

2/2 012

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0140312

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DEPENDENCE OF THE TEMP. VARIATION FOR THE UPPER LIMIT FOR COMPLEXES OF ALKANES WITH UREA IN THE FUNCTION OF THE CONC. VARIATION OF THE BINARY MIXT. WAS NONLINEAR. A NOMOGRAM WAS DRAWN UP FOR THE GRAPHICAL DETN. OF THE CONST. TEMP. GRADIENT FOR ANY BINARY MIXT. OF NORMAL ALKANES WHEN THE MAIN COMPONENT (C SUBN) HAD N GREATER THAN OR EQUAL TO 10.

UNCLASSIFIED

MATISHEVA, S. K.

SOME CHARACTERISTICS OF CHANGE IN RESPIRATION OF BOTTLE-NODDED PORPOISES ACCOMPANYING OXYGEN STARVAGE IN THE BEHEATED AIR

Article by V. S. Matishova, V. M. Shchegolev and S. K. Matishova Kiev: Kiev. Zhurnal, Krasnodar, No 5, 1971, (28-30) Naukova Dumka, pp 28-31

743 5772
15 May 72

Study of the mechanisms of ventilation of the alveolar compartment of dolphins, ensuring adaptation of the respiratory system to conditions of high motor activity in the water medium, has long attracted the attention of researchers (A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z, AA, AB, AC, AD, AE, AF, AG, AH, AI, AJ, AK, AL, AM, AN, AO, AP, AQ, AR, AS, AT, AU, AV, AW, AX, AY, AZ, BA, BB, BC, BD, BE, BF, BG, BH, BI, BJ, BK, BL, BM, BN, BO, BP, BQ, BR, BS, BT, BU, BV, BW, BX, BY, BZ, CA, CB, CC, CD, CE, CF, CG, CH, CI, CJ, CK, CL, CM, CN, CO, CP, CQ, CR, CS, CT, CU, CV, CW, CX, CY, CZ, DA, DB, DC, DD, DE, DF, DG, DH, DI, DJ, DK, DL, DM, DN, DO, DP, DQ, DR, DS, DT, DU, DV, DW, DX, DY, DZ, EA, EB, EC, ED, EE, EF, EG, EH, EI, EJ, EK, EL, EM, EN, EO, EP, EQ, ER, ES, ET, EU, EV, EW, EX, EY, EZ, FA, FB, FC, FD, FE, FF, FG, FH, FI, FJ, FK, FL, FM, FN, FO, FP, FQ, FR, FS, FT, FU, FV, FW, FX, FY, FZ, GA, GB, GC, GD, GE, GF, GG, GH, GI, GJ, GK, GL, GM, GN, GO, GP, GQ, GR, GS, GT, GU, GV, GW, GX, GY, GZ, HA, HB, HC, HD, HE, HF, HG, HH, HI, HJ, HK, HL, HM, HN, HO, HP, HQ, HR, HS, HT, HU, HV, HW, HX, HY, HZ, IA, IB, IC, ID, IE, IF, IG, IH, II, IJ, IK, IL, IM, IN, IO, IP, IQ, IR, IS, IT, IU, IV, IW, IX, IY, IZ, JA, JB, JC, JD, JE, JF, JG, JH, JI, JJ, JK, JL, JM, JN, JO, JP, JQ, JR, JS, JT, JU, JV, JW, JX, JY, JZ, KA, KB, KC, KD, KE, KF, KG, KH, KI, KJ, KK, KL, KM, KN, KO, KP, KQ, KR, KS, KT, KU, KV, KW, KX, KY, KZ, LA, LB, LC, LD, LE, LF, LG, LH, LI, LJ, LK, LL, LM, LN, LO, LP, LQ, LR, LS, LT, LU, LV, LW, LX, LY, LZ, MA, MB, MC, MD, ME, MF, MG, MH, MI, MJ, MK, ML, MM, MN, MO, MP, MQ, MR, MS, MT, MU, MV, MW, MX, MY, MZ, NA, NB, NC, ND, NE, NF, NG, NH, NI, NJ, NK, NL, NM, NN, NO, NP, NQ, NR, NS, NT, NU, NV, NW, NX, NY, NZ, OA, OB, OC, OD, OE, OF, OG, OH, OI, OJ, OK, OL, OM, ON, OO, OP, OQ, OR, OS, OT, OU, OV, OW, OX, OY, OZ, PA, PB, PC, PD, PE, PF, PG, PH, PI, PJ, PK, PL, PM, PN, PO, PP, PQ, PR, PS, PT, PU, PV, PW, PX, PY, PZ, QA, QB, QC, QD, QE, QF, QG, QH, QI, QJ, QK, QL, QM, QN, QO, QP, QQ, QR, QS, QT, QU, QV, QW, QX, QY, QZ, RA, RB, RC, RD, RE, RF, RG, RH, RI, RJ, RK, RL, RM, RN, RO, RP, RQ, RR, RS, RT, RU, RV, RW, RX, RY, RZ, SA, SB, SC, SD, SE, SF, SG, SH, SI, SJ, SK, SL, SM, SN, SO, SP, SQ, SR, SS, ST, SU, SV, SW, SX, SY, SZ, TA, TB, TC, TD, TE, TF, TG, TH, TI, TJ, TK, TL, TM, TN, TO, TP, TQ, TR, TS, TT, TU, TV, TW, TX, TY, TZ, UA, UB, UC, UD, UE, UF, UG, UH, UI, UJ, UK, UL, UM, UN, UO, UP, UQ, UR, US, UT, UY, UZ, VA, VB, VC, VD, VE, VF, VG, VH, VI, VJ, VK, VL, VM, VN, VO, VP, VQ, VR, VS, VT, VU, VV, VW, VX, VY, VZ, WA, WB, WC, WD, WE, WF, WG, WH, WI, WJ, WK, WL, WM, WN, WO, WP, WQ, WR, WS, WT, WU, WV, WW, WX, WY, WZ, XA, XB, XC, XD, XE, XF, XG, XH, XI, XJ, XK, XL, XM, XN, XO, XP, XQ, XR, XS, XT, XU, XV, XW, XX, XY, XZ, YA, YB, YC, YD, YE, YF, YG, YH, YI, YJ, YK, YL, YM, YN, YO, YP, YQ, YR, YS, YT, YU, YV, YW, YX, YY, YZ, ZA, ZB, ZC, ZD, ZE, ZF, ZG, ZH, ZI, ZJ, ZK, ZL, ZM, ZN, ZO, ZP, ZQ, ZR, ZS, ZT, ZU, ZV, ZW, ZX, ZY, ZZ).

This investigation, made under the direction of Doctor of Medical Sciences A. Z. Solchinskaya, had as its objective a clarification of some aspects of this problem. In particular, a study was made of the changes in gas exchange, alveolar ventilation, and some indices of hemodynamics in bottle-nodded porpoises (during breathing) during the breathing of hypoxic mixture containing 11.7% O₂ in nitrogen. The investigations were made using seven healthy bottle-nodded porpoises weighing from 135 to 270 kg adapted to people and the experimental conditions. During the investigation the animals were in a motionless state on a soft surface in sea water (at a temperature of 22-23°C); this ensured a minimum of energy expenditure in relation to the indicated position. Oxygen consumption was determined by the open method devised by DeGassis and Holden. The samples of alveolar air were selected using an automatic device. Alveolar ventilation was computed by the Bohr method. The minute volume of circulation (MVC) was determined by the acetylene method as devised by Grahman-Tarlin-Moranov under normal conditions during the fifth minute of breathing of a hypoxic mixture. After conducting the necessary measurements when breathing atmospheric air (P_{O₂} = 159 mm Hg) the animals were

MATISHEVA, S. K.

RESPIRATION OF BOTTLE-NOSSED PORPOISES

JPRS 55942
15 May 72

[Article by A. Z. Kojalinskaya, O. G. Karandayeva, V. S. Malchenko, R. M. Shchegoleva, and I. A. Serebrennikova, *Izv. Akad. Nauk SSSR, Ser. Biol.*, No 5, 1971, 1st-2nd Moscow Druck, pp 19-28]

The specialization of the respiratory system in cetaceans in a water medium resulted in profound anatomic and functional changes in this system. Despite the fact that the similarity of respiration of marine mammals is of the greatest interest to biologists, zoologists, physiologists and specialists in anatomy, until recently information on the physiology of respiration of these animals was limited due to the lack of appropriate conditions, such as oceanariums, large marine aquariums and apparatus for specialized investigation, and also due to certain systematic difficulties which faced biologists in investigating the respiration of marine mammals. Even at the present time not only respiration in the broad sense of this word, but even the pulmonary respiration of cetaceans, which is easier to study, have not been investigated adequately. Although a number of review articles and sections in monographs have been devoted to this subject (1, 2, 9, 11, 16-20, 27-30, 32, 33, 35-37, 40-45), they give far more information on the ecology of these animals, the anatomy and histology of their organs of respiration than on physiology. Data on pulmonary and respiratory volumes, pulmonary ventilation, and on oxygen consumption have been obtained for a small number of small cetaceans (14, 15, 21-26, 31, 34, 38, 39). But even in these animals such important indices as total lung capacity and its components, composition of alveolar air, physiologic dead respiratory space, and alveolar ventilation have not been determined experimentally. Data on them have been cited on the basis of speculative conclusions. The literature contains no information on the mechanics of respiration of dolphins. There is virtually no precise information on respiration regimes and on the factors exerting

USSR

UDC: 681.3

ABRAYTIS, L. B., MATITSKAS, I. K. L., KHOMSKIS, H. R.

"On the Problem of Arranging Elements of Different Overall Dimensions"

V sb. Avtomatika i vychisl. tekhn. (Automation and Computer Technology-- collection of works), No 3, Vil'nyus, "Mintis", 1971, pp 211-218 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V886)

Translation: Mathematical formulation of the problem of arranging elements of different overall dimensions with the aid of R-functions is considered. An algorithm is proposed for digital computer solution of this problem. The possibilities of solving this problem by sequences of heuristic methods are discussed. Authors' abstract.

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PROCESSING DATE--20NOV70

UNCLASSIFIED

1/2 015

TITLE--RELATION BETWEEN THE FUNDAMENTAL MATRICES OF SOLUTIONS TO PARABOLIC AND ELLIPTICAL SYSTEMS WITH A BESSEL OPERATOR -U-
AUTHOR--(02)--KREKHIVSKIY, V.V., MATIYCHUK, M.I.

