

NABIYEV, M.N.; PALETSKIY, G.V.; ANISIMKIN, I.G.; REBENKO, M.; KALININ, Ye.P.;
TROFIMOV, S.M.; WURGAFT, G.V.; POPOV, V.S.; KOROL', P.Z.;
KULIK, A.A.; KAL'MAN, L.A.; FARBER, S.I.; MATVEYEVA, N, Ye.;
GAVRILOV, V.S.; KADYROV, V.K.; IL'YASOV, A.I.; YAKUBOV, S.G.;
PROSKURIN, M.P.; NESTERENKO, A.P.; DEZHIN, N.D.; KOCHEROV, V.,
red.; POPOV, V., red.; SALAKHUTDINOVA, A., tekhn. red.

[Chirchik, a city of major industrial chemical complexes]
Chirchik - gorod bol'shoi khimii. Tashkent, Gosizdat UzSSR,
1962. 82 p. (MIRA 16:6)

1. Chlen-korrespondent Akademii nauk UzSSR (for Nabiyeu).
2. Rabotniki Chirchikskogo elektrokhimkombinata (for all
except Nabiyeu, Kocherov, Popov, V., Salakhutdinova).
(Chirchik--Chemical plants)

NIKOLAYEVSKIY, Georgiy Konstantinovich; PANOV, Vladimir Stepanovich;
TOMAREVSKAYA, Yevgeniya Stepanovna; SITNIKOV, Vladimir
Stepanovich; CHETVERUKHIN, N.F.; LEVITSKIY, V.S.;
FRYANISHNIKOVA, Z.I.; TEVLIN, A.M.; FEDOTOV, G.I.;
DMITRENKO, Ye.P., otv. red.; KURILOVA, T.M., red.;
NESTERENKO, A.S., red.; ALEKSANDROVA, G.P., tekhn.red.

[Required practice work in descriptive geometry] Obiaza-
tel'nyi praktikum po nachertatel'noi geometrii. Khar'kov,
Khar'kovskii gos.univ., 1963. 122 p. (MIRA 17:1)

STEPIN, Lev Dmitriyevich; KULIK, I.O., kandi. fiz.-mat. nauk,
otv.red.; NESTERENKO, A.S., red.; TROFIMENKO, A.S.,
tekh. red.

[A course of lectures on quantum radio physics] Kurs
lektzii po kvantovoi radiofizike. Khar'kov, Izd-vo
Khar'kovskogo univ., 1963. 167 p. (MIRA 17:3)

DOROKHOV, Aleksandr Petrovich; KOROCHKINA, Galina Stepanovna;
STARODUBTSEV, Viktor Aleksandrovich; TSARENKO, Vladimir
Timofeyevich; VOLKOV, A.A., retsenzent; OGORODNEYCHUK,
I.F., retsenzent; RUDENKO, V.S., retsenzent; TETEL'BAUM,
Ya.I., retsenzent; FILONENKO, S.N., dots., otv. red.;
NESTERENKO, A.S., red.

[Principles of industrial electronics] Osnovy promyshlennoi
elektroniki. [By] A.P.Dorokhov i dr. Khar'kov, Izd-vo
Khar'kovskogo univ., 1964. 214 p. (MIRA 17:8)

NESTERENKO, A.S.

Automatic regulation of the processes of wood drying. Sum. 1
der. prom. no.2:32-33 Ap-Je '64. (MIRA 17:9)

LITVIN Grigoriy Il'ich; VLAZNEVA, Tat'yana Grigor'yevna;
KHINEVICH, V.N., kand. tekhn. nauk, dots., otv. rei.;
NESTERENKO, A.S., Ed.

[Collection of problems on construction machines] Sbornik
zadach po stroitel'nyim mashinam. Khar'kov, Izd-vo Khar'-
kovskogo univ., 1965. 50 p. (MIRA 18:7)

ROZHANSKIĭ, Zinoviy Yevseyevich; BUKI, Yuriy Markovich; AERAMOVA,
L.I., dots., otv. red.; NESTERENKO, A.S., red.

[Practical laboratory work on the electrical equipment of
substations] Laboratornyi praktikum po elektrooborudovaniiu
podstantsii. Khar'kov, Izd-vo Khar'kovskogo univ., 1965.
120 p. (MIRA 18:5)

NESTCHENKO, A. T. (Engr)

NESTCHENKO, A. T. (Engr) -- "Investigation of New Aspects of Stainless Steel for Surgical Knives." Sub 23 Dec 52, Moscow Machine-Tool and Tool Institute of V. I. Stalin. (Dissertation for the Degree of Candidate in Technical Sciences).

SO: Vechernaya Moskva, January-December 1952

NESTERENKO, A.T.

137-58-2-4150

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 2, p 269 (USSR)

AUTHOR: Nesterenko, A.T.

TITLE: New-type Stainless Steel Sought for Injection Needles to Improve Their Elastic and Piercing Properties (Izyskaniye novykh marok nerzhaveyushchikh staley dlya in'yektsionnykh igl s tsel'yu povysheniya uprugikh i kolyushchikh svoystv)

PERIODICAL: Materialy po obmenu opytom i nauchn. dostizh. v med. prom-sti, 1957, Nr 2 (21), pp 3-9

ABSTRACT: An investigation was made of stainless steels Kh18N9, 2Kh18N9, 2Kh18N9T, 2Kh18N8V4, 2Kh13N8G4, 2Kh13N4G9, 2Kh13G16, and 1Kh18N9T (used to make injection needles) with a view to improving their elastic and piercing properties. Capillary tubes were made from these steels, and needles were made from the tubes, and the needles were subjected to mechanical and corrosion testing. Recommended for use in the manufacture of injection needles is steel 2Kh18N8V4 containing 0.2 - 0.3 percent C, 7-9 percent Ni, 2 percent Mn, 17-20 percent Cr, 3.5 - 4.0 percent W. This steel possesses the following properties: (cold-hardened, reduced up to 74 percent)

Card 1/2

137-58-2-4150

New-type Stainless Steel Sought for Injection Needles (cont.)

$\sigma_b = \sim 200 \text{ kg/mm}^2$, (annealed) $\sigma_b = 72 \text{ kg/mm}^2$; $\delta = 53$ percent.
 $R_C = 46-48$ (for steel reduced 72 percent); $R_C = 47-53$ (for needles 0.6 mm
in diameter). When boiled in tap water and maintained for long periods in a
damp environment this steel exhibited good corrosion resistance.

V. L.

1. ~~Steel--Applications~~ 2. ~~Steel--Properties~~

Card 2/2

NESTERENKO, A.T.

