"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

USSR

UDC 621-183.2:778.4

TSELIKOV, A. I., Academician, MOROZOV, B. A., Doctor of Technical Sciences, SURKOV, A. I., Candidate of Technical Sciences, and SERGEYEV, A. V., Engineer

"Potentialities of the Application of Holography in Heavy Machinebuilding"

Moscow, Vestnik Mashinostroyeniya, No 9, Sep 73, pp 7-11

Abstract: The holographic installation developed by the All-Union Scientific Research, Planning, and Design Institute of Metallurgical Machinery is described by reference to its optical schema. The results of the application of holographic interferometry for the study of deformations and dislocations of various parts, a cramp, a supporting wall, a cast in block channel beam of a hydraulic press, produced of steel and organic glass, are discussed by reference to interferograms produced by the method of double exposure. From shown interference lines of a lead specimen was plotted the distribution diagram of elastic and plastic deformations for two changing load conditions. Such diagrams can be plotted for free surfaces of plastically deformable bodies independent from their form and their material; they provide an idea of the influence of the form of the part and also of the nature of its material on the character of the propagation of deformations. Seven figures.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

USSR

UDC 621.317.08 3

MISYURA, V. A., PIVEN', L. A., LITVINENKO, O. A., SOMOV, V. G., NABOKA, A. M., SURKOV, A. K., and KARATEYEV, N. G.

"Mobile Radio Ionosphere Complex for Investigating the Ionosphere and Radio Wave Propagation"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. Sekts. 3 (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses; Section 3--collection of works) "Nauka," 1972, pp 104-108 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10A427)

Translation: A mobile radio ionosphere complex, developed in the Khar'kov University for complex investigations of the ionosphere and the propagation of radio waves by the method of vertical probing and the method of single-frequency and multifrequency differential Doppler and Faraday effects in satellite and rocket signals, is described. The mobility of the complex permits, in addition to conducting independent measurements, combination measurements with devices for noncoherent scattering and with experiments using geophysical and meteorological rockets, as well as various shortwave ranges and the like. Resume

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

USSR

UDC 621.317.77

MISYURA, V. A., PIVEN', L. A., SURKOV, A. K., SOMOV, V. G., KARATEYEV, N. G., ZAGVOZDKIN, B. V., NABOKA, A. M., LITVINENKO, O. A., and KAPANIN, I. I.

"Systems of Phase and Doppler Measurements in a Mobile Radio Ionosphere Complex"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. Sekts. 3 (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses; Section 3--collection of works) "Nauka," 1972, pp 109-113 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10A426)

Translation: A device for phase probing and a system for recording the Faraday and Doppler effects in artificial earth satellite signals and rockets, including a series of multichannel receiver and recorder devices operating at two, three, and four coherent frequencies (20, 40; 24, 48, 144; 20, 30, 90, 180; 150 and 400 MHz, and others), are described. The difference between the phase probing system and those now known is the separation of the measured phase differences with a heterodyne frequency and consequent narrow-band filtration. Resume

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USSR

UDC 547.13

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NESMEYANOV, A. N., Academician, POSTNOV, V. N., LESHCHEVA, I. F., SURKOV, E. A., and SAZONOVA, V. A., Moscow State University imeni M. V. Lomonosov

"Ferrocenylvinylcarbonium Ions"

Moscow, Doklady Akademii Nauk SSSR, Vol 200, No 4, 1971, pp 858-861

Abstract: The vinylog of the diphenylferrocenylcarbonium ion during its formation under goes an allyl shift to give an α-ferrocenylcarbonium ion. Since the p-dimethylamino group is a strong carbonium ion stabilizer, the authors undertook to compare the part played by the p-dimethylaminophenyl and ferrocenyl groups simultaneously in the stabilization of the allyl cation. The tetraphenylborate of the vinylog of p-dimethylaminodiphenylferrocenylcarbonium was obtained from β-ferrocenylvinyl-p-dimethylaminodiphenylcarbinol by precipitation with sodium tetraphenulborate in glacial acetic acid. The salt was bound by its α-carbon atom (relative to ferrocene) with dimethylaniline in the p-position. To determine the structure of the resultant carbonium ion, spectra were taken of its salts -- tetraphenylborate and borofluoride, as well as the spectrum of β-ferrocenylvinyl-p-dimethylaminodiphenylcarbinol. The results indicate that the allyl cation reacts

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NESMEYANOV, A. N., et al., Doklady Akademii Nauk SSSR, Vol 200, No 4, 1971, pp 858-861

like a typical α-ferrocenylcarbonium ion with its α-carbon atom. This indicates localization of a significant part of the formed positive charge on the latter. The almost quantitative reaction on the α-carbon indicates the prevailing influence of the ferrocenyl group in the stabilization of the carbonium ion as compared with the p-dimethylamino group.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

1/2 006 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--PROBLEMS THAT CONFRONT FACTORY STANDARDIZATION WORKERS -U-

AUTHOR--SURKOV, G.D.

COUNTRY OF INFO--USSR

SOURCE--STANDARTY I KACHESTVO, 1970, NR 2, PP 58-60

DATE PUBLISHED--------70

SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES

TOPIC TAGS--INDUSTRIAL STANDARD, MACHINE INDUSTRY, INDUSTRIAL PRODUCTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1985/0327 STEP NO--UR/0422/70/000/002/0058/0060

CIRC ACCESSION NO--AP0100814

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

CIRC ACCESSION NO--AP0100814 UNCLASSIFIED PROCESSING DATE--18SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ARTICLE POSES A NUMBER OF URGENT PROBLEMS TYPICAL OF THE ACTIVITIES OF STANDARDIZATION SERVICES AT SERIAL PRODUCTION MACHINE BUILDING FACTORIES. DESCRIPTION IS GIVEN OF THE ATTEMPTS TO SOLVE THESE PROBLEMS, MADE BOTH BY THE AUTHOR'S OFFICE AND BY THE OFFICES AT SIMILAR FACTORIES.

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USSR

UDC: None

PLAKHOV, A. M., CHERNENKO, O. D., MALKOV, A. I., KOSTYUCHENKO, V. I., LYSENKO, V. S., SURKOV, N. I., KIRPICHNIKOV, V. A., SMIRNOV, I. A., and SAVCHENKO, L. I.

"A Device for Ultrasonic Defectoscopy"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obrastsy, tovarnye znaki, No 4, 1973, p 98, No 363912

Abstract: The distinctive system in this device is one in which the sensor searching for the defects is mounted between rollers fixed to the lower side of the transmitting device, and is thus free to move around the workbench. A diagram of the mechanical arrangement, which improves the productivity of the device and its control, is given.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

USSR

UDC 576.858.9(T2).098.396.07

KALININ, V. N., SURKOV, V. Y., and TIKHONENKO, T. I., Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR, and Chair of Virology, Biology and Soil, Faculty Moscow State University

"Isolation, Purification, and Concentration of Internal T2 Bacteriophage Protein"

Moscow, Voprosy Meditsinskoy Khimii, Vol 17, No 4, 1972, pp 422-426

Abstract: Two methods were employed to isolate and purify internal T2 bacteriophage protein. The 1st employed chromatography on phosphorylated cellulose. Ultraviolet absorption spectra of the proteins obtained indicated contamination by DNA. Proteins were also contaminated with phosphocellulose degraded by the alkaline buffer with which the proteins were eluted. Because these contaminants could not be removed, another method was tried, employing electrophoresis in polyacrylamide gel with a homemade instrument. After 18 hours of electrophoresis, the resulting protein had a typical protein absorption spectrum. The protein appeared as 2 fractions, both with a sedimentation constant of 1.34S. Whether or not these are two different proteins is not known. Protein obtained by the second method is fully usable for physicochemical and biological research.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

1/2 006 UNCLASSIFIED PROCESSING DATE--11DEC70

TITLE--AGRICULTURAL TECHNOLOGY AGAINST ROOT ROT AND SPRING WHEAT PESTS -U-

AUTHOR-(02)-PAKHOMOVA, I.S., SURKOV, V.YA.

COUNTRY OF INFO--USSR

SOURCE--ZASHCHITA RASTENIY, 1970, NR 3, P 20

DATE PUBLISHED-------70

SUBJECT AREAS--AGRICULTURE

TOPIC TAGS--WHEAT, PLANT DISEASE, AGRICULTURE R AND D

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605048/F03 STEP NO--UR/0433/70/000/003/0020/0020

CIRC ACCESSION NO--AP0143323

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

2/2 006 UNCLASSIFIED PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0143323

ABSTRACT/EXTRACT--(U) GP-C- ABSTRACT. METHODS OF AGRICULTURAL TECHNOLOGY USED TO COMBAT ROOT ROT OF SPRING WHEAT (CAUSED BY HELMINTHOSPORIUM SATIVUM) AND SPRING WHEAT PESTS WERE STUDIED IN 1967-1968 IN KRASNOPARTIZANSKIY DISTRICT (NEAR SARATOV) IN FIELDS PLANTED WITH THE MELYANOPUS-26 VARIETY OF SPRING WHEAT. TESTS WERE CONDUCTED IN ONE MODERATELY ARID YEAR (1967) AND ONE WET YEAR (1968) IN A CHERNOZEM AREA. TRIALS OF THREE TYPES OF AUTUMN PLOWING SHOWED THAT THE GREATEST NUMBER OF DAMAGED PLANTS WERE OBSERVED WHEN STEMS REMAINED ON THE SURFACE, PROMOTING INFECTION. CORN WAS THE BEST PRECURSOR CROP. COMBINED WITH DEEP PLOWING, USE OF CORN PROMOTES WHEAT DEVELOPMENT, INCREASING RESISTANCE OF PLANTS TO ROOT ROT. THE NUMBER OF GRAIN BEETLES AND WHEAT THRIPS PER M PRIME2 DECREASED FROM 1967 TO 1968, WHEN WHEAT FOLLOWED CORN, APPARENTLY BECAUSE FREQUENT CULTIVATION DESTROYS LARVAE.

FACILITY: SARATOVSKIY SEL'SKOGO KHOZYAYSTVA INSTITUT, SARATOV AGRICULTURAL INSTITUTE.

