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CIRC ACCESSION NO--AP0126019

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EFFECT OF ELECTRIC STIMULATION OF DIFFERENT PARTS OF THE MEDULLA RETICULAR FORMATION ON SYSTEMIC ARTERIAL BLOOD PRESSURE AND REGIONAL BLOOD FLOW WAS STUDIED WITH STEREOTAXIC METHOD. SPATIAL DISTRIBUTION OF THE PRESSOR AND DEPRESSOR AREAS IN THE MEDULLA OBLONGATA WAS SHOWN. THE DEPRESSOR AREAS WERE SHOWN TO CONCENTRATE IN THE MEDIAL PART OF THE MAGNOCELLULAR NUCLEUS, 1.5-1.7 MM FROM THE MIDLINE. PRESSOR AREAS WERE REVEALED IN THE LATERAL PARTS OF THE RETICULAR FORMATION. ELECTRIC STIMULATION OF THE DORSOLATERAL RETICULAR FORMATION (DORSAL PART OF THE MAGNOCELLULAR RETICULAR NUCLEUS AND THE PARVOCELLULAR RETICULAR NUCLEUS) WAS FOLLOWED BY RISING OF THE SYSTEMIC ARTERIAL BLOOD PRESSURE AS WELL AS BY DISTINCT REGIONAL BLOOD FLOW CHANGES IN THE INTERNAL ORGANS AND THE LIMBS. STIMULATION OF THE VENTRAL PARTS OF THE RETICULAR FORMATION ABOVE THE INFERIOR OLIVE WAS FOLLOWED BY INCREASE OF THE SYSTEMIC ARTERIAL BLOOD PRESSURE AND DECREASE OF THE BLOOD FLOW IN LIMB MUSCLES AND SKIN. FACILITY: A. A. BOGOMOLETS' INSTITUTE OF PHYSIOLOGY ACAD. SCI. UKR. SSR, KIEV.

UNCLASSIFIED

Acc. Nr: **AP0044129**

Ref. Code: **UR**

PRIMARY SOURCE: *Neyrofiziologiya*, 1970, Vol 2, Nr 1, PP 35-42
THE INFLUENCE OF ELECTRICAL STIMULATION OF MEDULLAR SPECIFIC NUCLEI ON SYSTEMIC ARTERIAL BLOOD PRESSURE AND REGIONAL BLOOD FLOW

A. I. Vyshatna,

*The A. A. Bogomoletz Institute of Physiology,
Academy of Sciences, Ukrainian SSR, Kiev*

Summary

Electrical stimulation of descending and medial vestibular nuclei produces an increase in the systemic arterial blood pressure and changes in regional blood flow. Electrical stimulation of descending vestibular nucleus (especially its ventrolateral parts) is manifested by blood flow decrease in hind-limb muscles. When stimulating central parts of the nucleus blood flow decrease is observed in both hind-limb muscles and some viscera. Stimulation of the medial vestibular nucleus (especially its ventral parts) is followed by skin blood flow decrease, sometimes it is accompanied by blood flow decrease in viscera.

On basis of analysis of afferent and efferent descending connections an assumption is made that the cerebellum takes part in transmission of the central cardiovascular influences.

REEL/FRAME
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USSR

VYSHENKOV, YU. I., ZIMIN, YU. S., SKVORTSOV, E. K., and SKVORTSOV, N. G.,
Institute of Theoretical and Applied Mechanics of the Siberian Department
of the Academy of Sciences USSR

"Graphic Information Reader"

USSR Authors' Certificate No 356666, Cl. 06 k 11/00, filed 2 Jun 69, pub-
lished 23 Oct 72 (from Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy,
Tovarnyye Znaki, No 32, 1972, p 145)

Abstract: The device contains a plotting board, a hairline, toothed disks,
an electric motor, clutches, contactless pickups, holders, angle of rotation-
to-digit converters, integrators, an output unit and a monitor unit. To in-
crease the operating accuracy of the device, the hairline with three hairs
is connected through the holders to the toothed disks, which are connected
through microelectric motors to the contactless pickups, which are connected
to the inputs of the angle of rotation-to-digit converters, whose outputs are
connected through the integrators to one of the inputs of the output and moni-
tor units, the other inputs of which are connected respectively to the con-
trol unit, the integrators and the angle of rotation-to-digit converters.

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USSR

VYSHENKOV, YU. I., ZIMIN, YU. S., SKVORTSOV, E. K., and SKVORTSOV, N. G.,
Institute of Theoretical and Applied Mechanics of the Siberian Department
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connected through the integrators to one of the inputs of the output and moni-
tor units, the other inputs of which are connected respectively to the con-
trol unit, the integrators and the angle of rotation-to-digit converters.

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USSR

UDC 533+536.423.1

VYSHENSKAYA, V. F., KOSOV, N. D., KURLAPOV, L. I., MARTYNOVA, G. P.

"Study of the Dependence of the Coefficient of Mutual Diffusion of a Helium-Carbon Dioxide System on Concentration"

V sb. Fizika (Physics -- Collection of Works), No. 5, Alma-Ata, 1971, pp 78-80 (from RZh-Fizika, No 1, Jan 73, Abstract No 1Ye45)

Translation: The coefficient of mutual diffusion in the entire concentration interval was measured by a stationary method for a concentration difference of ~ 0.1 . A considerable decrease was noted in the coefficient of mutual diffusion with a decrease in CO_2 concentration from 0.1 to 0. The coefficient of mutual diffusion of this system can be considered constant in the CO_2 concentration interval 1-0.1. Authors' abstract.

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USSR

SHUKALOVA, T. F., VYSHEPAN, Ye. D., and CHERNUKH, A. M.

"Serum Alkaline Ribonuclease Activity in Carbon Tetrachloride Poisoned Rats and Effects of an In Vitro Hepatic Inhibitor"

Byul. Eksperim. Biol. i Med., Vol 74, No 9, 1972, pp 50-53 (from Referativnyy Zhurnal -- Biologicheskaya Khimiya, No 5, 1973, Abstract No 5F2279)

Translation: Serum activity of free alkaline RNase was found to increase 3 h after intraperitoneal administration of CCl₄ to rats (0.3 ml/100 g in vegetable oil). In vitro addition to the serum of a partially purified inhibitor from the livers of intact rats, significantly inhibited the enzyme activity in sera obtained from control and CCl₄-treated rats. After 3 h, the free RNase activity in the sera decreased, and then commenced to increase to normal levels. The significance of the changes in the activity of free alkaline RNase in the sera associated with CCl₄ treatment was discussed in relation to the transport of exogenous polymeric RNA to the liver.

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VYSHESLAVOVA, M. Ya.

THE EFFECT OF ENTRY ACIDS (LIMOLEIC, LINOLIC, AND OLEIC) ON DEVELOPMENT
OF 2-ACETYLAMINOFLUORENE-INDUCED TUMORS IN RATS

ENC: 616-006-092, 9:547, 39

29 Mar 72

PPS 552P

Articles by M. Ya. Vysheslavova, Institute of Nutrition, USSR Academy of Medical Sciences, Moscow, U.S.S.R. Zhurnal Akademi Meditsinskikh Nauk SSSR, Kuz'min, No 2, 1972, pp 23-27.

In our earlier investigations (1968, 1969), referable to experiments on rats, it was shown that overheated sunflower oil is a mild carcinogen; in latency period, increased the incidence and degree of malignancy in addition. Fresh sunflower oil increases the incidence of malignancy of induced primary hepatomas. It may be that this phenomenon is due to the fact that the fat contained in a larger quantity than in the case of overheated, oxidized oil, as shown by the data of H.R. Harboza et al. (1965).

It has been noted that development of tumors is related not only to the caloric value of the diet (Tammembau, 1942, 1945; Bawassil, 1949; Hanning, et al., 1956; Tammenbaum and Tammenbaum, 1950; Engel et al., 1951; Gouls et al., 1956; Gouls and Carroll (1967) has also to the specificity of the caloric value but different in fat composition (corn and coconut oil with qualitatively and quantitatively different fatty acid content, and in particular, linoleic and oleic acid) resulted in different incidences of primary gland tumors following administration of aflatoxin B₁ and in particular (1962) showed more inhibitory effect of linoleic acid when administered in considerable doses, upon induction of ethylmethylnitrosobenzene, Schramm (1967) observed that methyl ester of oleic acid when administered in doses (40 mg/kg) during development of tumor increases the antioxidant activity of the liver, and in large doses (60 mg/kg) decreases in small amount the antioxidant activity of the liver. It is established that the physicochemical properties of lipids change in the cells in the presence of a tumor process (Yu. P. Kozlov, 1969; A. P. Jarsow, 1970; Ye. M. Holodkova and N. N. Kalnova, 1970; A. P. Kozlov, 1969; et al., 1971). This is associated with impaired equilibrium of oxidizing processes in cells (which, under normal conditions, is stabilized by antioxidants) which leads to a change in growth and reproduction of cells (B.R.

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UNCLASSIFIED

PROCESSING DATE--20NOV70

TITLE--THE EFFECT OF BICMYCIN ON THE INDUCTION OF HEPATIC TUMORS IN MICE
-U-

AUTHOR--(02)-PYLEVA, Z.A., VYSHESLAVOVA, M.YA.

COUNTRY OF INFO--USSR

SOURCE--BYLLETEN' EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, VOL 49,
NR 6, PP 75-77

DATE PUBLISHED-----70

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UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--20NOV7

CIRC ACCESSION NO--AP0131293

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

ABSTRACT. THE AUTHORS STUDIED THE EFFECT OF BIOMYCIN IN A DOSE OF 15 MG-KG ON THE CANCEROGENESIS IN MICE LIVER INDUCED WITH ORTHOAMINOAZOTGLUOLE. THERE WAS SEEN A SIGNIFICANT STIMULATING EFFECT OF THIS DOSE OF BIOMYCIN ON THE DEVELOPMENT OF HEPATIC TUMORS IN ANTIBIOTIC INJECTION AT THE INITIAL STAGES OF CANCEROGENESIS. FACILITY: INSTITUTE OF NUTRITION OF THE ACADEMY OF MEDICAL SCIENCES OF THE USSR, MOSCOW.

UNCLASSIFIED

USSR

UDC: 621.374

BUDYANOV, V. P. and VYSHESLAVTSEV, V. N.

"Multivibrator With Base Resistance Connection"

Leningrad, Priborostroyeniye, No 2, 1972, pp 9-10

Abstract: Asserting that an important problem in pulse and conversion techniques is to better the stability of the output frequency in the face of a varying supply voltage, the authors, members of the S. Ordzhonikidze Moscow Aviation Institute, propose a multivibrator circuit which is distinguished by high stability of the oscillation frequency for a supply voltage varying within specified limits. The circuit obtains its stability by virtue of two stabilitrons in series with current-stabilizing diodes, which are in turn connected to the bases of the multivibrator transistors. Two diodes, one for each base, form the base resistances. The circuit was tested at an ambient temperature of 20° C, and the results of the tests are given in a curve.

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USSR

UDC 547.258.2

RAZUVAYEV, G. A., LATYAYEVA, V. N., VYSHINSKAYA, L. I.,
VASIL'YEVA, G. A.

"Reactions of Biscyclopentadienyldiphenyltitanium With Lithium-organic Compounds"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 9, Sep 70,
pp 2033-2036

Abstract: Reaction of biscyclopentadienyldimethyltitanium with phenyllithium and biscyclopentadienyldiphenyltitanium (I) with methyllithium occurs with reduction of titaniumorganic compounds, yielding methane, benzene, metallic lithium, cyclopentadienyllithium, and a nonsymmetric compound of divalent titaniumphenylmethyltitanium. When (I) was reacted with benzyltitanium in a 1:1 ratio, benzene, cyclopentadienyllithium, and a nonsymmetric compound of trivalent titanium: cyclopentadienylphenylbenzyltitanium were obtained. Reaction of (I) with three moles of benzyltitanium gave benzene, toluene, dibenzyl, metallic lithium, cyclopentadienyllithium and phenylbenzyltitanium. It is proposed that all of these
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USSR

RAZUVAYEV, G. A., et al, Zhurnal Obshchey Khimii, Vol 40, No 9,
Sep 70, pp 2033-2038

reactions occur through the formation of a reversible onium complex which breaks down through a homolytic break of the Ti-R bond, yielding cyclopentadienyllithium and a nonsymmetric titanium organic compound.