Testing stainless steels to be used for injection needles. Med.
prom. 11 no. 4:13-18 Ap. '57. (MIRA 10:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut meditsinskogo
instrumentariya i oborudovaniya.
(STEEL, STAINLESS) (MEDICAL INSTRUMENTS AND APPARATUS)

FEDURKIN, V.V.; NESTERENKO, A.T.; KOVSHAROVA, L.A.; RAZUMOVSKAYA, Ye.I.;
OSIPOVA, Ye.V.; ~~VASHIL'YEVA, G.S.~~; PEKARSKIY, M.D., otv.red.;
ZVORONCO, B.P., zamestitel' otv.red.; BOLDYREV, B.V., red.; VOLODIN,
Ye.A., red.; DANIL'CHENKO, Ye.P., red.; ORSKIY, I.N., red.; MISHIN,
L.N., red.; FREYDIN, G.S., red.; TSEPELEV, Yu.A., red.

[Technological instruction material; aluminum and aluminum alloys
for medical articles] Rukovodiashchie tekhnicheskie materialy;
aliuminii i aliuminievye splavy dlia meditsinskikh izdelii. Moskva,
M-vo zdravookhraneniia, 1959. 70 p. (MIRA 13:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut meditsinskogo
instrumentariya i oborudovaniya.

(MEDICAL INSTRUMENTS AND APPARATUS)

(ALUMINUM)

NESTERENKO, A. V.

Nesterenko, A. V. - "A graphic analysis of the changes in the condition of the air in rooms with excessive heat and moisture," Sbornik trudov Stroit. in-ta Mosk. soveta, Issue 2, 1948, p. 89-100

SO: U-3600, 10 July 53, (Leto is 'Zhurnal 'nykh Statey, No. 6, 1949).

NESTERENKO, A. V.
USSR/Physics - Evaporation exchange

FD-445

Card 1/1 : Pub. 153 - 15/18

Author : Nesterenko, A. V.

Title : Heat and mass exchange during evaporation of a liquid from the free surface

Periodical : Zhur. tekhn. fiz. 24, 729-741, Apr 1954

Abstract : A report read May 23, 1952 at the Conference on the Technology of Drying, organized by a division [otdeleniye] of the Moscow Society of Power Engineers in the All-Union Heat Engineering Institute imeni F. Dzerzhinskiy. Experimentally investigates the physical nature of heat and mass exchange during evaporation, following the work of Prof. A. V. Lykov. Concludes here: (1) The first approximation of the mechanism of this exchange has been obtained. (2) There is no similarity between the temperature fields and concentration fields over the evaporation surface. (3) Stefan's hypothesis has been verified. (4) The law governing the variation of the individual components of heat flow and mass flow has been established. (5) A new criterion of heat exchange as a function of mass exchange has been established.

APPROVED FOR RELEASE: Monday, July 31, 2000

CIA-RDP86-00513R001136630

Submitted : June 13, 1953

NESTERENKO, A. V.

Dissertation: "An Experimental Study of Heat and Mass Exchange During the Evaporation of Liquids With an Open Surface." Dr Tech Sci, Moscow Order of Lenin Power Engineering Inst imeni V. M. Molotov, 11 Jun 54. (Vechernyaya Moskva, Moscow 2 Jun 54)

SO: SUM 318, 23 Dec 1954

NESTERENKO, A.V.

NESTERENKO, A.V.; SEREBRYAKOV, G.P.

Psychrometric diagram for plating processes occurring in air conditioning. Trudy NTIPP no.8:96-109 '57. (MIRA 10:12)
(Air conditioning) (Hygrometry)

nonow Technological Inst of the Food Industry

NESTERENKO, A.V.

5(4)

PHASE I BOOK EXPLOITATION

SOV/1435

Akademiya nauk SSSR. Energeticheskiy institut

Teplo- i massobmen v protsessakh ispareniya (Heat- and Mass-Transfer in Evaporation Processes) Moscow, Izd-vo AN SSSR, 1958. 254 p. 5,000 copies printed.

Resp. Ed.: Lykov, A.V., Academician, BSSR Academy of Sciences; Eds. of Publishing House: Tal', A.A. and Smirnov, V.A.

PURPOSE: This book is intended for scientists and engineers in heat engineering and chemical technology and for students and teachers of higher educational institutions in these fields.

COVERAGE: This collection contains articles relating to analytical and experimental investigations of heat - and mass-transfer under conditions of phase and chemical transformations. A new method of solving unsteady-state heat-flow problems is presented. Methods of determining heat - and mass-transfer coefficients during the heating and drying of a composite substance are given. New experimental principles of surface heat- and mass-transfer in vaporization processes are explained and new

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Heat- and Mass-Transfer (Cont.)

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relationships in the theory of molecular energy transfer are ascertained through the thermodynamics of irreversible processes.

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Card 5/5

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5-6-59

33619

SOV/81-59-5-15641

5.1170

Translation from: Referativnyy zhurnal, Khimiya, 1959, Nr 5, pp 285 - 286
(USSR)

AUTHOR: Nesterenko, A.V.

TITLE: Thermal and Mass Exchange in Evaporation of a Liquid

PERIODICAL: V sb.: Vses. nauchno-tekhn. soveshchaniye po intensiv. protsessov i ulucheniyu kachestva materialov pri sushke v osnovn. otraslyakh prom-sti i s-kh. Plenarn. zased. Moscow, 1958, pp 62 - 67

ABSTRACT: In the evaporation of liquid from a free surface such temperature conditions are permissible, whereby the heat flow has a direction from the surface of evaporation to the air and from the air to the evaporation surface. It was shown that in the first case the character of the temperature field in the boundary layer of the liquid, is expressed more sharply and at equal differences between the temperatures of the surface t_s and air t_a , the intensity of the evaporation is several times greater. Experimental data show that in this case t_s

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Thermal and Mass Exchange in Evaporation of a Liquid

depends on the intensity of the heat and mass transfer, which, in turn, is determined by the hydrothermal state of the air and hydrodynamic conditions of the process. From experiments of evaporation from a free surface of water with the direction of the heat flow from the surface to the air, equations are derived for the determination of t_s : for the free motion of air $\Psi = (t_1 - t_s)/(t_a - t_m) = 0.0135 \cdot K^{-1.5} (Ar.Pr)^{0.06}$, and for forced motion of air $\Psi = 0.00615 \cdot K^{-0.96} \cdot Re^{0.34}$, where $K = (t_a - t_m)/(t_1 - t_m)$, t_1 is the temperature of the liquid, t_m is the temperature of air taken with a wet thermometer, $Ar.Pr$ the product of the criteria of Archimedes and Prandtl, making allowance for the hydrodynamic conditions of the process and the physical properties of air.

A. Rovinskiy

Card 2/2

NESTERENKO, Aleksey Vladimirovich; LEBEDEV, P.D., doktor tekhn. nauk, prof., retsenzent; DROZDOV, V.F., kand. tekhn. nauk, dots., retsenzent; IVANOV, V.G., nauchnyy red.; MARTYHOV, A.P., red. izd-va; MURASHOVA, V.A., tekhn. red.

