

PRONIV, D.I.; TSERLYUK, P.P. (Kiyev)

"Comatose states" by N.K.Bogolepov. Reviewed by D.I.Proniv,  
P.P.TSerliuk. Vrach.delo no.12:139-140 D '62. (MIRA 15:12)  
(COMA)  
(BOGOLEPOV, N.K.)

PRONIV, D.I., dotsent

Effect of an acute radiation lesion of the body on the regeneration of the nerve trunk. Vrach. delo no.5:76-83 My '62. (MIRA 15:6)

1. Kafedra nervnykh bolezney (zav. - zasluzhennyi deyatel' nauki, prof. D.I. Panchenko) Kiyevskogo instituta usovershenstvovaniya vrachey.

(RADIATION SICKNESS)

(NERVOUS SYSTEM--DEGENERATION AND REGENERATION)

PRONIV, D.I., dots.

Effect of injuries of the bone tissue on the course of reparative processes in the nerve trunks. Nov.khir.arkh. no.11:65-73 '61.

(MIRA 14:12)

1. Kafedra nervnykh bolezney (zav. - zasl. deyatel' nauki, prof. D.I. Panchenko) Kiyevskogo instituta usovershenstvovaniya vrachey.

(BONES---WOUNDS AND INJURIES)

(NERVOUS SYSTEM---DEGENERATION AND REGENERATION)

PRONIV, D.I.

Treatment of nervous system diseases with radon water at Mironovka  
Health Resort. Vop. kur., fizioter. i lech. fiz. kul't. 26 no.4:  
352-354 JI-Ag '61. (MIRA 15:1)

1. Iz kafedry nervnykh bolezney (zav. - zasluzhennyi deyatel' nauki  
prof. D.I.Panchenko) Kiyevskogo instituta usovershenstvovaniya  
vrachey (dir. - dotsent M.N.Umovist).  
(MIRONOVKA HEALTH RESORTS, WATERING PLACES, ETC.)  
(RADON THERAPEUTIC USE) (NERVOUS SYSTEM DISEASES)

PRONIV, D.I., dotsent

Some characteristics of the regeneration of a nerve trunk in a  
biotron ward following acute radiation sickness. Vrach. delo no.1:  
76-85 Ja '62. (MIRA 15:2)

1. Kafedra nervnykh bolezney (zav. - zasluzhennyy deyatel' nauki,  
prof. D.I.Panchenko) Kiyevskogo instituta usovershenstvovaniya vrachey.  
(CLIMATOLOGY, MEDICAL) (RADIATION SICKNESS)  
(NERVOUS SYSTEM DEGENERATION AND REGENERATION)

PRONIV, D.I., dotsent (Kiyev)

Characteristics of the regeneration of the nerve trunk in the case of an extraneural metal splinter combined with acute radiation sickness. Vrach. delo no.9:57-67 S '61. (MIRA 14:12)

1. Kafedra nervnykh bolezney (zav. - zasluzhennyi deyatel' nauki, prof. D.I.Panchenko) Kiyevskogo instituta usovershenstvovaniya vrachey.

(NERVOUS SYSTEM--DEGENERATION AND REGENERATION)  
(RADIATION SICKNESS)

PRONIV, D.I., dotsent

Some characteristics of regeneration of the nerve trunk with attendant traumatization of muscle tissue. Vrach. delo no.5: 105-110 My '61. (MIRA 14:9)

1. Kafedra nervnykh bolezney (zav. - zasl. deyatel' nauki, prof. D.I.Panchenko) Kiyevskogo instituta usovershenstvovaniya vrachey.  
(NERVOUS SYSTEM--DEGENERATION AND REGENERATION)  
(MUSCLE--WOUNDS AND INJURIES)

PANCHENKO, Dmitriy Ivanovich, zasl. deyatel' nauki prof.;  
PERFILOV, Petr Afanas'yevich, doktor med. nauk;  
PRONIV, Daniil Ivanovich, doktor med. nauk;  
CHESLOVSKIY, K.S., red.