M

COUNTRY OF INFO--USSR

SOURCE--AKADEMIYA NAUK UKRAINS'KOI RSR, DOPOVIDI, SERIYA A -
FIZIKO-TEKHNICHNI I MATEMATICHNI NAUKI, VOL. 32, MAR 1970, P 210-214
DATE PUBLISHED--MAR70

SUBJECT AREAS--MATHEMATICAL SCIENCES

TOPIC TAGS--BOUNDARY VALUE PROBLEM, MATHEMATIC MATRIX, PARABOLIC BODY,
BESSEL FUNCTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1996/1646

STEP NO--UR/0441/70/032/000/0210/0214

CIRC ACCESSION NO--AT0118625

UNCLASSIFIED

PROCESSING DATE--20NGV70

UNCLASSIFIED

2/2 015

CIRC ACCESSION NO--ATO118625
ABSTRACT/EXTRACT--(U) GP-O-

ABSTRACT. DEVELOPMENT OF PROCEDURES FOR
CONSTRUCTING FUNDAMENTAL MATRICES IN SOLVING THE BOUNDARY VALUE PROBLEM
OF A B-PARABOLIC SYSTEM OF EQUATIONS IN A 1-4 SPACE WITH A BESSEL
OPERATOR. A RELATION IS ESTABLISHED BETWEEN THESE FUNDAMENTAL MATRICES
AND THOSE OF CORRESPONDING B ELLIPTICAL SYSTEMS. SEVERAL PERTINENT
THEOREMS ARE FORMULATED AND PROVED IN THE PROCESS.
FACILITY:
CHERNIVETS'KII DERZHAVNII UNIVERSITET, CHERNOVTSY, UKRAINIAN SSR.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--11SEP70.
TITLE--GENERAL ACTION AND TOXICITY OF RIBONUCLEIC ACID PREPARATIONS -U-
AUTHOR--LAPIK, A.S., MATIYENKO, N.A. M
COUNTRY OF INFO--USSR
SOURCE--FARMAKOL. TOKSIKOL. (MOSCOW) 1970, 33(1), 94-5
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--RNA, TOXICOLOGY, LIVER, MOUSE, CAT, RAT, RABBIT, PYROGEN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1986/1665

STEP NO--UR/0390/70/033/001/0094/0095

CIRC ACCESSION NO--AP0103431

UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0103431

ABSTRACT/EXTRACT--(U) GP-U- ABSTRACT. BOVINE LIVER AND HUMAN EMBRYONIC RNA PREPNS. ADMINISTERED ONCE TO MICE I.V. AT 50 MG-KG, I.P. AT 2000 MG-KG, OR 30 TIMES S.C. AT 250 MG-KG HAD NO DEFINABLE TOXICITY AND AT COMPARABLE DOSES DID NOT AFFECT THE CENTRAL NERVOUS SYSTEM, ARTERIAL PRESSURE, RESPIRATION, MUSCLE TONE, OR INTRAUTERINE EMBRYONIC DEVELOPMENT IN MICE, CATS, AND RATS. AT 0.5, 10, AND 20 MG-KG I.V. THE RNA PREPNS. HAD A MODERATE PYROGENIC EFFECT IN RABBITS.

UNCLASSIFIED

USSR

UDC 681.327. 45(088.8)(47)

KUBAYTIS, V. I., MATIYESHKA, S. Yu. et al.

"Puncher Mechanism"

USSR Author's Certificate No. 267191, Filed 3/08/67, Published 3/08/70 (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No. 4, 1971, Abstract No. 4B470P).

Translation: The mechanism suggested contains a cam drive with an intermediate dog to impart forward and rotary motion to a die and differs in that in order to increase the speed and reliability of punching, rollers contact the forward and return cams, which drive the punches through rocker arms. 1 fig.

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AA0046262 -

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WR 0482

Soviet Inventions Illustrated, Section III Mechanical and General,
Derwent, 2-70

244200 DIESEL DRIVEN HAMMER consists of tubular
body 1 with hammering piston 8. It is
distinguished by connecting the piston cavity to
the receiver 2, through a pipe, which is connected
by means of springed arm 9 regulating the valve
which acts on the pneumatic cylinder piston-rod
11. Cooling unit 4 is placed on the pipe connect-
ing the receiver to the hammer cavity.

8.2.68. as 1217775/29-14, MATUŠEKIN, I. N.
(8.10.69) Bul. 17/14.5.69 Class 84c, Int. Cl.
E 02d.

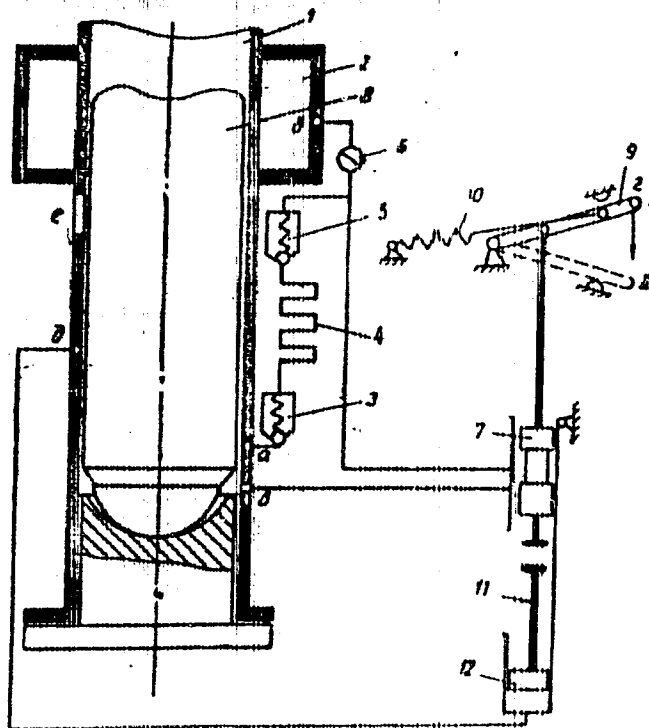
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19781382

Oncology

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UDC 615.272.6:547.963.32].015:616-006-092.9

MATIYENKO, N. A., RONICHEVSKAYA, G. M., BELYAYEV, D. K.,
MAKIYNOVA, R. P., and SALGANIK, R. I., Institute of Cytology and
Genetics, Siberian Department, Academy of Sciences USSR,
Novosibirsk

"Inhibitory Effect of Homologous Ribonucleic Acid on the Growth
of Spontaneous Tumors in Mice of the High-Cancer A and C₃H Lines"

Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya
Terapiya, No 1, 1971, pp 45-47

Abstract: Deproteinized RNA from mice of the low-cancer C₅₇B1
line was injected subcutaneously into A and C₃H mice with
palpable mammary tumors. The antitumor effect of the preparation
was assessed from the differences in the weight of tumors in
control and experimental mice (the tumors were systematically
weighed in animals sacrificed 10, 20, 30, 40, 80, and 100 days
after the injection) and in the survival time of animals. Where-
as the weight of tumors in control mice increased rapidly for
the first 1 to 1-1/2 months and remained stable thereafter, it
was significantly lower (50 to 77%) in the experimental group at
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MATIYENKO, N. A., et al., Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 1, 1971, pp 45-47

all stages, especially during the first 2 months. The survival time of experimental animals was also markedly longer than that of controls. Injection of the RNA had no toxic effects, judging by the fact that the body weight of experimental and control animals was virtually the same at the end of the experiment.

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1/2 025 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--GENERAL ACTION AND TOXICITY OF RIBONUCLEIC ACID PREPARATIONS -U-
AUTHOR--LAPIK, A.S., MATIYENKO, N.A. 2 M
COUNTRY OF INFO--USSR
SOURCE--FARMAKOL. TOKSIKOL. (MOSCOW) 1970, 33(1), 94-5
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--RNA, TOXICOLOGY, LIVER, MOUSE, CAT, RAT, RABBIT, PYROGEN

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1986/1665 STEP NO--UR/0390/70/033/001/0094/0095
CIRC ACCESSION NO--AP0103431
UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0103431

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SOVINE LIVER AND HUMAN EMBRYONIC RNA PREPNS. ADMINISTERED ONCE TO MICE I.V. AT 50 MG-KG, I.P. AT 2000 MG-KG, OR 30 TIMES S.C. AT 250 MG-KG HAD NO DEFINABLE TOXICITY AND AT COMPARABLE DOSES DID NOT AFFECT THE CENTRAL NERVOUS SYSTEM, ARTERIAL PRESSURE, RESPIRATION, MUSCLE TONE, OR INTRAUTERINE EMBRYONIC DEVELOPMENT IN MICE, CATS, AND RATS. AT 0.5, 10, AND 20 MG-KG I.V. THE RNA PREPNS. HAD A MODERATE PYROGENIC EFFECT IN RABBITS.

UNCLASSIFIED

USSR

UDC 531.787.069.6

NECHAYEV, V. K., MATIYEVSKIY, D. D., and NECHAYEV, L. V.

"On One Error in Determining P_i Pressure According to a Developed Indicator Diagram"

Tr. Altaysk. politekhn. in-ta (Works of the Altay Polytechnic Institute), No 4, 1972, pp 40-45 (from Referativnyy Zhurnal -- Metrologiya i Izmeritel'naya Tekhnika, No 2, 1973, Abstract No 2.32.749)

Translation: Determining the average indicated pressure according to an indicator diagram made by an electropneumatic indicator of the MIM-2 type provides for the registration and evaluation of the various errors that appear when the diagram is being made and processed.

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1/2 011 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--CRITICAL PHENOMENA OF THE SYSTEM METHYL ALKOHOL AND CYCLOHEXANE. I.
COEXISTENCE CURVE -U-
AUTHOR--KUSKOVA, N.V., MATIZEN, E.V.

COUNTRY OF INFO--USSR

SOURCE--IZVESTIYA SIBIRSKOGO OTDELENIYA AKADEMII NAUK SSSR, NO 2, SERIYA
KHIMICHESKIKH NAUK, 1970, NR 1, PP 142-144
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--METHANOL, CYCLOHEXANE, LIQUID STATE, CRITICAL POINT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1984/1605

STEP NO--UR/0289/70/000/000/014??0144

CIRC ACCESSION NO--AP0100215

UNCLASSIFIED

2/2 011 UNCLASSIFIED PROCESSING DATE--11SEP70
CIRC ACCESSION NG--AP0100215
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. COEXISTENCE CURVE OF LIQUID PHASES
WERE DETERMINED FOR METHYL, AKOHOL, CYCLOHEXANE SYSTEM BY DISSAPPEARING
MENISCUS METHOD. CRITICAL PARAMETERS WERE OBTAINED USING THE EMPIRICAL
LAW OF RECTILINEAR DIAMETER.

UNCLASSIFIED

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Acc. Nr: 110043667

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Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy
Fiziki, 1970, Vol 58, Nr 2, pp 430-433

**BROWNIAN MOTION NEAR THE CRITICAL POINT
OF THE TWO-PHASE LIQUID-LIQUID EQUILIBRIUM**

V. G. Martynets, E. V. Malin

Brownian movement of 0.23 micron mean radius particles near the critical mixing point is studied by dark-field microphotography. For a methanol-cyclohexane system the Brownian particle diffusion coefficient decreases by two times when the temperature approaches the critical point from the homogeneous region. The change of the system viscosity in the critical region is calculated. The results are discussed.

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REEL/FRAME
19770071

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UDC 547.944/945

YAGUDAYEV, M. R., MATKHALIKOVA, S. F., AHLIKOV, V. N., YUNUSOV, S. YU., Order of the Red Banner of Labor Institute of the Chemistry of Plant Substances of the Uzbek SSR Academy of Sciences

"Study of the Stereochemistry of the Alkaloids of *Codonopsis* and *Codonopsis* by the Method of Nuclear Magnetic Resonance Spectroscopy"

Tashkent, *Khimiya Prirodnikh Soyedineniy*, No 4, 1972, pp 495-498

Abstract: A structure was proposed previously for the new alkaloids -- codonopsin (I) and codonopsinin (II) isolated from *Codonopsis eleatidea* on the basis of chemical transformations and spectral data (S. F. Matkhalikova, et al., *KhPS*, 30, 1969; S. F. Matkhalikova, et al., *KhPS*, 210, 1971). A study has now been made of the nuclear magnetic resonance spectra of the bases and their acetyl derivatives in order to establish the spatial structure of these alkaloids. The N-methylpyrrolidine ring A has a semiconformation with relative reciprocal arrangement and orientation of the protons and H₁ and H₃ - α groups pseudoaxial, H₂ and Ph- β equatorial, and C-CH₃- β pseudoaxial, OR₁- α pseudoaxial, OR₂- β pseudoaxial and H₄- α' pseudoaxial.