[Principles of thermodynamical calculations in air conditioning and ventilation] Osnovy termodinamicheskikh raschetov ventilatsii i konditsionirovaniia vozdukha. Moskva, Vysshaya shkola, 1962. 354 p. (MIRA 15:9)

1. Zaveduyushchiy kafedroy "Otopleniya i ventilyatsii" Vsesoyuznogo zaochnogo inzhenerno-stroitel'nogo instituta (for Drozdov). (Heating and ventilation) (Air conditioning) (Ventilation)

LYKOV, A.V.; SHEVEL'KOV, V.L.; NESTERENKO, A.V.; LEBEDEV, P.D.; MAKSIMOV,
G.A.; NIKITINA, L.M.

IUrii Leonidovich Kavkazov; on his 70th birthday. Inzh.-fiz.
zhur. 8 no.1:124-125 Ja '65. (MIRA 18:3)

KOKORIN, Oleg Yanovich; GOGOLIN, A.A., doktor tekhn. nauk,
nauchn. red.; KAMENEV, P.N., doktor tekhn. nauk, red.;
NESTERENKO, A.V., doktor tekhn. nauk, red.; SMIRNOVA,
A.P., red.

[Evaporation cooling systems for air conditioning] Ispa-
ritel'noe okhlazhdenie dlia tselei konditsionirovaniia
vozdukha. Moskva, Stroiizdat, 1965. 158 p.

(MIRA 18:5)

~~NESTERENKO, Aleksandr Vladimirovich~~, doktor tekhn. nauk, prof.;
MARTYNOV, A.P., red.

[Fundamentals of thermodynamic calculations for ventilation and air conditioning] Osnovy termodinamicheskikh raschetov ventilatsii i konditsionirovaniia vozdukh. Moskva, Vysshaya shkola, 1965. 394 p. (MIRA 18:8)

20150

9.4300 (and 1043, 1035, 1143)

S/181/61/003/002/048/050
R102/8201

AUTHORS: Kosenko, V. Ye. and Nesterenko, B. A.

TITLE: Evaporation of silicon in tellurium vapors

PERIODICAL: Fizika tverdogo tela, v. 3, no. 2, 1961, 660-662

TEXT: The fact that germanium displays an abnormally high evaporation rate in tellurium vapors has already been established earlier (Ref. 1, FTT, 3, 1961); it was only natural to expect a similar behavior of silicon as well. A study has been made of the evaporation rate of silicon single crystals in tellurium vapors at temperatures of 700-1150°C. The method used was the same as the one described in Ref. 1. The Si specimens submitted to an examination had a resistivity of 10 ohm-cm; they were ground and etched to a depth beyond 100 μ (with three parts of 48% HF, five parts of 70% HNO₃, three parts of acetic acid, and two parts of saturated aqueous Hg(NO₃)₂ solution).

The evaporation took place in a 20-cm long and 2-cm thick quartz ampul heated by two ovens; the temperature drop in the ampul was monotonic from one end to the other. The specimen was placed at the "hot" end. Once it was

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Evaporation of silicon ...

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evaporated, the silicon crystallized at the "cold" end of the ampul in the form of regular crystallites; an X-ray analysis of the latter revealed that their lattice constant was equal to that of pure silicon. With the silicon specimen at a temperature of 1000°C the evaporation rate of silicon was found to increase monotonically with rising tellurium vapor pressure, and when the latter attained 100 mm Hg, it was found to be already more than 10^6 times as large as the evaporation rate of silicon into the vacuum. In fact, the tellurium vapors have a two-fold effect upon the silicon evaporation: on the one hand, they speed it up by an as yet unknown interaction mechanism, while on the other, they impede the passage of the evaporated Si atoms to the "cold" side of the ampul. The two effects are the stronger the higher the vapor pressure. The temperature dependence of the evaporation rate W is given by $W = W_0 \exp(-E/RT)$, where E denotes the evaporation heat; this function, in the form $\log W = \log W_0 - E/RT$, is with the measured values shown in Fig. 2 for 0 (1), $3 \cdot 10^{-4}$ (2), 10^{-1} (3), 10 (4), and 10^2 mm Hg (5). Curve 1 (zero pressure) has been calculated here on the basis of data found in the literature. The dependence of the evaporation heat on the tellurium vapor pressure p_{Te} is tentatively represented by the

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Evaporation of silicon ...

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formula $E = E_0 - \alpha p_{Te}^n$, where E_0 is the evaporation heat on evaporation into the vacuum ($E_0 = 4.55$ ev), α and n are constants. In this case, $\log \Delta E$ ($\Delta E = E_0 - E$) will be a linear function of $\log p_{Te}$ (Fig. 3); the four measurement values $E = 0.6, 0.91, 1.5,$ and 2.1 ev (for $p_{Te} = 10^2, 10, 10^{-1},$ and $3 \cdot 10^{-4}$ mm Hg) lie satisfactorily upon this straight line, which confirms the ansatz for $E(p_{Te})$. Numerically, $E = 4.55 - 3.3 p_{Te}^{0.04}$. V. Ye. Lashkarev, Academician of the AS UkrSSR and the senior scientific worker Ye. G. Miselyuk are thanked for advice. There are 3 figures and 3 references: 1 Soviet-bloc and 1 non-Soviet-bloc.

ASSOCIATION: Institut fiziki AN USSR Kiyev (Institute of Physics AS UkrSSR, Kiyev)

SUBMITTED: July 22, 1960

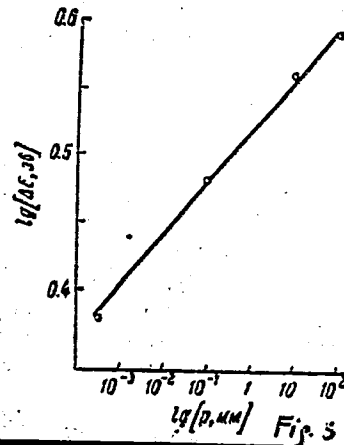
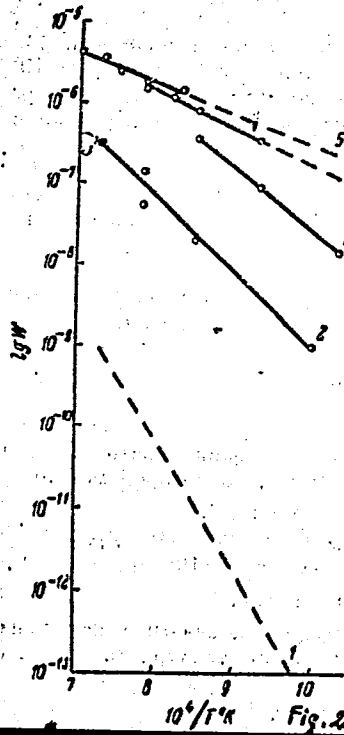
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Evaporation of silicon

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B102/B201

Figs. 2 and 3



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NESTERENKO, B.A.; PASECHNIK, Yu.A.; SNITKO, O.V.; FROLOV, O.S.