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USSR

KIL'DYUSHOV, M. S. and SURKOV, YE. L., Moscow Engineering Physics Institute

"Hyperspherical Functions in the Five-Body Problem"

Moscow, Yadernaya Fizika, Vol 14, No 3, 1971, pp 551-566

Abstract: An algorithm for constructing a system of hyperspherical functions for the quantum-mechanical five-body problem is considered. First a reduction is carried out, beginning with the step $O_4 \supset S_5$, an embedding problem. Then suitable kinematic variables are introduced. It is thereupon explained which representations of S_5 are contained in the irreducible representation O_4. Next, employing suitable notation, projective operators are used to construct the matrix for the transition from the basis $O_4 \supset O_3 \supset O_2$ to the basis $O_4 \supset S_5 \supset S_4 \supset S_3 \supset S_2$. Another possible reduction chain

$$\begin{array}{ccc} O_4 & \supset & O_2 \otimes O_2 \\ \cup & & \cup \quad \cup \\ S_5 & \supset & S_3 \otimes S_2 \end{array}$$

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USSR

KILDYUSHOV, M. S. and SURKOV, YE. L., Yadernaya Fizika, Vol 14, No 3, 1971, pp 551-566

is considered, which corresponds to separating subsystems of two and three particles and which is better adapted for computing matrix elements of two-particle operators. An appendix derives matrixes for the transition from the first basis to the second. Finally, a last section presents the reduction $O_{12} \supset O_3 \otimes O_4$ and computes the spectrum of representations when $k < 5$. The algorithm is formulated concisely in the concluding section.

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Miscellaneous

USSR

UDC 550.4

VINOGRADOV, A. P., MAROV, M. Ya., and SURKOV, Yu. A., Institute of Geochemistry and Analytical Chemistry imeni V. I. Vernadskiy, Acad. Sc. USSR, Moscow

"Investigation of the Venus Atmosphere by the Soviet Automatic Stations "Venera-4," "Venera-5," and "Venera-6"

Moscow, Geokhimiya, No 4, April 1972, pp 387-401

Abstract: Scientific apparatus used on the automatic stations "Venera-4, 5 and 6" is described; data received on the chemical composition, temperature and pressure of Venus are reported. Venus atmosphere consists of the following mixture: CO_2 - 97 $\pm$ 4%, nitrogen - less than 2%, oxygen - less than 0.1%, water - about 12 mg/l (at the level of condensation). Temperature and pressure determinations are reported graphically; initial pressure of 0.6 atm corresponded to 25°C, final pressure at which measurements were received was 27 atm at 320°C. The atmospheric density increased uniformly with descending height. Using these data the structure of the Venusian atmosphere, its origin and evolution is speculated upon and compared to earth. A conclusion is reached that by the endogenous processes both the earth and Venus have similar history. At the same time, these planets differ by their exogenous processes occurring on the surfaces. This obviously is due to the difference in proximity to the sun which resulted in the formation of the heavy carbon dioxide atmosphere on Venus.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

USSR Miscellaneous

UDC 550.4

SURKOV, YU. A., and ANDREYCHIKOV, B. M., Institute of Geochemistry and Analytical Chemistry imeni V. I. Vernadskiy, Academy of Sciences USSR, Moscow

"The Composition and Structure of the Venus Cloud Layer"

Moscow, Geokhimiya, No 10, Oct 73, pp 1435-1440

Abstract: Gasanalytical measurements carried out by menas of equipment installed on the automatic interplanetary stations Venera-4, Venera-5, and Venera-6 indicated that the principal component of the atmosphere of Venus is CO_2 and that the content of N_2 in this atmosphere is $\approx$ 2% and the content of $O_2 \lesssim 0.1\%$. Consideration of all available data on Venus from the geochemical standpoint and determinations of NH_3 by an apparatus installed on Venera-8, in which tetrabromosulfophthalein was used as an indicator (cf. Surkov et al, DAN SSSR, Vol 213, No 6, 1973), led to the following conclusions in regard to the composition of the cloud layer of Venus. The bottom layer of clouds, which have a very low density and a lowest elevation corresponding to a pressure of 10 atm, consists of NH_4Cl. The layer above this, starting with a pressure of 1-2 atm, consists mainly of NH_4 carbonates.

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SURKOV, YU. A., and ANDREYCHIKOV, L. M., Geokhimiya, No 10, Oct 73, pp 1435-1440

Above this layer a mixture of ammonium compounds including NH_4Cl and ammonium carbonates ispresent. Any ammonium salts that precipitate downwards in the Venus atmosphere decompose, whereupon the NH_3 that is formed diffuses upwards together with water vapor. Only very small amounts of NH_3 and H_2O are present in the lower layers of the atmosphere.

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Acc. Nr.: AT0045337

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Ref. Code: UR0028
JPRS 50052

Determination of Composition of Venusian Atmosphere

(Abstract: "Study of the Composition of the Venusian Atmosphere on the 'Venera-5' and 'Venera-6' Automatic Stations," by Academician A. P. Vinogradov, Yu. A. Surkov and B. M. Andreychikov, Institute of Geochemistry and Analytical Chemistry; Moscow, Doklady Akademii Nauk SSSR, Vol. 190, No. 3, 1970, pp. 552-554)

"Venera-5" and "Venera-6" reached Venus and made a smooth descent into its atmosphere. Both made measurements during their descent in the segment where pressure changed from 0.6 to 27 atm and the temperature changed from 25 to 320°. The purpose of this experiment was a further investigation of the physicochemical characteristics of the Venusian atmosphere and especially a more precise determination of its chemical composition. The probes carried gas analyzers similar to those carried by "Venera-4," with some improvements introduced. Each probe carried two instruments. Both instruments were used in determining the atmospheric content of carbon dioxide, nitrogen, water and oxygen. The determinations were made during the parachute descent at pressures from ~0.6 to ~10 kg/cm^2. The gas analyzers had two types of sensors, one of which measured

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the quantitative content, while the others determined only the upper or lower limit of the content of a particular component. Each probe measured the atmospheric content twice. The first analysis by "Venera-5" was made soon after opening of the main parachute when atmospheric pressure was ~ 0.6 kg/cm^2 and the temperature was $\sim 25°$. The second determination by "Venera-5" was in the lower part of the atmosphere at a pressure of about 5 kg/cm^2 and a temperature $\sim 150°$. "Venera-6" also made two determinations at different altitudes. The first was at a pressure of about 2 kg/cm^2 and a temperature of 85°; the second was made when the pressure attained ~ 10 kg/cm^2 and the temperature was about 225°.

Composition of Venusian Atmosphere

Components	"Venera-4" data	Data from "Venera-5" and "Venera-6"
CO_2, %	90+10	97+4
N_2, %	≤ 7 (possibly ≤ 2.5)	≤ 2
O_2, %	0.4-1.5	≤ 0.1
H_2O (at P 0.6 atm) mg/liter	1-8	~ 11

The temperature variation with altitude in the entire measurement range was close to adiabatic. It can be concluded that pressure and temperature at the planetary surface are about 100 atm and 500° respectively.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

USSR

UDC 539.4:536.453

BERSENEVA, G. N., SURKOV, YU. P., SOKOLOV, YE. N.

"Investigation of the Thermal Stability of the Structural State of EI-437B Alloy Subjected to High-Speed and Slow Plastic Deformation Under High-Temperature Mechanical Working"

V sb. Vysokoskorostn. deformatsiya (High Speed Deformation -- Collection of Works), Moscow, "Nauka", 1971, pp 115-118 (from RZh-Mekhanika, No 3, Mar 72, Abstract No 3V1532)

Translation: Ingots of the alloy EI-437B were subjected to deformation under 10% deposition at 1080° at rates of 10.1 and 0.001 sec^{-1}. The structures of the samples in the initial state and also after heating at 1080° were studied by metallographic and rentgenographic means. It was shown that the structure obtained as a result of high-speed deformation is considerably different from the structure formed during slow deformation. Differences in the structure imparted by preliminary deformation are held persistently and disappear only upon the completion of recrystallization. Authors abstract.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

USSR

UDC 539.374

SURKOV, Yu. P., BERSENEVA, F. N., and SOKOLKOV, Ye, N., Institute of Metal Physics, Academy of Sciences USSR

"Thermal Stability of the Structure of E1437B Alloy After High-Temperature Heat and Mechanical Treatment at Various Deformation Rates"

Moscow, Fizika Metallov i Metallovedeniye, Vol 30, No 5, 1970, pp 963-966

Abstract: Changes in the structure of specimens of E1437B alloy deformed by 10% at 1080° at 10, 1, and 0.001 sec^{-1} with subsequent heating were studied. The structure of specimens subjected to high-speed deformation (1 and 10 sec^{-1}) was characterized by more incomplete processes of fragmentation, the presence of a large number of dislocations ordered along slipping planes, and a high level of distortion of the material. The behavior of the structures during subsequent high-temperature holding differed significantly for specimens subjected to slow and fast deformation. The most notable changes were observed in the structure of specimens deformed at high speeds (10 sec^{-1}). They consisted of restructuring of dislocation configurations with the formation of a subgrain structure and subsequent growth of elements of the structure. However,

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USSR

~~SURKOV, Yu. P.~~, et al, Fizika Metallov i Metallovedeniye, Vol 30, No 5, 1970, pp 963-966

the differences in the deformation structure (degree of disorientation, size of fragments) resulting from preliminary high-temperature upsetting were not eliminated during subsequent heating.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

USSR UDC 620.181;539,374;546.74.75

LEVIT, V. I., SURKOV, YU. P., SOKOLKOV, YE. N., and ZHURAVEL', L. V., Institute of Physics of Metals, Academy of Sciences USSR

"Aging of KhN77TYuR Alloy After Plastic Flow"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 29, No 6, Jun 70, pp 1198-1203

Abstract: A study is made, using methods of electrical resistance and transmission electron microscopy, of the processes of decay of a saturated solid solution in the KhN77TYuR alloy with different dislocation structures produced by deformation at different temperatures. For estimating the effect of distribution of dislocations on the processes of subsequent aging those degrees of deformation at 20 and 1080°C were selected, which in all deformed specimens ensured a yield point of 44-47 kg/mm^2. Changes in mechanical properties and structure in the process of aging are determined. It is shown that the higher strength properties after high-temperature thermomechanical treatment are due mainly to the increased density of emissions of the intermetallide γ'-phase. In addition, the notched form of the boundaries of grains and the separation of carbides on such boundaries impede the intergrain disintegration and ensure adequate ductility. The authors thank N. A. Kompaneytsev for help in conducting tests on mechanical properties, R. R. Romanova and R. A. Karakhanyan for help in preparing and checking of thin foil, and S. N. Petrova for valuable suggestions during discussion.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

Steels

USSR

UDC 669.15-194.56.018.2

GREKOV, N. A., SILINA, YE. P., and a SURKOVA, A. P., Leningrad

"Structure and Properties of Explosive-Hardened Austenitic Steels"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 1, Jan/Feb 74, pp 112-114

Abstract: The mechanical properties and fine structure changes were studied for two austenitic steels (60Kh3G8N8V and 4-Kh3G18) which had been plastically deformed by low-pressure shock waves. The first steel is very stable with a martensite transformation point below -196° C while the other steel is less stable (M_s near -120° C) especially during plastic deformation. It was noted that the sequence of transformation stages ($\gamma \to \varepsilon$ and $\varepsilon \to \alpha$) is preserved during high-speed shock-wave deformation. In the steel with high austenite stability the ε-martensite transformation and twinning start only after a high-density dislocation matrix is formed. The degree of improvement of a cellular dislocation structure is better the more stable the austenite. For a lower stability the tendency of steel toward deformation hardening from shock waves increases which can be associated with intensive occurrence of $\gamma \to \varepsilon$ transformation and twinning processes. Three figure, one table, one bibliographic references.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

1/3 017 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--DIAMOND TOOL BASED ON A CERAMIC BINDER -U-

AUTHOR-(02)-BALKEVICH, V.L., SURKOVA, I.A.