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USSR

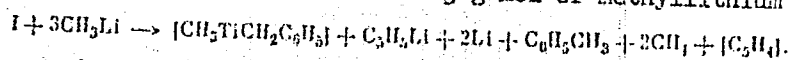
UDC: 547.258.2

RAZUVAYEV, G. A., LATYAYEVA, V. N., VASIL'YEVA, G. A., VYSHINSKAYA, I. I.
Scientific Research Institute of Chemistry Affiliated With Gor'kiy State
University imeni N. I. Lobachevskiy

"The Reaction of Dicyclopentadienyldibenzyltitanium With Organolithium Compounds"

Leningard, Zhurnal Obshchey Khimii, Vol 42(104), No 6, Jun 72, pp 1306-1310

Abstract: The authors studied the reaction of dicyclopentadienyl dibenzyltitanium $(C_6H_5)_2Ti(CH_2C_6H_5)_2$ (I) with methyl- and benzyl lithium in ratios of 1:1 and 1:3 in an attempt to synthesize new organotitanium compounds. Compound (I) reacted with 1 mole of methyl lithium to form cyclopentadienyllithium, toluene and methane. The excess methyl lithium caused further reduction of Ti^{III} to Ti^{II} . Compound (I) reacted with 3 g-mol of methyl lithium as follows:

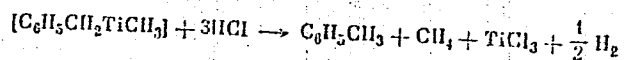


Hydrochloric acid hydrolysis of the asymmetric titanium compound gave toluene, methane and a salt of Ti^{III} .

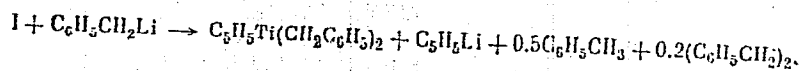
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USSR

RAZUVAYEV, G. A., et al., Zhurnal Obshchey Khimii, Vol 42(104), No 6, Jun 72, pp 1306-1310



Attempts to synthesize dibenzyltitanium by thermal dissociation of tetrabenzyltitanium (II) were unsuccessful. Dibenzyltitanium and cyclopentadienyl dibenzyltitanium (III) were synthesized by reacting compound (I) with benzyl-lithium in various ratios.



Product (III) is stable when stored at room temperature for long periods. The reaction of compound (I) with 2 moles of methyl lithium produced cyclopentadienyllithium, toluene and dibenzyl. Metallic lithium was also found.

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USSR

UDC 577.4

VYSHINSKIY, L. L.

"Isolation of Identical Blocks from Two Finite Automata"

V sb. Abstraktn. i struktur. teoriya releyn. ustroystv (Abstract and Structural Switching Theory -- collection of works), Moscow, "Nauka," 1972, pp 65-78 (from RZh-Matematika, No 3, May 73, Abstract No 3V408 by V. Buyevich)

Translation: The article considers questions involving the decomposition of finite automata. The problem of the joint decomposition of two or more finite automata is of interest. Sufficient conditions are found for decomposition of a pair of automata having identical blocks. An algorithm for finding such blocks is presented.

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USSR

VYSHINSKIY, L. L.

"Separation of Identical Blocks of Two Finite Automata"

Abstraktn. i Struktur. Teoriya Releyn. Ustroystv. [The Abstract and Structural Theory of Relay Devices -- Collection of Works], Moscow, Nauka Press, 1972, pp 65-78 (Translated from Referativnyy Zhurnal, Kibernetika, No 3, 1973, Abstract No 3 V408 by V. Buevich).

Translation: Problems are studied, related to the decomposition of finite automata. There is interest in the problem of compatible decomposition of two or more finite automata. Sufficient conditions are found for the decomposition of a pair of automata to have identical blocks. An algorithm is presented for determination of such blocks.

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USSR

UDC: 621.372.22

VYSHKIND, S. Ya. and RABINOVICH, M. I.

"Parametric Wave Transformations in Active Media"

Gor'kiy, Izvestiya VUZ--Radiofizika, No 10, 1972, pp 1502-1508

Abstract: This paper examines nondegenerate, three-wave interaction in an active medium with quadratic linearity. It does not, however, consider the case when the nonlinearity is connected with the activity of the medium or when one of the waves has negative energy, as in plasma-beam systems. It is basically concerned with the dynamics of the transition mode, which is shown to be more effective, in many cases, for obtaining high parametrically generated wave amplitudes. The three-wave interaction is first considered in a semi-limited, active-reactive medium under the assumption that the pumping wave and a small priming wave for which the medium is active are applied at the limit. The process of frequency transformation is then examined in a combined medium for cases in which the chaotic wave phase approximation is valid. It is noted that the results of the computations are applicable to nonstationary interaction of space-uniform fields in the resonator. The authors express their thanks to A. V. Gaponov, G. I. Freydmann, and V. M.

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VYSHKIND, S. Ya., et al, Izvestiya VUZ--Radiofizika, No 10, 1972,
pp 1502-1508

Portus for their comments on the work.

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-USSR -

UDC 612.833.18

KHAYUTIN, V. M., LUKOSHKOVA, Ye. V., and VYSHKOV, Yu. D., Laboratory of Regulation and Biophysics of Circulation, Institute of Normal and Pathological Physiology, Academy of Medical Sciences USSR, Moscow

"Dynamics of Changes in Reflexly Conditioned Signals in Vasomotor Nerves, and a Programmed Device for Modeling Them"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, Vol 73, No 5, 1972, pp 3-6

Abstract: Research is in process on the possibility that the body's regulatory systems operate in accordance with the laws of optimum control which are now being employed in engineering systems where high-speed, optimum responses are required. In this particular work a study was made of the pattern of brain signals transmitted to vasomotor nerves activating the pressor reflex in response to tetanic stimulation of spinal afferents, and an electronic unit that simulates this pattern was developed. The A+C-afferents of the tibial nerve of anesthetized cats was stimulated tetanically, and the resulting potentials on one of the postganglionic renal nerves and the pressure in the carotid artery were recorded. Upon stimulation, a short (2-4 sec) "positive" signal greatly exceeding background bioelectric activity was recorded, followed by a "negative," inhibitory signal. Pressor reflex amplitude depended entirely
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KHAYUTIN, V. M., et al., Byulleten' Eksperimental'noy Biologii i Meditsiny, Vol 73, No 5, 1972, pp 3-6

on the intensity of the positive signal. After the negative signal, bioelectric activity gradually returned to the initial level, as did arterial pressure. Next a programmed electronic unit was designed for stimulating cardiovascular nerves in accordance with the pattern of signal strength changes with respect to time determined above. Output frequency is switched from constant background frequency to a stepwise-changing pattern of frequencies by pressing a button, at which moment the 1st timing relay engages, producing a strobing pulse of preset duration and frequency through a multi-vibrator generator. Its deactivation causes the next relay to trigger, and so on until the 4th, after which the circuit returns to its initial state. A circuit diagram and component description are provided.

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USSR

UDC 616.988(RS)-092.9-097

DREZYIN, R. S., VYSHNEVETSKAYA, L. O., BAGDAMYAN, YE. YE., YANKEVICH, O. D., TARASOVA, L. B., and KLENOVA, A. V., Institute of Virology Virusologii, No 6, Nov/Dec 71, pp 670-676

Abstract: Cotton rats aged $1\frac{1}{2}$ -2 weeks were experimentally infected with the Long strain of RS virus through intranasal inoculation, and the progress of the disease was investigated with three methods, yielding corresponding results. The virus and the specific antigen (anti-RS FITC-globulin of rabbits) were detected 24 hours after inoculation. The intensity of fluorescence, the percentage of cells containing the antigen, and the virus titer in the epithelium of the nose, trachea, bronchi, and alveoli reached a maximum in 3 to 5 days, at which time maximum pathomorphological changes were also observed in the epithelium of the trachea, bronchi, and bronchioles. The intensity of the infectious process declined on the 7th day, and neither the specific antigen, nor the virus, nor the pathomorphological changes in the epithelium of the respiratory pathways were found on the 14th day.

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USSR

MUKHA, I. M., DOVBISHCHUK, M. N., BELILOVETS, A. D., VYSHNEVSKIY, V. S., Kiev

"Strength of Welded Joints of VK Hard Alloys as a Function of the Thickness of the Interstitial Layer and the Technological Process of Applying It"

Kishinev, Elektronnaya obrabotka materialov, No 5 (47), 1972, pp 26-30

Abstract: A study was made of the technological procedures for applying Ni and Co interstitial layers for diffusion welding of VK type hard alloys in glow discharge and also the effect of the thickness of the interstitial layers on the strength of the welded joint. Interstitial layers made of powdered Ni and Co can be used for surface ground parts made of hard alloys. Interstitial layers in the form of thin films obtained by thermal evaporation in a vacuum can be used for welding parts of complex surface curvature. The optimal film thickness is 4,000 to 8,000 Å. The variation in strength of the welded joints of VK6-VK16 hard alloys is plotted as a function of the thickness of the Co and Ni interstitial layers from 2,000 to 40,000 Å.

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USSR

UDC 669.017.1:539.56.001.5

GULYAYEV, A. P., VOLKOVA, M. A., VYSHVANYUK, I. M., KOZLOV, N. P., and
MATSNEVA, YE. G.

"Mechanical Properties of 10GT Steel at Negative Temperatures and Influence
of Imitated Welding Cycle on the Cold Brittleness Threshold"

Spetsial'nyye Stali i Splyavy (Special Steels and Alloys -- Collection of
Works), No 77, Metallurgiya Press, 1970, pp 181-187

Translation: It is established that the mechanical properties of all melts
and shapes of 10GT steel studied, tested at -60°C , satisfy the require-
ments of All-Union State Standard GOST 5781-61, while the impact tough-
ness in the hot-rolled state at -60°C is 1,000-2,200 kJ/m^2 (10-22 $\text{kg}\cdot\text{m/cm}^2$).

The cold brittleness threshold of periodic profile No 16-32 of 10GT
steel lies in the interval from -80 to -100°C . Fully viscous fracture of
the steel occurs at room temperature.

The cold brittleness threshold of 10GT and St5 steels after a weld-
ing cycle is practically independent of preliminary heat treatment. The
use of heat treatment for welded products is undesirable, since welding
reduces its effectiveness. 2 figures; 1 table.

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USSR

UDC 612.741+612.748

MAGAZANIK, L. G. and VYSKOCHIL, F., Biophysics of Synaptic Processes Group,
Institute of Evolutionary Physiology and Biochemistry Imeni I. M. Sechenov,
Academy of Sciences USSR, Leningrad

"Mechanism of Action of Neurotoxins from Snake Venom"

Leningrad, Zhurnal Evolyutsionnoy Biokhimi i Fiziologii, No 5, 1972, pp 555-557

Abstract: The effect of bungarotoxin and najatoxin on postsynaptic electrogenesis was investigated in frog skeletal muscle. At concentrations of $1 \cdot 10^{-7}$ to $1 \cdot 10^{-6}$ μ /ml the neurotoxins irreversibly depressed both end-plate and acetylcholine potentials derived consecutively from the same fiber. The rate of decrease in amplitude of the acetylcholine potentials was much higher, perhaps because of the capacity of the neurotoxins to hasten desensitization to acetylcholine. The neurotoxins are thought to act not only (or not so much) on the choline receptors as on some other functional elements of the postsynaptic membrane directly related to electrogenesis, perhaps ionophores.

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Hydrobiology

USSR

VYSKREBENTSEV, B. V., Moscow

"An Artificial Reef (-- an Underwater) Laboratory"

Moscow, Priroda, No 7, 1973, p 114

Translation: Chernomor-72, a submarine experiment, was concluded in Oct 72. One of its scientific programs was dedicated to the investigation of an artificial reef in two directions: the dynamics of fish accumulation in the artificial reef zone, and investigation of fish behavior.