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USSR

UDC 577.37

VANIN, A. F., KASPAROV, A. A., and MATKHOV, E. I., Institute of Chemical Physics, Academy of Sciences USSR, and First Moscow Medical Institute, Moscow

"Changes in the EPR Spectra of the Mouse Liver Upon Poisoning With Boric Acid and Carbon Tetrachloride"

Moscow, Biofizika, Vol 16, No 3, May/June 71, pp 472-475

Abstract: It had been established in earlier work by the authors (Biofizika, Vol 15, p 547, 1970) that following poisoning of mice with elemental B, preparations from the liver of the animals showed a pronounced drop in the intensity of the EPR signal associated with complexes of hemin Fe that are located in the microsome respiration chain. Similar changes on poisoning with boric acid were not observed, because this substance had been eliminated from the organism at the time when the EPR spectrum was determined. It was found in the present investigation that changes in the EPR spectrum similar to those resulting from poisoning with B and observed several days later developed 2-6 hrs after administration of boric acid. The intensity of the EPR signal corresponding to the non-heme Fe complex located in the mitochondria was also lowered, but the principal effect was on the hemin-Fe complex. The effect on

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USSR

VANIN, A. F., et al., Biofizika, Vol 16, No 3, May/June 71, pp 472-475

the EPR spectrum, which was determined on liver samples at 77°K, was unspecific; it was also observed after poisoning of the animals with CCl₄. Besides the reduction of the intensity of EPR signals corresponding to heme and non-heme Fe complexes after poisoning, new signals developed in the spectrum which could be ascribed to nitrosyl complexes of heme and non-heme Fe on the basis of available data on the EPR spectra of these complexes.

2/2

1/2 019 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--SYNTHESIS OF REACTIVE FOUR POLES BY TIME FUNCTIONS -U-
AUTHOR--MATKHOV, P.N. *M*
COUNTRY OF INFO--USSR
SOURCE--(SINTEZ REAKTIVNYKH CHETYREKHPOLYUSNIKOV PO VERMENNYKH FUNKTSIYAM)
LENINGRAD, ENERGIYA, 1970, 133 PP
DATE PUBLISHED-----70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, PHYSICS
TOPIC TAGS--ELECTRIC ENGINEERING, HANDBOOK, THEORETIC PHYSICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3003/1745

STEP NO--UR/0000/70/000/000/0001/0133

CIRC ACCESSION NO--A40130592

UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AM0130592

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TABLE OF CONTENTS: PREFACE 3.
INTRODUCTION 5. CHAPTER I PROPERTIES AND REALIZATION OF TRANSMISSION
FUNCTIONS OF REACTIVE FOUR POLES 7. II APPROXIMATION OF TIME
FUNCTIONS 33. III THE METHOD OF APPROXIMATION IN A COMPLEX
FREQUENCYRANGE 43. IV SYNTHESIS OF CIRCUITS FOR SHAPING OF PULSES OF
A GIVEN RECTANGULAR SHAPE 69. V SYNTHESIS OF RECTANGULAR PULSE
SHAPING CIRCUITS 97. VI SYNTHESIS OF DELAY CIRCUITS BY PULSE
CHARACTERISTICS 118. BIBLIOGRAPHY 130.

UNCLASSIFIED

UDC 621.791.011:620.192.4

USSR

MATKIANOV, V. N., Candidate of Technical Sciences, KHRYUKIN, YU. A., Engineer,
FARENBRUKH, V. E., Engineer, Irkutsk Polytechnic Institute, SHERSTNEV, V. V.,
Engineer, Korshunov Beneficiation Combine

"Cold Resistance of Joints Welded at Negative Temperatures"

Moscow, Svarochnoye proizvodstvo, No 9, 1972, pp 26-28

Abstract: A study was made of the effect of negative temperatures during welding on the cold resistance of welded joints of St.3sp and 10G2S1 steel. The results of a chemical analysis and mechanical testing of the steel are tabulated. The threshold of cold brittleness defined by the minimum impact toughness is somewhat lower than that defined by the presence of a 20% viscous component in the fracture. When welding the investigated steel, the maximum reduction in impact toughness takes place in the zone heated to 200-300° C. With a decrease in the initial welding temperature to -30° C, an increase in the threshold of cold brittleness of the metal in the weld-affected zone by 25-35° C takes place by comparison with the cold brittleness threshold of the base metal. Negative temperatures during welding especially affect the cold brittleness of the weld-affected zone of low-carbon St.3sp steel.

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Welding

UDC 621.791.052:620.1.001.4:669.788

USSR

MAKSIMOV, P. K., Engineer, MATEKHANOV, V. N., MOROZ, V. G., Candidates of Technical Sciences, and ROSSINEVICH, L. I., Engineer

"Study of the Efficiency of Welded Joints Between Dissimilar Steels (12Kh1MF and Kh5ML) in a Medium of Hydrogen"

Moscow, Khimicheskoye i Neftyanoye Mashinostroyeniye, No 11, Nov 70, pp 25-27

Abstract: This article presents the results of an investigation of the effects of hydrogen on the metal in the area of a welded joint between 12Kh1MF and Kh5ML steels. The investigations were performed using specimens which were held in an autoclave at 570°C under a hydrostatic pressure of technical hydrogen from 100 to 300 kg/cm². The temperature used in the experiments was 570 ± 10°C. The experiments showed that whereas holding under a 90 kg/cm² hydrogen pressure at 570°C for various times up to 4,000 hours had little effect on mechanical properties, holding at 273 kg/cm² hydrogen pressure resulted in the development of a tendency to brittle rupture, primarily along the line of the welded seam. Notch-sensitivity of the metal was increased in all cases. No noticeable changes in the structure of the metal were discovered. However, in all cases the exposure to hydrogen resulted in slight surface decarburization along the seam.

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UDC 631.547.04

USSR

KOVAL'CHUK, S. I., Candidate of Agricultural Sciences, Kamenets-Podol'sk Agricultural Institute, MATKOVSKIY, A. A., Yarmolinetsk Production Administration of Agriculture

"Application of Maleic Acid Hydrazide for Retarding the Sprouting of Sugar Beet Roots and Lowering the Sugar Losses in Storage"

Moscow, Khimiya v sel'skom khozyaystve, No 11, 1972, pp 57-60

Abstract: A study was made to determine the optimal concentration of maleic acid hydrazide and study its effects on the sugar beet root harvest, the dynamics of the sugar content in the roots and the weight losses in storage. A phytopathological evaluation of the root crops after storage in pits was also made. Spraying the sugar beet plants 20 to 30 days before gathering the harvest with a 0.6% aqueous solution of maleic acid hydrazide with the addition of OP-10 wetting agent promotes an increase in the sugar content of the roots and a decrease in their sprouting during prolonged storage. The roots of the maleic acid hydrazide treated plants store better in pits than the control roots (lower sugar and weight losses), and they are less subject to rotting.

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1/2 016 UNCLASSIFIED PROCESSING DATE--23OCT70
 TITLE--CHARACTERISTICS OF FRONTAL ZONES DURING THE COLD TIME OF THE YEAR
 AGAINST OBSERVATIONS AT A 300 METRE HEIGHT METEOROLOGICAL -U-
 AUTHOR--(02)-MASHKOVA, G.B., MATKOVSKIY, B.M. *M*

COUNTRY OF INFO--USSR

SOURCE--METEOROLOGIYA I GIDROLOGIYA, 1970, NR 6, PP 48-55

DATE PUBLISHED-----70

SUBJECT AREAS--ATMOSPHERIC SCIENCES

TOPIC TAGS--METEOROLOGIC TOWER, ATMOSPHERIC FRONT, ATMOSPHERIC
 TEMPERATURE, ATMOSPHERIC HUMIDITY, ATMOSPHERIC WIND, WIND VELOCITY, WIND
 DIRECTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAME--2000,1776

STEP NO--UR/0050/70/000/006/0048/0055

CIRC ACCESSION NO--AP0125392

UNCLASSIFIED

2/2 016

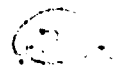
UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0125392

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RESULTS OF EXPERIMENTAL INVESTIGATIONS OF ATMOSPHERE FRONT STRUCTURE AT THE LOWER 300 METRE LAYER OF THE ATMOSPHERE ARE GIVEN. SOME METEOROLOGICAL CHARACTERISTICS OF FRONTAL ZONES SUCH AS WIDTH AND SLOPE OF THE FRONTAL ZONE ARE SHOWN, AND A TREND OF TEMPERATURE, HUMIDITY, WIND VELOCITY AND DIRECTION ONE HOUR BEFORE AND ONE HOUR AFTER PASSAGE OF FRONTS ARE GIVEN.
FACILITY: INSTITUT EKSPERIMENTAL'NOY METEOROLOGII.

UNCLASSIFIED



UDC 615.21

USSR

MYKHIN, YE. A., MATKOVSKIY, K. D., and PARIY, B. I., editors

Farmakologiya Amidinovykh Soyedineniy (Pharmacology of Amidine Compounds),
Kishinev, "Shtinitsa", 1972, 188 p

Translation:

Annotation

The collection presented experimental data and clinical material on the protective properties and mechanism of action of amidine compounds during hyperoxia and hypoxia as well as on the effect of these substances on physical fitness, the cardiovascular system, and uterus. The review articles on ephedrine and gutimine provide a fairly complete idea of the nature of this new and highly promising group of drugs.

The collection is of interest to pharmacologists, pathophysiologists, physiologists, surgeons, anesthesiologists, obstetricians and gynecologists, and sports physicians.

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V. G. Duzhak. Pharmacology of Some Methyloisothiazonium Analogs...

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(2)

USSR

MYKHIN, YE. A., et al., Shtinitsa", 1972, 188 p

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USSR

MIKHIN, YE. A., et al., "Shtinitsa", 1972, 188 p

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USSR

MYKHIN, YE. A., et al., "Shtinitsa", 188 p

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- K. L. Matkovskiy. Effect of Ethyrone, Benzohexonium, Tizercine, and Combinations of Ethyrone with Benzohexonium and Tizercine on the Acid-Base Equilibrium in the Blood of White Rats Exposed to Oxygen at a Pressure of 6 atm... 87
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USSR

UDC 615.7:612,273:541.49:546.733

MATKOVSKIY, K. L.

"The Antihypoxic Activity of Cobalt Dioximines"

Kishinev, Izvestiya Akademii Nauk Moldavskoy SSR, Seriya Biologicheskikh i Khimicheskikh Nauk, No 5, 1971, pp 88-89

Abstract: The effects were studied of some Co dioximines (diaquodioximine, dipyridinedioximine, dinicotinamidedioximine), CoCl_2 , CoNa_2EDTA , and cyanocobalamin on mice that had been subjected for 30 min to the effect of CO in the concentration $\text{CL}_{99} = 15 \text{ mg/l}$. The Co compounds were administered intraperitoneally 20 min before exposure to CO. The cobalt dioximines were less toxic than CoCl_2 or CoNa_2EDTA . Of the dioximines, Co diaquodioximine (100 mg/kg) had the highest activity in preventing the death of mice as a result of hypoxia produced by carbon monoxide (rate of survival 30%) and in prolonging the length of life (by an average time of 15.0 min) of the nonsurvivors.