COUNTRY OF INFO--USSR

SOURCE--STEKLO KERAM. 1970, 27(2), 22-4

DATE PUBLISHED-------70

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

TOPIC TAGS--DIAMOND TOOL TECHNOLOGY, HARD ALLOY, CERAMIC BINDER, METAL MACHINING, CUTTING TOOL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1957 STEP NO--UR/0072/70/027/002/0022/0024

CIRC ACCESSION NO--AP0118918

UNCLASSIFIED

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

2/3 017 UNCLASSIFIED

CIRC ACCESSION NO--AP0118918 PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE USE OF A CERAMIC BINDER MAKES IT POSSIBLE TO USE DIAMOND TOOLS MORE WIDELY AND, IN PARTICULAR, MAKES IT POSSIBLE TO WORK STEEL TOGETHER WITH HARD ALLOYS. CERAMIC BINDERS ARE GENERALLY DIVIDED INTO FRITTED BINDERS AND SINTERING BINDERS. IN THE PRESENT STUDY, CERTAIN TECH. FEATURES OF PREPG. A DIAMOND TOOL ON A SINTERING BINDER AND THE RESULTS OF THE TESTING OF THIS TOOL ARE PRESENTED. THE PROPOSED SINTERING CERAMIC BINDER EMPLOYED CONSISTS OF A MIXT. OF REFRACTORY CLAY AND NATURAL FLUXES (SUCH AS NEPHELINE SYENITE AND SPODUMENE). THE PRESENCE OF SPODUMENE PRODUCES A DECREASE IN THERMAL EXPANSION OF THE BINDER, AND THEREBY CAUSES AN INCREASE IN ITS THERMAL STABILITY. WITH THIS BINDER, DIAMOND CONTG. RINGS WITH AN EXTERNAL DIAM. OF 150 MM AND A HEIGHT OF 3 MM WERE PREPD. POLY(VINYL ALC.) WAS USED FOR THE TEMPORARY BINDER. PRIOR TO THE SHAPING OF THE RINGS, CERTAIN TECH. PARAMETERS WERE DEFINED, SO AS TO SELECT THE OPTIMUM PRESSING CONDITIONS, WHICH WERE DETD. (1000 KG-CM PRIME2, MOISTURE CONTENT EQUALS 8.3PERCENT). THE RINGS PRESSED UNDER THESE CONDITIONS WERE, AFTER SHORT TERM DRYING, FIRED IN A SPECIALLY CONSTRUCTED LAB. FURNACE WITH A PROTECTIVE GAS (N, HE) ATM. THE TECHNIQUE OF FIRING IN C CONTG. CHARGES HAS BEEN KNOWN FOR A LONG TIME; HOWEVER, IT HAS BEEN EMPLOYED FOR THE 1ST TIME IN THE PRESENT WORK TO PROTECT THE DIAMOND GRAINS FROM OXIDN. THE RINGS WERE PLACED IN THE FURNACE IN A HORIZONTAL FASHION IN GROUPS OF 8-10 PIECES. THE CONSTRUCTION OF THE HEATER MAKES POSSIBLE UNIFORM DISTRIBUTION OF THE TEMP. ALONG THE HORIZONTAL SECTION OF THE FURNACE.

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3/3 017 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0118918

ABSTRACT/EXTRACT--FACILITY: MOSK. KHIM. TEKHNOL. INST. IM. MENDELEEVA, MOSCOW, USSR.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

1/2 020 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--ANTITUMOR ACTIVITY OF NEW PREPARATIONS OF THE CHLORETHYLAMINE GROUP NOT INFLUENCING HAEMOPOESIS -U-

AUTHOR-(05)-VASILYEVA, L.S., DYACHKOVSKAYA, R.F., SCHUPPE, N.O., PARKHOMENKO, I.I., SURKOVA, N.I.

COUNTRY OF INFO--USSR

SOURCE--IZVESITYA AKADEMII NAUK SSSR, SERIYA BIOLOGICHESKAYA, 1970, NR 3, PP 459-463

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ANTITUMOR DRUG EFFECT, HEMATOPOIESIS, AMINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/1608 STEP NO--UR/0216/70/000/003/0459/0463

CIRC ACCESSION NO--AP0127099

UNCLASSIFIED

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

2/2 020

UNCLASSIFIED

CIRC ACCESSION NO--AP0127099 PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ANTITUMOR ACTION OF CHLORALHYDRATES N,N,DI(2,CHLORETHYL)PINOCAMFILAMINE (I), N,N,DI(1,CHLORETHYL)PINILAMINE(II) AND 3,5,DI,TRETBUTYL,4,OXI,N, NI,DI (BETA,DHLORETHYL BENZILAMINE) (III) WAS STUDIED BOTH IN EXPERIMENTS ON ANIMALS AND IN TISSUE CULTURE. IT WAS FOUND THAT THE COMPOUND II DISPLAYED MAXIMAL ACTIVITY. THE INFLUENCE OF THE COMPOUND II ON THE PROCESS OF PROTEIN BIOSYNTHESIS IN TUMOR CELLS WAS REGISTERED. IT WAS FOUND THAT THE SUBSTANCES STUDIED DO NOT INFLUENCE NORMAL HAEMOPOESIS.

FACILITY: INSTITUTE OF CHEMCIAL PHYSICS, ACADEMY OF SCIENCES, USSR.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

USSR

UDC 621.7.011

OKHRIMENKO, Ya. M., SMIRNOV, O. M., SURMACH, L. V., KUCHINOV, M. M.

"Superplasticity of VTZ-1 Titanium Alloy"

Ordzhonikidze, Isvestiya Vysshikh Uchebnykh Savedeniy, Tsvetnaya Metallurgiya, No 4, 1972, pp 133-136.

Abstract: The optimal temperature and rate conditions for deformation of VTZ-1 alloy to the state of superplasticity are established: temperature interval 800-950°, rate interval 10^{-3}-10^{-4} sec^{-1}; it is shown that the single-phase β area should not be entered during heating. Under these temperature and rate conditions, clear signs of the state of superplasticity were produced in VTZ-1 alloy, i.e., exceptionally high values of relative elongation (δ = 950%) in combination with low deformation resistance (σ = 0.4-4 kg/mm^2) and a coefficient rating sensitivity of deformation resistance to deformation rate m > 0.4. These data indicate good prospects for the use of the effect of superplasticity in the pressure working of metals.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

SURMANIDZE, R.D.

Medical Sciences

UDC: 61:061.22(479.223)(091)

SEVENTY-FIFTH ANNIVERSARY OF THE ADZHAR ASSR MEDICAL SOCIETY

[Article by R.D. Surmanidze, Candidate of Medical Sciences (Batumi); Moscow, Sovetskoye Zdravookhraneniye, Russian, No 4, 1972, submitted 1 October 1971, pp 74-76]

Intensification of the social movement in Russia in the second half of the 19th century resulted in the foundation of medical societies not only in its central cities but also in outlying regions. On 5 April 1866, the Caucasian Medical Society was founded in Tbilisi (formerly Tiflis), and it was governed by by-laws that gave it rather limited autonomy. Nevertheless, they facilitated the foundation of new societies in the cities.

At the request of the physicians of Batumi, with the help of progressive physicians belonging to the Caucasian Medical Society, by-laws were adopted on 5 September 1896, and on 20 November of the same year the government gave its permission to create a medical society in Batumi, the third in the Caucasus [1]. The initiators of the society were the following physicians who then worked in Batumi (formerly Batum): G.L. Elinava, D.M. Kuzyatin, T.P. Triantafillides, K.A. Mkheidze, G.I. Vol'skiy, and others.

In giving its permission to create this society, the tsarist autocracy pursued its own goals: it tried to intensify ideological influences on the local intelligentsia, to obtain some improvement in sanitary and hygienic living conditions for the large army in Transcaucasia, under conditions that were not customary for it, as well as to develop measures to prevent local pathology among soldiers and officers, and this required systematic investigation of regional clinical factors. To reach these goals, the local administration tried to introduce as members of the society some of the officials of the military medical service in the Caucasus.

The first chairman of the Batumi Medical Society was V.I. Fuzyrevskiy, army physician, who was then replaced by the head of the local military hospital, A.S. Shishkov [2].

The military bureaucratic method of administration did not allow the society members to display any initiative, to work on current issues, or to

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

JPRS 58852

25 April 1973

INVESTIGATION OF STRENGTHENING PROPERTIES OF LAVES PHASES IN AUSTENITIC STEELS

UDC 669.98

[Article by F.N. Tavadze (Academician, Academy of Sciences Georgian SSR), M.I. Linchevskaya, N.S. Bokshteyn, and G.G. Surmava, Academy of Sciences Georgian SSR, Institute of Metallurgy; Tbilisi, Soobshcheniya Akademii Nauk Gruzinskoy SSR, Russian, Vol 64, No 3, 1971, submitted 9 September 1971, pp 632-636]

Intermetallide compounds present much interest for metal physics and applied physical metallurgy. On one side, the investigation of intermetallides includes a wide circle of experimental and theoretical methods which include chemical bonding, electron structure, structure imperfections, etc. On the other side, it is possible to establish rapid progress in the technological use of intermetallides which add special properties to metallic alloys. In particular, for improving the stability of long-time mechanical properties at high temperatures, in many cases (austenitic steels, nickel alloys) intermetallide strengthening turned out to be the most effective.

Phases forming between elements with a ratio of atomic diameters close to 1:2 comprise an important group of intermetallide phases; these phases have the structure of a Laves phase. Laves phases are close packed, corresponding approximately to the formula AB_2, and are usually crystallized with a hexagonal-lattice two-layer alternation of close-packed planes (type $MgZn_2$) or with a cubic lattice and three-layer alternating planes (type $MgCu_2$). In austenitic and three-layer alternating plays the role of metal B (ordinarily in solid solution with Cr and Ni), while W, Mo, Nb (and solid solutions among them), Zr, Ti and rare earths play the role of metal A most often.