A concrete monolith 2.5 x 4.5 x 2.5 meters in size was located on an operative polygon in the zone of which the investigations were conducted. A dome-shaped rubber floating buoy more than three meters in diameter ("Sprut," a pneumatic submarine chamber) was suspended on a metallic fixture over the monolith. Observations over the artificial reef were conducted in the period of June-September 1972. More than 30 submersions to the reef for a total period of 50 hours were carried out in the course of the experiment. In the course of the observations the species composition of the fishes, the number of the different species, and the character of their distribution on the reef, characteristics of the behavior of the different ecological groups of fishes, the mode of the travel of fish, their mobilization reactions, and the thres-

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USSR

VYSKREBENTSEV, B. V., Priroda, No 7, 1973, p 114

hold of the defensive reactions of fish were recorded¹.

The observations established that the formation of fish concentrations is linked not so much with their nutrition (the formation of overgrowth requires considerable time, while the concentration of fish near the artificial reef begins almost immediately) as with the tendency of the fish to increase their defensive potential realized by means of a refuge. Neither was the fact disregarded that in addition to the effect of the simple concentration of fish, a general numerical increase of population may be expected as a result of the additional substrate provided by the artificial reef.

The 1972 investigations confirmed also the expectations of the second direction: the study of the behavior of fish on an artificial reef. Investigations in particular of the group relations of fish, the character of dominant-submissive relations in freely living associations, formation of interspecies conglomerates, the extent of group association of fishes of different ecological groups, threshold of defensive reaction mobility and defensively oriented reactions of fish, frequency with which mobilized movement regimes of fish occur, etc.

¹ Scientific conference of the All-Union Correspondence Institute of the Food Industry. Theses of reports, Moscow, 1973, p 53
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USSR

VYSKREBENTSEV, B. V., Priroda, No 7, 1973, p 114

The possibility of utilizing artificial reefs as a base for the study of fish behavior from submarine habitats has been confirmed. By attaching a submarine apparatus to a polygonal reef equipped with a system of signal transmitters it is possible to carry out different experiments without disturbing the natural environment of the marine animals' habitat.

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• USSR

UDC 591.51

VYSKRENTSEV, B. V., and SAVCHENKO, N. V., All-Union Scientific Research Institute of Marine Fisheries and Oceanography, Ministry of Fish Economy USSR, Moscow

"The Panic Response and the Rate of Movement of Fishes"

Moscow, Priroda, No 4, 1973, pp 6-8

Abstract: Swimming speed and maneuverability (turning rate) of fishes subjected to seismic perturbations in a shallow tank were recorded on movie film to quantitatively assess the degree to which a panic response augments normal activity. It was found that while fish (*Leucaspis delineatus*, among others) ordinarily have a maximum sprint speed ranging around 10 (rarely 20) body lengths per second (bls), seismic shocks generated speeds up to 35-70 bls over short distances (to 1 meter). *L. delineatus* was able to turn 90° in 0.026 sec (10 rps) in its panic response. Latent response time was 0.01 sec for the first of 7 fish, with all responding within 0.04 sec. It is suggested that panic is a genetically determined individual defense mechanism characteristic of young fishes. As schooling fishes develop and gain experience, they acquire group defense mechanisms. Panic is concluded to be one case of general mobilization responses. Because the panic response can attenuate through

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USSR

VYSKREBENTSEV, B. V., and SAVCHENKO, N. V., Priroda, No 4, 1973, pp 6-8

adaptation, caution must be taken in behavioral experiments to ensure that the response observed remains natural.

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USSR

UDC 621.391.821.029.51

REMIZOV, D. T., OLEJNIKOVA, I. V., KOROLEV, A. N., VYSKREBTSOV, I. G.

"Spectrum of the Fluctuation Component of Atmospheric Noise in the Superlong Wave Range"

Moscow, Radiotekhnika i elektronika, Vol XVII, No 2, 1972, pp 291-294

Abstract: Results are presented for measuring the spectrum of the fluctuation component of atmospheric radio noise in the superlong wave range by the method of spectrographic analysis of the random process from which the pulse component is eliminated in advance. The admissibility of variation of certain parameters characterizing the measurement technique within significant limits was demonstrated experimentally.

Two measurement techniques were used. The first comprised two successive operations: 1) separation of the fluctuation component from the pulse component during reception on a broad frequency band of 1-27 kilohertz, 2) measurement of the spectrum of the fluctuation component. The second method consisted in photographing the noise approximately 100 times in a 5-10 minute interval from an oscillographic screen from which oscillograms were subsequently selected on which the pulse noise was absent. Good agreement was obtained by the two methods.

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1/2 016 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--NATURAL GAS POTENTIALS IN DEVONIAN FORMATIONS IN THE SOUTHWESTERN
PART OF THE DNIEPER DONETS SYNCLINE -U-
AUTHOR--(03)-VYSOCHANSKIY, I.V., ZELENSKAYA, P.I., SHEVCHENKO, I.M.
COUNTRY OF INFO--USSR
SOURCE--GEOL. ZH. (UKR. ED.) 1970, 30(1), 120-1
DATE PUBLISHED-----70
SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, MATERIALS
TOPIC TAGS--NATURAL GAS, CHEMICAL COMPOSITION, METHANE, ETHANE, PROPANE,
BUTANE, PENTANE, NITROGEN, CARBON DIOXIDE, PETROLEUM DEPOSIT, GEOGRAPHIC
LOCATION, SODIUM CHLORIDE, CALCIUM CHLORIDE, EXPLORATORY DRILLING,
SULFATE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/1547 STEP NO--UR/0008/70/030/001/0120/0121
CIRC ACCESSION NO--AP0118530
UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0118530

ABSTRACT/EXTRACT--(U) GP-0-- ABSTRACT. DEVONIAN FORMATIONS IN THE LEVENTSOVSK AREA ARE OPENED BY 4 DRILL HOLES AT DEPTHS OF 2400-3000 M. THEY CONSIST OF ARENACEOUS AND ARGILLACEOUS ROCKS, 230-430 M THICK, WITH INTERLAYERS OF CARBONATITES AND ANHYDRITES. TWO OF THE HOLES HAD GAS FLOWS OF SMALLER THAN OR EQUAL TO 3800 M PRIME3-DAY. THE FREE GAS CONTAINED CH SUB4 91.72, C SUB2 H SUB6 3.74 C SUB3 H SUB8 1.54, C SUB4 H SUB10 0.66, C SUB5 H SUB12 0.22, N PLUS RARE GASES 1.87, AND CO SUB2 0.25PERCENT. THE FORMATION WATERS, OBTAINED FROM THESE DRILL HOLES HAD A HIGH TOTAL MINERAL CONTENT (207.2-243.72 G-L.), WERE OF CL-CA TYPE AT NA PRIMEPOSITIVE-CL PRIMENEGATIVE 0.77-0.78 AND SO SUB4 PRIME2 NEGATIVE-CL PRIMENEGATIVE 0.018-0.028, AND CONTAINED I 18.5-25.6, BR 106.6-132.7, AND B 30.15-42.55 MG-L. FACILITY: TREST KHARKIVNAFTAGAZROZVIDKA, KHARKOV, USSR.

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--AERATED CONCRETE PRODUCTS -U-
AUTHOR--(02)-VYSOCHANSKIY, L.YE., VYSOCHANSKIY, YE.L.
COUNTRY OF INFO--USSR
SOURCE--U.S.S.R. 262,684
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970 47(6)
DATE PUBLISHED--26JAN70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CONCRETE, CHEMICAL PATENT, AMMONIUM COMPOUND, POROSITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/0832

STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0136266

UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AA0136266
ABSTRACT/EXTRACT--(U) GP-G- ABSTRACT. AERATED CONCRETE PRODUCTS ARE
PREPD. BY ADDING NH SUB4 OH 0.05-2PERCENT BY WT. (CALCD. AS NH SUBE) OF
THE CEMENT INTO THE MIXING WATER. THE CEMENT PASTE IS PREPD. BY
VIBRATION MIXING AND HELD IN A HOPPER BEFORE PORE FORMATION. THE
HOLDING TIME IS FROM 20 MIN TO A TIME EXCEEDING THAT FOR THE BEGINNING
OF SETTING OF THE PASTE WITH NORMAL CONSISTENCY. THE HEAT MOSITURE
TREATMENT TAKES PLACE SUBSEQUENTLY.

UNCLASSIFIED

USSR

UDC 532

YUKHNOVEKIY, I. R., VYSOCHANSKIY, V. S., GOLOVKO, M. F.

"Study of Group Expansion for Binary Distribution Functions of Systems of Particles With Electrostatic Interaction. I. Third Virial Coefficient"

In-t teor. fiz. AN USSR. Preprint. ITF-72-1R (Institute of Theoretical Physics. Academy of Sciences UkrSSR. Preprint, ITF-72-1R), Kiev, 1972, 29 pp, ill., 8 kop. (from RZh-Fizika, No 1, Jan 73, Abstract No 1Ye87)

Translation: The curves of the binary distribution function of three-variety ion-dipole systems were obtained in the approximation of the third virial coefficient. The density of the dipole particles corresponds to their concentration in the liquid. It is shown that the effect of higher virial coefficients intensifies with a decrease in the ion concentration, and the value of the first approximation of the binary function rises unnaturally. It is also shown that one must replace the pair interaction potential by the active force potential under infinite dilution to account for the dipole subsystem in the region of small ion concentrations. The ion subsystem at small concentrations should be taken into account by expansion of the distribution functions in powers of the plasma parameter.

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1/2 014 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--AERATED CONCRETE PRODUCTS -U-

AUTHOR--(OZ)-VYSOCHANSKIY, L.YE., VYSOCHANSKIY, YE.L.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 262,684
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970 47(6)
DATE PUBLISHED--26JAN70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CONCRETE, CHEMICAL PATENT, AMMONIUM COMPOUND, POROSITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/0832

STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0136266

UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AA0136266

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AERATED CONCRETE PRODUCTS ARE PREPD. BY ADDING NH SUB4 OH 0.05-2PERCENT BY WT. (CALCO. AS NH SUBE) OF THE CEMENT INTO THE MIXING WATER. THE CEMENT PASTE IS PREPD. BY VIBRATION MIXING AND HELD IN A HOPPER BEFORE PORE FORMATION. THE HOLDING TIME IS FROM 20 MIN TO A TIME EXCEEDING THAT FOR THE BEGINNING OF SETTING OF THE PASTE WITH NORMAL CONSISTENCY. THE HEAT MOSITURE TREATMENT TAKES PLACE SUBSEQUENTLY.

UNCLASSIFIED

USSR

UDC 621.378.325:658.382.3

PRONIN, V. R., VYSOKOSOV, Ye. P., NESTERENKO, M. T., LAZAREV, Yu. I.

"Recommendations for Setting up Temporary Sanitary Rules for Working With Lasers"

Moscow, Kvantovaya Elektronika, No 2, 1971, pp 87-91

Abstract: The authors consider recommendations for setting up sanitary rules in working with lasers. The recommendations are based on analyzing current Soviet and non-Soviet data in the literature on problems of evaluating the biological effect, levels of threshold action and safe levels of laser emission from studies with consideration to the optical and physiological properties of the eye. Requirements for production areas where quantum electronic devices are located are also considered. One table, bibliography of 25 titles.