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1/2 (023 UNCLASSIFIED PROCESSING DATE--0406070
 TITLE--ALUMINUM POLYOLEFIN COMPOUNDS -U-
 AUTHOR--(05)-CHIRKOV, N.M., BEYKHOLD, G.A., BRIKENSHTEYN, KH.M., KANASHKIN,
 YU.F., MATKOVSKIY, P.YE.
 COUNTRY OF INFO--USSR
 SOURCE--U.S.S.R. 264,692
 REFERENCE--OTKRYTIYA, IZOBRET., PROM OBRAZTSY, TOVARNYE ZNAKI, 1970 47(9),
 DATE PUBLISHED--03MAR70

SUBJECT AREAS--CHEMISTRY
 TOPIC TAGS--CHEMICAL PATENT, ALUMINUM, POLYOLEFIN RESIN, POLYMERIZATION,
 ETHYLENE, METAL CONTAINING POLYMER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
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STEP NO--UR/0402/70/000/000/0000/0000

CIRC ACCESSION NO--AA0174237

UNCLASSIFIED

212 023 UNCLASSIFIED PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AA0136282
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AL, POLYOLEFIN COMPODS. ARE PREPD.
BY POLYMN. OR COPOLYMN. OF C SUB2 H SUB4 WITH OTHER ALPHA, OLEFINS IN AN
INERT HYDROCARBON SOLVENT IN THE PRESENCE OF AL OR ITS ALLOYS (E.G., IN
THE FORM OF POWDER, FLAKES, WIRE, AND SHAVINGS) AND A CATALYST. THE
CATALYSTS USED ARE TRANSITION, METAL HALIDES OR HYDROXYHALIDES SOL. IN
HYDROCARBONS, E.G. V HYDROXYCHLORIDE. FACILITY: FILIAL
INSTITUTA KHIMICHESKOY FIZIKI AN SSSR.

USSR

UDC 616.981.553-092.9

MATKOVSKIY, V. S., TSYBULYAK, G. N., ZUBIK, T. M., ZHUK, I. N., AKIMOV, G. A., GAREMIN, Ye. K., GOGLOZHA, R. L., KUSTOV, N. A., PASHKOVSKIY, E. V., and TIMOFEYEV, V. V., Chair of Infectious Diseases, Chair of Military Field Surgery, and Chair of Nervous Diseases, Military Medical Academy imeni S. M. Kirov, Leningrad

"The Pathophysiology of Experimental Botulism"

Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, no 3, 1971, pp 16-19

Abstract: A study was carried out of the disturbance of external respiration, gas content and acid-base state of blood, and of hemodynamic shifts with severe experimental intoxication with botulinus toxin. Fifty dogs were intoxicated with type A botulinus toxin. At the time of administration and at the peak of intoxication, the gas content of arterial and venous blood, hemoglobin, hematocrit, specific weight of blood and plasma, and content of sodium, potassium, lactic and pyruvic acid were determined. External respiration was studied by means of a type T35 spirometabolograph and circulation by the modified mechanical cardiographic method. Biocurrents of the cerebral cortex were recorded on a four-channel electroencephalograph. At the peak of

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USSR

MATKOVSKIY, V. S., et al, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 3, 1971, pp 16-19

intoxication, a reduction of per minute respiration with a resulting lowered level of oxyhemoglobin in arterial blood, and respiratory acidosis were noted. EKG data revealed predominantly hypoxic shifts in the myocardium, and the EEG data -- inhibitory processes in the cerebral cortex. Intensified cardiac activity served as a compensatory mechanism for respiratory insufficiency. The secondary shifts in the function of organs and systems in connection with disturbances of a metabolic and functional nature played a vital role in the pathogenesis of botulinus intoxication. Morphological shifts in the CNS were apparently caused largely by disturbances in the microcirculation and were reversible. In treating severe botulinus intoxication, special attention should be paid to timely correction of external respiratory insufficiency, with artificial ventilation of lungs most expedient.

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USSR

UDC 616-002.71-036.2(470)

MATKOVSKIY, V. S., Docent, IMITRIYEV, O. I., Candidate of Medical Sciences, and
ISAYEV, Ye. N., Department of Infectious Diseases (Head-Docent V. S. Matkovskiy)
Military Medical Academy imeni S. M. Kirov, Leningrad

"New Data on the Spread of "Far Eastern" Scarletina-Like Fever (Pseudotuberculosis)
in the RSFSR"

Moscow, Sovetskaya Meditsina, Vol 33, No 7, Jul 70, pp 132-135

Abstract: "Far Eastern" scarlatina-like fever is a new infectious disease which was detected in 1957 and identified as a special form of pseudotuberculosis in 1965. The pathogen, Pasteurella pseudotuberculosis Pfeifferi, is transmitted by certain rodents and is contracted by human beings through the gastrointestinal tract. For a long time it was believed that this disease was restricted to the Far East. In February and March 1969, a mass outbreak occurred in several Leningrad kindergartens, involving 78 children aged 4 to 7, as well as eight adult staff members. Because of the diverse symptoms, the illness was variously diagnosed as scarlet fever, tonsillitis, influenza, german measles, and, in one case appendicitis. Since conventional treatment was ineffective, comprehensive epidemiological, clinical, and laboratory investigations were performed, and the disease was finally diagnosed as pseudotuberculosis. The source of the infection was rapidly tracked down. All of the kindergartens affected regularly served raw vegetables purchased

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USSR

MATKOVSKIY, V. S., et al., Sovetskaya Meditaina, Vol 33, No 7, Jul. 70, pp 132-135

from the same seller. The storage facilities were inspected and rodents found there were subjected to laboratory tests in which Pasteurella pseudotuberculosis was isolated. Since the disease is no longer restricted to the Near East, physicians are urged to be on the alert for it when they observe atypical cases of scarlet fever, German measles, acute appendicitis, or hepatitis.

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USSR

UDO 537.311.53:546.24'48

ARONS, A.A., MATLAK, V.V., NIKONYUK, YE.B., UST'YANOV, V.I.

"Electrical Properties of γ -Irradiated P-Type Cadmium Telluride"

V sb. Radiats. fiz. nemet. kristallov (Radiation Physics of Nonmetallic Crystals-
Collection of Works), Vol 5, Part 2, Kiev; "Nauk.dumka," 1971, pp 54-66 (from
RZh--Elektronika i yeye primeneniye, No 10, October 1971, Abstract No 10262)

Translation: The effect of γ -irradiation on the electrical properties of
p-type CdTe irradiated at room temperature by γ -quanta of Co^{60} was studied.
The investigation was conducted on single crystals of CdTe with concentrations
of carriers (up to irradiation) at room temperature from $5 \cdot 10^{12}$ to 10^{14} cm^{-3}
and the mobility of holes from 32 to 9 $\text{cm}^2 \text{ v}^{-1} \text{ sec}^{-1}$, respectively; γ irradi-
ation of p-type CdTe leads to the appearance of radiation defects of acceptors,
increasing the concentration of holes and changing the mechanism of scattering.
10 ill. 7 ref. I.V.

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- 155 -

UDC 612.45+612.766.1

USSR

KASSIL', G. N., MATLINA, E. SH., VASIL'YEV, V. K., and NIKOLON, A. I.,
Laboratory for Problems of Control of Functions in Humans and Animals imeni
N. I. Grashchenkov, Academy of Sciences USSR, and Laboratory of Mental Work,
All-Union Scientific Research Institute of Railroad Hygiene, Ministry of
Public Transport

"The Influence of Intense Mental Work During the Day and Night Hours on the
Excretion of Catecholamines in the Urine"

Leningrad, Fiziologicheskii Zhurnal SSSR imeni I. M. Sechenov, Vol 59, No 3,
Aug 73, pp 1,151-1,157

Abstract: The excretion of catecholamines in the urine was studied for 68
railway employees who alternated day and night shifts. In the daytime,
operators and on-duty men exhibited only a decrease in the reserve capacities
of the sympatho-adrenalin system, while dispatchers, said to do more intense
work, also showed an increase in noradrenalin excretion. During the night
shift the dispatchers showed a larger increase in adrenalin excretion than
other railway workers, though less than a control group not accustomed to
night work, and a larger increase in noradrenalin excretion than either group.
Dispatchers also increased their excretion of the dihydroxyphenylalanine
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USSR

KASSIL', G. N., et al., Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenov, Vol 59, No 8, Aug 73, pp 1,151-1,157

precursor. The operators and on-duty men showed a larger increase in nor-adrenalin excretion during the night work than the controls. Excretion levels returned to the initial on the second day of rest. These results are said to show that even after many years of adaptation to a certain type of neuro-emotional work the excretion of catecholamines still depends on the intensity of the work, and that adaptation to night work is more difficult than to day work.

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USSR

UDC 616.45-001.1/3-07:616.12-008.944.52-074

SOLOV'YEV, G. M., and MATLINA, E. Sh., Institute of Transplantation of Organs and Tissues, Academy of Medical Sciences USSR; Laboratory on Control Problems of Functions of Human and Animal Organisms imeni N. I. Geraschenkov of the Academy of Sciences USSR, Moscow

"Catecholamines in the Heart During Stress Reactions"

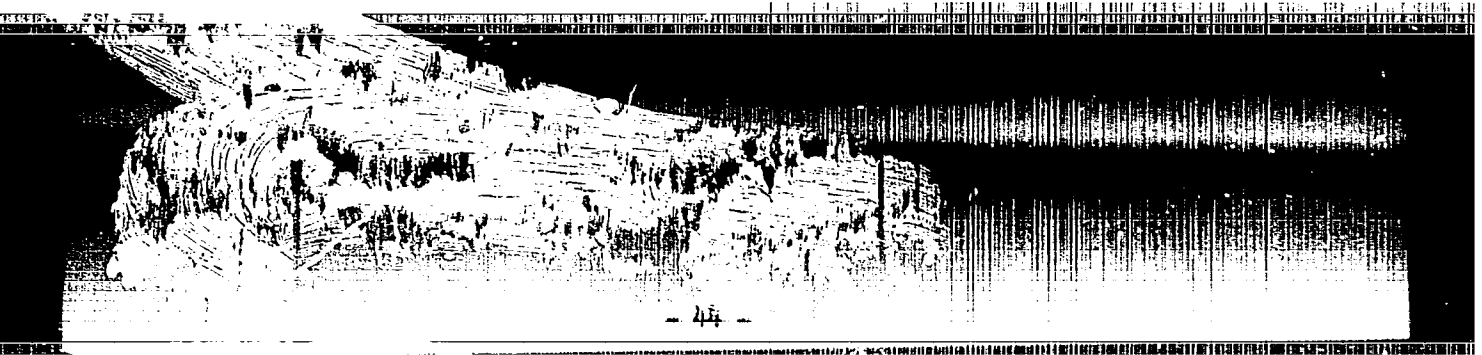
Moscow, Kardiologiya, Vol 13, No 1, 1973, pp 140-152

Abstract: Domestic and foreign literature is reviewed regarding the function, concentration, and synthesis of catecholamines in the heart muscle. Noradrenalin is the most abundant catecholamine in the mammal heart and adrenalin accounts for only 25-35%. There is a definite relation between functions of the heart and adrenal glands with respect to catecholamine metabolism during stress reactions. In the presence of stress the heart muscle is capable of concentrating adrenalin from the blood immediately after the application of stress; all succeeding phase changes in the accumulation of adrenalin depend on the specificity of stresses. When resources of adrenalin in the adrenal glands are exhausted the heart muscle can probably synthesize it. Experiments with guinea pigs showed that accumulation of adrenalin in the heart muscle after the application of stress secures activation of metabolic processes and

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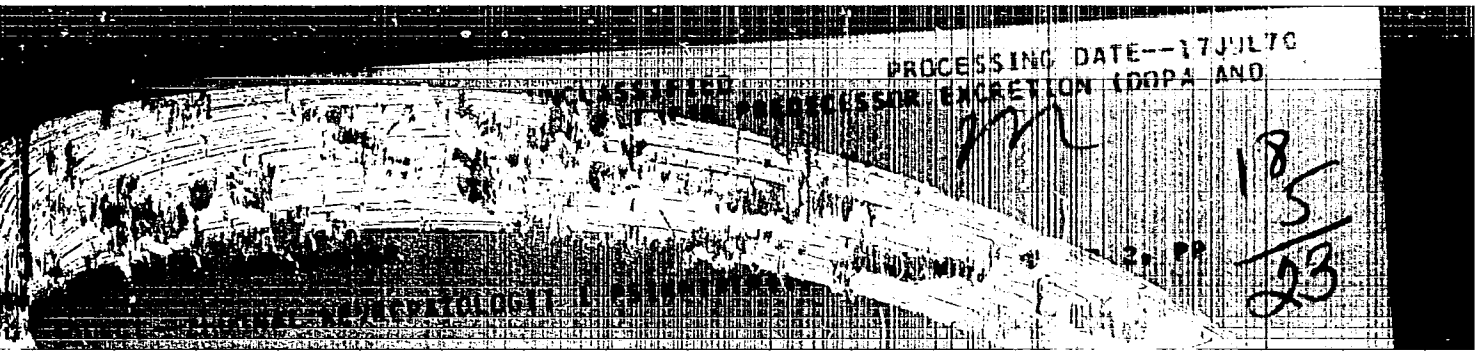
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CIA-RDP86-00513R002202010003-1



APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R002202010003-1"



272 023

CIRC ACCESSION NO--AA0136282

UNCLASSIFIED

PROCESSING DATE--04DEC70

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

ABSTRACT. AL, POLYOLEFIN COMPODS. ARE PREPD. BY POLYMN. OR COPOLYMN. OF C SUB2 H SUB4 WITH OTHER ALPHA, OLEFINS IN AN INERT HYDROCARBON SOLVENT IN THE PRESENCE OF AL OR ITS ALLOYS (E.G., IN THE FORM OF POWDER, FLAKES, WIRE, AND SHAVINGS) AND A CATALYST. THE CATALYSTS USED ARE TRANSITION, METAL HALIDES OR HYDROXYHALIDES SOL. IN HYDROCARBONS, E.G. V HYDROXYCHLORIDE. FACILITY: FILIAL INSTITUTA KHIMICHESKOY FIZIKI AN SSSR.