Field effect in thin lead sulfide films. Fiz. tver. tela 5. no.11:
3199-3206 N '63. (MIRA 16:12)

1. Institut poluprovodnikov AN UkrSSR, Kiyev.

L 1562-66 EWT(m)/EPF(c)/ENP(t)/ENP(b) IJP(c) JD/WB

ACCESSION NR: AP5018635

UR/0185/65/010/007/0745/0752

AUTHORS: Nesterenko, B. O. (Nesterenko, B. A.); Snitko, O. V. ⁴⁹₄₄
B

TITLE: Effect of oxidation on the properties of an atomically clean silicon surface ₁₆

SOURCE: Ukrayins'kyy fizychnyy zhurnal, v. 10, no. 7, 1965, 745-752

TOPIC TAGS: oxidation, surface ionization, surface property, silicon

ABSTRACT: The purpose of the work was to obtain information on the type, concentration, and other parameters of electronic levels of atomically clean and oxidized surfaces of silicon by studying the surface conductivity, the direct-current and voltage-pulse field effects, the noise and rate of recombination. Four samples cut out from single-crystal p-type silicon parallel to (111) were investigated at 295K. The specific resistance of the samples was 600 -- 1000 ohm-cm. The surface was bombarded with argon ions with subsequent heating to 1000K in a vacuum no worse than 1×10^{-9} mm Hg. Amplitudes of ± 200 v

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and 40 μ sec to 2 millisecc long were used in the studies with voltage-pulse field effect. The hole conductivity of an atomically clean surface was found to be $1.3 \times 10^{-7} \text{ ohm}^{-1}$. The adsorption of oxygen at $5 \times 10^{-7} \text{ mm Hg}$ leads to an increase of the surface conductivity by $4 \times 10^{-8} \text{ ohm}^{-1}$. Further oxidation does not lead to appreciable changes. It is shown that an atomically clean surface of p-type silicon has a surface potential $\chi_s = 7-12 \text{ kT/e}$. The nonexponential decay of the induced conductivity in the voltage-pulse field effect indicates screening of the external field by several different energy levels. The rate of surface recombination on a clean surface is large ($1.2 \times 10^3 \text{ cm/sec}$). The noise obeys a $1/f$ law. Oxidation of the surface affects its properties, with the exception of the kinetics of the field effect and noise, little. A correlation is observed in the change of the kinetics of the field effect and noise on oxidation. It is concluded that the effect of fast surface states in the noise

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ACCESSION NR: AP5018635

mechanism is appreciable. The appearance of slow levels in the oxidation process is demonstrated. Considerable differences are found between atomically clean surfaces of silicon and germanium. 'In conclusion the authors express their sincere gratitude to Professor V. I. Lyashenko, senior scientist V. G. Litovchenko, and junior scientist R. O. Litvinov for detailed discussions of the results and for valuable advice, and also the laboratory member comrade V. T. Rozumnyuk for help in carrying out the experiment.' Orig. art. has: 4 figures.

ASSOCIATION: Instytut napivprovidnykiv AN URSR [Institut poluprovodnikov AN UkrSSR] (Institute of Semiconductors, AN UkrSSR)

SUBMITTED: 24Nov65

ENCL: 00

SUB CODE: SS, GC

NR REF SOV: 005

OTHER: 012

Card

3/3

910

Nesterenko, E.

AUTHOR: Nesterenko, E. 27-7-30/37

TITLE: Interchange of Experience (Obmen opytom)

PERIODICAL: Professional'no - Tekhnicheskoye Obrazovaniye, 1957, # 7(146),
p 32 (USSR)

ABSTRACT: More than 60 teachers and masters of agricultural mechanization schools of the Chernigov Oblast' assembled at Nezhin for an exchange of experiences gained in training agricultural mechanics. Much attention was paid to the new method of practical training. The agricultural work of the instruction program is carried out under the instructors' supervision. A kolkhoz' manager emphasized the students' good work, expressing at the same time the wish that this form of practical training be continued as it also helps the local kolkhoz.

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S/601/62/000/014/008/012
1003/1203

AUTHORS: Nesterenko, E. G. and K. V. Chuistov

TITLE: The influenc of imperfections in crystals on the strengthening of decomposing solid solutions

SOURCE: Akademiya nauk Ukrayins'koyi RSR. Instytut metalofyzyky. Sbornik nauchnykh rabot. no. 14. Kiev, 1962. Voprosy fiziki metallov i metallovedeniya, 89-104

TEXT: The works recently published by several Soviet authors indicate that the streghening of aged alloys is due to a breaking up of the blocks of the mosaic structure and to the imperfections in the crystalline lattices. However, no quantitative analysis of the data obtained in these works could be carried out because different alloys were involved. In order to overcome this difficulty, the influence of various aging processes as well as of the structure and of the amount of the precipitating phase on the variation of the crystalline structure and on the strengthening of the supersaturated solid solution during aging is determined by comparing data from investigations of various copper-base alloys. Binary alloys Cu-Be, Cu-Ag, Cu-Ti and ternary alloys Cu-Ti-Zr and Cu-Ti-Be were prepared, heated to 800-950°C and quenched in water. The samples were then aged at temperatures from 100 to 700°C. The resulting imperfections in the crystalline lattices were investigated by X-ray methods. The results showed that the strengthening of the supersaturated solid solu-

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The influence of imperfections...

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I003/I203

tion on aging is always accompanied by a formation of imperfections in the crystalline lattices and by breaking up of up the blocks of the mosaic structure. The conclusion drawn is that the strengthening of alloys on aging is due to those imperfections in the crystalline lattice which were caused by the process of decomposition of the solid solution. The fact is emphasized that the elucidation of all the factors resulting in the strengthening of the alloys during aging requires further investigations There are 4 figures and 6 tables

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KILIMIE, A.M., student; MOUFANOVA, E.T.; NESTERENKO, E.B., starshiy laborant

Some biochemical indices of surviving cancerous tissues in its
their cultivation by the continuous flow method. sbor. nauk.
trud. kont. gen. med. inst. no.21:117-120, 1971.

(21) 1:117

1. iz kafedry glasheniya i zhiznennosti (aut. - prof. E.T. Mufanova)
Rostovskogo medicinskogo instituta.

SOV/85-58-10-18/34

AUTHOR: Nesterenko, G.