1/1

- 80 -

1/2 015 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--EFFECT OF INTERNAL ALPHA IRRADIATION ON THE CHARACTERISTICS OF THE
ANION EXCHANGER AV,23M -U-
AUTHOR--(C5)--NIKOLAYEV, V.M., VYSOKGOSTROVSKAYA, N.B., PARAMONOVA, V.I.,
OSIPOV, S.V., FROLOV, V.I.
COUNTRY OF INFO--USSR
SOURCE--RADIKHKHIMIYA 1970, 12(1), 127-32 ✓
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, NUCLEAR SCIENCE AND TECHNOLOGY
TOPIC TAGS--ALPHA RADIATION, ANION EXCHANGE RESIN, PLUTONIUM ISOTOPE,
MECHANICAL STRENGTH, PARTICLE SIZE/AV23M ION EXCHANGE RESIN
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1206 STEP NO--UR/0186/70/012/001/0127/0132
CIRC ACCESSION NO--AP0128624
UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0128624

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AV, 23M RESIN WAS SUBJECTED TO ALPHA IRRADN. FROM ABSORBED (FROM NITRATE SOLNS.) PRIME238 PU (FOR DIFFERENT TIMES, SO THAT THE RADIATION DOSE REACHED UP TO 4 TIMES 10 PRIME8 RAD). THE SWELLING OF THE RESIN INCREASED WITH INCREASING DOSE, AND THE RESIN BECAME SOL. IN 7.5 M HND SUB3; THE SOLY. INCREASED LINEARLY WITH THE DOSE, TO 14PERCENT AFTER IRRADN. WITH A DOSE OF SIMILAR TO 3 TIMES 10 PRIME8 RAD. THE INCREASE IN SWELLING AND SOLY. IS ATTRIBUTED TO THE DESTRUCTION OF CROSSLINKING. THE COLOR OF THE RESIN CHANGED FROM LIGHT YELLOW TO RED, AND THE AV. PARTICLE SIZE INCREASED SOMEWHAT AS A RESULT OF IRRADN. THE SORPTION CAPACITY OF THE RESIN DECREASED BY 10PERCENT ON IRRADN. WITH 2.57 TIMES 10 PRIME8 RAD; THE LOSS OF EXCHANGE GROUPS WAS 1.18 GROUPS-100 EV. ALTHOUGH THE TOTAL AMT. OF PRIME238 PU SORBED ON THE RESIN IN CONTACT WITH SOLN. DECREASED WITH TIME (AS A RESULT OF THE DECREASE IN CAPACITY AND OXIDN. OF THE PU TO THE HEXAVALENT STATE), THE AMT. OF IRREVERSIBLY SORBED PU INCREASED FROM 0 IN THE CASE OF NONIRRADIATED RESIN TO 8 MG-KG IN THE CASE OF RESIN IRRADIATED WITH 2.4 TIMES 10 PRIME8 RAD. THE MECH. STRENGTH OF THE NONIRRADIATED RESIN AND THE RESIN IRRADIATED WITH A DOSE OF 2.57 TIMES 10 PRIME8 RAD WAS 355 AND 85 G-GRAIN, RESP.

UNCLASSIFIED

USSR

UDC 541.15

PARAMONOVA, V. I., VYSOKOSTROVSKAYA, N. B., NIKOLAYEV, V. M., OSIPOV, S. V., and FROLOV, V. I.

"Effect of Internal Alpha-Irradiation on Characteristics of Anion Exchanger AV-23M"

Leningrad, Radiokhimiya, Vol 12, No 1, 1970, pp 127-132

Abstract: The article describes results of a study of the effect of internal alpha-irradiation dose on the capacity, basicity, swelling capacity, mechanical grain strength and solubility of vinylpyridine anion exchanger AV-23M, as well as the distribution of some fission products of Zr-95 + Nb-95, Ce-144 + Pr-141, Ra-226 + Rn-222. The isotope Pu-238 was used for irradiation. The principal result of the action of alpha radiation was found to be the breakdown of resin cross-linkage. This is manifested in increased swelling capacity and decreased grain strength. Internal alpha-irradiation of the resin results in its dissolution, with complete dissolution, according to estimates, setting in at a dose of about $(2.5 - 3.8) \cdot 10^4$ g·hr Pu-238/kg

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USSR

PARAMONOVA, V. I., et al., Radiokhimiya, Vol 12, No 1, 1970, pp 127-132

absolutely dry resin.

At a maximum dose equal to $2.57 \cdot 10^8$ rad there is a mere 10 percent decrease in capacity and practically no change in basicity. According to resultant data the capacity loss rate constant was estimated to be $K = (0.27 \pm 0.1) \cdot 10^{-9}$ rad⁻¹ and the radiation-chemical reaction yield $G_0 = 1.18 \pm 0.45$ exchange groups/100 ev.

Dissolution of the resin and the decrease in its capacity result in the appearance of plutonium-238 in solution. Not less than 70 percent of the plutonium found in solution is oxidized to the hexavalent state.

Alpha-irradiation results in changed resin sorption characteristics. The amount of irreversibly sorbed plutonium increases with

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USSR

PARAMONOVA, V. I., et al., Radiokhimiya, Vol 12, No 1, 1970, pp 127-132

irradiation dose, but even at the maximum dose it is an insignificant quantity (hundredths of a percent of the initially sorbed quantity of plutonium).

3/3

172 009 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--METALWORKING TOOLS STANDARDIZED WITHIN ONE INDUSTRY -U-
AUTHOR--(04)--EYGER, I.S., VYSOKOVSKIY, YE.S., OLSHEVSKIY, E.R.,
YATSKOVSKIY, YU.N. ✓
COUNTRY OF INFO--USSR
SOURCE--STANDARTY I KACHESTVO, 1970, NR 2, PP 48-52
DATE PUBLISHED-----70
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--TECHNICAL STANDARD, MACHINE TOOL INDUSTRY, CUTTING TOOL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1985/0192 STEP NO--UR/0422/70/000/002/0048/0052
CIRC ACCESSION NO--AP0100716
UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0100716

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. WORK IN STANDARDIZATION, WITHIN ONE BRANCH OF INDUSTRY, OF METAL CUTTING TOOLS, SUCH AS TURNING AND MILLING CUTTERS, MILLING TIPS, AND SHAVES, IS DESCRIBED. MOST FACTORIES AND OFFICES IN MECHANICAL ENGINEERING WILL FIND THE ARTICLE INTERESTING.

UNCLASSIFIED

1/2 010 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--ELECTRODISINTEGRATION OF CARBON 12 BY HIGH ENERGY ELECTRONS -U-
AUTHOR--(02)-VYSOTSKAYA, A.V., AFANASYEV, N.G.
COUNTRY OF INFO--USSR
SOURCE--YAD. FIZ. 1970, 11(5), 942-5
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY
TOPIC TAGS--ANGULAR DISTRIBUTION, CARBON ISOTOPE, ELECTRON
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3008/0581 STEP NO--UR/0367/T0/011/005/0942/0945
CIRC ACCESSION NO--AP0137666
UNCLASSIFIED

2/2 010

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0137666

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FOR INCIDENT E ENERGIES OF 100, 150, AND 200 MEV, THE ANGULAR AND ENERGY DISTRIBUTIONS OF P ARE PLOTTED AT 15-60 MEV, 20-150DEGREES. AT 40DEGREES THE 20-40 MEV P CURVES RISE WITH (1.0-0.8) TIMES 10 PRIME NEGATIVE 31 CM PRIME 2-SR-MEV PRIME 2. C TARGETS OF 82.3 AND 146 MG-CM PRIME 2 INDICATED SMALL CONTRIBUTIONS FROM PHOTONS.

UNCLASSIFIED

Plant Pathology

USSR

UDC 633.11:631.53.01

VYSOTSKAYA, M. A., All-Union Correspondence Institute of the Food Industry

"Determination of the Hidden Infection of Wheat Grains With Fungus Diseases"

Moscow, Seleksiya i Semenovodstvo, No 2, Mar/Apr 72, pp 52-54

Abstract: A new fast method for the determination of hidden fungus diseases is based on the Czapek medium into which the wheat grains are placed in order to propagate growth of any fungi present on them. The synthetic Czapek medium consisted of NaNO_3 2, KH_2PO_4 1, MgSO_4 0.5, KCl 0.5, FeSO_4 0.01, suerose 30 g, 1 liter distilled water, and 2-3% agar-agar. This medium is placed in Petri dishes and 25 wheat grains are added to it. All dishes were kept in thermostat at 28-30°C and observed daily. If grains were infected with fungi they started to grow in 24 hr. This was especially true for fungi from the Mucorales order. In the case of such fungi as Alternaria, Fusarium, Helminthosporium, or Macrosporium, visible colonies are formed around the wheat grains in 3 days. Each Petri dish can be analyzed under the microscope in 3-4 days for identification of the fungus species. The suggested method is fast (5 days instead of 7-14) and can be used for detection of such saprophytic fungi as Penicillium and Aspergillus. The wheat grains do not need any disinfection prior to analysis. In addition, the Czapek medium can be used at the same time for the determination of the wheat grains' viability.

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USSR

UDC 628.33/36+541.15

VYSOTSKAYA, N. A. and ZHIKHAREV, V. S., Institute of Physical Chemistry imeni L. V. Pisarzhevskogo, Academy of Sciences, Ukrainian SSR

"Radiation Purification of Polluted Waters From Organic Impurities"

Kiev, Khimicheskaya Tekhnologiya, No 6, Nov/Dec 73, pp 45-50

Abstract: Radiation treatment was used for the oxidation of the organic components of polluted water, for the sterilization and the modification of the biologically stable assembly of organisms, and for the alteration of colloidal properties. The mechanisms for the effect of the radiation in aqueous solutions, involving species such as H^{\bullet} , $H_2O^{\bullet-}$, HO_2 , and $O_2^{\bullet-}$, as well as OH , are discussed and the effect of 1 millirad is calculated. Permanganate, dichromate and other oxidizing agents can be used to determine the "oxidizability" of polluted waters, the value of which is characteristic of a particular water. Twenty individual compounds, such as phenols, nucleotides, and glucose are considered relative to their susceptibility to and their required conditions for oxidation by radiation. The generation of ozone during the radiation and its effects during the purification of water are presented separately. An economic evaluation is also included.

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Radiation Chemistry

USSR

UDC 628.543.661.7

TSUTSARIN, V. V., BYALKOVSKIY, N. N., YATSUN, V. V., ZHIKHAREV, V. S., and
~~VYSOTSKAYA, N. A.~~, Institute of Physical Chemistry, Academy of Sciences
UkrSSR, Chemical-Pharmaceutical Plant imeni Lomonosov

"Changes in the Oxidizability of Aqueous Solutions of Some Organic Materials
Due to the Action of Radiation"

Kiev, Khimicheskaya Tekhnologiya, No 3 (57), May-Jun 71, pp 12-15

Abstract: Oxidizability characterizes total content of the reducing agents in water. It is expressed by the amount of oxygen needed for the oxidation of organic material contained in 1 l of solution to CO_2 and water. Changes of this oxidizability in waste waters of the Kiev Chemical-Pharmaceutical Plant taking place upon γ -irradiation with a Co^{60} source were studied. These waters contain about 30 inorganic impurities and 70 of the organic nature. In addition, model systems containing methanol, isopropyl alcohol, phenol, metacrylic acid, and their mixtures were investigated. Irradiation was found to lower the oxidizability, leading occasionally to formation of precipitates. The model system showed more pronounced lowering of the oxidizability than natural waste waters, because the latter most probably contained many admixtures capable of oxygen consumption.

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USSR

UDC 615.214.2.015.45:612.26

VYSOTSKAYA, N. B., ZAKUSOV, V. V., OSTROVSKAYA, R. U., and CHUMINA, Z. N.,
Laboratory of the Pharmacology of the Nervous System, Institute of Pharmacology,
Academy of Medical Sciences USSR, Moscow

"The Effect of Sodium Oxybutyrate on Oxidative Processes in Brain Tissue During Hypoxia"

Moscow, Byulleten' Eksperimentalnoy Biologii i Meditsiny, No 4, 1970, pp 70-72

Abstract: Experiments with mice demonstrated the ability of sodium oxybutyrate to increase the intensity of oxidative processes in the cerebral cortex and the spinal cord under conditions of normal respiration. The ability of sodium oxybutyrate to prevent the development of inhibition of tissue respiration in animals under conditions of hypoxia was also shown. It was demonstrated that, in this respect, sodium oxybutyrate differs from typical narcotics and tranquilizers. Neither nembatal nor aminazin reduced the degree of inhibition of tissue respiration caused by hypoxia.