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- 59 -

USSR

UDC 616-002.71-036.2(470)

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USSR

MATKOVSKIY, V. S., et al., Sovetskaya Meditsina, Vol 33, No 7, Jul 70, pp 132-135

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USSR

UDC 537.511.53:546.24'48

ARONS, A.A., MATLAK, V.V., NIKONYUK, YE.S., UST'YANOV, V.I.

"Electrical Properties Of γ -Irradiated P-Type Cadmium Telluride"

V sb. Radiats. fiz. nemet. kristallov (Radiation Physics Of Nonmetallic Crystals-
Collection Of Works), Vol 3, Part 2, Kiev, "Nauk.dumka," 1971, pp 54-66 (from
RZh--Elektronika i yeye primeneniye, No 10, October 1971, Abstract No 10R52)

Translation: The effect of γ -irradiation on the electrical properties of
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and the mobility of holes from 32 to $9 \text{ cm}^2 \text{ v}^{-1} \text{ sec}^{-1}$, respectively; γ irradi-
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10 ill. 7 ref. I.V.

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USSR

UDC 612.45+612.766.1

KASSIL', G. N., MATLINA, E. SH., VASIL'YEV, V. N., and MIKOLOV, A. I.,
Laboratory for Problems of Control of Functions in Humans and Animals imeni
N. I. Gushchenkov, Academy of Sciences USSR, and Laboratory of Mental Work,
All-Union Scientific Research Institute of Railroad Hygiene, Ministry of
Public Transport

"The Influence of Intense Mental Work During the Day and Night Hours on the
Excretion of Catecholamines in the Urine"

Leningrad, Fiziologicheskii Zhurnal SSSR imeni I. M. Sechenov, Vol 59, No 8,
Aug 73, pp 1,151-1,157

Abstract: The excretion of catecholamines in the urine was studied for 68
railway employees who alternated day and night shifts. In the daytime,
operators and on-duty men exhibited only a decrease in the reserve capacities
of the sympatho-adrenalin system, while dispatchers, said to do more intense
work, also showed an increase in noradrenalin excretion. During the night
shift the dispatchers showed a larger increase in adrenalin excretion than
other railway workers, though less than a control group not accustomed to
night work, and a larger increase in noradrenalin excretion than either group.
Dispatchers also increased their excretion of the dihydroxyphenylalanine
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KASSIL', G. N., et al., Fiziologicheskii Zhurnal SSSR imeni I. M. Sechenov,
Vol 59, No 8, Aug 73, pp 1,151-1,157

precursor. The operators and on-duty men showed a larger increase in nor-adrenalin excretion during the night work than the controls. Excretion levels returned to the initial on the second day of rest. These results are said to show that even after many years of adaptation to a certain type of neuro-emotional work the excretion of catecholamines still depends on the intensity of the work, and that adaptation to night work is more difficult than to day work.

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USSR

UDC 616.45-001.1/3-07:616.12-000.944.52-074

SOLOV'YEV, G. M., and MATLINA, E. Sh., Institute of Transplantation of Organs and Tissues, Academy of Medical Sciences USSR; Laboratory on Control Problems of Functions of Human and Animal Organisms imeni N. I. Gushchenkov of the Academy of Sciences USSR, Moscow

"Catecholamines in the Heart During Stress Reactions"

Moscow, Kardiologiya, Vol 13, No 1, 1973, pp 140-152

Abstract: Domestic and foreign literature is reviewed regarding the function, concentration, and synthesis of catecholamines in the heart muscle. Nor-adrenalin is the most abundant catecholamine in the mammal heart and adrenalin accounts for only 25-35%. There is a definite relation between functions of the heart and adrenal glands with respect to catecholamine metabolism during stress reactions. In the presence of stress the heart muscle is capable of concentrating adrenalin from the blood immediately after the application of stress; all succeeding phase changes in the accumulation of adrenalin depend on the specificity of stresses. When resources of adrenalin in the adrenal glands are exhausted the heart muscle can probably synthesize it. Experiments with guinea pigs showed that accumulation of adrenalin in the heart muscle after the application of stress secures activation of metabolic processes and

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SOLOV'YEV, G. M. and MATLINA, E. Sh., Kardiologiya, Vol 13, No 1, 1973, pp 140-152

myocardial contraction. Noradrenalin is released from adrenergic nerve endings at the beginning of stress and it serves as mediator in the synthesis of catecholamines. Activities of DOPA and tyrosine, the precursors of catecholamines, are also discussed.

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USSR

UDC 612.45+612.766.1

MATLINA, E. Sh., VASIL'YEV, V. N., and BRODSKAYA, T. V., Laboratory for Problems in Control of Functions in Animals and Man, Academy of Sciences USSR imeni, N. I. Grashchenkov, and Division of the Physiology Labor All-Union Scientific Research Institute of Railroad Hygiene, Ministry of Railroads USSR

"Excretion of Catecholamines and Their Precursors in Night and Day Workers"

Leningrad, Fiziologicheskij Zhurnal SSSR, No 7, 1971, pp 1,027-1,031

Abstract: Study of the activity of the sympathicoadrenal system in railroad employees working a succession of night and day shifts. The amount of epinephrine and (E) and norepinephrine (NE) on a work day was found to be the same as on a rest day, but there was an increase in the ratio of E, NE, DA (dopamine) to D (dopa) that did not return to normal on the first day of rest. There was an increase in the excretion of NE and increase in the ratio of E and NE to DA and decrease in the ratio of E, NE, and DA to D the night after day work compared with night rest. In general, on the day of rest the amount of catecholamines secreted by the shift workers was lower than that excreted by the control. The blood cholesterol level was higher during a work day than on a rest day.

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UNCLASSIFIED

PROCESSING DATE--17JUL70

TITLE--ADRENALIN, NCRADRENALIN AND THEIR PREDECESSOR EXCRETION (DOPA AND DOPAMIN) IN PATIENTS WITH MIGRAINE -U-
ALHOR--GOLDMAN, N.B., MATLINA, E.SH., FETS, A.N.

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23

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL NEVRCPATCLOGII I PSIKHIATRII, 1970, VOL. 70, NR 2, PP 199-203

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HEADACHE, ADRENALINE, NCRADRENALINE, URINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1979/0670

STEP NO--UR/0246/70/070/002/0195/0203

CIRC ACCESSION NO--APCC47175

UNCLASSIFIED

Acc. Nr: **AP0047175**

Ref. Code: UR 0246

PRIMARY SOURCE: Zhurnal Nevropatologii i Psikhatrii, 1970,
Vol 70, Nr 2, pp 199-203

ADRENALIN, NORADRENALIN AND THEIR PREDECESSOR
EXCRETION (DOPA AND DOPAMIN) IN PATIENTS WITH MIGRAINE

N. B. Goldman, E. S. Mattina and A. N. Fets

The authors conducted an investigation of 25 patients with migraine, where they studied the diurnal urine excretion (as well as in partial excretion of urine) of adrenaline, noradrenalin, dopamin and dopa in the intercrises period, during crises, as well as during the introduction of insulin. It was possible to show that in the intercrises period the excretion of these substances did not disclose significant differences compared to normals. It was demonstrated that there was only a decrease in the noradrenalin--adrenalin excretion ratio. In the period prior to a crisis there was a decrease in adrenalin excretion. In the crucial period of the crisis adrenalin excretion rose significantly. In those cases where during the introduction of insulin a migrainous attack ensued there was an increased adrenalin excretion which exceeded the changes seen in normals. The achieved results give ground to assume that the changed adrenalin content plays a certain role in the development of a migrainous attack.

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Acc. Nr. **AP0029117**

Ref. Code: UR 0246

PRIMARY SOURCE: Zhurnal Nevropatologii i Psikhatrii, 1970,
Vol 70, Nr 1, pp **128-131**

THE INFLUENCE OF AMINAZINE ON ADRENALINE, NORADRENALINE, DOPAMINE AND DOPA EXCRETION IN NORMALS AND IN THE MANIC PHASE OF THE MANIC-DEPRESSIVE PSYCHOSIS

E. Sh. Mal'ina, M. S. Osipova

The authors studied the influence of aminazine (50 mg in injections) on the adrenaline, noradrenaline, dopamine and DOPA urine excretion in normals and in patients in the manic phase of the manic-depressive psychosis. The urine was collected during 24 hours in separate portions. It was demonstrated that after 3 hours after the introduction of aminazine there was an increase in the excretion of adrenaline, dopamine and DOPA and a drop in the excretion of noradrenaline in normals. These changes can be conditioned by the activation of

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the cortical layer of the suprarenals as well as by the inhibition of related noradrenaline from the adrenergic granules and an absorption of it by the circulating blood. The authors assume that aminazine may directly influence the stimulation of catecholamine biosynthesis. In granules with a manic phase of the manic-depressive psychosis the influence of aminazine on the excretion of adrenergic substances is expressed later: in 9 hours after the introduction of aminazine and may be expressed in the increase of adrenaline, noradrenaline and DOPA excretion. They assume that aminazine in such cases does not arrest noradrenaline in the adrenergic granules.

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UDC 617-001.34-07:[616.839+616.45]-07

VEYN, A. M., MATLINA, E. Sh., and MURADKHANOV, M. A., Laboratory of Functional Control in Man and Animals imeni N. I. Grashchenkov, Academy of Sciences USSR

"Sympathoadrenal System in Patients With Vibration Sickness"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 10, 1971, pp 12-16

Abstract: Analysis of the excretion with urine of epinephrine, norepinephrine, dopa, and dopamine in 50 patients with vibration sickness at rest and after functional tests (immersion of hands in cold water and subcutaneous injection of insulin) was performed. The excretion of norepinephrine was lower in the patients than in healthy controls, and the daily rhythm of catecholamine excretion was impaired, as shown by a marked decrease at night. In response to cold, only the excretion of norepinephrine increased in the patients, whereas both norepinephrine and epinephrine increased in the control. The injection of insulin decreased the excretion of epinephrine, norepinephrine, dopamine, and dopa in the patients (i.e., it depressed the sympathoadrenal system) but increased that of epinephrine without affecting the other mediators.

