses people engaged in various activities. Physiological studies showed that under these conditions the muscles elaborate myoglobin, which binds oxygen like blood hemoglobin and helps to store it in the tissues.

The method of hardening the body has already found practical

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USSR

POPOVA, O., Moscow, Rabochaya Gazeta, 6 Feb 70, p 4

application. A branch of a sanatorium for bronchial asthma patients was built in the Baksanskiy canyon first at the tourist camp "Elbrus" and later (this year) in the village of Azau. In cases where asthma is not complicated by severe cardiac disease, treatment is highly effective.

Mountain climbers are aware that some of them may experience psychic disturbances at great heights which pass as the body becomes acclimated. This suggested to the scientists the possibility that adaptation to mountain conditions might affect schizophrenia. Some experiments and observations conducted over a period of years confirmed the assumption. The first successes have been achieved in combatting this persistent disorder.

A search is also under way for methods of treating leukemia. Work on this immense task has just started. But from their observations on the course of blood diseases, physiologists may be able to make certain suggestions. For example, in leukemic albino mice, the blood returns to normal after the animals are exposed to high altitudes. The reason is that in the process of adaptation the body

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UUSR

POPOVA, O., Moscow, Rabochaya Gazeta, 6 Feb 70, p 4

mobilizes all its resources, intensifying, among other things, its hematopoietic capacity. Can this approach be used to control leukemia?

The method of gradual acclimatization is very effective per se, but not equally so in all cases. Scientists have to determine the indications and contraindications in body different states. Moreover, there is no final answer as yet to the question of how long man can remain at high altitudes or what the "ceiling" is on his ability to adapt to hypoxia. Many mountain climbers think it is the 5000 m mark, that a long stay there, let alone doing any work, is impossible. The physiologists are more optimistic in this respect.

To continue with its research, the Institute is constructing a whole network of scientific stations in the Elbrus region. Work started this year on the main, lower "camp" of the physiologists. It is near the village of Terskol, 2100 m above sea level. It is surrounded by blindingly white peaks. A serpentine road winds from here to Elbrus, to the line of perpetual snow. It is possible to

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USSR

POPOVA, O., Moscow, Rabochaya Gazeta, 6 Feb 70, p 4

stop here at "Ledovaya Baza", 3800 m above sea level. The last point of "civilization", the highest in the Soviet Union, is the tourist hostel "Priyut Odinnadtsati", 4100 m above sea level. Many scientific expeditions have their bases here.

But this altitude does not meet all the requirement of the physiologists. They are planning to build a laboratory on the eastern peak of the Elbrus, more than 5500 m above sea level. An attempt was made to put up a cottage here, but a hurricane carried off the comparatively frail structure. Last year two teams from Sirotinin's expedition again climbed the Elbrus in order to study the conditions for work there. It was decided to dig out a small place in the rocks. A small new prefabricated house will be erected there with the help of a helicopter. O. K. Antonov, General Designer for Aviation Technology and Lenin Prize laureate, agreed to cooperate in the project.

This year the Ukrainian physiologists are planning to do their research on the highest peak in Europe.

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172 019

UNCLASSIFIED

PROCESSING DATE—30OCT70

TITLE—CHEMILUMINESCENCE AND KINETICS OF TETRALINE OXIDATION IN ACETIC
ACID CATALYZED BY COBALT ACETATE AND SODIUM BROMIDE -U-

AUTHOR—(03)—ZAKHAROV, I.V., BALANOV, L.A., POPOVA, O.G.

COUNTRY OF INFO—USSR

SOURCE—DOKL. AKAD. NAUK SSSR 1970, 190(5), 1132-5

DATE PUBLISHED—70

SUBJECT AREAS—CHEMISTRY

TOPIC TAGS—CHEMILUMINESCENCE, PEROXIDE, METAL COMPLEX COMPOUND,
NAPHTHALENE, ORGANOCOBALT COMPOUND, SODIUM COMPOUND, BROMIDE, OXIDATION