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1/2 022

UNCLASSIFIED

PROCESSING DATE--16OCT70

TITLE--EFFECT OF PSYCHOSTIMULANTS ON THE LOCOMOTIVE ACTIVITY OF RATS, AND
ALSO UPON INTRA AND EXTRACELLULAR LEVELS OF POTASSIUM AND SODIUM IONS IN
AUTHOR--(02)-ABSAVA, G.I., VYSOTSKAYA, N.B.

COUNTRY OF INFO--USSR

SOURCE--FARMAKOL. TOKSIKOL. (MOSCOW) 1970, 33(2), 134-7

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PSYCHOTHERAPEUTIC DRUG, BRAIN, SODIUM COMPOUND, POTASSIUM
COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0138

STEP NO--UR/0390/70/033/002/0134/0137

CIRC ACCESSION NO--AP0120838

UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0120838

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PHENAMINE (2.5 MG-KG) AND PYRIDROL (12.5 MG-KG) GIVEN I.P. TO RATS STIMULATED LOCOMOTOR ACTIVITY BEGINNING IN 30 MIN AND REACHING A MAX. EFFECT 1.5 HR POSTINJECTION. THE EFFECT ON LOCOMOTOR ACTIVITY WAS ACCOMPANIED BY INCREASES IN THE NA CONTENT AND DECREASES IN THE K CONTENT OF THE CEREBRAL CORTEX, MEDULLA OBLONGATA, AND PARTICULARLY BRAIN STEM CELLS, WITH CORRESPONDING DECREASES IN EXTRACELLULAR NA AND INCREASES IN EXTRACELLULAR K. FACILITY: INST. FARMAKOL. KHIMIOTER., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 615.214.31.015.43:612.82.015.14

ABSAVA, G. I., and VYSOTSKAYA, N. E., Group of Biochemical Neuropharmacology in Laboratory of Pharmacology of Nervous System in Institute of Pharmacology, USSR Academy of Medical Sciences

"The Effect of Psychopharmacological Stimulants on the Activity of Potassium and Sodium Ion Stimulated ATP-ase in the Microsomal Fractions of the Rats Brain"

Moscow, Farmakologiya i Toksikologiya, Vol 36, No 4, Jul/Aug 73, pp 403-404

Abstract: The effect of psychostimulants phenamine, pyridrol and caffeine on the activity of K and Na ion stimulated ATP-ase in the microsomes in different parts of the rats brain as indices of the ion-transport system was studied. The psychostimulants phenamine (2.5 mg/kg), pyridrol (12.5 mg/kg) and caffeine (25 mg/kg) were injected intraperitoneally into white rats. During maximum movement excitation (within 1-1 1/2 hours following drug injection) the animals were decapitated, microsomal fractions were isolated by ultracentrifugation and ATP-ase activity was measured. In controls (no injections) K and Na stimulated transport ATP-ase activity (micromoles inorganic P released/mg protein/15 minutes) was highest in the cerebral cortex (112.9±6.8) and about the same in the midbrain and 1/2

USSR

ABSAVA, G. I., and VYSOTSKAYA, N. G., *Farmakologiya i Toksikologiya*, Vol 36, No 4, Jul/Aug 73, pp 403-404

diencephalon (80.0 ± 3.6) and the medulla oblongata (71.8 ± 6.8). Phenamine showed no effect on ATP-ase activity in the cortex (120.6 ± 8.1) or medulla oblongata (68.4 ± 5.7), but stimulated activity in the midbrain and diencephalon (90.4 ± 0.5). Pyridrol had the same effects on the microsomal fractions of the cortex (87.5 ± 6.9), medulla oblongata (71.2 ± 6.5) and the midbrain and diencephalon (105.6 ± 7.3) as phenamine. Caffeine inhibited ATP-ase activity in the cortex (63.1 ± 8.4) but did not change it in the medulla oblongata (53.7 ± 7.8) or the midbrain and diencephalon (71.2 ± 6.5).

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1/2 032 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--EFFECT OF SODIUM OXYBUTYRATE ON OXYDATION IN BRAIN TISSUE UNDER
HYPOXIA -U-
AUTHOR-(04)-VYSOTSKAYA, N.B., ZAKUSOV, V.V., OSTROVSKAYA, R.U., CHUMINA,
Z.N. ✓
COUNTRY OF INFO--USSR
SOURCE--BYULLETEN' EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, VOL 69,
NR 4, PP 70-72
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--OXIDATION, BRAIN, HYPOXIA, RESPIRATION, RAT, NARCOTIC,
TRANQUILIZER, SODIUM COMPOUND
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REFL/FRAME--1988/1982 STEP NO--UR/0219/70/069/004/0070/0072
CIRC ACCESSION NO--AP0106328
UNCLASSIFIED

2/2 032

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0106328

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ABILITY OF SODIUM OXYBUTYRATE TO INCREASE THE INTENSITY OF OXIDATION IN BRAIN CORTEX AND BRAIN STEM UNDER CONDITIONS OF NORMAL RESPIRATION AND TO PREVENT INHIBITION OF TISSUE RESPIRATION DEVELOPING IN ANIMALS UNDER HYPOXIA WAS ESTABLISHED IN EXPERIMENTS ON RATS. IT WAS DEMONSTRATED THAT SODIUM OXYBUTYRATE IN THIS RESPECT DIFFERS FROM TYPICAL NARCOTICS AND TRANQUILISERS. NEITHER NEMBUTAL, NOR AMINAZINE REDUCED THE DEGREE OF INHIBITION OF THE TISSUE RESPIRATION CAUSED BY HYPOXIA.

UNCLASSIFIED

Polymers and Polymerization

USSR

UDC 54--126+546.56+546.81

2

DUSHCHENKO, V. P., BARANOVSKIY, V. M., KUZ'MOVICH, V. V., CHEGORYAN, V. M.,
~~VYSOTSKAYA, V. N.~~, and IVKINA, N. A., Institute of Colloidal Chemistry and
Chemistry of Water, Academy of Science Ukrainian SSR

"Thermophysical Properties of Metallopolymers Derived From Inorganic
Heteropolyacids"

Kiev, Ukrainskiy Khimicheskiy Zhurnal, Vol 37, No 6, Jun 71, pp 618-620

Abstract: Coefficients of heat- and electroconductivity of copper and tin metallopolymers derived from silicomolybdic and silicotungstic acids were studied as functions of temperature. The acids were reduced by respective metals employing a ratio of 6 electrons per acid molecule. Highly dispersed metals were produced in aqueous solutions of complex blues by electrolytic or chemical methods; the complexes were coagulated on the surface of metal particles, and then the system was treated with barium oxide or glycerine at 200°C. The resulting powdery metallopolymers were compressed into tablets and studied by the method of dynamic heating. It was shown that the inorganic base of these metallopolymers exhibits some crystalline structure. Metal particles appear to be isolated from each other by layers of the inorganic
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USSR

DUSHCHENKO, V. P., et al., Ukrainskiy Khimicheskiy Zhurnal, Vol 37, No 6,
Jun 71, pp 618-620

polymer. The relationship between the coefficient of heat conductivity and temperature is analogous to the case of crystalline polymers. An increase in the concentration of metal in metallopolymers results in different increases of the coefficient of heat conductivity, depending on the polymer.

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- 69 -

USSR

UDC 615.322:633.75:547.943).012.8

MUSHINSKAYA, S. KH., SHOSTENKO, YU. V., VYSOTSKAYA, YE. S., and BOZHKO, N. G.,
Khar'kov Scientific Chemical-Pharmaceutical Research Institute

"The use of an Anion Exchange Resin in Isolation of Codeine and Morphine From
Poppy Pods"

Moscow, Khimiko-Farmatsevticheskiy Zhurnal, Vol 6, No 12, Dec 72, pp 34-37

Abstract: After preliminary testing it was established that the best sorption
properties towards morphine were exhibited by the strongly basic anion exchange
resin AV-17 in the hydroxyl form with 2% divinylbenzene. Using this material,
alcoholic ammonia extracts of poppy pods were passed through the column.
Morphine, phenolic alkaloids and acid resins were bound to the resin while
codeine, nonphenolic alkaloids and basic resins were eluted from the column.
After this separation, routine isolation and purification of morphine and
codeine were carried out.

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USSR

UDC 666.113.431.47.32-31.28

BLINOV, V. A., UDOVENKO, N. G., NIKULIN, V. KH., PRUSAKOVA, L. M.,
SOKOLINSKIY, A. G., ORLOV, V. N., VYSOISKAYA, Z. I., and CHERNYSHEV, A. V.

"Glass for Ultrasonic Delay Lines"

USSR Author's Certificate No 366156, Filed 26 Jun '70, Published 16 Jan 73
(from Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 7,
Mar (a) 73, Claim No 1453164/29-33)

Translation: A glass for ultrasonic delay lines, including SiO_2 , ZnO , BaO ,
 K_2O , is distinguished by the fact that, in order to obtain stable acoustic
properties it contains the above components in the following amounts, weight
%: SiO_2 49-65; ZnO 5-25, BaO 10.5-30; K_2O 6-25, and furthermore Sb_2O_3 0.05-3.

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1/2 029 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--DIAGNOSTIC SIGNIFICANCE OF IN VITRO LEUCOCYTE LYSIS IN RHEUMATISM
-U-
AUTHOR--(02)--KARAPATA, A.P., VYSOTSKAYA, ZH.M. ✓
COUNTRY OF INFO--USSR
SOURCE--VRACHEBNOYE DELO, 1970, NR 4, PP 28-30
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--DIAGNOSTIC METHODS, LEUKOCYTE, RHEUMATIC DISEASE, ANTIGEN,
HEMOLYSIS, TEST
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1708 STEP NO--UR/0475/70/000/004/0028/0030
CIRC ACCESSION NO--AP0129078
UNCLASSIFIED

2/2 029

CIRC ACCESSION NO--AP0129078

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. LEUCOCYTOLYTIC PROPERTIES HAVE BEEN REVEALED OF EXTRACTS FROM ORGANS OF THOSE DYING FROM RHEUMATISM AS WELL AS OF THE HEMOLYSED BLOOD OF PATIENTS WITH ACTIVE RHEUMATISM. IT IS SUGGESTED THAT LYSIS OF LEUCOCYTES IN RHEUMATIC PATIENTS IS CAUSED BY A TISSUE ANTIGEN AND HEMOLYSED BLOOD AND MAY BE A SENSITIVE AND RATHER SPECIFIC TEST FOR ACTIVITY OF THE RHEUMATIC PROCESS. THE TEST IS RECOMMENDED FOR WIDE USE BECAUSE OF ITS SIMPLICITY. FACILITY: KIEVSKIY NAUCHNO ISSLEDOVATEL'SKIY INSTITUT KLINICHESKOY MEDITSINY IM. AKAD. N. D. STRAZHESKO.