TITLE: Photon Space Ship (Fotonnyy kosmicheskiy korabl')

PERIODICAL: Kryl'ya rodiny, 1958, Nr 10, pp 16-17 (USSR)

ABSTRACT: Since the Second World War rockets equipped with liquid fuel engines have been widely used both for military purposes and for scientific studies of the upper atmospheric layers. Their perfection, speed, altitude and range have grown steadily. Single-stage meteorological rockets have reached an altitude of almost 500 km. at a speed of more than 6,000 km./hr., which exceeds the speed of sound by 5 to 6 times. When a simple increase in the size of a single-stage rocket was no longer capable of increasing speed and distance, designers began producing powerful multistage rockets capable of traveling thousands of kilometers and called intercontinental ballistic missiles. Soviet scientists have devoted considerable attention to perfecting different types of rockets. During the Second World War no army possessed as effective a rocket weapon as the Soviet Army's famous "Katyusha". Today strategic rockets must develop a maximum speed of 20,000 to 25,000 km./hr. to cover a distance of 8,000 to 10,000 km. To become an artificial earth satellite, the final rocket stage must develop an orbital velocity, which at an altitude of 300 to 500 km. amounts to about 28,000 km./hr.

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SOV/85-58-10-18/34

Photon Space Ship

This explains why the additional speed required for multistage rockets to launch artificial earth satellites was relatively small. Multistage rockets operating on chemical fuel have already succeeded in attaining orbital velocity, but the possibilities for such rockets are limited. At best it may be possible to produce a multistage rocket capable of carrying the first astronauts to the moon and back. Flights of manned space ships operating on chemical fuel to the nearest planets (Mars, Venus, etc.) are difficult to conceive because of the enormous weight of fuel, which would involve hundreds or thousands of tons. It is extremely difficult to increase the speeds of gas discharges from liquid rocket engines, but it is on this that the thrust, efficiency and final speed which a rocket can develop are dependent. Theoretically it is possible to increase the speed of rocket engine exhaust gases hundreds and thousands of times by using more powerful sources of energy. The greatest speed at which matter moves in nature is the speed of electromagnetic oscillations, i.e., the speed of light, which travels about 300,000 km./sec. and exceeds by 100,000 times the speed of gas discharge from present-day rocket engines. This shows the enormous potentialities for development of rocket technology and the vast prospects for rockets in the future.

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SOV/85-58-10-18/34

Photon Space Ship

Some scientists suggest present and future rockets be classified as gas, thermonuclear, pure nuclear, ion, and photon rockets. Present-day solid and liquid fuel rockets are of the gas type. If, with the aid of nuclear reaction, the temperature in the combustion chamber of the rocket engine can be raised to 6,000° - 10,000°C, and the speed of the gas discharge correspondingly increased to one 30,000th part of the speed of light (10 km. sec.), we shall have thermonuclear rockets operating on the same principle as liquid rocket engines, except that the exhaust gases will be heated to high temperatures by nuclear reaction and not by combustion. Today the so-called ion engines are receiving considerable attention. Reports and proposals on the subject of ion rockets were presented at the International Congress on Astronautics held in Barcelona. The force of the thrust of the ion rocket engine must be derived by repellant action of electrically charged ion particles, accelerated to speeds of several hundred kilometers per second by special accelerators. If sufficiently light and compact accelerators are produced, the use of ion rockets may establish a new era in the development of rocket technique and interplanetary flight. It is theoretically possible, by using powerful generators and emitters of directed light photons which would leave the engine at a speed of 300,000 km./sec., to produce a photon rocket which in the opinion of some scientists would represent a gigantic step in the development of modern aviation and rocket technique.

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Science has established that light, and in the broader sense, radiation in general, consists of electromagnetic waves with a wide frequency range having a material base. Visible light, as well as light invisible to the naked eye, is emitted and absorbed by various substances in definite amounts of various frequencies and energies. These minute parcels of radiation are called photons or quanta. In recent years there have appeared the terms "matter" and "antimatter". It is possible that in time types of matter and antimatter may be used as "photon fuels" for rockets. The probable construction of a hypothetical photon rocket may be visualized as follows: "photon fuel" is placed in a rocket having two equal partitions, liquid matter on one side, liquid antimatter on the other, and kept in insulated tanks. Both liquids are pumped into compact accelerators of "elementary" particles. Atoms accelerated to necessary speeds are shot at each other. Collision and annihilation occur at the focal point of a large photon reflector. Rays of visible light and other types of radiation stream from the focal point to all sides but are deflected by the reflector and directed in a parallel beam to one side of the rocket, creating a reactive force of thrust. By moving the annihilation point from the focal point of the reflector to one side, it is possible to alter the direction of the thrust and to control the movement of the rocket

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Photon Space Ship

SOV/85-58-10-18/34

within certain limits. Powerful, dense beams of photons are necessary to obtain an adequate thrust for a heavy rocket from such a photon engine. These beams will undoubtedly melt or reduce to ashes everything in their path. The launching of photon rockets will most likely take place from high altitudes which they will reach with the aid of rocket accelerators operating on chemical fuels. The development of an effective reflective system will be of great importance in producing a photon engine, as will be a satisfactory cooling system and the insulation of engine walls from high temperatures in the operating area. The thermonuclear or annihilation reaction will produce temperatures up to hundreds of millions of degrees in the working area and require durable materials of a kind as yet unknown. It is further necessary to develop effective artificial thermal insulation of the engine walls of a kind that cannot be determined at this stage. Powerful electromagnetic fields, highly effective reflective systems, movable insulating films, or dense layers of gas may be used as heat insulation. For example, the reflector of a photon engine must reflect the radiant energy falling on it almost completely. But that part of the energy which is absorbed by the reflector and which heats it, must be removed by a cooling system.

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Photon Space Ship

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It would be logical to use layers of semiconductor elements converting thermal to electrical energy for this system. On the one hand, the reflector would be held within the necessary temperature range, and on the other, the radiant energy that is absorbed will not be lost, since the electrical energy obtained from the semiconductor elements may be used for rocket drive, as power supply for equipment, and for the creation of an artificial climate in the cabins of the rocket for normal crew activities. The photon rocket makes theoretically possible flights at speeds approaching the speed of light. Such speeds will permit study not only of our solar system, but of other, more distant worlds. The photon rocket may assist in studying the famous "paradox of time". According to the theory of relativity, time on a space ship traveling at a speed commensurable with the speed of light will pass much more slowly than on the earth. It is assumed that humans returning from a long space journey after one or two years by their own "cosmic time," will be convinced that decades have passed on the Earth. It is difficult to understand and still more so to believe such paradoxes, but insofar as the concept of time is relative, it is possible that people using photon space ships may leap across centuries. On an insert between pages 16 and 17, there is an artist's conception and a diagram of the two-stage space ship described in the article.

Card 6/6

NESTERENKO, G.

AID P - 5533

Subject : USSR/Aeronautics - Atomic power plants
Card 1/1 Pub. 58 - 7/15
Author : Nesterenko, G.
Title : Towards an atomic power plant
Periodical : Kryl. rod., 12, 10-12, D 1956
Abstract : The author discusses the problem of the use of atomic power plants in aviation in connection with the developments in the domain of reduced-size reactors, the modifications in the construction of crew-protecting screens, and the new means of controlling the heat generated by atomic reactions. Also discussed are some problems referring to the construction of the wings and of the fuselage of the planes.
Institution : None
Submitted : No date

NESTERENKO, G.A.