CENTREL MARKING—NO RESTRICTIONS

DOCUMENT CLASS—UNCLASSIFIED

PROXY REEL/FRAME—3001/0041

STEP NO—UR/0020/70/190/005/1132/1135

CIRC ACCESSIGN NO—AT0125877

UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AT0125877

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. KINETIC CURVES WERE SHOWN FOR CONSUMPTION OF O AND FOR PRODUCTION OF CHEMILUMINESCENCE IN THE TITLE REACTION 50-60DEGREES UNDER VARIOUS CONDITIONS. ADDED NABR NOT ONLY ENHANCED CHEMILUMINESCENCE BUT ALSO ACCELERATED THE UPTAKE OF O AND AT NABR CONC. UP TO 0.5 RELATIVE TO CO(OAC) SUB2, THE INTENSITY OF CHEMILUMINESCENCE IS NEARLY PROPORTIONAL TO THE RATE OF OXIDN. TETRAHYDRONAPHTHALENE (I) CONC. AFFECTS THE RATE OF OXIDN. WHICH FOLLOWS A SQUARE ROOT LAW IN THE ABSENCE OF NABR; IN THE PRESENCE OF NABR, ON DECREASING CONC. OF I THE RATE OF OXIDN. TENDS TO REACH A CONST. VALUE DEPENDENT ON CO(OAC) SUB2 AND NABR CONCNS. THE SAME APPLIES TO INTENSITY OF LUMINESCENCE. WITH A MUCH GREATER AMT. OF CO(OAC) SUB2 THAN NABR IN THE SYSTEM, THE RATE OF OXIDN. REACHES A CONST. VALUE AND DOES NOT CHANGE AFTER FURTHER INCREASE OF ADDED SALT, AS EVIDENTLY ALL NABR IS BOUND AS CO MONOBROMIDE. EVIDENTLY THE EXPECTED METATHETIC REACTION EQUIL. OF NABR AND CO(OAC) SUB2 DOES EXIST IN THE SYSTEM AND COBROAC IS ACTIVE IN CHAIN PROPAGATION WHILE COHBR PRIME POSITIVE POSITIVE TAKES PART IN CHAIN BRANCHING. THE CHAIN INITIATION REACTIONS ARE GIVEN. THE USUAL CHAIN PROPAGATION AND TERMINATION STEPS ARE DISCUSSED. THE OVERALL REACTION IS AUTOXIDN. WITH 2 PATHS FOR FORMATION OF PEROXIDE: FROM HYDROCARBON AND PEROXIDIC RADICALS, AND FROM PEROXIDIC RADICAL AND THE HBR COMPLEX WITH THE METAL SALT.

FACILITY: MOSK. FIZ.-TEKH. INST., MOSCOW, USSR.

UNCLASSIFIED

UDC 546.711'28:548.55

USSR

DVORINA, L. A., and POPOVA, O. I., Institute for Problems of
Material Science, Academy of Sciences UKrSSR

"Preparation of Nickel Disilicide and Its Chemical Properties"

Moscow, Neorganicheskiye Materialy, Vol 6, No 11, Nov 70, pp 1969-1972

Abstract: A study was made of methods of elemental synthesis and silicothermal reduction of nickel oxide in vacuum. The starting materials were metallic nickel in powder from (GOST 9722-61), nickel oxide, and powdered metallic silicon (KP-1 grade). The investigation was conducted in the 500-1000° C range. Nickel disilicide is formed at 900° C after 1 hr exposure by the direct reaction of elementary nickel and silicon. In the silicon-thermal reduction of nickel oxide in vacuum, the reaction mixture is heated at 800-1200° C with intermediate exposures for 1 hr at 100° C intervals. The final exposure at 1200° C lasts 2 hrs. Nickel disilicide is stable toward mineral acids, alkalis, and other chemically chorrosive agents.

1/1

1/2 018 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--SOME CHEMICAL PROPERTIES OF MOLYBDENUM GERMANIDE POWDER -U-
AUTHOR--(02)-POPOVA, O.I., BIRYUKOVA, R.S.
COUNTRY OF INFO--USSR P
SOURCE--POROSH. MET., AKAD. NAUK UKR. SSR; NO. 3, 89-93(MAR 1970)
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, MATERIALS
TOPIC TAGS--CHEMICAL RESISTANCE, MOLYBDENUM COMPOUND, OXYGEN, AIR
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3002/0101 STEP NO--UR/0226/70/000/003/0089/0093
CIRC ACCESSION NO--AP0127727
UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0127727

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CHEMICAL RESISTANCE OF MOLYBDENUM DIGERMANIDE WAS STUDIED IN ACIDS OF VARIOUS CONCENTRATIONS AND THEIR MIXTURES, IN CAUSTIC SODA SOLUTIONS, OXIDATING MEDIA, MIXTURES AND ACIDS WITH OXIDIZERS, AND COMPLEXING AGENTS. IT IS SHOWN THAT THE MOGE SUB2 COMPOUND IS NOT RESISTANT TO THE EFFECT OF REAGENTS POSSESSING OXIDIZING PROPERTIES. THE RESISTANCE OF MOLYBDENUM DIGERMANIDE TO OXYGEN AND AIR WAS INVESTIGATED. MOLYBDENUM DIGERMANIDE PROVED TO BE LESS RESISTANT THAN MOLYBDENUM DISILICIDE. FACILITY: INST. OF PROBLEMS IN MATERIAL STUDIES, KIEV.