UNCLASSIFIED

USSR

VYSOTSKIY, D. A., PETROV, M. D., REKOV, A. I., ROMANOV, A. I.,
SEPP, V. A., SEREBRENNIKOVA, V. Ye., SMIRNOVA, L. G., KURTEPOVA, O. I.,
Institute of High Temperatures of the Academy of Sciences USSR

"Test Results on Installations and Electrode Materials in a Plasma Jet"

Moscow, Teplofizika vysokikh temperatur, No. 3, May/June 72, pp 635-639

Abstract: The characteristics of electrodes of silicon carbide with additives of alloying metals (Mo, Ti, Cr), interelectrode insulators of refractory concretes based on high-alumina VGB and AFB concretes and magnesian MB concrete and module insulation walls of MB concrete were investigated in a model of an MHD generator. The maximum electrode temperature during the experiments reached 2300°K, the interelectrode insulators reached 2100°K and the installation walls reached 1700°K. The electrode samples were prepared by pressing a mixture of SiC powders and the appropriate alloying additive (Mo, Ti, Cr) with organic binding and subsequent heat treatment at a temperature of 2100°C for 10-15 min. The experimental device in which the materials were tested consisted of the following elements: a plasmatron producing an air flow with a

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USSR

VYSOTSKIY, D. A., et al, Teplofizika vysokikh temperatur, No. 3, May/June 72, pp 635-639

temperature of 3000°K, a mixing chamber where an easily ionized additive was introduced into the air flow in the form of potassium or K_2CO_3 vapors, a nozzle, the MHD generator channel, and a system for evacuating the gas flow. The flow rate in the channel was approximately 500 m/sec. The advantages of a sectional structure for the channel are shown and it was established that the current density is determined by the conductivity of the films from the interaction products of the electrode and additive materials, independent of the type of alkali additive (potassium or potash vapor) at the temperature of its condensation on the electrode surface. At an electrode temperature of less than 900°K in supplying K-vapors and of 1200°K in supplying K_2CO_3 powder, the current density remains constant at 0.2 a/cm². At these temperatures the current density is evidently determined by the conductivity of the liquid film of the interaction products of the additive material, the working gas, and the electrode and of their emission properties. With an increase in electrode temperature above 900-1200°K the emission properties of the electrode material directly begin to play a basic role.

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USSR

UDC [621.362:538.4]:666.777.620.1

V
BARYKIN, B.M., VYSOTSKIY, D.A., ROMANOV, A.I., SAMSONOV, V.P., SMIRNOVA, L.G.,
and CHUBAROV, Yu.I.

"Studying Refractory Grades of Concrete for the Insulating Walls of an MHD-
Generator Channel"

Materialy dlya kanala MGD-generatora (Materials for an MHD-Generator Channel
— collection of works), Moscow, "Nauka", 1969, pp 98-112 (from RZh-Elektro-
tekhnika i Energetika, Moscow, 1970, No 5, Abstract No 5A144)

Translation: Results are presented from a study of the development of the
technology and properties of highly refractory magnesian and high-alumina grades
of concrete which satisfied the complex requirements stipulated by their use
as electrical insulating materials in an MHD-generator channel. The physico-
mechanical properties of a series of concrete compositions are studied with
respect to their setting time, amount and granulometric composition of the
filler, heat treatment temperature, water-astringent ratio, and other factors.
Detailed methods of physico-chemical analysis were used for studying the phase
composition and structure of the concrete. The developed compositions were
evaluated with respect to their resistance to heat and erosion on the basis of

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USSR

BARYKIN, B.M., et al., Materialy dlya kanala MGD-generatora, Moscow, "Nauka", 1969, pp 98-112

test results obtained on a laboratory type gasdynamic stand. The results indicate that optimal compositions of highly refractory grades of concrete can be used up to the following operating temperatures: high-alumina grade concrete can be used from 1650-1700°C and magnesian concrete to 1900°C.

Original article: five illustrations, three tables, and seven bibliographic entries.

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USSR

UDC [621.362:538.4]:661.883:620.1

USSR

UDC 621.791.754'264

UL'YANOV, V. I., Engineer, PARFESSA, G. I., Candidate of Technical Sciences, VYSOTSKIY, G. A., Engineer, Institute of Electric Welding imeni Ye. O. Paton, Academy of Sciences Ukrainian SSR, and SUDAVTSOVA, V. S., Engineer, Kiev State University imeni T. G. Shevchenko

"Influence of Titanium on the Technological Properties of Type Sv-08G2S Wire"

Kiev, Avtomaticheskaya Svarka, No 6 (243), Jun 73, pp 59-62

Abstract: The authors studied the influence of titanium on the technological properties of type Sv-08G2S wire during welding in carbon dioxide. They showed that doping 0.3-0.4 percent Ti permits reducing the sputtering during CO₂ welding and improving the mechanical properties of the seam metal. They suggest studying additional measures to increase the resistance of the seam metal to crystallization cracks. The article contains 2 tables, 4 figures, and 7 bibliographic references.

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1/2 011

UNCLASSIFIED

PROCESSING DATE--16OCT70

TITLE--POLARIZATION PHENOMENA IN TWO NUCLEON TRANSFER REACTIONS AT LOW ENERGIES -U-

AUTHOR--(02)-VYSOTSKIY, G.L., CHEGORYAN, M.O.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(1), 147-52

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--NUCLEON INTERACTION, NUCLEAR RESONANCE, COMPOUND NUCLEUS, COULOMB SCATTERING, PROTON POLARIZATION, EXCHANGE REACTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0236

STEP NO--UR/0048/70/034/001/0147/0152

CIRC ACCESSION NO--AP0105312

UNCLASSIFIED

2/2 011

CIRC ACCESSION NO--A0105312.

UNCLASSIFIED

PROCESSING DATE--16OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE POLARIZATION EFFECTS ARE INVESTIGATED ARISING IN THE 2-N TRANSFER REACTIONS OF THE TYPE (PRIME3 HE, P), (T, P), (ALPHA, D), ETC., IN THE ENERGY REGION WHERE ALONG WITH THE DIRECT MECHANISM THE EXCITATION OF RESONANCES OF THE COMPD. NUCLEUS IS POSSIBLE. INTERFERENCE BETWEEN THE DIRECT PROCESSES AND THE EXCITATION OF THE ISOLATED RESONANCE LEADS TO THE OCCURRENCE OF THE POLARIZATION OF THE PARTICLES EMITTED. THE AMPLITUDE OF THE DIRECT PROCESSES WAS CALCD. WITH ALLOWANCE MADE FOR THE COULOMB SCATTERING OF LOW ENERGY PARTICLES OF THE NUCLEUS. THE POLARIZATION OF P FROM THE REACTION PRIME12 C(PRIME3 HE,P) PRIME14 N CALCD. BY USING THE DIMENSIONAL PARAMETER IS GRAPHICALLY REPRESENTED AS A FUNCITON OF ENERGY. THE DIFFERENTIAL CROSS SECTION OF THIS REACTION OF 34DEGREES AS A FUNCTION OF ENERGY IS GIVEN. THE GENERAL FORMULAS OBTAINED CAN BE USED FOR THE INTERPRETATIONS OF EXPTL. DATA IN 2-N TRANSFER REACTIONS.

FACILITY: FIZ.-TEKH. INST., KHARKOV, USSR.

UNCLASSIFIED

172 010

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--OIL AND GAS CONTENT IN LATE CAMBRIAN FORMATIONS -U-

AUTHOR--(04)--TARANENKO, YE.I., VASSOYEVICH, N.B., VYSOTSKIY, I.V., SOKOLOV, B.A.

COUNTRY OF INFO--USSR

SOURCE--SOV. GEOL. 1970, 13(4), 66-79

DATE PUBLISHED--70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, MATERIALS

TOPIC TAGS--PETROLEUM DEPOSIT, GEOLOGY, CRUDE OIL, NATURAL GAS, GEOGRAPHIC LOCATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--3002/1875

STEP NO--UR/0215/70/013/004/0066/0079

CIRC ACCESSION NO--AP0129235

UNCLASSIFIED

2/2 010

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0129235

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

ABSTRACT. UPPER PROTEROZOIC NONMETAMORPHOSED MARINE FORMATIONS ARE WIDELY DISTRIBUTED IN ANCIENT PLATFORMS IN ALL CONTINENTS OF THE GLOBE. SCATTERED ORG. SUBSTANCE AND ACCUMULATIONS OF OIL IN GAS ARE PRESENT IN NOTICEABLY HIGH AMTS. IN THESE ANCIENT ROCKS. ALL THIS SUGGESTS THE POSSIBILITY OF DISCOVERING COM; OIL AND GAS DEPOSITS IN THE PROTEROZOIC FORMATION OF ANCIENT PLATFORMS.

FACILITY: MOSK. GOS. UNIV., MOSCOW, USSR.

UNCLASSIFIED

VYSOTSKIY, M. V.

JPRS 55925
8 May 1972

CHIEF RESULTS OF BIOLOGICAL INVESTIGATIONS AT SIBERIAN
DEPARTMENT OF USSR ACADEMY OF SCIENCES

[Article by M. V. Vysotskiy, Novosibirsk, Investitsiya Sibirskogo Otdeleniya
Akademii Nauk SSSR, Seriya Biologicheskikh Nauk, Russian, Vol. 1, No. 5,
1971, pp. 3-11.]

The Eighth Five-Year Plan has been successfully fulfilled in our country. Implementing the directives of the 23rd Congress of the CPSU, the Soviet people, under the leadership of the Communist Party, made new strides in development of the economy, science, and culture. A special place belongs to 1973, the centennial of the birthday of V. I. Lenin, in fulfilling the Five-Year Plan.

The scientific-technological revolution put new and complex tasks before Soviet science and, in particular, before biological science. The biological institutions of the Siberian Department of the USSR AS [Academy of Sciences] are developing a wide circle of issues related to investigation of general patterns of biological processes at different levels of organization of life. The biologists of Siberia and the Far East are also united with reference to another important problem: investigation of biological resources of this vast region of our country.

In the last few years there has been considerable broadening of the scope of research in the area of physicochemical and structural bases of heredity. Genetic bases of evolution and breeding for the purpose of obtaining highly productive forms of plants and animals. Broader investigations are in progress of the biological resources; work is being done to evaluate the soil of uninhabited territories suitable for agriculture, to combat water, wind, and technical [industrial] erosion, and for soil reclamation.

In the following we describe the chief results of scientific research done by biological institutions of the Siberian Department of the USSR AS in the last 5 years.

Molecular biology and biotechnology. It was shown that in the course of replication in the cell DNA changes from the double-strand to the

USSR

UDC 632.95

SVISHCHUK, A. A., BASALKEVICH, Ye. D., VYSOTSKIY, N. N., SHAPOVALENKO, V. F.

"Insecticidal Properties of Methylated Quinones, Hydroquinones and 6-oxychroman Derivatives"

Fiziol. aktivn. veshchestva. Resp. mezhved. sb. (Physiologically Active Substances. Republic Interdepartmental Collection), 1972, No 4, pp 85-87 (from RZh-Khimiya, No 2 (II), Feb 73, Abstract No 2N471)

Translation: Results are presented from tests under laboratory conditions run on greenbug, red spider mites, rice weevils and flies using methylated hydroquinones, their products of condensation with tertiary isoprenoidal carbinols and the products of their oxidation. Against greenbugs, 2,5,6-Me₃-1,4-(HO)₂C₆H (contact effect) and 2,5-Me₂-1,4-(HO)₂C₆H₂ (systemic effect) and 2,5-dimethylbenzoquinone, 5-methyltolcol have an expressed selective effect. The given compounds do not have phytotoxicity. The results of the study indicate the possibility of the occurrence of natural self-protection of grass crops against their pests.

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USSR

UDC 632.95

SVINSHCHUK, A. A., VYSOTSKIY, N. N., and CHEREPENKO, T. I.