Nesterenko, G.A. "Develop in every way subtropical crops in new areas", Sad i
ogorod, 1949, No. 2, p. 40-43

SO: U-3261, 10 April 53, (Letopis 'zhurnal 'nykh Statey No. 12, 1949)

NESTERENKO, G. A.

BEREZHKOV, I.M.; KAPTSIANGEL', M.A.; NESTERENKO, G.A.; ROSSOSHANSKIY, A.A.,
redaktor; **KHOMBRINA, N.M.,** *tehnicheskij redaktor*

[Subtropical plants] *Subtropicheskie kul'tury.* Moskva, Gos.izd-vo
sel'khoz.lit-ry, 1951. 576 p. (MIRA 10:9)
(Tropical plants)

KAPTSINEL', M. A., NESTERENKO, G. A.

Citrus Fruits

Basic problems in cultivating citrus crops in new areas. Sad i og., No. 6, 1952.

9. Monthly List of Russian Accessions, Library of Congress, _____ 1953. Unclassified.

NESTERINKO, G. A.

CITRUS FRUITS

Experience in cultivating citrus plants in new districts. Dost. sel'khoz. No. 7, 1952.

9. Monthly List of Russian Accessions, Library of Congress, December 195²~~3~~. Unclassified.

NESTERENKO, G. A.

Citrus Fruits

Dwarf plantings of lemons and oranges. Dost. sel'khoz. No. 3, 1953.

9. Monthly List of Russian Accessions, Library of Congress, June 1953. Unclassified.

1. NESTERENKO, G.A.
2. USSR (600)
4. Citrus Fruits
7. Growing citrus crops in new districts, Sad i og, no. 3, 1953.

9. Monthly List of Russian Accessions, Library of Congress, APRIL 1953, Uncl.

~~WISBRENKO G.A.~~

Results of the conference-seminar on the establishment of perennial
cultivated pastures. Zemledelis 4 no.7:125-128 J1 '56. (MIRA 9:9)
(Pastures and meadows)

USSR/Cultivated Plants. Fodder Plants.

M

Abs Jour : Ref Zhur-Biol., No 15, 1958, 68206

Author : Nesterenko, G. A.

Inst :

Title : Sowing Grasses and Improving the Production
of Fodder Grass Seed in Grain-Pulse Crops.

Orig Pub : Zemledeliye, 1957, No 4, 8-13

Abstract : The measures for improving grass sowings in the USSR are discussed. The author proposes that high-value fodder grasses should be sown in each region where these grasses can be cultivated. Thus, the production of commercial perennial grass seed would be raised to 43.6 thousand tons, of annual grass seed to 32 thousand tons, and of fodder grain-pulse seed to 300 thousand tons in 1960.

Card : 1/1

NESTERENKO, G.A., agronom.

Produce more protein-rich grain. Nauka i pered. op. v sel'khoz. 7
no.4:26-28 Ap '57. (MLRA 10:6)
(Leguminosae) (Forage plants)

VOSHCHININ, P.A.; NESTERENKO, G.A.

Introduction of forage plants from the flora of the U.S.S.R.
and the establishment of regions for the use of particular
perennial grasses in cultivated pastures and hay fields. Trudy
Bot.inst.Ser.6 no.7:178-182 '59. (MIRA 13:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut kormov im.
V.P.Vil'yamsa, Lugovaya.
(Pastures and meadows)

NESTERENKO, G.B., kandidat meditsinskikh nauk; KOGON, G.Kh.; LESHCHENKO, N.V.

Successful treatment of acute arthropathic psoriasis. Vest.ven. i
derm. no.3:52 My-Je '56. (MLRA 9:9)

1. Iz Dnepropetrovskoy oblastnoy klinicheskoy bol'nitsy imeni
I.I.Mechnikova.
(PSORIASIS)

NESTERENKO, G.B., kandidat meditsinskikh nauk; KOGAN, G.Kh.; LESHCHEENKO, N.V.

Multiple syphilitic lesions of the skull bones. Vrach.delo no.2:
193 F '57. (MLRA 10:6)

1. Dnepropetrovskaya oblastnaya klinicheskaya bol'nitsa.
(SYPHILIS) (SKULL--DISEASES)

~~SECRET~~ G. R. datsent

Blood proteins in eczema. Vrach.delo no.6:643 Je '58 (HIRA 11:7)

1. Kafedra koznykh i venericheskikh bolezney (zav. - A.N. Fedorovskiy, nauchnyy rukovoditel' prof. A.I. Kartamyshev) Dnepropetrovskogo meditsinskogo instituta.
(BLOOD PROTEINS)
(ECZEMA)

NESTERENKO, G. B.

Doc Med Sci - (diss) "Materials for the study of neurogenic pathogenesis of eczema." Moscow, 1961. 19 pp; (Ministry of Public Health USSR, Central Inst for Advanced Training of Physicians); 250 copies; price not given; list of author's works on pp 18-19 (22 entries); (KL, 6-61 sup, 235)

NESTERENKO, G.B., dotsent

Use of vitamin B₁ in treating eczema. Vrach. delo no. 4:141 Ap⁶¹.
(MIRA 14:6)

1. Kafedra kozhnykh i venericheskikh bolezney (zav. - prof. A.N. Fedorovskiy) Dnepropetrovskogo meditsinskogo instituta i kafedra kozhnykh i venericheskikh bolezney (zav. - prof. A.I. Kartamyshev) Tsentral'nogo instituta usovershenstvovaniya vrachey.
(ECZEMA) (THIAMINE)

FEDOROVSKIY, A.N., prof.; NESTERENKO, G.B., dotsent, KATKOVA, M.Ya.,
vrach; ORMAN, Ya.M., vrach; SHELYUZHENKO, A.A., vrach

Use of bicillin in the treatment of syphilis. Vest.derm.i ven.
no.9:ol-62 '61. (MIRA 15:5)

1. Iz kliniki kozhnykh i venericheskikh bolezney Dnepropetrovskogo
meditsinskogo instituta i oblastnogo kozhno-venerologicheskogo
dispansera.

(SYPHILIS)

(BICILLIN)

NESTERENKO, G.B., dotsent

Problem of the mechanism of development of eczema. Vest.derm.
i ven. 35 no.1:7-13 Ja '61. (MIRA 14:3)

1. Iz kafedry kozhnykh i venericheskikh bolezney Dnepropetrov-
skogo meditsinskogo instituta (zav. - prof. A.N. Fedorovskiy)
i kafedry kozhny i venericheskikh bolezney Tsentral'nogo insti-
tuta usovershenstvovaniya vrachey (zav. - prof. A.I. Kartamyshev).
(ECZEMA)

Nesterenko, G. N.