It was assumed in /1/ that bonding in Laves phases carries a metallic nature. As the reason for this the low heats of formation (several kilocalories per gram-atom) are

[I - USSR - I]

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

Molecular Physics

USSR

UDC 669. 355

TABADZE, F.N., Academician of the Georgian SSR Academy of Sciences, SURMAVA, G.G., and SVANIDZE, K.G.,

"Determination of the Diffusion Characteristics of Zinc Into Copper According to the Initial Stage of Whisker Thickening"

Tbilisi, Soobshcheniya Akademii Nauk Gruzinskoy SSR, Vol 60, No 1, Oct 70, pp 53-56

Abstract: Determination has been made of the diffusion coefficient of zinc into the following copper materials of the indicated approximate average diameters" thin whiskers, 5 microns; thick whiskers, 20 microns; deformed whiskers, 6 microns; thin Ulitovskiy microwire, 6 microns; and thick microwire, 20 microns, at temperatures of 600, 650, and 700 degrees C. Determination was based on measuring the initial stage of whisker thickening as the zinc diffused from the surface. A known solution to the one-dimensional problem of diffusion from a source with constant concentration was used, exploiting the fact that the cylindrical shape of the specimen has no significance for the initial stage of diffusion when the average path of diffusion is much smaller than the specimen. The diffusion coefficient of the zinc in whiskers was 1-2 orders lower than in thick copper wire. Also measured were the structural factor, which was 6-7 orders lower in whiskers, and

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

USSR

TABADZE, F. N., et al, Soobshcheniya Akademii Nauk Gruzinskoy SSR, Vol 60, No 1, Oct 70, pp 53-56

the energy of activation, which was 2-3 times lower. These coefficients, based on thickening in the intial stage, coincide with previous findings on data obtained in processing data at areas close to saturation for thin materials (both whiskers and wire), but the differences were great in the case of thicker materials. Coefficients averaged about 3 times higher at 700 degrees than at 600 degrees, except for thick microwire, for which the difference was 10 times as great. The coincidence of the energy of activation diffusion in thin whiskers with the previously reported energy of displacement of vacancies in copper confirms findings elsewhere that new vacancies do not form during diffusion in whisker crystals.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

USSR

4

UDC 59:616.981.455(574.52)

AYKIMBAYEV, M. A., KORNEYEV, G. A., KUNITSA, G. M., TLEUGABYLOV, M. K., TRYKIN, V. S., SKVORTSKOVA, S. S., KUZIN, I. P., and SUBMIN, V. M., Central-Asian Scientific Research Antiplague Institute, Alma-Ata

"A Tugai Focus of Tularemia in Dzhambulskaya Oblast in the Lower Chu Flow"

Moscow, Zoologicheskiy Zhurnal, Vol 50, No 10, 1971, pp 1595-1598

Abstract: Rhipicephalus pumilio, the tick which carries and transmits tularemia bacteria, can circulate the bacteria over a long time-span due to its ability to parasitige hares and other rodents at all stages of its development. The flooded fields in this region, on which cattle graze, create ideal conditions for the spread of the ixodid tick. Dermacentor daghestanicus is the dominant species because of its high percentage of infection by tularemia bacteria and because it preserves the bacteria in its body for a long period. Bacteriological studies were made of 117 mammals and 19,000 ticks of various species. In infected hares pathological-anatomic changes were manifested by enlargement of the spleen, in some cases by a change in the color and texture of the liver, and by the characteristic mound arrangement of cocci-bacteria in the spleen, liver, lungs, lymph nodes, and blood. 30 strains of Pasteurella tularensis were found in ixodid ticks and 7 strains, in the hare (Lepus tolai). These strains decompose glycerine and circulate in the tugai focus.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

USSR

UDC 518.5:681.3.06

SURNIN, Yu. M., ROSHCHINA, T. I.

"Plans of Algorithms for Construction of Technological Routes Through Systems for Automatic Planning of the Technology of Assembly of Units and Machines"

Tekhn. Kibernetika, Vyp. 6, [Engineering Cybernetics, No 6--Collection of Works], Kiev, 1970, pp 60-71, (Translated from Referativnyy Zhurnal Kibernetika, No 5, 1971, Abstract No. 5V664, unsigned).

Translation: Certain problems of formalized description of the technological routes of assembly of reducing gears are studied and the possibility of representing algorithms for planning technologies as matrix plans and automatic synthesis of these plans with subsequent minimization is analyzed.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

1/2 024 UNCLASSIFIED

TITLE--CRYSTALLIZATION OF R SILLENITES UNDER HYDROTHERMAL CONDITIONS -U-

PROCESSING DATE--20NOV70

AUTHOR-(02)-SURNINA, V.S., FEDOSOVA, S.P.

S

COUNTRY OF INFO--USSR

SOURCE--KRISTALLOGRAFIYA 1970, 15(2), 395-6

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--CRYSTALLIZATION, BISMUTH, SINGLE CRYSTAL, WATER, THERMAL EFFECT, METAL OXIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/0901

STEP NO--UR/0070/70/015/002/0395/0396

CIRC ACCESSION NO--AP0116411

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

2/2 024

CIRC ACCESSION NO--AP0116411 UNCLASSIFIED PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REACTION WAS STUDIED OF BI SUB2 O SUB3 WITH VARIOUS OXIDES (R) IN AQ. SOLNS. OF NAOH TO OBTAIN THE CORRESPONDING SINGLE CRYSTAL SILLENITES. THE EXPTS. WERE MADE IN ALK. AND ACID (HNO SUB3) SOLNS. AT 300-500DEGREES USING A METHOD AND APP. DESCRIBED EARLIER (B. LITVIN AND TULES, 1968). EXPTL. DATA ARE TABULATED FOR R EQUALS ZNO, CDO, HGO, BEO, NA SUB2 B SUB4 O SUB7, AL SUB2 O SUB3, GA SUB2 O SUB3, NA SUB2 CO SUB3, SIO SUB2, GEO SUB2, H SUB2 TIO SUB3, ZRO SUB2, FE SUB2 O SUB3, CO SUB2 O SUB3, CR(OH) SUB3, NB SUB2 O SUB5, V SUB2 O SUB5, NA SUB2 MOO SUB4, AND NA SUB2 WO SUB4.

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

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

ENGINEERING
Aeronautical and Space

USSR

B O O K

UDC 629.78.036.7(075.8)

GUROV, A.F., SEVRUK, D.D., SUPNOV, D. N.

KONSTRUKTSIYA I RASCHET NA PROCHNOST' KOSMICHESKIKH ELEKTROMASHINNYKH DVIGATELEY (Design and Calculation of Strength Of Electric Propulsion Systems for Space), Moscow ("Mashinostroyeniye") 1970, 491 pp, illus, biblio, 2,500 copies printed

Authorized by the Ministry of Higher and Intermediate Special Education RSFSR as a textbook for the aviation VUZ. Gives general information, drawings, formulas, graphs, tables on design of electrical propulsion systems for space and calculation of their strength and vibrations, and an estimate of their reliability. Designs of nuclear reactors, isotope sources, solar concentrators and chemical fuel elements are discussed, as are various types of converters. Methods are discussed for computing the strength and vibrations of turbine buckets and wheels, the bearing capacities of hydrostatic bearings and the critical speeds of turbo-generators mounted on liquid metal bearings. The method of computing the anode block of a thermo-emission type converter is also discussed. Temperature stresses in various parts of the systems are emphasized.

The book is intended for use as a text and for reference by engineers and designers working in space engineering. Ye. A. Yakovlev is the editor.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

USSR

GUROV, A.F., SEVRUK, D.D., SURNOV, D. N., KONSTRUKTSIYA I RASCHET NA PROCHNOST' KOSMICHESKIKH ELEKTROREAKTIVNYKH DVIGATELEY, M. 1970, 491 pp

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Chapter V. Engines Plasma and Ion Thrusters	372-470
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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

USSR

ZAYTSEV, Yu. V., MARCHENKO, A. N., and SUROGIN, L. I.

UDC: 621.382.233

"Fixed Semiconductor Resistors"

Kiev, Izvestiya VUZ--Radioelektronika, Vol 13, No 11, 1970, pp 1391-1393

Abstract: This brief communication reports a solution to the vexing problem of manufacturing precision, low-ohm resistors designed to operate in a wide temperature range. The material used is monocrystalline silicon with a high concentration of impurities. A cutaway view of the new resistor shows it to have the same shape and structural design as standard types. The process of its manufacture is given in some detail. A curve showing the tolerated electrical load as a function of the temperature is flat from 0 to 150° C, but drops off sharply and linearly to zero tolerated load at 275°C. A second curve of the temperature coefficient of resistance as a function of the silicon resistivity shows a rise in the temperature coefficient from 7 to 11%/degree over a resistivity range of 0.01 to 0.1 ohms cm. These resistors are designed for circuits requiring low temperature factors and high resistor accuracy. They have the added advantages of low noise level and the ability to sustain short-term overloading.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

USSR

UDC 613.71-612.17

LEVINA, L. I. and SUROV, Ye. N., State Twice Decorated Institute of Physical Culture imeni P. F. Lesgaft

"Value of Valsalva's Test in Assessing Changes in the Terminal Part of the EKG Ventricular Complex After Physical Overexertion"

Kazan', Kazanskiy Meditsinskiy Zhurnal, No 6, 1972, pp 33-36

Abstract: Valsalva's test was taken by 36 athletes suffering from myocardial degeneration due to excessive physical exertion and showing changes in the terminal part of the EKG ventricular complex and by 36 athletes in good health and with a normal EKG (control). The EKGs recorded during the test reflected three types of reactions: (a) deepening of the S waves in the $V_{1-2-3-4}$ leads, lowering of the R waves in the $V_{3-4-5-6}$ leads, and T waves in the right thoracic leads 1 to 3 m higher and those in the left leads 1 to 3 mm lower -- these are positional changes indicative of a clockwise turning of the heart around the longitudinal axis; (b) no significant positional changes; (c) complete normalization or marked improvement independent of change in the position of the heart. Follow-up studies of the athletes after they discontinued training revealed no EKG changes in those with the first two types of EKG reactions to the Valsalva test, evidence of the persistence of the degeneration. But in

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

USSR

LEVINA, L. I. and SUROV, Ye. N., Kazanskiy Meditsinskiy Zhurnal, No 6, 1972, pp 33-36

those with the third type of reaction, discontinuance of training resulted in normalization or considerable improvement of the EKG, a sign that the degeneration had been reversed.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

1/2 021

UNCLASSIFIED

TITLE--ASSOCIATION CONSTANTS OF PHENOL WITH CHALCONES AND THEIR ANALOGS -U-

PROCESSING DATE--27NOV70

AUTHOR-(03)-TSUKERMAN, S.V., SUROV, YU.N., LAVRUSHIN, V.F.

COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. KHIM. 1970, 40(4), 874-9

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--PHENOL, KETONE, IR SPECTRUM, CHEMICAL SUBSTITUENT, ORGANIC SULFUR COMPOUND, ORGANOSELENIUM COMPOUND FURAN, EQUILIBRIUM CONSTANT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1498

STEP NO--UR/0079/70/040/004/0874/0879

CIRC ACCESSION NO--AP0135159

UNCLASSIFIED

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

021

CIRC ACCESSION NO--AP0135159 UNCLASSIFIED

PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FROM IR SPECTRA THE EQUIL. CONSTS. WERE CALCD. FOR SYSTEMS OF 23 KETONES OF TYPE P RC SUB6 H SUB4 COCH:CHC SUB6 H SUB4 R PRIME1 P, WHERE R AND R PRIME1 WERE SELECTED FROM H; ME, MEO, NME SUB2, PH, CL, BR; OR OF TYPE RCOCH:CHR PRIME1, WHERE R WAS SELECTED FROM PH, 2,THIENYL,2,SELENIENYL 2,FURYL, STYRYL AND 2,(2,THIENYL)VINYL GROUPS AND R PRIME1 FROM 2,THIENYL,2,SELENIENYL, PH, 2,FURYL, OR STYRYL GROUPS. THE DATA AT 20, 35 AND 50DEGREES WERE TABULATED FOR SYSTEMS OF THESE KETONES WITH PHOH IN CCL SUB4. THE EQUIL. CONSTS. WERE READILY CORRELATED WITH HAMMETT SUBSTITUENT CONSTS. OF THE KETONES AND REPLACEMENT OF PY BY A HETEROCYCLIC GROUP INCREASED THE PROTON ACCEPTOR CAPABILITY OF THE KETONG IN INCREASING ORDER: 2,THIENYL, 2,SELENIENYL, 2 FURYL. THESE ASSOCN. CONSTS. ARE SOMEWHAT MORE SATISFACTORY CRITERIA FOR BASICITY OF THE CARBONYL GROUPS THAN ARE THE FREQUENCY SHIFTS OF THE HO GROUP OF THE PROTON DONORS.

FACILITY: KHAR'KOV. GOS. UNIV. IM. GOR'KOGO, KHARKOV, USSR.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

172 010 UNCLASSIFIED

TITLE--B,S FRAGMENT FORMED DURING THE SPLITTING OF PEPSIN BY CYANOGEN BROMIDE -U- PROCESSING DATE--13NOV70

AUTHOR-(04)-SUROVA, I.A., AMIRKHANYAN, M.M., MATVEYEVA, R.A., STEPANOV, V.M.

COUNTRY OF INFO--USSR

SOURCE--KHIM. PRIR. SOEDIN. 1970, 6(1), 144

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PEPSIN, FRACTIONATION, CYANOGEN COMPOUND, BROMIDE, AMINO ACID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/0563

STEP NO--UR/0393/70/006/001/0144/0144

CIRC ACCESSION NO--AP0131186

UNCLASSIFIED

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

UNCLASSIFIED

PROCESSING DATE--13NOV70

ACCESSION NO--AP0131186

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. B-5 FRAGMENT OF PEPSIN, REPRESENTING THE CENTRAL PART OF ITS MOL. AND ATTACHED TO THE N-TERMINAL B-2 FRAGMENT OF THE ENZYME, WAS COMPOSED OF 40-3 AMINO ACIDS. ITS STRUCTURE WAS AS FOLLOWS: ASP-GLY-GLU-THR-ILE-(THR, GLY, SER, ALA)-.....-LEU-THR-GLY-PRO-THR-SER-ALA-....(SER, AL, ILE)-MET.

FACILITY: INST. KHIM. PRIR. SOEDIN., MOSCOW, USSR.

UNCLASSIFIED

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Publications

USSR

MAKSIMENKO, V. A., NEKHOROSHEV, and SUROVIKIN, V.

Diving (Vodolaznoye Delo)

Moscow, 1971, DOSAAF Publishing House, 288 pp

Translation: Annotation: This book is intended for the training of divers and it was written in accordance with the program for training 3d class divers.

For 1st and 2d class divers, the book may serve as a practical manual and reference tool on the operation and care of diving equipment and on safety meausres and performance of a variety of diving tasks.

Besides the principal authorsV. P. Maksimenko, A. S. Nekhoroshev, and the late V. D. Surovikin, the following specialists in diving and hydraulic engineering took part in writing the book: V. S. Razvodovskiy (Chapter 5), P. P. Nikitin (chapter 6), T. S. Leybovich (Chapter 7 and Chapter 10, in part), Yu. K. Senatiskiy (Chapter 7 in part), A. A. Rogov (chapter 8), and A. P. Loyko (Chapter 9).

The authors thank the diving specialists A. M. Gerasimov, B. V. Gromadskiy, N. Kh. Kesopulo, I. I. Rebink, and the physician-physiologist V. I. Tyurin for their help in writing this book.

Please send all comments and suggestions to Moscow, B-66, Novo-Ryazanskaya, 26, DOSAAF Publishing House.

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MAKSIMENKO, V. A., et al., DOSAAF Publishing House, 288 pp

Introduction: Every year our country sees the construction of more and more gigantic hydraulic works, digging of thousands of kilometers of canals, laying of oil and gas pipes, and launching of river and ocean-going vessels. And everywhere, in all branches of the economy, thousands of highly skilled masters of diving are in demand.

Present-day diving is one of man's production activities which embraces all matters concerned with people descending in water in special equipment to perform underwater tasks or other assignments.

The development of underwater sports has led to the appearance of thousands of persons with diving skills. Underwater sports have great economic and military-applied significance.

Diving is hard work, but noble and honorable. Besides possessing good health, a knowledge of complex equipment, and familiarity with the principles of the physiology of underwater submersion, a diver must have a strong will, stamina, and a good eye. And this is not all. He must also be knowledgeable in locksmithing, carpentry, rigging, electric welding and so forth.

Rating of divers. Divers are divided into three classes according to their rating: first, second, and third.

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MAKSIMENKO, V. A., et al., DOSAAF Publishing House, 288 pp

The highest rating is that of "diving specialist". Depending on the job, diving specialists are subdivided into senior diving and chief diving specialists.

Diving work is divided into group I, II,and III according to the degree of difficulty involved.

Diving ratings are assigned by diving qualification commissions after suitable training, further training, and passing of examinations.

To keep his rating, a diver must work under water a certain number of hours a year. For example, a 3rd class diver of group I must complete at least 180 hours and those of groups II and III 90 and 60 hours, respectively.

The working conditions of divers differ substantially from those of persons on land. For this reason they have a shorter workday and receive additional pay for dives, lump-sum bonuses, and extra annual leave.

If a diver follows the established rules, he will be completely safe when under water.

This book, which was written in accordance with the program for training 3d class divers and with the "Standard Regulations for Work Safety in Diving," takes up all the fundamental questions concerned with underwater work as determined by the program

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MAKSIMENKO, V. A., et al., DOSAAF Publishing House, 288 pp

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MAKSIMENKO, V. A., et al., DOSAAF Publishing House, 288 pp

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MAKSIMENO, V. A., et al., DOSAAF Publishing House, 288 pp

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MAKSIMENKO, V. A., et al., DOSAAF Publishing House, 288 pp

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USSR Exobiology

UDC 577.4

IMSHENETSKIY, A. A., MURZAKOV, B. G., and SUROVOV, V. K., Institute of Microbiology, Academy of Sciences USSR

"Use of the Effect of "Soil Respiration" in the Search for Extraterrestrial Life"

Moscow, Mikrobiologiya, No 6, 1972, pp 1086-1090

Abstract: Experiments were performed with desert soil to determine whether the radioisotopic method (C^{14}-labeled glucose) to detect "soil respiration" is useful in the search for life on Mars. The microorganism Pseudomonas fluorescens or Bacillus subtilis was added to soil moistened with the labeled glucose. "Soil respiration" was not detected when the moisture content was below 4%. The optimum amount for decomposition of the glucose varied from 20 to 30% of the absolute weight of the soil. Dry or excessively wet soil did not release enough $C^{14}O_2$ to be recorded. Since the Martian atmosphere contains only trace amounts of water, the "soil respiration" method could not be successfully used to detect the presence of life on the planet. A more promising approach would be to inoculate Martian soil obtained in a future spaceflight onto a medium containing a radioactive substrate.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

USSR

UDC 669.18-412:621.746.753

DAVYDOVA, L. N., PIRUSSKIY, M. V., and SUROVOVA, V. N.

"Increasing the Reistance of 17GIS Steel to Brittle Fracture After Ladle Refining With Liquid Synthetic Slags"

Moscow, Stal', No 9, Sep 72, pp 795-798

Abstract: A comparative study was made of the cold brittleness of four 17GIS steel smeltings (a standard sheet 12.5 mm thick) obtained by: the conventional open-hearth method (1), with synthetic slag refining (II), with refining and strengthening by vanadium additions (III), and with refining and strengthening by vanadium and nitrogen additions (IV). Treatment of 17GIS steel with synthetic slag leads to a substantial temperature reduction in the transition to the brittle state (20 to 30°) and ensures better deformability under restricted conditions. With the application of dynamic and static loads, the onset of cracks and the development of strains in viscous and mixed fracture in 17GIS steel refined with synthetic slag is substantially higher than in conventional open-hearth steel. Nitride strengthening also increases resistance to brittle fracture. Synthetic-slag-refined 17GIS steel with nitrogen additions satisfies the requirements for metal used for the construction of large-diameter (220-1420 mm) pipelines in northern regions.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

USSR

UDC 621.643.001.5

BORISOV, P. P., SUROVOVA, V. N., IVANOV, A. G., DAVYDOVA, L. N., and RUSSIYAN, A. V., VNIImontazhspetsstroy [All-Union Scientific Research Institute for Installation and Specialized Construction Operations]; ANUCHKIN, M. P., VNIIST [All-Union Scientific Research Institute for the Construction of Trunk Pipelines]

"Increasing the Breaking Strength of 17G1S Steel by Treating It With Synthetic Slags"

Moscow, Stroitel'stvo Truboprovodov, No 7, Jul 71, pp 26-28

Abstract: The article describes results of a study at VNIImontazhspetsstroy on the ability of specimens of 17G1S steel, refined in a ladle with synthetic slag, to resist the propagation of static and dynamic bending cracks in the stressed state. For comparison, a study was also made of specimens of the steel which had not been refined with synthetic slag. It was found that treatment of 17G1S steel with synthetic slag in a ladle increases the crack initiation and propagation energy under all testing conditions and hence the

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USSR

BORISOV, P. P., et al., Stroitel'stvo Truboprovodov, No 7, Jul 71, pp 26-28

total energy to fracture. The treated steel is characterized by high resistance to crack propagation in the stressed state at low temperatures. The operating reliability of gas pipelines can be increased by using treated 17G1S steel.