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USSR

UDC 620.193.5

MATLIS, YA. V."Study of Corrosion Resistance of Chemical Nickel Coatings in Chlorine"

Moscow, Zashchita Metallov, Vol 8, No 3, May-Jun 72, pp 367-369

Abstract: The author studied the possibility of using chemical nickel-plating for protecting carbon steel against the corrosive action of dry (moisture content less than 0.02 percent) and moist chlorine. Specimens of St.3 carbon steel (size 35 x 15 x 1 mm), after degreasing with a magnesium oxide paste and etching in hydrochloric acid (1 : 1) 0.5-1 min, at room temperature, were nickel-plated in a solution with pH 4.8-5.2 containing (g/l): nickel sulfate 21, sodium hypophosphite 24, sodium acetate 10, malic anhydride 1.5 at a temperature of 87-92°. The coating was carried out with continuous filtration and periodic adjustment of solution. The thickness of the coating was determined by weighing, porosity according to GOST [All-Union State Standard] 3247-46. Nickel-plating was followed by heat treatment at 400° for an hour in an argon atmosphere. The devised nickel-plating method has been introduced at the Leningrad Compressor Plant. Laboratory studies of nickel coatings

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MATLIS, YA. V., Zashchita Metallov, Vol 8, No 3, May-Jun 72, pp 367-369

obtained by the chemical method, as well as production tests of nickel-plated turbocompressor rotors at the Sterlitamak Chemical Plant indicate the advisability of using the coatings for the corrosion protection of equipment made of cast iron, carbon and low-alloy steels that is exposed during operation to the action of chlorine with a moisture content up to 0.3 percent in a wide temperature range.

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Polymers and Polymerization

USSR

UDC 541(64+67):678.76

MATNISHYAN, A. A., ZELENETSKIY, A. N., LIAGON'KIY, B. I., and BERLIN, A. A.

"Determination of Redox Potentials of Electron Exchange Polymers With a Conjugation System"

Moscow, Vysokomolekulyarnyye Soyedineniya, Vol 13, No 5, May 71, pp 1170-1175

Abstract: An equilibrium method for determining redox potentials of insoluble, slightly swelling compounds (those unstable towards oxidizing agents, as well as compounds with low redox potentials) has been developed. The method is based on the calculation of the potential of a redox pair in equilibrium with the studied system. When two redox systems interact, an equilibrium will set up between them after some time, when $E_1 = E_2$. From the Nernst equation and above condition the formula was developed for calculation of the unknown E_o^2

$$E_{o2} = E_{o1} + \left[\frac{RT}{F} \ln \left(\frac{[O_1]}{[R_1]} \right)^{1/n_1} \left(\frac{[R_2]}{[O_2]} \right)^{1/n_2} \right]$$

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MATNISHYAN, A. A., et al., Vysokomolekulyarnyye Soyedineniya, Vol 13, No 5, May 71, pp 1170-1175

where $[O_1]$, $[R_1]$ are the concentrations of the oxidized and reduced forms of the soluble system, and $[O_2]$, $[R_2]$ -- of the insoluble system (test system), and n is the number of electrochemical equivalents. Using this formula, the normal redox potentials of polyphenylenequinone, polyphenylenehaloquinone, polyphenylenesulfoquinone, indigo, thioindigo, and polythioindigo were determined for the first time.

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1/2 030 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--DEHYDROGENATION AND CROSSLINKING OF SATURATED POLYMERS -U-

AUTHOR--(04)-BERLIN, A.A., LIQONKIY, B.I., MATNISHYAN, A.A., MUSOELIAN,
I.N.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 265,438

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--09MAR70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ELECTRON ACCEPTOR, CHEMICAL PATENT, POLYMER, DEHYDROGENATION,
POLYMER CROSSLINKING, QUINONE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--3007/1764

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

CIRC ACCESSION NO--AA0137004

UNCLASSIFIED

2/2 030

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AA0137004

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SATD. POLYMERS ARE DEHYDROGENATED AND CROSSLINKED WITH QUINONES TO WHICH HAVE BEEN ADDED A SUBSTANCE THAT IS A STRONGER ELECTRON ACCEPTOR THAN THE CORRESPONDING QUINONE, SUCH AS TETRACYANOBENZENE, TETRACYANOETHYLENE, DINITROPHENOL, A HALOSUBSTITUTED QUINONE, AND K BICHROMATE. FACILITY: INSFITUT KHIMICHESKOY FIZIKI AN SSSR.

UNCLASSIFIED

MATOCHKIN, P.G.

SI:JPRS 54019
9 SEP 71

UDC: 614.3-056.78(040.3)

HOME REMAINS CONCERNING PERIODIC PHYSICAL EXAMINATIONS

Article by V.P. Azarkov, I.S. Grigor'ev, P.G. Matochkin; Moscow, Sovetskoye Zdravookhraneniye, Russia, No 7, 1971, submitted 23 February 1971, pp 25-28

Progress of socialist economies is inseparably linked with the productivity of labor. The economic indices of rise in productivity of labor are made up of a set of factors which determine the expediency and profitability of each unit of working time in industry.

In this regard, we should like to voice some views about periodic physical examination of industrial workers which is done in accordance with order No 400 dated 30 May 1969, issued by the USSR Minister of Health which supersedes order No 176 dated 7 September 1957). In our opinion, there should be a revision of the justification of such physicals from the economic point of view. It is also important to discuss the effectiveness of their purpose.

Since 1954, our therapeutic institution has been performing physicals on industrial workers. Over 7,000 people are subject to regular examinations. Before the start of a new year medical charts are prepared which are approved by enterprise directors and therapeutic institution administrators. These charts are prepared by the heads of polyclinics, of industrial physicians, and chief engineers of enterprises. In the course of making preparations for the examinations, the charts must be coordinated with the plant trade union committees.

Public Health

The medical commission consisted of a shop therapist, specialist physicians, nurses and laboratory technicians. Physicians are called upon only in the special fields in which pathology is anticipated and whose participation in the physical examination is stipulated in the order of the local Ministry of Health. As a rule, the specialists are experienced in the care of industrial workers, they are well acquainted with their working conditions and occupational hazards, and they are also on the staff of plant polyclinics. In the service the certificates attached to them.

Before starting the physical examinations, instructions are issued published for the purpose of discussion -- either.

USSR

UDC 538.4

BICHENKOV, Ye. I., MATOCHKIN, Ye. P.

"Diffusion of a Magnetic Field in a Conductor Moving According to the Rule $v \sim 1/r$ "

7-ye Soveshch. po Magnit. Gidrodinamike. T. 1 [Seventh Conference on Magnetic Hydrodynamics, Vol 1], Riga, Zinatnye Press, 1972, pp 218-220, (Translated from Referativnyy Zhurnal, Mekhanika, No 11, 1972, Abstract No 11 B3 by I. M. Rutkevich).

Translation: Self-similar analytic solutions are produced for several axisymmetrical problems concerning the diffusion of a magnetic field in a moving, radially cylindrical conductor with constant conductivity σ . The problem is solved in the magnetohydrodynamic approximation, when the shift currents can be ignored. The field of velocities is assumed to be the same as in the case of flow from a point source or sink in an incompressible fluid: $v = q/2\pi r$. The distribution of the magnetic field depends on the self-similar variable $x = \pi r^2/qt$ and the dimensionless parameter $\mu = \sigma q/c^2$, equal to half the magnetic Reynolds number.

A solution is given for the problem of diffusion of an initially homogeneous magnetic field B_0 into an expanding cavity, formed upon compression
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UDC 538.4

BICHENKOV, Ye. I., MATOCHKIN, Ye. P., 7-ye Soveshch. po Magnit. Gidrodinamike. T. 1, Riga, Zinatnye Press, 1972, pp 218-220.

of a conductor from the axis. Constant field B_* is formed in the cavity, which approaches B_0 as $\mu \rightarrow 0$ and 0 as $\mu \rightarrow \infty$. Then, the problem of expansion of a conducting cylinder in constant external field B_0 is studied. Where $\mu \gg 1$, the field within the conductor is concentrated in the surface layer of thickness $\delta r \sim \delta_{sc}/\sqrt{\mu}$, where δ_{sc} is the thickness of the skin layer in the nonmoving medium. If the conductor expands, forming a cavity within itself, and there is no field in it at infinity, the magnetic fluxes in the conductor and cavity remain unchanged. In conclusion, a solution is presented for a cavity compressed to the axis. The field within the cavity increases without limit as it collapses, while the magnetic flux losses increase with increasing parameter μ .

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USSR

UDC 533.9.07

VOYTENKO, A. Ye., LYUBIMOVA, M. A., and MATOCHKIN, Ye. P., Institute of Nuclear Physics, Siberian Branch of Acad. Sc. USSR

"Explosion Shock Tube"

Moscow, Teplofizika Vysokikh Temperatur, Vol 10, No 6, Nov-Dec, pp 1230-1284

Abstract: Experiments were carried out on a model of explosion shock tube. A stream of dense air plasma with a velocity of 25-100 km/sec was obtained by means of an explosive gas compressor. Photographing of the model was carried out under conditions when the stream behind the front of the shock wave became nontransparent. The experiments were carried out in a laboratory explosion chamber.

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USSR

UDC 615.777/.779-092.18/.23-099:632.95

RAPPOPORT, M. B., and MATOKINYUK, L. A.

"Pathomorphological and Some Biochemical Shifts in the Organism During Intoxication With Manganese Ethylenebis (dithiocarbamate) (Maneb)"

Kiev, Vrachebnoye Delo, No 8, 1971, pp 132-136

Abstract: Structural and some biochemical shifts in the organism after exposure to maneb were investigated. The activity of ceruloplasmin, SH-group content, and pyruvic acid level were determined in cats and rats. Experiments showed that single administration of maneb per os in the maximum permissible dose (1,200 mg/kg of body weight) induces cerebral circulatory disorders in the form of moderate venous plethora, pericellular and perivascular edema. Signs of protein dystrophy were detected in the parenchymatous organs, especially in the liver. When maneb was given several times per os in a dose of 1/10 LD₅₀ (300 mg/kg), the nature and direction of pathomorphological changes in the experimental animals was the same as for the single-administration of this pesticide in the maximum permissible dose. However some organs, for example the brain, showed grosser morphological changes. Upon multiple daily administration for four months of 1/20 LD₅₀ of the agent, similar changes were noted in the organs of experimental animals, though they were weaker and less

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RAPPOPORT, M. B., and MATOKHNYUK, L. A., Vrachebnoye Delo, No 8, 1971, pp 132-136

widespread than after administration of 1/10 LD₅₀. Intoxication with maneb after a single inhalation exposure (700 mg/m³) induced pronounced structural changes in the organs of experimental animals. Multiple inhalation exposure to maneb at the threshold concentration (4.7 mg/m³) for 4 months caused venous congestion and small foci of interstitial tissue proliferation in parenchymatous and endocrine organs.

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Materials

USSR

UDC 539.434

MATOKHENYUK, L. Ye., KASHTALYAN, Yu. A., and SASHIN, V. A.,
Kiyev, Institute of the Problems of Strength of the Academy
of Sciences of the Ukrainian Soviet Socialist Republic

"Endurance Investigation of the Alloy D16AM0 by Acoustic
Loading"

Kiyev, Problemy Prochnosti, No 9, Sep 71, pp 116 --120

Abstract : Investigation results are presented of the endurance of 0.8 mm-thick specimens of the alloy D16AM0 by harmonic loading on an electrodynamic vibration stand and on a special unit where the specimens were subjected to the effect of narrow-band and broad-band high-intensity noise of a siren. The highest value of the endurance limit was found by harmonic loading, the lowest by broad-band acoustic loading. The longevity was calculated by the methods of linear and spectral summations of fatigue damages by all loading conditions. A satisfactory coincidence was found between the experimentally determined and the calculated longevities by the two methods. Twelve formulas, six illustr., five biblio. refs.