Subject : USSR/Aeronautics - Aircraft power plants (atomic) AID P - 4460
Card 1/1 Pub. 58 - 7/10
Author : Nesterenko, G.
Title : Atomic Airplane of the Future
Periodical : Kryl. rod., 1, 12-14, Ja 1956
Abstract : The article outlines the design of an aircraft atomic power plant as well as the principles of the functioning of the latter. Power plants of both atmospheric fuel and liquid fuel type are considered. The protection of the crews against radio-active emanations and against the heat are also discussed. The article ends with a schematic description of a hypothetical liquid fuel atomic power plant for space ships. Four schematic drawings and 2 sketches.
Institution : None
Submitted : No date

NESTERENKO, GENNADIY N.

Call Nr: AF 1149769

AUTHORS:

Nesterenko, Gennadiy Nikolayevich, Sobolev, Anatoliy Ivanovich, Sushkov, Iuriy Nikolayevich.

TITLE:

Use of atomic engines in aviation (Primeneniye atomnykh dvigateley v aviatsii).

PUB. DATA:

Voyennoye Izdatel'stvo Ministerstva Oborony Soyuzo SSR, Moscow, 1957, 166 pp. (Series: Nauchno-Populyarnaya Biblioteka)

EDITOR:

Mikhaylov, V. A., Candidate of Phys.-Math. Sciences, Eng.-Col.; Pokrovskiy, G. I., consultant, Prof., Dr. of Techn. Sciences, Brig.Gen. of Eng.-Tech. Service; Novikov, M. L., consultant, Dr. of Tech. Sciences, Eng.-Col.; Tech. Ed.: Strel'nikova, M. A.; Reviser: Tsvetkova, L. K.; Ed.: Kader, Ya. M.

PURPOSE:

The purpose of this pamphlet is to give a systematic review of the informationⁱⁿ existing literature on the use of atomic energy in aviation and rocketry. The popular presentation should make it accessible to the juvenile reader.

Card 1/6

Call Nr: AF 1149769

Use of atomic engines in aviation (Cont.)

COVERAGE: For coverage see Table of Contents.

The following personalities are mentioned in this book: I. V. Kurchatov, Academician; K. E. Tsiolkovskiy, Professor; O. Petrovskiy; G. I. Pokroveskiy, Professor; G. A. Chebotarev, Professor; N. G. Chernyshev, Professor; and V. P. Glushko, Academician. There are 33 references, 25 of which are USSR and 8 translations from Western languages.

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Use of atomic engines in aviation (Cont.)

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Use of atomic engines in aviation (Cont.)

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AVAILABLE: Library of Congress

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NESTERENKO, G. N.

AID P - 5557

Subject : USSR/Aeronautics - Model building
Card 1/1 Pub. 58 - 16/20
Author : Nesterenko, G.
Title : Team controlled models of aeroplanes for competitions in speed.
Periodical : Kryl. rod., 1, 26-27, Ja 1957
Abstract : A detailed description of a motor-equipped model of aeroplane, designed for competitions in speed, when the flight of each competing model is controlled by a team of two: a pilot guiding the model, and a mechanic. The conditions of the competitions are outlined. 8 drawings, 1 table.
Institution : None
Submitted : No date

NESTERENKO, G.N.
NESTERENKO, G.N.; NEYMAN, Ye.A.

Using micrologging for detecting porous layers in carbonate deposits of western Bashkirian fields. Geol. nefti 1 no.8:46-50
Ag '57. (MIRA 10:12)

1. Volgo-Ural'skiy filial Vsesoyuznogo nauchno-issledovatel'skogo instituta geofiziki i Moskovskiy ordena Trudovogo Krasnogo Znameni neftyanoy institut im. akademika I.M. Gubkina.
(Bashkiria--Oil well logging, Radiation)

NESTERENKO, G.S., inzh.; TOKAREVICH, G.M., inzh.

Construction of cranes based on truck mounted towers for the
installation of electric poles. Energetik 10 no.3:26-27 Mr
'62. (MIRA 15:2)

(Electric lines--Poles)
(Cranes, derricks, etc.)

NESTERENKO, G.S., inzh.

Mounting of PFV, APFV, and APN lines in rural areas. Energetik
10 no.5:31-32 My '62. (MIRA 15:5)
(Electric wiring)

NESTERENKO, G. S.

Progress in electrification lies in mechanization of operations
and the correct organization of work. Sel'.stroitel'no-montazhnogo tresta
N '62. (MIRA 15:12)

1. Glavnyy inzh. Gor'kovskogo stroitel'no-montazhnogo tresta
Sel'elektrostroy.

(Rural electrification)

NESTERENKO, G., inzh.; TOKAREVICH, G., inzh.

Units mounted on telescopic lifts. Sel'. stroi. no. 12:15-16
D '62. (MIRA 16:1)

(Hoisting machinery)

NESTERENKO, G. T.

Mine Surveying

Use of the water level in investigating the displacement of rocks. Gor. zhur. 126
no. 6 (1952)

9. Monthly List of Russian Accessions, Library of Congress, September 195²~~8~~, Uncl.

NESTERENKO, G.T.

112-1-2312

Translation from: Referativnyy Zhurnal, Elektrotehnika, 1957,
Nr 1, p. 341 (USSR)

AUTHOR: Nesterenko, G.T.

TITLE: Sound-Measuring Method of Finding Rifts From Underground
Mining Pits (Zvukometricheskiy metod nakhozheniya skvazhin
iz podzemnykh gornykh vyrabotok)

PERIODICAL: Byul. Tsentr. in-t inform. tsvet. metallurgii, 1956, Nr 5,
pp. 1-5

ABSTRACT: In order to find rifts in underground mining pits a curve
of sound intensity in relation to the distance along the
mining axis to the placing of the indicator is taken down.
The sound source is lowered from the mined pit into the
rift to the level of the mining elevation. The reception
of sound waves is carried out at several points of the pit
with the help of a device consisting of a sound receiver,

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Sound-Measuring Method of Finding Rifts (Cont.)

112-1-2312

an amplifier and an indicator device. The determination of the distance between the rift and the mined pit is done according to the maximum of the sound intensity curve. For this purpose, auxiliary curves of dependence of the distance between the pit and the rift from the relation (in percentages) of sound intensity in a specific point of the pit to the maximum sound intensity are constructed. An electromagnetic tapper with a time ticker connected to the current source is used as a sound source. A piezoelectric microphone is used as a sound receiver. The error of estimation of the distance between the rift and the pit varies from ± 0.5 to ± 2.0 m with distance changes from 0 to 15 m.

Card 2/2

N.S.K.

NESTERENKO, G.T., kandidat tekhnicheskikh nauk.

Seismetric technique for locating borings near mine drifts.
Ger.zhur.no.9:49-51 S '56. (MIRA 9:10)

1. Unipromed'.
(Ural Mountain region--Copper mines and mining)

MESTERENKO, G.T., kandidat tekhnicheskikh nauk.