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USSR

UDC 66.046.51+541.121:536.7+532.72+532.529.6

KUNIN, L. L., GOLOVIN, A. M., SUROVOY, YU. N., and KHOKHRIN, V. M.

Problemy degazatsii metallov. Fenomenologicheskaya teoriya (Problems of Metals Degassing. Phenomenological Theory), Moscow, "Nauka" Press, 1972, 327 pp., illustrations, graphs, tables, bibliographic references, 1600 copies printed.

Translation of Annotation: The book discusses the thermodynamic theory of solutions of gas impurities in metals, the phenomenological theory of their diffusion in solids and melts, principles of measuring thermodynamic and kinetic parameters in gas-metal systems, and mathematical description of degassing solids and melts. The monograph also covers problems comprising the theoretical basis for studying and determining gas contents in metals. The book is intended for scientists, engineers, and graduate students and students of senior courses specializing in physical chemistry, as well as for specialists of other areas of science and technology in which the problems of mass transfer of gas contaminants are of fundamental importance.

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KUNIN, L. L. et al., Problemy degazatsii metallov. Fenomenologicheskaya teoriya, Moscow, "Nauka" Press, 1972.

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USSR UDC 621.311.25:621.039.003

MIKHAL'TSEV, V. YE., SUROVTSEV, I. G., YAKOVLEV, V. YA.

"The Economy of a Power Plant with a Chemically Reacting Working Medium under Partial Power Operating Conditions"

Dissotsiiruyushch. gazy kak teplonositeli i rab. tela energ. ustanovok -- V sb. (Dissociating Gases as Heat Transfer Agents and the Working Medium of Power Plants -- Collection of Works), Minsk, Nauka i Tekhn. Press, 1970, pp 138-144 (from RZh-Elektrotekhnika i Energetika, No 5, May 1971, Abstract No 5U25)

Translation: A study was made of the quantitative and qualitative methods of regulating a plant operating with respect to a gas-liquid cycle. The operating peculiarities of the regenerator of the plant are indicated for these regulating procedures. The results of the calculational research indicating the great economy of the plant under uncalculated conditions are presented for the quantitative procedure, and the variation of the prameters of the plant for both regulating procedures is given. The economy of the plant with regeneration at high and low pressures is compared for qualitative regulation. There are 4 illustrations and a 3-entry bibliography.

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USSR

UDC: 51

KARPOV, E. A., SUROVTSOV, L. K., NIGGOL', V. K.

"Concerning a Problem in the Dynamics of Forest Resources"

V sb. Primeneniye mat. v ekon. (Use of Mathematics in Economics--collection of works), vyp. 7, Leningrad, Leningrad University, 1972, pp 131-135 (from RZh-Kibernetika, No 6, Jun 72, Abstract No 6V484)

Translation: The paper presents a mathematical formulation of the problem of determining the extent of forest utilization for a planned period assuming a certain condition of dimensionality of utilization. The problem is treated from the standpoint of the mathematical theory of optimum processes. [From the introduction].

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

USSR

UDC 533.6:621.4

DANIL'CHENKO, K. P., SURUS, V. I.

"A Method of Combatting Suction Forces on Turbojet VTOL Aircraft"

Samoletostr. i tekhn. vozd. flota. Resp. mezhved. temat. nauch.-tekhn. sb. (Aircraft Construction and Technical Activities of the Air Force. Republic Interdepartmental Thematic Scientific-Technical Collection), 1972, No. 27, pp 8-12 (from RZh-Mekhanika, No 8, Aug 72, Abstract No 8B540)

Translation: One of the possible methods for combatting suction forces on turbojet vertical takeoff and landing aircraft in take-off and landing and transitional flight regimes is discussed. The method consists of rotating the wing around an axis parallel to the plane of the earth in such a way that small angles are maintained between the cord of the wing and the thrust vector of the engine. A physical picture of the method is described and graphs are given supporting the fact that this method is more universal and effective as compared with familiar methods. It is noted that the method can be simply achieved on VTOL aircraft with engines in the fuselage. Authors abstract.

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USSR

UDC: 519.214

SURVILA, P.

"On the Limiting Distribution of a Functional of a Sequence of Independent Random Quantities"

Lit. mat. sb. (Lithuanian Mathematics Collection), 1971, 11, No 2, pp 351-365 (from RZh-Kibernetika, No 11, Nov 71, Abstract No 11V55)

Translation: Let $\{X_n\}$ be a sequence of independent random quantities with zero mathematical expectations and finite absolute third-order moments. It is assumed that

$$\sigma_n^2 = DX_n,\ B_n^2 = \sum_{j=1}^{n} \sigma_j^2,\ S_n = \sum_{j=1}^{n} X_j,\ \Phi_{sn}(x) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{x} e^{-\frac{t^2}{2}} dt + \frac{(1-x^2)\, e^{-\frac{x^2}{2}}}{6B_n^3 \sqrt{2\pi}} \sum_{j=1}^{n} EX_j^3.$$

Let $g(x)$ be integrable in Riemann's sense on the interval (a,b) and equal to zero outside this interval, and let $S(g) = \int_a^b g(x)\,dx \neq 0$. It is assumed that

$$Y_n = \sum_{j=1}^{n} g(S_j),\ Z_n = \frac{\sigma^2}{S(g)\, B_n} Y_n.$$

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SURVILA, P., Lit. mat. sb., 1971, 11, No 2, pp 351-365

It is assumed that there exists a finite positive limit $\lim_{n\to\infty}\sigma_n^2=\sigma^2$ and besides that the condition

$$P(S_n<xB_n)=\Phi_{1n}(x)+o\left(\frac{1}{B_n}\right)$$

is satisfied.

Proof is presented that under the enumerated conditions

$$\lim_{n\to\infty}P(Z_n<x)=\begin{cases}0, & \text{if } x\leqslant 0,\\ \sqrt{\frac{2}{\pi}}\int_0^x e^{-\frac{t^2}{2}}dt, & \text{if } x>0.\end{cases}$$

V. Petrov.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

1/2 031 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--INDOLE DERIVATIVES. LXI. SYNTHESIS OF 4(5),(3,INDOLYL)IMIDAZOLE -U-

AUTHOR-(04)-SURVOROV, N.N., SMUSHKEVICH, YU.I., MARVANOYSKAYA, N.N., SULIMA, A.V.

COUNTRY OF INFO--USSR

S

SOURCE--KHIM. FARM. ZH. 1970, 4(2), 10-12

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CHEMICAL SYNTHESIS, IMIDAZOLE, INDOLE DERIVATIVE, NUCLEAR MAGNETIC RESONANCE, UV SPECTRUM, IR SPECTRUM, MASS SPECTROSCOPY, MOLECULAR STRUCTURE, MERCAPTAN, BENZENE DERIVATIVE, AROMATIC KETONE, BACTERICIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1993/0530 STEP NO--UR/0450/70/004/002/0010/0012

CIRC ACCESSION NO--AP0113421

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

2/2 031 UNCLASSIFIED

CIRC ACCESSION NO--AP0113421 PROCESSING DATE--09OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A MIXT. OF 8 G I AND 180 ML HCONH SUB2 IS HEATED 1 HR AT 186DEGREES (BATH TEMP.) TO GIVE 50PERCENT II.H SUB2 O, M. 74-6DEGREES (H SUB2 O); ANHYD. II, M. 158-9DEGREES, IS OBATINED BY DRYING OVER P SUB2 O SUB5 SEVERAL DAYS IN VACUO; II PICRATE M. 241-2DEGREES (ETOH); II ADIPATE M. 159-60DEGREES (ETOH). THE II STRUCTURE IS CONFIRMED BY ELEMENTARY ANAL., NMR, IR, AND MASS SPECTRA, AND ALSO BY THE FOLLOWING SYNTHESIS. A SOLN. OF 0.5 G III IN ETOH WITH 1 G SKELETAL NI IS REFLUXED 1 HR WITH STIRRING TO GIVE 81PERCENT II.H SUB2 O. IV.HCL (5 G) AND 22 G KSCN IS HEATED AT 210DEGREES (BATH TEMP.) 1 HR WITH STIRRING TO GIVE 16PERCENT III, M. 241-3DEGREES (AQ. ME SUB2 CO). THE UV SPECTRA OF II AND III ARE MEASURED IN 95PERCENT ETOH. THE BIOL. ACTIVITY OF II IS TESTED. FACILITY: MOSK. KHIM. TEKHNOL. INST. IM. MENDELEEVA, MOSCOW, USSR.

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

USSR UDC 632.95

SURZHIKOVA, L. V., and VASIL'YEV, A. F.

"Quantitative Analysis of Atrazine, Simazine and Propazine in a Commercial Product and Wettable Powders from Infrared Absorption Spectra"

V sb. Khim. sredstva zashchity rast. (Chemical Agents for Plant Protection -- collection of works), vyp 1, Moscow, 1970, pp 210-216 (from RZh-Khimiya, No 11, Jun 72, Abstract No 11N456)

Translation: The specimen is formed into pellets with KBr, and transmission is measured at absorption maxima of selected analytical bands, relative to tablets of pure KBr. A "Difference" method is used to determine optical densities. The theoretical errors of analysis are calculated, and the results are statistically analyzed.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

1/2 011 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--CATALYST FOR METHANOL SYNTHESIS -U-

AUTHOR-(04)-SUSHCHAYA, L.E., BONDAR, P.G., GERNET, D.V., LELEKA, V.E.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 264,355
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBREZTSY, TOVARNYE ZNAKI, 1970 47
DATE PUBLISHED--03MAR70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--METHANOL, CATALYTIC ORGANIC SYNTHESIS, CHEMICAL PATENT, ZINC OXIDE, CHROMIUM OXIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/0846 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0136280
UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

2/2 011 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AA0136280

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE CATALYST, CONSISTING OF ZNO AND CRO, CONTAINS NH SUB4 TUNGSTATE, NH SUB4 MOLYBDATE, AND URANYL NITRATE THAN CAN BE BROKEN DOWN EASILY TO THE CORRESPONDING OXIDES, AND WHICH WEIGH 0.001-2.0 WT. PERCENT (PREFERABLY 0.001-0.1 WT. PERCENT) OF THE CORRESPONDING OXIDE.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

USSR

UDC: 621.397.7

SUSHCHENKO, V. P., SEN'IVSKIY, I. I., MITINEV, V. A.