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1/3 026 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--TEMPERATURE OF EXOSPHERES OF EARTH, PLANETS AND SOLAR CORONA -U-

AUTHOR--MATOPA, L.M. M

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, DOKLADY AKADEMII NAUK SSSR, VOL. 190, NO 6, 1970

DATE PUBLISHED-----70

SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS

TOPIC TAGS--TEMPERATURE, EXOSPHERE, EARTH PLANET, PLANET, SOLAR CORONA,
MERCURY PLANET, VENUS PLANET, MARS PLANET, JUPITER PLANET

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/0246

STEP NO--UR/0020/70/190/006/1303/1304

CIRC ACCESSION NO--AT0108563

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UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AT0108563

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHOR COMPARES THE KNOWN ABSOLUTE TEMPERATURES OF THE UPPER LAYERS OF THE EARTH'S EXOSPHERE (T SUBE) AND THE SUN'S OUTER CORONA (T SUBC) WITH THE CORRESPONDING VALUES OF THE GRAVITATIONAL POTENTIALS U SUBE AND U SUBC; CELESTIAL BODY SUN: TEMPERATURE OF CORONA AND EXOSPHERE EQUALS 2 TIMES 10 PRIME6; U, CM PRIME2 PLUS SEC PRIME2 EQUALS 6.3 TIMES 10 PRIME14; 3-2KT-M SUBH U EQUALS 0.40; CELESTIAL BODY EARTH: TEMPERATURE OF CORONA AND EXOSPHERE EQUALS 1.5 TIMES 10 PRIME3; U, CM PRIME2 PLUS SEC PRIME2 EQUALS 5.6 TIMES 10 PRIME11; 3-2KT-M SUBH U EQUALS 0.34. M, SUBH IS THE MASS OF A HYDROGEN ATOM (PROTON). THE ALTITUDES USED IN THESE DETERMINATIONS WERE APPROXIMATELY 800 KM FOR THE EARTH AND ABOUT 1.4 TIMES 10 PRIME6 KM FOR THE SUN. IT HAS BEEN DEMONSTRATED THAT THE UPPER LIMIT OF POSSIBLE TEMPERATURES OF THE OUTER ATMOSPHERES OF MANY STARS IS DETERMINED BY THEIR GRAVITATIONAL POTENTIAL. THE EXOSPHERES OF THE EARTH AND SUN HAVE LIMITING TEMPERATURES; WITHIN THEM THE STATE OF DISSIPATION OCCURS FOR PARTICLES WITH THE MASS OF A HYDROGEN ATOM. NEITHER THE RADICAL DIFFERENCES IN THE MAGNETIC FIELDS OF THE EARTH AND SUN NOR THE COMPOSITION AND DEGREE OF IONIZATION OF THE PARTICLES IN THEIR EXOSPHERES NOR OTHER DIFFERENT CONDITIONS IMPAIR THE DECISIVE EFFECT EXERTED ON THE TEMPERATURES OF THE TERRESTRIAL AND SOLAR EXOSPHERES BY THE GRAVITATIONAL FIELDS OF THESE CELESTIAL BODIES.

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PROCESSING DATE--11SEP70

CIRC. ACCESSION NO--AT0108563

ABSTRACT/EXTRACT--THIS, AS WELL AS THE FACT THAT THE INTERPLANETARY GAS CONSISTS FOR THE MOST PART OF HYDROGEN (ATOMIC AND IONIZED) IN THE NEIGHBORHOOD OF THE ORBITS OF OTHER PLANETS (EXCEPT THE EARTH) SUGGESTS THAT THE RATIO OF $3-2kT-m$ SUBH \bar{U} DIFFERS LITTLE FROM ITS VALUES FOR THE EARTH AND SUN IN THE EXOSPHERES OF MERCURY, VENUS, MARS, AND JUPITER AND THERE THE MEAN KINETIC ENERGY OF THE PARTICLES POPULATING THE EXOSPHERE IS CLOSE TO THE KINETIC ENERGY OF A HYDROGEN ATOM (PROTON), HAVING FIRST COSMIC VELOCITY FOR THESE PLANETS. THE TEMPERATURES OF THE EXOSPHERES OF MERCURY, VENUS, MARS, AND JUPITER CAN BE ESTIMATED AS FOLLOWS (IN DEGREESK): 400, 800, 300, 25,000. WITH RESPECT TO THE EXTENT OF THE UPPER EXOSPHERES, ALL OTHER CONDITIONS BEING EQUAL, IT IS PROPORTIONAL TO THE RATIO OF THE TEMPERATURE T TO MASS M .

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UNCLASSIFIED

USSR

UDC: 536.24:536.42

TOLUBINSKIY, V. I., MATORIN, A. S.

"Heat-Transfer Crisis in the Case of Boiling of Binary Mixtures Under Conditions of Forced Motion"

V sb. Teplo- i massopereenos. T. 2. Ch. 1 (Heat Transfer and Mass Transfer, Vol 2, Part 1--collection of works), Minsk, 1972, pp 62-66 (from RZh-Mekhanika, No 9, Sep 72, Abstract No 9B990)

Translation: The paper presents the results of experiments on the crisis when binary mixtures are boiled in tubes: alcohol - water, acetone - water, alcohol - benzene, ethylene glycol - water. The experiments were done in the following ranges of parameter variation: pressure $P = 3.3-13.2$ bars, rate of circulation $W = 2.5-10$ m/s, underheating $\Delta t_{\text{u}} = 10-110^{\circ}\text{C}$, concentration $C = 0-100\%$. Heat release was done on a tube with inside diameter of $d = 4$ mm and length $l = 60$ mm. It was noted that an increase in underheating and velocity raises the critical thermal load q_{cr} , the effect of underheating being nearly linear, and increasing with an increase in velocity. With an increase in the length of the tube, q_{cr} falls, but changes little beginning with $l/d > 10-12$. The effect of pressure in the investigated region was in-

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USSR

TOLUBINSKIY, V. I., MATORIN, A. S., Teplo- i massopereenos. T. 2. Ch. 1,
Minsk, 1972, pp 62-66

significant. In mixtures with azetron [sic] the dependence of q_{cr} on concentration has maxima coinciding with the maxima of excess content of the high-volatility component in the vapor as compared with the liquid. The increase in q_{cr} is attributed to the reduction in the detachment diameters of bubbles, their average rate of growth, and the number of vapor-generating centers. All this reduces the vapor content of the wall layer.

Another reason for increase of q_{cr} is assumed to be the rise in the gradient of surface tension on the phase interface. Due to the "Marangoni effect", these increased gradients prevent the merging of vapor bubbles and the formation of a stable vapor film. In mixtures without an azeotrope, the dependence of q_{cr} on concentration is monotonic, without maxima, which is due to the fact that there is no reduction in the detachment diameters of vapor bubbles and their rate of formation in this case. A dimensional computational formula which generalizes the results of the experiments to an accuracy of $\pm 20\%$ is proposed. Yu. Ye. Pokhvalov.

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USSR

UDC 621.396.677.71

POPOVKIN, V. I., MATORIN, A. V.

"Synthesis of an Antenna Array of Slot Radiators With Passive Elements"

Moscow, Radiotekhnika i Elektronika, Vol 16, No 7, Jul 71, pp 1133-1143

Abstract: A solution is found for the problem of synthesizing an antenna array of slot radiators which contains passive elements. It is assumed that the radiation pattern and geometry of the radiating system are given. Interaction of the radiators due to the external electromagnetic field is taken into consideration. The method of solution can be used to find the minimum number of active radiators in the system. An antenna system made up of N narrow slots cut in a closed ideally conducting surface S is considered. Some of the slots may be passive re-radiators. The active elements of the array are excited by independent sources. Their amplitude-phase distribution is calculated from the condition of the best approximation on the average to the given radiation pattern. Radiators are found from among those given which would make effective passive elements of the array, as well as the pure susceptance of the cavities of these radiators.

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Acc. Nr:

AP0048290

Abstracting Service:

CHEMICAL ABST. 5170

Ref. Code:

CR0472

04015v Heterogeneity of deformation and texture during the rolling of crystals. Belousova, N. S.; Borodkina, M. M.; Leskov, B. A.; Matern, V. I. (USSR). Fiz. Khim. Obrab. Mater. 1970, (1), 133-9 (Russ). Flat specimens were cut from a Fe + 45% Ni single crystal obtained by the Czochralski method. In cold-rolling, crystals with a (110)[112] orientation remain stable up to 91% deformation. The surface layer exhibits a small deviation from an ideal orientation. Scattering is small. The (110)[110] orientation is unstable. It passes, in rolling, into an (112)[111] + (112)[111] orientation with a high scattering and a high heterogeneity in depth. GBJR

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REEL/FRAME
19792012

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1/2 009 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--SELECTION OF CONDITIONS FOR THE CHROMATOGRAPHIC SEPARATION OF IONS
USING COMPLEXING REAGENTS BASED ON EQUILIBRIUM AND KINETIC DATA --U--
AUTHOR--MATORINA, N.N.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(3), 724-B

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHROMATOGRAPHIC SEPARATION, ION, COMPLEX COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3002/1212

STEP NO--UR/0076/70/044/003/0724/0728

CIRC ACCESSION NO--AP0124630

2/2 009 UNCLASSIFIED PROCESSING DATE--19NOV70
CIRC ACCESSION NO--AP0128630
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EQUATIONS FOR DETG. THE CONCEN.
OF THE COMPLEX FORMING ANION (C SUB1) AND COMPLEX FORMING REAGENT (C
SUB0) CORRESPONDING TO THE MAX. VALUE OF THE EQUIL. SEPN. FACTOR GAMMA
ARE PRESENTED. ANALOGOUSLY, THE RELATION FOR CALCN. OF C SUB1 AT ANY
POINT BETWEEN THE CENTERS OF THE CHROMATOGRAPHIC ZONES WAS DEVELOPED.
FACILITY: INST. FIZ. KHIM., MOSCOW, USSR.