UNCLASSIFIED

Immunology

USSR

UDC 576.858.73

BORISOVA, S. M., ~~POPOVA, O. M.~~ and TERSKIKH, I. I., Institute of Virology
imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR, Moscow

"Production of a 'Cold' Variant of an Ornithosis Strain and Investigation of
Its Biological Properties"

Moscow, Voprtsy Virusologii, No 6, Nov/Dec 70, pp 721-723

Abstract: The effect of low temperature (8°C) on the development of the ornithosis inducer in a culture of chick fibroblasts was studied. In particular, it was found that the cold-adapted strain produced was no longer pathogenic when applied intranasally to white mice, which are usually highly susceptible to this strain. The antigen prepared was active in complement-fixation and hemagglutination tests. The strain also possessed pronounced immunogenic properties, so that it appears to be useful as a strain for live vaccination.

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USSR

UDC 576.858.73.097.22:615.334

P
~~DEKOVA~~, O. M., BORISOVA, S. M., and TERSKIKH, I. I., Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR

"A Penicillin-Resistant Strain of Ornithosis Virus and its Biological Properties"

Moscow, Voprosy Virusologii, No 1, 1970, pp 114-116

Abstract: Ornithosis virus (Lori strain) was isolated from the organs of a dead parrot and grown in chick embryo yolk sacs in the presence of increasing amounts of penicillin. After the 19th passage, the penicillin-resistant strain was nontoxic for white mice in 1:5, 1:10, 1:20, and 1:40 dilutions, whereas the control or original strain killed all the animals within 3-6 hours of inoculation. The penicillin-resistant strain lost its complement-fixing activity, while retaining its hemagglutinating activity. In tissue culture its growth was similar to that of the control.

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UDC 624.131.522:624.152.525

USSR

POPOVA, O. V.

"Distribution of Stresses and Displacements in a Homogeneous Half-Space
Beneath a Circular Foundation"

Osnovaniya, Fundamenty i Mekhanikika Gruntov, No 2, 1972, pp 10-12.

Abstract: The contact axisymmetrical problem is studied with full contact between the bottom of a circular, rigid foundation and the base and formulas are concluded for the stress and strain components along the vertical line passing through the center of the circular foundation. The formulas produced are compared with the theoretical studies of other authors.

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Epidemiology

USSR

PISKAREVA, N. A., KUZNETSOVA, E. Ye., ~~POPOVA, R. P.~~, and PRATUSEVICH, R. M.,
Leningrad Scientific Research Institute of Childrens Infections

"Acute Febrile Diseases in Children Caused by Mixed Enterovirus and Adenovirus
Infection"

Moscow, Voprosy Virusologii, No 5, 1971, pp 624-625

Abstract: Hospitalized children convalescing from dysentery (Sh. sonnei) developed a disease of focal character. Virological and serological studies revealed the participation of two viral agents -- adenovirus and ECHO-1 virus. The clinical picture included the syndrome of serous meningitis in some cases and symptoms of respiratory infection in others. In some children, it was impossible to tell from the clinical symptoms which pathogen was more significant. In a few cases, the viral infection exacerbated the dysentery. Thus, an isolated group of children recovering from dysentery (Sh. sonnei) experienced an outbreak of diseases with heterogeneous clinical symptoms caused by ECHO-1 virus and adenovirus type 3.

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USSR

PISKAREVA, N. A., KUZNETSOVA, E. Ye., ~~POPOVA, R. P.~~, BRODOVA, M. D.,
TRUSHINSKAYA, E. P., and YAKIMANSKAYA, K. I., Leningrad Scientific Research
Institute of Childrens Infections

"Virological, Clinical and Immunological Characterization of Hong Kong A2
Influenza in Children"

Moscow, Voprosy Virusologii, No 4, Jul/Aug 71, p 492

Translation: The 1969 influenza outbreak in Leningrad was caused by a new antigenic strain of influenza virus of sero type A2 (Hong Kong). During the outbreak, tests were performed on chick embryos infected with materials collected from 53 patients with sporadic forms of the disease, with eight samples collected from foci, and with 10 samples collected from children who had died of influenza. Twenty-three hemagglutinating agents were isolated and identified as A2 Hong Kong influenza viruses. All strains were sensitive to inhibitors. Serological investigation of paired sera of 388 persons revealed that specific immunological shifts took place in children fairly early. Positive shifts occurred in 40.2% of children aged up to 1 year, which considerably exceeded analogous shifts in a similar group of children in previous years. The express method of immunofluorescent analysis of nose and throat smears yielded positive

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results in 104 out of 165 ill children (63%). Combined positive results by the express method and by the serological method were obtained in about 83% of the total number of individuals examined during the influenza outbreak.