"Synthesis and Physiological Properties of Derivatives of Trimethylhydroquinone Phosphoric Acid"

Fiziol. aktivn. veshchestva. Resp. mezhved. sb. (Physiological Effects of Compounds, Republic Interscience Symposium), Vyp 4, 1972, pp 31-33 (from Referativnyy Zhurnal -- Khimiya, No 4(II), 1973, Abstract No 4N647 by T. A. Belyayeva)

Translation: The compounds, 2,3,5-Me₃-1-OR-4-R'¹OC₆H₅ (compound I, where R = H, PhCo, Me, and P-containing groups; and R' = H or P-containing groups) were synthesized and a study was made of their physiological activity by a method of retarding the growth of fungus in a solid medium. To 5 g of compound Ia (I where R=R'=H) was added 100 ml of water, 10 g of Na₂CO₃, and 4.6 g of PhCOCl, the latter dropwise. This precipitated compound Ib (I where R=COPh and R' = H) with a melting point 146-148° (ethanol as solvent) and a yield of 62%. To a chilled solution of 4.6 g of Ia in 100 ml of ethyl ether was added 5 g of Cl₂P(O)NCO, stirred for 3 hours. Petroleum ether was added, the solution was allowed to stand for about 16 hours, then 9.5 g of compound. Ic (I where R = CONHPOCl₂ and R' = H) which had a melting 1/2

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SVINSHCHUK, A. A., et al., Fiziol. aktivn. veshchestva. Resp. Mezhved. sb. Vyp 4, 1972, pp 31-33

point of 160-161°C was obtained by filtering. From Ic was obtained a compound (I where R = CONHPO(OPr)₂ and R' = H) which had a melting point of 156-158°. To a chilled solution of 7 g of Ib in 100 ml of pyridine were added 4.2 g of POCl₃. The solution was filtered, concentrated, 100 ml of 1N H₂SO₄ were added. The solution was allowed to stand for about 16 hours and 5.2 g of a compound (I where R = COPh and R' = PO(OH₂)) which decomposed at 262-264° were obtained. The reaction of Ib with Cl₂P(O)NCO resulted in the formation of compound Id (I where R = COPh and R' = CONHPOCl₂) have a melting point of 108-110°C. Another compound (I where R=Me and R' = CONHPOCl₂) having a melting point of 128-130°C was also obtained. For the fungicide activity, a 0.1 and 0.5% solution of Id did not match the standard compound, figon, in regards to *Alternaria radicina*, *Aspergillus niger*, *Fusarium oxysporum*, and *Helminthosporium sativum*.

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- 25 -

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UDC 612.766.1-06:613.24

USSR

KAKURIN, L. I., PURAKHIN, YU. N., GEORGYEVSKIY, V. S., KATKOVSKIY, B. S.,
VYSOTSKIY, V. G., CHEREPAKHIN, M. A., USHAKOV, A. S., LARICHEVA, K. A.,
PETUKHOV, B. N., IVANOV, P. P., MACHINSKIY, G. V., MIKHAYLOV, V. M., POKEYTOV,
YU. D., and SMIRKOVA, G. I.

"Locomotor Activity of Man Kept on a Reduced Food Ration"

Moscow, Voprosy Pitaniya, No 3, May/June 1971, pp 7-12

Abstract: The combination of drastic limitation in locomotor activity with reduction to a low-caloric diet (down to basal metabolism) was studied in six healthy men 24-35 years of age who were confined to bed for a number of days under conditions of hypokinesia. Pronounced changes were observed in the functions of the cardiovascular, respiratory, nervous, and muscular systems of the body. Tabular data were collected on physiological tremor of closed eyes, maximum physical work fitness, muscle tone dynamics, and the cardiovascular system in the orthostatic position. Asthenia of the nervous system and a slowing down of the biopotentials in the cerebral cortex were observed. Likewise, it was noted that hypokinesia caused disturbances in body coordination and statics. The pulse rate increased and the arterial pulse pressure was

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KAKURIN, L. I., Voprosy Pitaniya, No 3, May/Jun 1971, pp 7-12

reduced in persons subjected to the orthostatic test. Three persons reached a state of near collapse. These changes were attributed to a significant reduction in the compensating actions of the blood circulation. It was found that after about 10 days, the observed changes gradually decreased in the test subjects. This regression was largely of a functional character and was linked to the "detraining" of the various systems of the body. The authors believe that the severity of the changes in the body functions is directly proportional to the degree of hypokinesia to which the tested persons were subjected. It is proposed that maintenance of homeostasis requires a certain level of motor activity even with a low-calorie ration.

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ACC. NO.

AP0049962

Abstracting Service:
CHEMICAL ABST. 5/10

Ref. Code

4R0051

105527s Ultraviolet absorption spectra of some hydroacridines. Ershova, T. I.; Ershov, O. A.; Vysotskii, V. I.; Stonik, V. A. (USSR). *Opt. Spektrosk.* 1970, 28(1), 47-50 (Russ). Absorption spectra of acridine (I), 1,2-dihydroacridine (II), 1,2,3,4-tetrahydroacridine (III), 1,2,7,8-tetrahydroacridine (IV), 1,2,5,6,7,8-hexahydroacridine (V), and 1,2,3,4,5,6,7,8-octahydroacridine (VI) were scanned in the range 210-400 m μ in 10^{-4} - 10^{-5} M EtOH, or hexane solns. The effect of the symmetry and size of the π -electron system on the spectral properties of I analogs was thus investigated. The absorption corresponds to $\pi \rightarrow \pi^*$ transitions in I-V; a weak $n \rightarrow \pi^*$ band was obsd. in the spectrum of VI at 235 m μ . The conclusion was made on basis of the changes between the spectra in solvents of different polarity. Redn. of the conjugate system led to hypsochromic shifts in the series I-VI. The form of the conjugated system obviously affected the size of shift. (The longwave absorption was the same in I and II; significant shifts occurred between I, and III, or IV and V.) Analogy between the spectra of I analogs and the corresponding compds. of the anthracene series was obsd. The effect of the heterocyclic N atom on the electron satn. in the π -electron system is discussed. H. Parizkova

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UDC 547.75.07.543.51

ZHIGULEV, K. K., KHMEL'NITSKIY, R. A., GRANDBERG, I. I., and VYSOTSKIY, V. I., Moscow Agricultural Academy imeni K. A. Timiryazev

"Indoles. XXVII. Mass-spectrometry of Compounds with Eserine and Homoeserine Skeletons"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 8, Aug 72, pp 1065-1069

Abstract: Mass-spectroscopical data on 12 derivatives of dinordesoxy-9-methyleseroline (I) and dinordesoxy-10-methylhomoeseroline (II) have been reported. The derivatives of (I) are somewhat more stable toward electronic bombardment than (II). Introduction of a methyl or methoxy group onto the benzyl ring or N_(a)-position increased the stability of the molecular ion. The pyrrolidine or piperidine rings are the first to undergo fragmentation, so that the stability of molecular ions must be connected with the localization of the charge on the N_(b) nitrogen atom. Most probably the principal dissociation involves the breakdown of the ring, splitting off the methyl group, forming ions with a mass of 30. The most intensive peaks obtained from dissociative ionization correspond to the formation of pseudomolecular ions of 2,3-dimethylindole derivatives. A mechanism of the formation of regrouped pseudomolecular ions $RC_6H_4N^+H_2$ has been proposed.

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1/2 013

UNCLASSIFIED

PROCESSING DATE--20NOV70

TITLE--SODIUM, CALCIUM MAGNITUDE OF SULFATE, METAPHOSPHATE SYSTEM -U-

AUTHOR--(C4)-BERGMAN, A.G., VYSUTSKIY, V.M., GASANALIYEV, A.M., TRUNIN, A.S.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(3), 917-19

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--PHASE DIAGRAM, SOLID SOLUTION, MULTICOMPONENT CHEMICAL MIXTURE, SODIUM COMPOUND, CALCIUM COMPOUND, PHOSPHATE, SULFATE, EUTECTIC MIXTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1994/1718

STEP NO--UR/0078/70/015/003/0817/0819

CIRC ACCESSION NO--AP0115547

UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE---20NOV70

CIRC ACCESSION NO--AP0115547

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A PROJECTION OF THE PHASE DIAGRAM OF NA, CA MAGNITUDE OF SO SUB4, PO SUB3 WAS CONSTRUCTED. THIS IS A NONDIAGONAL IRREVERSIBLE RECIPROCAL SYSTEM, HAVING 3 EUTECTICS AT 715, 610, AND 571 DEGREES AND 2 POINTS OF SOLID SOLN. DECOMP. AT 800 AND 700 DEGREES. IN THE PRESENCE OF A 3RD COMPONENT, THE SOLID SOLNS. OF NA AND CA SULFATES DECOMP. BY A COMPLEX REACTION.

UNCLASSIFIED

USSR

UDC: 621.373.826:62

VYSOTSKIY, V. Z., GAPONOV, S. V., KULIKOVA, N. P., PETROVSKAYA, M. P.,
SALASHCHENKO, N. N.

"Precision Laser Machining of Foil"

Elektron. prom-st'. Nauch.-tekhn. sb. (The Electronics Industry. Scientific and Technical Collection), 1972, No. 4, pp 93-94 (from RZh-Radiotekhnika, No 12, Dec 72, abstract No 12D487 by A. L.)

Translation: A method is described for making masks of thin foil (Cu, Nb, Al, Mo, W) 20-60 μm by using a laser. The pulse duration of the laser emission was varied over a range of $3 \cdot 10^{-4}$ - $5 \cdot 10^{-8}$ s. Straight-through machining of the masks is done at durations of the order of 10^{-6} s, but the outline of the mask is distorted in this mode due to ejection of a considerable quantity of metal. With a reduction in pulse duration to $5 \cdot 10^{-8}$ - 10^{-7} s, a layer about 1 μm thick is removed from the surface of the mask during the laser burst, and the outline of the mask is not as distorted.

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USSR

UDC 666.113/117

KLIMENTOVA, YU. P., KIRICHENKO, L. F., ASLANOVA, M. S.,
MYASHNIKOV, A. A., CHERTOV, V. M., VYSOTSKIY, Z. A., Institute of
Physical Chemistry, imeni L. V. Pisarzhevskiy, U.S.S.R. Academy of
Sciences; and All-Union Scientific-Research Institute of Fiber-
glass and Fibers

"Effect of Hydrothermal Treatment on the Texture of Silicon
Fibers"

Leningrad, Zhurnal Prikladnoy Khimii, Vol 44, No 8, 1971,
pp 1725-1730

Abstract: The texture of glass fibers strongly depends on their
origin natural or basaltic glass. The texture of silicon glass
is dealt with here, as it is affected by hydrothermal processing.
A number of physical features are taken into account.

It is shown that with hydrothermal processing of fine-pore silicon
fibers at 100-300°C. and autoclaving for 3-24 hours, increase in
either of these factors will secure a substantial reduction in
the size of micropores and in the specific surface of the fiber,
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USSR.

KLIMCHENKOVA, YU. P., et al, Zhurnal Prikladnoy Khimii, Vol 44,
No 8, 1971, pp 1725-1730

which means also that the volume of sorption space falls off.
Hydrothermal processing at 200°C will produce a good number of
ultrapores in silicon fibers, and these will be accessible to
the water molecules, though not to those of benzene.

Precise data on textural characteristics of silicon fibers accom-
pany the paper.

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1/2 008
UNCLASSIFIED
TITLE--SYNERESIS AND ISOELECTRIC POINT OF ACID HYDROGELS OF POLYSILICIC ACID -U-
AUTHOR--(103)-KLIMENTOVA, YU.P., KIRICHENKO, L.F., VYSOTSKIY, Z.Z. PROCESSING DATE--23OCT70
COUNTRY OF INFO--USSR
SOURCE--UKR. KHIM. ZH. 1970, 36(1), 56-8
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--GEL, SILICA, HYDROGEN ION CONCENTRATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1999/1827
CIRC ACCESSION NO--AP0123616
STEP NO--UR/0073/TQ/036/001/0056/0058
UNCLASSIFIED

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CIRC ACCESSION NO--AP0123616

UNCLASSIFIED

PROCESSING DATE--23OCT70

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

POLYSILICIC ACID HYDROGELS AT PH 1-3.7 AND FOR SiO_2 CONCNS. OF 1.09-1.78 MOLES PER L. AT 26.6 DEGREES WAS DETD. AND IS SHOWN IN GRAPHS. FOR ALL CONCNS., THE RATE IS MIN. AT A PH OF SIMILAR TO 1.7.

FACILITY: INST. FIZ. KHIM. IM. PISARZHEVSKOGO, KIEV, USSR.

UNCLASSIFIED

USSR

UDC: 621.375.7.001.5

~~VYSTAVKIN, A. N., GUBANKOV, V. N., KUZ'MIN, L. S., LIKHAREV, K. K., MIGULIN, V. V.~~

"Concerning the Particulars of Parametric Regeneration in Superconducting Point Contacts"

Moscow, Radiotekhnika i Elektronika, Vol 17, No 4, Apr 72, pp 896-899

Abstract: The authors analyze parametric interactions in a point contact for the microwave case of open-circuit combination frequencies. The analysis is based on the equivalent circuit of the point contact proposed in a previous paper (A. N. Vystavkin et al., Radiotekhnika i Elektronika, Vol 15, No 11, 1970, p 2404). It is found that there is a region of negative resistance with a smooth transition to a region of synchronization. The consequences and region of applicability of this effect are discussed.