UNCLASSIFIED

1/2 033 UNCLASSIFIED PROCESSING DATE--20NOV70
 TITLE--EFFECT OF TEMPERATURE ON ION EXCHANGE KINETICS IN THE PRESENCE OF
 COMPLEXING REAGENTS -U-
 AUTHOR-(04)-MATURINA, N.N., SAFONOVA, N.D., SHEPETYUK, L.V., CHMUTOV, K.V.
 COUNTRY OF INFO--USSR M
 SOURCE--ZH. FIZ. KHIM. 1970, 44(2), 486-90
 DATE PUBLISHED-----70
 SUBJECT AREAS--CHEMISTRY
 TOPIC TAGS--EUROPIUM, CATION EXCHANGE RESIN, ACTIVATION ENERGY, ENTROPY,
 HEAT EFFECT, COMPLEX COMPOUND, REACTION KINETICS/ION EXCHANGE
 RESIN
 CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAME--3002/1210 STEP NO--UR/0076/70/044/002/0486/0490
 CIRC ACCESSION NO--AP012862B
 UNCLASSIFIED

2/2 033

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--A0128628

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BY THE MEASURING AND CALCON. METHOD THE INTERNAL DIFFUSION COEFFS. OF EU PRIME POSITIVE POSITIVE POSITIVE IN CATION EXCHANGER KU,2 IN THE PRESENCE OF 0.01 M DIETHYLENTRIAMINEPENTAACETIC ACID WERE OBTAINED AT PH 2.0-3.7 AND FOR 30, 55, AND 85DEGREES. ALSO, THE ACTIVATION ENERGIES AND ENTROPIES OF ACTIVATION WERE CALCD. FOR VARIOUS TEMPS. AND PH. IN THE CASE OF FORMATION OF NONSORBING COMPLEXING IONS OR NONSORBING FORMS OF M(OH) SUBN (OWING TO TH EHYDROLYSIS) VALUES OF THE APPARENT ACTIVATION ENERGY AND ENTROPY OF ACTIVATION DEPEND ON PH AND TEMP. THE INCREASE OF CONCN. OF NONSORBING COMPLEXING IONS OR OF CONCN. OF M(OH) SUBN IS ACCOMPANIED BY THE INCREASING THERMODYNAMIC FUNCTIONS STUDIED. THE DEPENDENCIES OF EFFECTIVE INTERNAL DIFFUSION COEFFS., AND THE APPARENT ACTIVATION ENERGY AND THE ENTROPY OF ACTIVATION ON PH AND ON TEMP. CONFIRM THE MECHANISM OF SORPTION OF IONS IN THE PRESENCE OF COMPLEXING REAGENTS: THE RATE OF INTERNAL DIFFUSION PROCESSES DURING FORMATION OF NONSORBING COMPLEX IONS WITHIN IONEXCHANGER GRAINS IS DEPENDENT ON THE RATIO OF IONS BOUND IN A COMPLEX AND FREE IONS IN THE IONEXCHANGER PHASE. FACILITY: INST. FIZ. KHIM., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 911.3.615-02.613.12 (571.55)

~~MATOSHIN, V. M.~~

"Seasonal Changes in Some Health Indexes for Workers in China

V sb. Akklimatiz. i krayev. pitol. cheloveka na Severi (Acclimatization and Regional Pathology of Man in the Far North--collection of works), Arkhangel'sk, 1970, pp 109-112 (from RZh-36. Meditsinskaya Geografiya, No 1, Jan 71, Abstract No 1.36.37 by T. Koretskaya)

Translation: The Transbaikal climate is characterized by great intensity of climatic factors and their sudden drops over a 24-hour period or a season. Statistical analysis of the material revealed a direct correlation between the frequency of aggravation of bronchial asthma and the larger negative inversion of air; between the frequency of cases of myocardial infarct and brain hemorrhage and drops in barometric pressure. The best indices for the functional ability of the organism were noted in September.

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A. A. MATOV

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Soviet Inventions Illustrated, Section III Mechanical and General,
Derwent, 7-70

236489

AIR HUMIDIFIER comprises body connected by pipelines to a topping-up connection, tubular evaporating elements, an air duct formed by the inter-tube space and diffusors, and a ventilator set in a diffusor, having in its body levelling valves and compensatory elements in the form of rubber bulbs, within which are tubes with apertures on the surface. The working cavities of the body and the tubular evaporating elements are filled with hygroscopic material of wick type. On the topping-up connection is a removable filter filled with ion-exchange resins. This enables the device to work independently from a high pressure source. Air from the cabin is sucked up by the ventilator and goes via the diffusor into the inter-tube space, where it passes round the tubular evaporating elements, through the pores of which water is constantly evaporated into the air flow. From the inter-tube space the humidified air is ejected into the cabin. The evaporation of water from the pores of the tubular evaporating elements is due

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to the psychometric temperature difference. The rate of evaporation of the water automatically increases or decreases as the humidity of the incoming air decreases or increases, i.e. the cabin air is kept properly humidified without automation equipment. The device is applicable to air conditioning systems of aircraft.

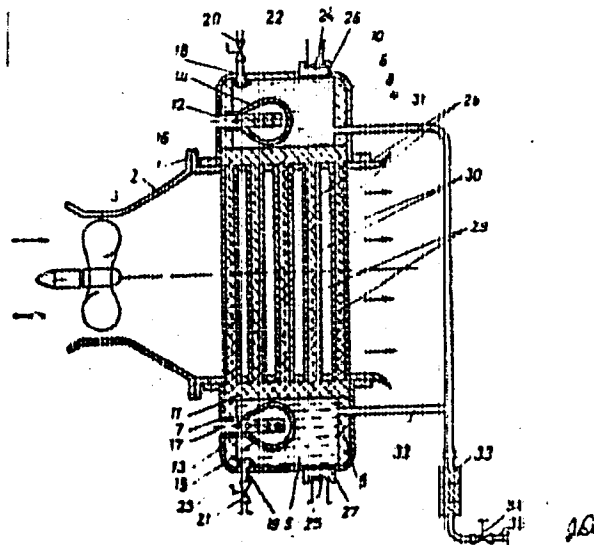
10.10.67 as 1191827/40-2] VORONIN G.I. et al.
(17.69) Bul. 7/1.2.69. Class 17f, 62c, Int. Cl.
F 25h, B 64d.;

Authors: Voronin, G.I.; Sharov, Yu.K.; Zav'yalov, Yu.F.;
Fiks, A.R.; Matov, A.A.; Khobotov, A.P.

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AA0051836



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Acc. Nr: **AP0035962**

Ref. Code: UR 0069

PRIMARY SOURCE: Kolloidnyy Zhurnal, 1970, Vol 12, Nr 1,
pp 91-93

STUDY OF ELECTRIC FLOTATION FOR ELECTROLYTE PURIFICATION
OF ELECTROLYSIS PRODUCTS

Matov, B. M.; Stepanov, P. M.; Prisyazhnyuk, B. I.; Grabois, B. A.

B. A. Grabois

Summary

Removal of ferric hydroxide from electrolyte by electric flotation is possible only if hydrogen bubbles are used since oxygen has an adverse effect on flotation. The optimum conditions of the electric flotation process have been established.

D.n.

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REEL/FRAME

19720703

MATOVA, M. A.

Автоматическая
запись

JPRS 00492
9 November 1973
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COMPLEX INVESTIGATION OF PSYCHIC STATES OF MAN IN
INDIVIDUAL AND GROUP ACTIVITY

Directed by M. A. MATOVA, Scientific Research Institute of General and Pedagogical Psychology of the USSR Academy of Sciences, CHISTENSKIY MONASTYR HOVSOKY, YANOVSKY PALKHOVODI, MARIYIN, 44, 1973, pp 42-52

Psychic states are manifested most clearly, and, therefore, can be studied most objectively in the process of individual and group activity of man. Here, the so-called "difficult" or "extreme" conditions of human activity act as "catalyzers". Such conditions are: deficiency of time, various interferences, necessity of performing two or more functions simultaneously, conflicting situations developing in a group in performing a common task, and others. The "indicators" of psychic states are the changes in the behavior of man, both manifested externally and hidden, as well as the peculiarities of his activity.

The problem of comprehensive investigation of psychic states of man under varying conditions of his activity can be solved only in a complex experimental study with the application of a combination of methods and experimental means.

Consequently, the present study has been done with the application of complex methods developed in recent years in the laboratory of psychic states: "laboratory" method [4], "group digital test" [5], as well as the "homeostatic method" and the "noise-resistance test" which have been sufficiently appreciated in aviation and space psychology.

Selection of these methods was determined by their model nature and common principles of organization and approaches.

*Materials of this study were reported in a brief form at the 4th All-Union Congress of the USSR Psychology Association in Tbilisi (1971).

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USSR

MATRESHIN, V. F., PETRITSYUK, V. D., MATRESHIN, A. V., and BORISOVA, G. P.

"Protective Action of Sodium Hydroxybutyrate in Poisoning by Organophosphorus Compounds"

Sb. Nauch. Robot Voen. Med. Fak. pri Kuybyshev Med. In-te (Collection of Scientific Papers of the Military Medical Faculty at the Kuybyshev Medical Institute), 1973, No 4, pp 206-208 (from RZh-Biologicheskaya Khimiya, No 24, Dec 73, Abstract No 2190)

Translation: The protective action of sodium hydroxybutyrate (I) was studied on mice using subcutaneous or intraperitoneal administration, 25 minutes prior to exposure to lethal doses of organophosphorus compounds. In preliminary experiments concentrations of I were determined (100 and 200 mg/kg) which exhibit marked protective action. It has been shown that subcutaneous administration of 100 and 200 mg/kg of I resulted in 65 and 85% survival of the animals respectively. It has been assumed that the expressed protective action of I (especially on subcutaneous injection) is connected with an action on the retarding CNS paths and not with the blocking of the choline receptors nor with the action of nucleophilic substances -- reactivators of CE.

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USSR

MATRESHIN, V. F., PETRITSYUK, V. D., MATRESHIN, A. V., and BORISOVA, G. P.

"Protective Action of Sodium Hydroxybutyrate in Poisoning by Organophosphorus Compounds"

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Translation: The protective action of sodium hydroxybutyrate (I) was studied on mice using subcutaneous or intraperitoneal administration, 25 minutes prior to exposure to lethal doses of organophosphorus compounds. In preliminary experiments concentrations of I were determined (100 and 200 mg/kg) which exhibit marked protective action. It has been shown that subcutaneous administration of 100 and 200 mg/kg of I resulted in 65 and 85% survival of the animals respectively. It has been assumed that the expressed protective action of I (especially on subcutaneous injection) is connected with an action on the retarding CNS paths and not with the blocking of the choline receptors nor with the action of nucleophilic substances -- reactivators of CE.
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1/2 026 UNCLASSIFIED PROCESSING DATE--04DEC70
 TITLE--DETERMINATION OF THE DAMPING CHARACTERISTICS OF SYSTEMS WITH
 AMPLITUDE, DEPENDENT RESISTANCE -U-
 AUTHOR--MATREYEV, V.V.
 M
 COUNTRY OF INFO--USSR
 SOURCE--PROBLEMY PROCHNOSTI, VOL. 2, MAY 1970, P 11-17. 17 REFS.
 DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS, MECH., IND., CIVIL AND MARINE ENGR
 TOPIC TAGS--VIBRATION DAMPING, ABSORPTION COEFFICIENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRA--3007/0879

STEP NO--UR/3663/70/002/000/0011/0017

CIRC ACCESSION NO--AP0136313

UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--04DEC 70

CIRC ACCESSION NO--AP0136313

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ANALYSIS OF DIFFERENT EXISTING DEFINITIONS OF THE DAMPING CHARACTERISTICS (ABSORPTION COEFFICIENT) OF DISSIPATIVE SYSTEMS. A DISCREPANCY IS REVEALED BETWEEN THE VALUES OF CHARACTERISTICS DETERMINED FROM THE DAMPING OF THE NATURAL VIBRATIONS OF A SYSTEM WITH AN AMPLITUDE DEPENDENT RESISTANCE AND THE VALUE OF THE ENERGY DISSIPATION CHARACTERISTIC FOR STEADY STATE VIBRATIONS. IT IS SHOWN THAT THIS DISCREPANCY SHOULD BE ATTRIBUTED TO THE NATURE OF THE DISSIPATIVE FORCES AND TO THE METHOD BY WHICH THEY ARE DETERMINED. A DEFINITION OF THE AUTHENTIC VALUE OF THE ENERGY DISSIPATION CHARACTERISTIC OF A SYSTEM DETERMINED FROM THE DAMPING OF ITS NATURAL VIBRATIONS IS PROPOSED. FACILITY: AKADEMIIA NAUK UKRAINSKOI SSR, INSTITUT PROBLEM PROCHNOSTI, KIEV, UKRAINIAN SSR.

UNCLASSIFIED

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.I.
COUNTRY OF INFO--USSR

SOURCE--KHIM. PROM. (MOSCOW) 1970, 46(3), 167-9

DATE PUBLISHED--70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--DEHYDRATION, BUTYRIC ACID, HYDROXYL RADICAL, INTEGRAL
EQUATION, MATHEMATIC MODEL, CATALYST, METHACRYLIC ACID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--2000/0815

STEP NO--UR/0064/70/046/003/0167/0169

CIRC ACCESSION NO--AP0124482

UNCLASSIFIED

2/2 014

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:CHCO SUB2 H OVER A CA SUB3(PO 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.

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