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1/2 007 UNCLASSIFIED PROCESSING DATE--30OCT70
 TITLE--COMPLEX SALTS OF ALLYL ALPHA CHLORO ETHERS WITH ANTIMONY
 PENTACHLORIDE -U-
 AUTHOR-(03)-POPOVA, R.YA., PROTOPOPOVA, T.V., SKOLDINOV, A.P.
 COUNTRY OF INFO--USSR
 SOURCE--ZH. ORG. KHIM. 1970, 6(4), 879-80
 DATE PUBLISHED--70
 SUBJECT AREAS--CHEMISTRY
 TOPIC TAGS--ETHER, ORGANIC COMPLEX COMPOUND, ORGANIC SALT, CHLORINATED
 ORGANIC COMPOUND, ORGANOANTIMONY COMPOUND, CHLORIDE
 CONTRL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRA--2000/2176 STEP NO--UR/0366/70/006/004/0879/0880
 CIRC. ACCESSION NO--AP0125756
 UNCLASSIFIED

2/2 007

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125756

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REACTION OF SBCL SUB5 IN THE
COLD WITH CLCH:CRCHCLGR PRIME1 GAVE INSOL. SALTS:
(CL...CH...CR...CH...OR PRIME1) PRIME POSITIVE SBCL SUB6 PRIME NEGATIVE
(I) (R AND R PRIME1 GIVEN): H, ME; ME, ET; AND ET, ET. THE ACTION OF
ETONA ON I (R EQUALS ME) GAVE CLCH:CMECH(OET) SUB2. ETOH DECOMP. I (R
EQUALS ME) TO A MIXT. OF (ETO) SUB2 CHCHMECH(OET) SUB2 AND ETOCH:CMECHO.

UNCLASSIFIED

USSR

UDC 8.74

POPOVA, S. A.

"Comparison of Some Methods of Error Detection on Computer Magnetic Tapes"

[Sb. tr.]. In-t gorn. mekh. i tekhn. kibernet. im. M. M. Fedorova ([Collected Works of] the Institute of Mining Mechanics and Technical Cybernetics imeni M. M. Fedorov), 1972, vyp. 25, pp 117-120 (from RZh-Kibernetika, No 7, Jul 72, Abstract No 7V598)

No abstract

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1/2 033 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--DISPERSION AND ABSORPTION OF LIQUID WATER IN INFRA RED AND RADIO
FREQUENCY REGIONS -U-
AUTHOR--(04)-ZOLOTAREV, V.M., MIKHAILOV, B.A., ALPEROVITCH, L.I., POPOVA,
S.I. P
COUNTRY OF INFO--USSR
SOURCE--OPT. COMMUN. (NETHERLANDS), VOL. 1, NO. 6., P. 301-2 (JAN. 1970)
DATE PUBLISHED----JAN70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--IR ABSORPTION, ELECTROMAGNETIC WAVE DISPERSION, WATER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1986/0083 STEP NO--NE/0000/70/001/006/0301/0302
CIRC ACCESSION NO--AP0102173

UNCLASSIFIED

2/2 033

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0102173

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. VALUES OF THE OPTICAL CONSTANTS, N AND L (N EQUALS N-IK), OF LIQUID WATER AT 25DEGREESC OVER THE RANGE OF 1-1 TIMES 10 PRIME6 MU, OBTAINED UNDER OPTIMUM SELECTION OF EXPERIMENTAL METHODS ARE TABULATED. KRAMERS KRONIG'S RELATIONSHIPS (KK) WERE USED. FACILITY: STATE UNIV. V. I. LENIN OF TADJIKISTAN, DIOUCHAMBE, USSR.

UNCLASSIFIED

POPOVA, S.V.