"A Device for Facsimile Recording on Electrochemical Paper"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 31, Nov 71, Author's Certificate No 318175, Division H, filed 30Dec69, published 19Oct71, p 214

Translation: This Author's Certificate introduces a device for facsimile recording on electrochemical paper. The device contains a scanning drum, a writing element pressed against paper, a spool for the paper roll, take-up rollers, and a heater. As a distinguishing feature of the patent, blurring of the image is reduced by locating the heater in an enclosed chamber with a horseshoe cross section which directs the heat rays through a slot in the chamber wall onto the paper in the region of contact with the writing element.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

Acc. Nr: A70048078 Abstracting Service: INTERNAT. AEROSPACE ABST 5-70 Ref. Code: UR0057

A70-25122 Criteria for modeling the force exerted by a supersonic jet on an obstacle (O kriteriiakh modelirovaniia silovogo vozdeistviia sverkhzvukovoi strui na pregradu). M. V. Sushchikh, V. I. Pogorelov, and D. E. Tikhonov-Bugrov (Mekhanicheskii Institut, Leningrad, USSR). *Zhurnal Tekhnicheskoi Fiziki*, vol. 40, Feb. 1970, p. 395-397. In Russian.

Analysis of the parameters which define the force exerted by a jet on a target. These dimensionless parameters are determined with the aid of Sedov's (1954) dimensional analysis. It is shown that for a practical range of variation of the dimensionless parameters, the ratio of the axial force acting on the target to the nozzle thrust remains constant, and that it is independent of the number of nozzles. This result is verified experimentally, using air and argon jets. V.P.

REEL/FRAME 19791767

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

USSR

UDC 51

BURIKOV, A. D., VOSKOV, L. S., and SUSHCHINSKIY, I. M.

"Method of Solving Special-Type Discrete Programming Problem"

Tr. Mosk. in-ta elektron. mashinostr. (Works of Moscow Institute of Electronic Machine-Building), 1971, vyp. 16, Part 2, pp 111-117 (from RZh-Matematika, No 5, May 72, Abstract No 5V422 by YU.FINKEL'SHTEYN)

Translation: The conveyer-line synchronization problem is formulated as a special-type, integral linear-programming problem. To solve it, the authors suggest an approximation directed-sorting algorithm (in the majority of experiments conducted by the authors the algorithm yielded an exact solution).

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

USSR

UDC: 51

BURIKOV, A. D., VOSKOV, L. S., SUSHCHINSKIY, I. M.

"A Method of Solving a Discrete Programming Problem of Special Form"

Tr. Mosk. in-ta elektron. mashinostr. (Works of the Moscow Institute of Electronic Machine Building), 1971, vyp. 16, ch. 2, pp 111-117 (from RZh--Kibernetika, No 5, May 72, Abstract No 5V422)

Translation: The problem of synchronizing a conveyer line is formulated as a special kind of integral linear programming problem. An approximate algorithm of directed sorting is proposed for solving it (in most of the experiments done by the authors the algorithm gave an exact solution). Yu. Finkel'shteyn.

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

USSR

UDC 621.375.82

SOKOLOVSKAYA, A. I., KUDRYAVTSEVA, A. D., SUSHCHINSKIY, M. M.

"Self-Focusing, Induced Raman Emission in Substances With Small Kerr Constants"

V sb. Nelineyn. protsessy v optike (Nonlinear Processes in Optics--collection of works), Vyp. 2, Novosibirsk, 1972, pp 262-266 (from RZh-Fizika, No 12, Dec 72, Abstract No 12D890)

Translation: A study is made of the self-focusing of laser radiation in a ruby in a modulated Q-factor mode and the induced Raman emission caused by it in liquid nitrogen and calcite as functions of the thickness of the scattering layer and the pumping energy of the laser. The experimental conditions are similar to those described previously (RZh-Fizika, 1972, 6D1130). In nitrogen induced Raman emission occurred in the inhomogeneities of the laser radiation, inside which self-focusing of the first Stokes component of induced Raman emission was also observed. The number of points of occurrence of induced Raman emission and self-focusing depended on the thickness of the nitrogen layer and the energy of the laser radiation. The first self-focusing ray was observed in nitrogen at a laser radiation energy of 0.013 joules. With an increase in the energy of the laser radiation the number of self-focusing rays increased to 30-40. A further increase in the laser radiation energy led to blurring of the pattern at the output end of

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

USSR

SOKOLOVSKAYA, A. I., et al., Nelineyn. protsessy v optike (Nonlinear Processes in Optics--collection of works), Vyp. 2, Novosibirsk, 1972, pp 262-266

the cuvette without significant increase in the number of self-focusing rays. In the cases of appearance of self-focusing near both ends of the cuvette, anti-Stokes radiation was observed along the axis. The self-focusing of the laser radiation with energies of 0.2-3 joules was observed in a maximum layer 100 mm thick. Only self-focusing of the induced Raman emission was observed, and self-focusing of the laser radiation was not detected. In as much as the calculated values of the self-focusing thresholds as a result of the Kerr nonlinearity appreciably exceeded the experimental values, the conclusion was drawn that self focusing was observed by an increase in polarizability of the molecules on excitation of them. The bibliography has 10 entires.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

1/2 024 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--RAMAN EFFECT CROSS SECTIONS FOR SOME SINGLE CRYSTALS -U-

AUTHOR-(02)-GORELIK, V.S., SUSCHINSKIY, M.M.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(5), 1475-8

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--RAMAN EFFECT, RAMAN SPECTRUM, SINGLE CRYSTAL, SODIUM NITRATE, QUARTZ, DIAMOND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/0171 STEP NO--UR/0181/70/012/005/1475/1478

CIRC ACCESSION NO--AP0129427

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

2/2 024 UNCLASSIFIED

CIRC ACCESSION NO--AP0129427 PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CROSS SECTIONS OF RAMAN SCATTERING WERE MEASURED IN ORIENTED SINGLE CRYST. CALCITE, NANO SUB3, QUARTZ, AND DIAMOND IN THE EXCITATION OF THE RAMAN SPECTRA BY THE 5145-ANGSTROM LINE OF A POWERFUL AR LASER. THE CROSS SECTIONS FOR CALCITE AND NITRATE ARE CLOSE TO THE VALUES OBTAINED PREVIOUSLY FOR CRYST. POWDERS. THE RAMAN CROSS SECTION FOR THE DELTA SU8NU EQUALS 1332 CM PRIME NEGATIVE1 LINE OF DIAMOND AGREES WITH THE RESULTS OF THE THEORY OF LOUDON.

FACILITY: FIZ. INST. IM. LEBEDEVA, MOSCOW, USSR.

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

USSR

UDC 621.791.793

SUSHCHUK-SLYUSARENKO, I. I., Candidate of Technical Sciences, SHABALIN, N. N., and ANDRIANOV, G. G., Engineers, and LYCHKO, I. I., Candidate of Technical Sciences, Institute of Electric Welding imeni Ye. O. Paton, Academy of Sciences Ukrainian SSR

"Some Procedures for Increasing Electroslag Welding Productivity"

Kiev, Avtomaticheskaya Svarka, No 2, Feb 74, pp 46-48

Abstract: To decrease thermal input (lowering superheating of drops and the molten metal bath) for electroslag welding a new method was proposed which involves, with continuous electrode feed, switching off the power to the consumable electrode periodically and using the accumulated heat in the bath to melt the additional material supplied during this period without any current. This new method yields the possibility of joining two plates without the danger of burn-through, and thinner plates can be used (40-50 mm minimum) as compared to conventional electroslag welding (100-150 mm). Also, the welding rate can be increased by 50% using the new method. Other merits of this new method are increased productivity, improved weld joint quality, and reduced overheating of the heat-affected zone. Three figures, five bibliographic references.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

USSR

UDC 621.791.756:621.747.58

YAKOVLEV, V. F., KOVALKIN, P. I., YEVDOKIMOV, N. I., KOZULIN, M. G., and SUSHCHUK-SLYUSARENKO, I. I.

"Electroslag Welding of Steel Casting Defects"

Kiev, Avtomaticheskaya Svarka, No 2, Feb 70, p 72

Abstract: A description is given of a technique of electroslag welding and building-up of steel casting defects. Using a water-cooled copper nonconsumable electrode, a slag bath is drawn which is then heated for a period of 15-60 min. During this time, the edges to be welded are heated to 800-1200°C, and under the effect of the heated slag the surface of the aperture is chemically cleaned. For welding the defect, the nonconsumable electrode is replaced by a spatial one which is consumable along the shape of the profile of the welded aperture. The direction of the fed welding wires plays an important role in the initial stage of fusion of the deposited metal.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

1/2 016 UNCLASSIFIED

TITLE--SOLID ROTOR -U- PROCESSING DATE--23OCT70

AUTHOR-(05)-SCHASTLIVYY, G.G., SHEVCHENKO, V.I., LYCHKO, I.I., SUSHCHUKS, YUSARENKO, I.I., OBUKHOV, V.A.
COUNTRY OF INFO--USSR

SOURCE--USSR 248053
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI NO 23
DATE PUBLISHED--05JAN70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--PATENT, ELECTRIC MOTOR, ALTERNATING CURRENT, THERMAL STABILITY, EDDY CURRENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1998/1593 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0121970

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

2/2 016 UNCLASSIFIED

CIRC ACCESSION NO--AA0121970 PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MICROFICHE OF ABSTRACT CONTAINS GRAPHIC INFORMATION. SOLID ROTOR USED FOR AN A. C. ELECTRIC MOTOR ACHIEVES A HIGHER THERMAL STABILITY OF DAMPING SYSTEM DURING STARTING AND IN ASYMMETRICAL OPERATION. THE ROTOR DAMPING SYSTEM INCLUDES TEETH (1) AND METAL WEDGES (2) IN SLOTS (3). THE SHORTING RINGS (4,5) ARE MADE BY FORMING A LAYER OF ELECTRICALLY MOLTEN COPPER ON THE END OF THE ROTOR AND IN A RECESS OF THE SHAFT; THE ROTOR SLOTS ARE MILLED AFTERWARDS. WEDGES (2) ARE IN CONTACT WITH THE SHORTING RING ALONG ITS THICKNESS (A). IN ASYMMETRICAL OPERATION EDDY CURRENTS ARE INDUCED IN THE TEETH AND WEDGES WHICH ARE SHORTED BY THE RINGS (4,5).