New mine surveying instrument with stadia sights for mine room measurement.
Gor.zhur. no.6:58-61 Je '57. (MLPA 10:8)
(Mine surveying)

NESTERENKO, G.T., kand.tekhn.nauk; SKOZOBTSOV, B.S., gornyy inzh.

Method of fixing datum marks without making boreholes. Gor. zhur.
no.12:50-51 D '60. (MIRA 13:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy marksheyderskiy institut,
Leningrad.

(Mine surveying)

MASTENKO, V.F., kand. tekhnichesk. nauk, inzh., kand. tekhnichesk. nauk
KOROTKIY, M.A., inzh.

On the subject of large-scale blasting in open pits on the site of
the "Borok" trade enterprise. No. 10131-23 G 161.

(TVA 14:2)

On the subject of the use of the "Borok" trade enterprise in the
field of blasting.

(Mining engineering)
(Blasting)

NESTERENKO, G.T., kand.tekhn.nauk; BOREYKO, F.I., gornyy inzh.

Tachymeter for rodless surveying of rock caving zones.
Gor. zhur. no.12:27-30 D '62. (MIRA 15:11)

1. ~~U~~nesoyuznyy nauchno-issledovatel'skiy institut,
Leningrad.

(Mine surveying)
(Tachymeter)

SEMEVSKIY, Vladimir Nikolayevich, prof., doktor tekhn. nauk;
VOLZHSKIY, Vladlen Mikhaylovich, gornyy inzh.;
TIMOFEYEV, Oleg Vladimirovich, dots., kand. tekhn. nauk;
SHIROKOV, Anatoliy Pavlovich, kand. tekhn. nauk;
KRAVCHENKO, Grigoriy Ivanovich, kand. tekhn. nauk;
CHUKAN, Boris Karpovich, kand. tekhn. nauk; ETINGOV,
Semen Isayevich, gornyy inzh.; NESTERENKO, G.T., kand.
tekhn. nauk, retsenzent

[Red bolting] Shtangovaia krep'. Moskva, Nedra, 1965.
327 p. (MIRA 18:7)

1. Zaveduyushchiy kafedroy Leningradskogo gornogo instituta im. G.V.Plekhanova (for Semevskiy).
2. Leningradskiy gornyy institut im. G.V.Plekhanova (for Volzhskiy, Timofeyev).
3. Kuznetskiy nauchno-issledovatel'skiy ugol'nyy institut (for Shiroko.).

NESTERENKO, G.T., kand. tekhn. nauk; SKOZOBTSOV, B.S., inzh.; MIKHEYEV, V.P.,
inzh.; TILICHENKO, A.M.

Effect of the angle of incidence on the stability of the exposed
roof of chambers. Gor. zhur. no. 12:59-62 D '65.

(MIRA 18:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy marksheyderskiy institut,
Leningrad (for Nesterenko, Skozobtsov, Mikheyev). 2. Kombinat
Achpolimstall, g. Kentau (for Tilichenko).

7-58-3-7/15

AUTHORS: Nesterenko, G. V., Studenikova, Z. V., Savinova, Ye. N.

TITLE: Rare and Trace Elements in Skarns of Tyrny-Auz (Redkiye i rasseyannyye elementy v skarnakh Tyrny-Auza)

PERIODICAL: Geokhimiya, 1958, Nr 3, pp. 228 - 234 (USSR)

ABSTRACT: In this paper the distribution and the behaviour of the following elements are investigated during the formation process of the skarn deposits: tin, germanium, gallium, cobalt, nickel, chromium, vanadium, titanium, zirconium, strontium, barium, and beryllium. The main elements of this deposit, tungsten and molybdenum, are not described. The analysis was carried out in the spectral laboratory of the Institute of Geochemistry and Analytical Chemistry. In this paper the skarn formation is discussed first; then the behaviour of single elements is discussed. The results of the analysis are given in tables inserted in the text. The authors draw the following final conclusions from their paper: 1) Germanium and tin are introduced by means of solutions in the course of the skarn

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Rare and Trace Elements in Skarns of Tyrny-Auz

7-58-3-7/15

formation. 2) Gallium, cobalt, nickel, chromium, vanadium, titanium, zirconium, strontium, barium, and beryllium come into the skarns from the biotite hornfels; in the course of the skarn formation of the latter the mentioned elements migrate to a different extent, i.e. chromium, vanadium, titanium, zirconium, strontium, and barium to the greatest extent, nickel to a smaller extent, gallium, cobalt, and beryllium to a hardly determinable extent. 3) The rare and disperse elements do not form own minerals and enter into the crystal lattice of silicates as isomorphous admixtures; only titanium and zirconium occur partly as sphene and zirconium. There are 10 tables and 7 references, 3 of which are Soviet.

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SUBMITTED:

March 5, 1958

- 1. Rare earth elements...USSR
- 2. Rare earth elements...Properties
- 3. Geochemistry

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NESTERENKO, G. V., Cand Geol-Min Sci -- (diss) "Process of skarn-formation of deposits in Tyrny-Auz." Moscow, 1959. 20 pp; (Academy of Sciences USSR, Inst of Geochemistry and Analytical Chemistry im V. I. Vernadskiy); 150 copies; price not given; (KL, 17-60, 144)

3(8)

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SOV/7-59-2-10/14

TITLE: The Behavior of Titanium in the Process of Skarn Formation of the Tyrny-Auz Deposit (Povedeniye titana v protsesse formirovaniya skarnov mestorozhdeniya Tyrny-Auz)

PERIODICAL: Geokhimiya, 1959, Nr 2, pp 159-164 (USSR)

ABSTRACT: An investigation was made of the titanium content of various metasomatic rocks (Table 1), of biotite and ilmenite from biotite hornfels (Table 2), and of the skarn minerals pyroxene, garnet, wollastonite, and vesuvianite (Table 3). Chemical, spectral, and X-ray analyses were carried out by V. A. Zolotareva, V. V. Korolev, K. I. Tobelko and Yu. B. Kholina in the spektral'naya laboratoriya (Spectrographical Laboratory) and in the rentgeno-strukturnaya laboratoriya (X-ray Structure Laboratory) of the Institut geokhimi i analiticheskoy khimii im. V. I. Vernadskogo AN SSSR (Institute of Geochemistry and Analytical Chemistry imeni V. I. Vernadskiy AS USSR). It was found that titanium is not supplied by skarn formation but stems from hornfels where 95-98% of titanium are contained as ilmenite. In metasomatic rocks 80-85% of titanium are contained as sphene. Apart from that, it replaces aluminum and

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possibly also silicon in silicates. In the metasomatism of biotite hornfels titanium is partially transported into plagioclase and quartz plagioclase veins, which are characteristic of pyroxene hornfels and pyroxene-garnet skarns. The author thanks Professor V. V. Shcherbinin for his advice and help. There are 3 tables and 8 references, 7 of which are Soviet.

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SUBMITTED: November 13, 1958

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