Diamonds

INTERNATIONAL CONFERENCE ON THE INVESTIGATION OF DIAMONDS

Article by Candidate of Physical and Mathematical Sciences S. V. Popova, Moscow, Vsesoyuznaya Akademiya Nauk SSSR, Russian, Vol. 21, No. 2, December 1971, pp. 20-21

2285 5024
29 Feb 72

An International Conference on the Investigation of Diamonds was held on 15-17 July in Cambridge. The program of such conferences, conducted annually in England, embraces various questions connected with study of the properties of natural and artificial diamonds. A delegation of scientists of the AS USSR, who were present at the invitation of the organizing committee, participated in this conference for the first time.

The conference was opened by the address of greeting of its chairman, R. Ditchburn, which was dedicated to the memory of C. Lonsdale. Many works of that outstanding investigator were connected with study of the crystallography of diamonds, and the new hexagonal modification of carbon (an analog of the diamond) obtained artificially several years ago was named Lonsdaleite in his honor.

Then a group of Soviet scientists (L. F. Veroshchagin, Ye. N. Yezhov, V. M. Slesarev, F. D. Vartolomeyeva, and G. Ye. Shcherbakov) presented a report entitled "The synthesis of a polycrystalline diamond of the type of carbonado and of polycrystalline cubic boron nitride." Diamonds of the type of carbonado -- a very rare variety of polycrystalline natural diamond -- serve as the best material for the making of diamond tools -- cutters, drills, sawblades, etc. Artificial carbonado, which is obtained in the conditions of high-pressure physics of the USSR, contains impurities in macroscopic quantities of the same kind as natural carbonado. The report dealt with the natural and experimental (synthesis, zone, spray, octahedron, etc.) as a substantial advantage of them as compared with the natural. In the report there was a detailed discussion of the work of a rock made of synthetic carbonado, and also from polycrystalline samples of cubic boron nitride analogous in their internal structure.

Biophysics

USSR

UD: 591.882



BERESTOVSKIY, G. N., LUNEVSKIY, V. Z., MUSIYENKO, V. S., POPOVA, S. V.,
RAZHIN, V.D., Laboratory of Biophysics of Living Structures, Institute of
Biological Physics, Academy of Sciences USSR, Pushchino-na-Oke

"Study of the Cumulative Structural Changes in a Nerve Fiber During Rhythmic
Stimulation Using Optical Techniques"

Leningrad, Tsitologiya, Vol 14, No 12, 1972, pp 1,461-1,467

Abstract: Optical techniques (birefringence, ultraviolet absorption, light dispersion) were used to study the structural and physical-chemical changes in nerve fiber accumulated during rhythmic activation of it. The studies were made on the giant axons of the squid and the ventral nerve cord of crayfish. The quantitative analysis of the experimental results led to the following conclusions: in practice there are no cumulative changes in the degree of orientation of the macromolecular structures in the axoplasm, including the gel-sol transition even as a result of transmission of several thousands of pulses through the nerve; although conformational changes take place in the proteins of the entire axoplasm 20 milliseconds after generation of a single action potential, they are expressed two orders more weakly than in the case of denaturation; the results of the light dispersion experiments agree with the 1/2

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BERESTOVSKIY, G. N., et al., Tsitologiya, Vol 14, No 12, 1972, pp 1,461-1,467

published data. In addition to the primary purpose of studying the role of the axoplasm during the excitation process, the described experiments permit the determination of possible artifacts when studying the structural changes in the membrane from a single action potential by the given optical methods.

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USSR

KONCHALOVSKAYA, N. M., POPOVA, T. B., and BYALKO, N. K.

"Toxic-Chemical Injury of the Liver"

V sb. Tekhn. Progress i Gigiyena Truda (Technical Progress and Labor Hygiene),
Moscow, 1973, pp 84-88 (from RZh-Biologicheskaya Khimiya, No 24, Dec 73,
Abstract No 24F 2156)

Translation: A short review devoted to the problems and methods of the functional differential diagnosis of the toxic liver injuries (a test with ¹³¹I tagged dye Bengal Rose, bilirubinemia, activity of serum enzymes, protein metabolism, etc). It was noted that with toxic hepatitis, the elevation of the activity of aminotransferases was manifested oftener and much stronger than any changes of other enzymes (pseudoCE, aldolase, alkaline and acid phosphatase).

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1/2 022 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--ESSENTUKI HEALTH RESORT TREATMENT OF PATIENTS SUFFERING FROM TOXICO
CHEMICAL AFFECTIGN 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/FRAE--3001/0905

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

CIRC ACCESSION NO--AP0126564

UNCLASSIFIED