FACILITY: INSTITUT ELEKTRODINAMIKI AN UKRAINSKOY SSR, INSTITUT ELEKTROSVARKI IM. YE. O. PATONA I LYS'VENSKIY TURBOGENERATORNYY ZAVOD.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

USSR

UDC 621.791.793

VOLOSHKEVICH, G. Z., SUSHCHUK-SLYUSARENKO, I. I., LYCHKO, I. I., KHRUNDZHE, N. M., Institute of Electric Welding im. Ye. O. Paton AN UkrSSR

"Some Means for Improvement of Electroslag Welding"

Kiev, Avtomaticheskaya Svarka, No 12, 1972, pp 5-9

Abstract: Characteristics of the electroslag welding method are discussed. The prospects for future development of the electroslag welding method are noted. The method is particularly promising for welding of extremely thick metal structures, although the welding rate is generally rather low for thick structures (less than 1 m/hr). Areas for further research are suggested, including: investigation of the properties of the seam zone in steels welded by the method; creation of new types of steels not requiring high-temperature heat treatment after electroslag welding; search for technological means of improving the structure of the seam zone after welding and tempering; development of means for improvement of the mechanical properties of seam metal after welding and tempering by changing the chemical composition; creation of effective methods of local and surface high-temperature heat treatment; development of measures for conservation of the shape of products with general high-temperature heat treatment; improvement of impact testing methods; and

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

USSR

VOLOSHKEVICH, G. Z., et al., Avtomaticheskaya Svarka, No 12, 1972, pp 5-9

determination of the necessary areas for the application of high-temperature heat treatment by classification of products as to composition, usage temperature, nature of loading, presence of stress concentrators, etc.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

USSR

UDC 621.355.8.035.4

VOLDIN, R. V., SUSHENTSOVA, S. N., and MILYUTIN, N. N.

"Wettability of the Housing and Flow of Electrolyte in Hermatically Sealed Nickel-Cadmium Batteries"

Sb. rabot no khim. istochnikam toka Vses n.-n akkumulyator. in-t (Collection of Works on the Chemical Source of Current. All-Union Scientific Study Institute for Storage Batteries) Vyp 7, 1972, pp 161-163 (from Referativnyy Zhurnal -- Khimiya, No 8(II), 1973, Abstract No 8L235 by V. S. Levinson)

Translation: Results are given for study of the wettability of steel 08KP, used to make the housings of alkali batteries, by a solution of alkali at different surface potentials of the metal. The greatest wettability, determined from the increased tendency of the electrolyte to flow over the battery housing, was observed for electrical junctions of the body with the negative terminal of the electrode and the least for the isolation of the case from the working electrode.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

JPRS 59208

6-75

3

SUSHKEVICH, K.D.

XI-7. SOLUBILITY OF CADMIUM TELLURIDE IN SOME METALS

[Article by I. K. Andronik, K. D. Sushkevich, Z. P. Kulova, Kishinev; Novosibirsk, III Simpozium po Protsessam Rosta i Sinteza Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June 1972, p 153]

In order to obtain perfect crystals of the semiconductor compounds, recently the method of growth from a solution-melt has become widespread.

For proper selection of the growth conditions it is necessary to know the temperature dependence of the solubility of the semiconductor material in one solvent or another. For this prupose, the solubility of cadmium telluride in Ga and In was investigated.

A study was made in a quartz vessel of special design in an atmosphere of argon free of oxygen with a residual pressure of 50-100 mm Hg. The solution process was realized until saturation of the solvent with cadmium telluride was achieved at the corresponding temperature under the conditions of good mixing.

The solubility data are presented in the table.

t°C	300	400	450	500	550	600	650	700	750	800
CdTe (by weight) / Solvent: Ga	0,014	0,077	-	0,49	0,97	2,19	3,43	7,66	11,8	27,3
CdTe (by weight) / Solvent: In	0,45	1,72	4,21	5,84	11,1	17,1	28,1			

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

JPRS 59208
6-73

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XI-14. CHARACTERISTIC FEATURES OF OBTAINING CADMIUM TELLURIDE CRYSTALS FROM A SOLUTION-MELT

[Article by I. K. Andronik, K. D. Sushkevich, Kishinev; Novosibirsk, III Simpozium po Protsessam Rosta i Sinteza Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June 1972, p 160]

In order to obtain cadmium telluride crystals, the method of zone recrystallization from the solution-melt in the zone enriched with tellurium was used.

The advantages of this method consists in the fact that it is possible to obtain homogeneous single crystals of practically unlimited dimensions with low concentration of the characteristic defects and low concentration of the admixture carriers [for displacement of the liquid zone, purification of the bar takes place simultaneously]. Inasmuch as recrystallization is carried out at a temperature appreciably below the melting point of the pure compound, the probability of diffusion of the admixtures from the crucible material increases.

The temperature of the zone was determined by the tellurium concentration in the zone, and it was found within the limits of 700-800°C. The liquid solution zone moved along the previously prepared polycrystalline bar of cadmium telluride at the rate of 0.5-1.2 mm/hour.

The density of the etching holes in the crystals obtained is on the order of 10^7 holes/cm^2. At room temperature the characteristic conductivity is observed, the specific resistance $\sim 10^8$ ohm-cm, and the electron mobility is near 1700 cm^2/v-sec.

SUSHKEVICH, K. D.

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

Radiobiology

USSR UDC 616.136.4+616.149.21]-001.29-092.9-085.276-059:615.355:577.156.014

UKLONSKAYA, L. I., KUDRYAVTSEV, V. D., SUSHKEVICH, L. N., and CHERKASOV, V. F., Department of Radiation Pathophysiology (Chief, Prof. V. P. Baluda), Scientific Research Institute of Medical Radiology, Academy of Medical Sciences USSR, Obninsk

"The Effect of Antiphlogistic and Antiproteolytic Preparations on Vascular Disturbances of the Intestines of Animals Irradiated by Superlethal Doses"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, Vol 76, No 8, Aug 73, pp 37-39

Abstract: In experiments conducted on rats irradiated with superlethal doses of Co^{60} gamma-rays (900 and 1000 r), antiphlogistic (butadion -- 5 mg/kg, paracetamol -- 15 mg/kg, and rheopyrene -- 3 mg/kg) and antiproteolytic (trasylol -- 7.5 CIU/kg in combination with E-aminocapronic acid -- 200 mg/kg) preparations were injected intraperitoneally. The functional condition of the vascular wall of the small and large intestines of rats was assessed 72 hours after irradiation by the appearance of Evans blue in the intestinal tissues.

Butadion, which considerably diminished the amount of stain in the tissue, proved to be the most effective. It also increased the survival period

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

USSR

UKLONSKAYA, L. I., et al., Byulleten' Eksperimental'noy Biologii i Meditsiny, Vol 76, No 8, Aug 73, pp 37-39

of the irradiated animals; this permitted the supposition to be made that vascular disturbances played a definite role in the pathogenesis of the intestinal form of radiation sickness. 2 figures. 13 references.

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USSR

UDC 539.2

SUSHKEVICH, T. N., Chernovitskiy State University

"Rules for Selecting Dipole and Quadrupole Transitions for Crystals of Monoclinic Syngony"

Tomsk, Izvestiya Vysshikh Uchebnykh Zavedeniy, Fizika, No 7, 1971, pp 155-159

Abstract: The set of symmetry properties associated with a given point in the Brillouin zone determines the selection rules for absorption of polarized electromagnetic radiation by the material. The probability of transition per unit of time is proportional to the square of the matrix element of the energy of interaction corresponding to the initial and final states of the electron. Here the author studies the transitions for which $k_i+q = k_j$, where k_i and k_j are the initial and final wave vectors of the electron. He confines himself to the case of long waves. He expresses his findings in the form of tables and schematics; the tables show the selection rules for dipole and quadrupole transitions respectively. Figure 1 is a diagram of the Brillouin zone for a simple lattice of monoclinic syngony, and Figure 2 shows the Brillouin zone of a lattice with two opposite and centered side faces of monoclinic syngony. The article contains 2 figures, 2 tables, and 3 bibliographic entries.

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Lunar geology

(13)

NASA TT F-680

PROBLEMS OF LUNAR GEOLOGY

Edited by A. V. Peyve

Translation of "Problemy Geologii Luny."
"Nauka" Press, Moscow, 1969

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION January 1973

For sale by the National Technical Information Service, Springfield, Virginia 22151
$6.00

SUSHKIN, N.B.

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ANCIENT SEAS OF THE MOON

A. L. Sukhanov

ABSTRACT. Research on lunar maria performed by American and Russian scientists is discussed. The discussion begins with the analysis of J. E. Spurr in 1944.

FEATURES OF LAVA-SHEET FORMATION ON THE MOON

A. M. Gutkin, Ts. M. Reyburd, M. V. Slonimskaya, N. G. Sushkin, and L. A. Fomina

ABSTRACT. Observations of volcanic activity on the moon are discussed. The heat losses experienced by the lava due to radiation, convection and other processes are analyzed. Other problems analyzed include hardening of the lava, bubble rising in the melt, and other physical phenomena.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

USSR

UDC: 621.372.413.001.24

ISHCHENKO, Ye. F. and SUSHKIN, V. N.

"Using Similarity Laws for Computing Resonators With Coupling Apertures"

Moscow, Radiotekhnika i elektronika, No 8, 1972, pp 1566-1572

Abstract: A simple method is proposed for determining the parameters of resonators widely used in practice, with losses of 5% and more. It is first shown that, with large coupling apertures, resonators having circular spherical mirrors are equivalent, all other things being equal, to those with ribbon cylindrical mirrors. The equation for resonators of the first type is derived and compared with the equation for the second, and it is shown that the difference between the two is less than 4% if the Fresnel number of the aperture is at least 0.5. Because this error is so slight, the design of resonators with coupling apertures is substantially simplified, as is shown through the use of a resonator with plane circular mirrors as an example. The method proposed was checked for accuracy and utilization limitations by comparing its results with the results obtained by the method of successive approximations as computed on an electronic digital computer. The authors wish to thank V.A.Fabrikant for his interest and helpful comments.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220004-6

USSR

UDC 621.375.82

SUSHKIN, V. N.

"Calculation of Characteristics of Laser Cavities With Coupling Apertures"

Tr. Mosk. energ. in-ta (Works of Moscow Power Engineering Institute), 1972, vyp. 108, pp 114-116 (from RZh-Fizika, No 8, Aug 72, Abstract No 8B1038 by V. B. Khalfin)

Translation: A method is suggested for calculating the characteristics of optical cavities with coupling apertures according to the Fox-Li iteration method. Its novelty consists in the use of a formula for numerical calculation of the integrals encountered in the problem, of the form $\int_a^b \cos(px) f(x) dx$; this formula yields an error of the same order as Simpson's formula in the calculation of the integral $\int_a^b f(x) \cdot dx$. Since in this problem cos (px) is a rapidly varying function, use of the above formula makes possible a significant reduction of machine time, as was verified experimentally.

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