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Semiconductors and Transistors

USSR

UDC 621.376.234

VYSTAVKIN, A.N., ZYABREV, B.G.

"Concerning The Choice Of Material And Geometry Of A n-InSb Detector Based On The Electron Photothermomagnetic Effect"

Radiotekhnika i elektronika, Vol XVII, No 6, June 1972, pp 1273-1279

Abstract: The problem is studied of a choice of material and geometry of a detector based on the electron photothermomagnetic effect. Formulas are found for the optimum thickness and material of the detector. It is shown that use of a resonance system does not lead to a gain in sensitivity. The effect is considered of the magnitude of the power of the incident radiation on the conversion ratio of the detector. Experimental results are compared with theory. The authors thank T.M. Lifshits and Sh.M. Kogan for interest in the work and discussion, I.V. Zyabrev for formulation of the program and conducting calculations on an electronic computer, and R.B. Safin for assistance in conducting the experiment. 3 fig. 8 ref. Received by editors, 27 April 1971.

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USSR

UDC 621.396.622:621.582

VORONENKO, V.P., VYSTAVKIN, A.N., NAVROTSKIY, V.I.

"Concerning Frequency Conversion Of Millimeter And Submillimeter Bands Based On A Volumetric Semiconductor Nonlinear Element"

V sb. Poluprovodnikovyye pribory i ikh primeneniye (Semiconductor Devices And Their Application--Collection Of Works), Moscow, Izd-vo "Sovetskoye Radio," No 25, 1971, pp 329-356

Abstract: An analysis including theory is conducted of the operation of a mixer based on a volumetric inertial semiconductor nonlinear element, specifically of n-InSb at helium temperature. A computation is made of the conversion losses for some characteristics of the operating conditions of a mixer, taking account of the distribution of the field of the heterodyne and signal in the volume of the specimen, and various conditions of absorption of the heterodyne and signal. (A block diagram is shown of a device for measuring conversion losses.) An optimization of the material parameters is conducted. Preliminary results are given of an experimental investigation of an InSb converter in the 2- and 4-mm wave band. 7 fig. 1 tab. 20 ref.

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USSR

UDC 551.501.8(124):551.510.52

VYSTAVNOY, V. M., KOSTERIN, I. N., and SMIRNOV, V. B.

"Some Problems in the Use of Data for Tilted Probing of the Ionosphere in Selecting the Range of Operating Frequencies Over Subauroral Paths"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. Sekts. 1 (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses; Section 1--collection of works) "Nauka," 1972 pp 448-451 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10A343)

Translation: Some problems in the use of the data for tilted probing at a sliding frequency for choosing the optimal working frequencies in the subauroral Murmansk-Leningrad path are examined. The results of the tilted probing were used for prognosis of the radio communication under various conditions. Bibliography of four. A. L.

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1/2 014

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--KINETIC MODEL OF THE DEHYDRATION OF ALPHA HYDROXYISOBUTYRIC ACID TO METHACRYLIC ACID -U-

AUTHOR--(05)--VYTNOV, G.F., MATROS, YU.SH., SLINKO, M.G., LEONTYEV, YA.A., KUZNETSOV, YU.T.

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UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124482

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A KINETIC MODEL WHICH ADEQUATELY DESCRIBED THE DEHYDRATION OF ME SUB2 C(OH)CO SUB2 H TO CH SUB2=CMECO SUB2 H OVER A CA SUB3(PQ SUB4)SUB2 CATALYST, IS DEVELOPED BY TREATING EXPTL. DATA ANAL. THE MODEL IS DESCRIBED IN TERMS OF 3 INTEGRAL EQUATIONS AND ACCOUNTS WELL FOR THE DECREASE IN CATALYST REACTIVITY AS A FUNCTION OF TIME.

UNCLASSIFIED

USSR

UDC 681.327.66.002.72

ATOVM'YAN, A. E., ANFIMOV, M. A., V'YUGIN, V. A., KOLOBASHKIN, N. I., LITVAN, A. B., MAZAN'KO, B. P., AND SOLOV'YEV, V. A.

"Device for Checking Bunched Conductors"

USSR Author's Certificate No 277858, filed 27 May 69, published 6 Nov 70 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 6, Jun 71, Abstract No 6 B153 P)

Translation: A testing device containing a memory, coincidence circuit, and a display circuit is well known. This device does not provide for automation of control of bunched conductors during the manufacturing process. The proposed device for similar purpose is distinguished by the fact that it contains two ferrite cores with an open magnetic conductor, into one of which wires corresponding to the code "1" are introduced, and into the other, wires corresponding to the code "0." These are the primary coils of transformers the secondary windings of which are connected to the first input of each of two coincidence circuits respectively. The second input of each coincidence circuit is connected to the memory output, and their outputs are connected to the interrogation device connected to the conductors of the tested bunched conductors and the interrogation current control circuit. The control of the bunched conductors during the production process is automated in this way. There is 1 illustration.

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USSR

UDC 621.79.027

AMONENKO, V. M., AZHAZHA, V. M., V'YUGOV, P. N., GUMENYUK, V. S., and
SIVOKON', V. V.

"The Possibility of Purification of Chemically Active Metals by Zone Melting"

Monokristally Tugoplavkikh i Redkikh Metallov [Single Crystals of Refractory
and Rare Metals -- Collection of Works], Nauka Press, 1971, pp 5-12

Translation: An installation is described for zone cathode ray melting of zirconium with a residual pressure of $\sim 5 \cdot 10^{-8}$ torr. The heating chamber, sealed with metal, is evacuated with two oil-vapor pumps with sorption traps. Data are presented on the partial pressures of residual gases and their changes as functions of the duration of operation of the installations with the sorption traps. It is demonstrated that the use of the new 5F-4E vacuum oil as a working fluid in the oil-vapor pumps is promising for the production of vacuums of $\sim 4 \cdot 10^{-6}$ in metallurgical pipe installations. Data are presented on zone purification of zirconium in a vacuum of $7 \cdot 10^{-8}$ - $1 \cdot 10^{-7}$ torr. 5 Tables; 6 Figures; 2 Bibliographic references.

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V'YUGOV, P.V.

*Зібрана література з
металургії, зварювання,
50 років 1973 - Фізика
металів: Металургічне
Вісн. № 6, 1972*

FEATURES OF THE STRUCTURE AND PLASTIC DEFORMATION
OF ZIRCONIUM SATURATED BY NITROGEN
AND OXYGEN

UDC 539.374

V. M. Azhaha, P. V. V'yugov, L. N. Ryabchenko, and V. A. Finkel',
Physics Engineering Institute of the Ukrainian SSR Academy of Sciences,
submitted to press 1 February 1972
pages 3295-3303

The purpose of this work is the study of the effect of the saturation with nitrogen and oxygen at low pressure on the mechanical properties, features of plastic deformation, and structure of zirconium iodide and a pure metal obtained by the zone smelting method [1].

Specimens with the given content of gaseous impurities were prepared by saturation of the zirconium bands with a thickness of 0.3 millimeter, heated by alternating current in a vacuum chamber, as a result of the feeding of nitrogen or oxygen through a measuring valve. The temperature of the specimens was 1200°C±10°C. The saturation time 2 minutes, the pressure of the gases 10⁻⁵-10⁻⁶ torr. The quantity of gas absorbed was calculated according to data concerning the rate of absorption [2] and was controlled by chemical analysis. After saturation by gases, the zirconium ribbons were annealed for the purpose of homogenization for 8 minutes, at the same temperature in a vacuum of 1 x 10⁻⁶ torr.

The mechanical properties were studied at room temperature on specimens with dimensions of the working part of 20 x 50 x 0.1 millimeter at a constant rate of tension 1.6 x 10⁻³ seconds⁻¹. The load was measured by the DE-0.2 specimen dynamometer.

For the study of the crystal structure of zirconium, a methodology developed earlier for obtaining specimens with a temperature gradient was used [3]: a shaped specimen was heated by alternating electric current, and in this case a temperature difference from 700 to 1400°C was created

In it. Because of the different rate of absorption, the concentration of nitrogen or oxygen varied along the length of the specimen; aside from this, a $\beta \rightarrow \alpha$ phase transformation (OTSK-GPU), while the other part was in the α -phase all the time.

X-ray photographs of the sections of the specimen corresponding to various saturation temperatures were taken in a Debye chamber with a diameter of 114 millimeters in $\text{CuK}\alpha$ -radiation. For precision measurement of the parameters of the lattices, the zirconium was subjected to x-ray photography according to the reverse photography method, and reflections from planes (211), (114) and (213) of the GPU lattice were fixed in the $\text{CuK}\alpha$ -radiation.

On x-ray photographs of zirconium saturated with nitrogen to a concentration of 0.07% with respect to mass, only α -Zr lines were observed; at a high content of nitrogen on the x-ray photographs of specimens cooled from a temperature higher than 900°C, a splitting of certain diffraction lines occurred. The nature of the splitting of certain $\beta \rightarrow \alpha$ transformation (OTSK-GPU) a $\beta \rightarrow \alpha$ transformation (OTSK-Rhomboid) occurs.

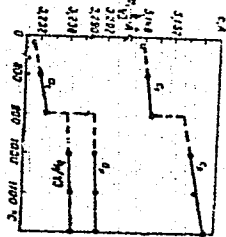


Figure 1. Parameters of the crystal lattice of zirconium saturated with nitrogen at a pressure of 0×10^{-4} torr as a function of the annealing temperature.

USSR

UDC: 621.317.7

V'YUKHIN, V. I., Novosibirsk

"Analysis of the Static and Dynamic Characteristics of Digital-Analog Converters With Summation of Weighted Currents"

Novosibirsk, Avtometriya, No 4, Jul/Aug 71, pp 93-100

Abstract: The paper is a report given at the All-Union Conference on Digital Computer Automation of Scientific Research held in Novosibirsk in September of 1970. The purpose of the work was to analyze the component of the static error in a digital-analog converter with summation of weighted currents which is due to temperature drift of the parameters of switching diodes, and the components which limit the speed of the converter. It was found that when a stabilizer with predetermined temperature drift is used to compensate for the temperature drift of diode parameters, a low static error comparable with that of the converter with voltage summation (less than 3%) can be attained with simple electric circuitry under laboratory conditions. To ensure high stability with respect to time and temperature, the measurement circuits of the converters must be designed so that stability is determined by the relative, rather than by

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V. I. YUKHIN, *Avtometriya*, No 4, Jul/Aug 71, pp 93-100

the absolute drift of the master resistors. It is also necessary to use resistors with characteristics which match as nearly as possible. The use of a stage with common base and a current divider in the circuit for the least significant digital places reduces the current stabilization time for the converter to 100 ns or less with a static error of 0.1%. Two figures, bibliography of nine titles.

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USSR

UDC: 681.142.621

ALEKSEYEV, V. A., BELOMESTNYKH, V. A., V. YUKHTIN, V. N., KASPEROVICH, A. N.,
POPOV, Yu. A., SOLOMENKO, V. I., Novosibirsk

"A Multipoint High-Speed Digital System for Data Collection and Storage"

Novosibirsk, Avtometriya, No 4, June/Aug 71, pp 40-50

Abstract: The article describes a multipoint high-speed digital system for data collection and storage developed at the Atomic Energy Institute of the Siberian Department of the Academy of Sciences of the USSR for converting a large volume of analog information to digital form prior to computer input. The system contains a level-fixing module, a commutator with its own control unit, a data-stacking unit, a core store, a system control unit, and a CRT display. Block and circuit diagrams are presented, and the purpose and operation of each element of the system is described. Initial tests of the pilot model of the system have shown that it satisfies the design requirements. Printed-circuit construction is used, and the system is accommodated in two equipment bays -- one for the system proper, and the other for the core store. Seven figures, two tables, bibliography of two titles.

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