[General and local phenomena in the process of the restoration of nerve trunks; studies in the biotron] Obshchie i mestnye iavleniia v protsesse vosstanovleniia nervnykh stvolov; issledovaniia v biotrone. Kiev, Zdorov'ia, 1964. 123 p. (MIRA 18:1)



MYULLER, R.L.; PRONKIN, A.A.

Ionic conductivity of alkaline aluminosilicate glasses. Zhur.-  
prikl.khim. 36 no.6:1192-1199 Je '63. (MIRA 16:8)  
(Alkali metal aluminosilicates--Electric properties)

L 60425-65 EMP(e)/EIT(m)/EMP(i)/EMP(b) Pg-4 GS/JAJ/WJ

ACCESSION NR: AT5017270

UR/0000/65/000/000/0134/0145

AUTHOR: Myuller, R. L.; Pronkin, A. A.

23  
22  
B+1

TITLE: Polyalkaline effect in borosilicate glasses

SOURCE: Leningrad. Universitet. Khimiya tverdogo tela (Chemistry of solids).  
Leningrad, Izd-vo Leningr. univ., 1965, 134-145

TOPIC TAGS: borosilicate glass, glass conductivity, polyalkaline effect

ABSTRACT: Four series of sodium-potassium borosilicate glasses were studied; in each, the relative content of sodium and potassium oxide was varied, but their total content was constant. The densities and values of  $\log \sigma_0$ ,  $\epsilon_0$ , and modulus of electrical conductivity were determined. It was found that

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L 60425-65

ACCESSION NR: AT5017270

tion of a quantitative statistical theory of the ionic conduction of oxygen glasses proposed earlier by the authors. "The borosilicate glasses studied in this work were prepared with the participation of V. S. Molchanov." Orig. art. has: 8 figures, 1 table, and 7 formulas.

ASSOCIATION: None

SUBMITTED: 02Mar65

ENCL: 00

SUB CODE: MT, EM

NO REF SOV: 016

OTHER: 003

Card 2/2 *ADP*

L 60427-65 EWP(e)/EAT(m)/EWP(1)/EWP(b) Pg-4 GS/JAJ/81

ACCESSION NR: AT5017271

UR/0000/65/000/000/0146/0150

AUTHOR: Molchanov, V.S.; Myuller, R. L.; Pronka, A. A.

24  
3+

TITLE: Electrical conductivity of complex potassium-titanium-lead glasses

SOURCE: Leningrad. Universitet. Khimiya tverdogo tela (Chemistry of solids).  
Leningrad, Izd-vo Lenigr. univ., 1965, 146-150

TOPIC TAGS: glass conductivity, potassium compound, titanium compound, lead com-  
pound

ABSTRACT: The electrical conductivity changes were studied at 120-340C in a series of  
glasses of the following composition (in mole %):  $12K_2O \cdot 12CaO \cdot 12BaO(12-x) \cdot PbO \cdot xTiO_2 \cdot$   
 $52SiO_2$  where x was changed in increments of 1.

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ACCESSION NR: AT5017271

i.e., their dispersion is facilitated. A more extensive or complete replacement of the polar structural units formed by the divalent metal (for example, lead) by less polar units (for example, titanium-containing ones) decreases the energy of conductivity by reducing the dispersion of the polar strands. Orig. art. has: 1 figure and 1 table.

DD FORM 1300, 10-65

NO REF SOV: 008

OTHER: 003

Card 2/2 *DDP*

L 60426-65 EWP(e)/EWI(m)/EWP(1)/EWP(b) Pg-4 GS/JAJ/MI

ACCESSION NR: AT5017273

JR/0000/65/000/000/0173/0180

AUTHOR: Myuller, R. L.; Pronkin, A. A.

TITLE: Electrochemical data on the structure of certain complex glasses

30  
29  
B+1

SOURCE: Leningrad. Universitet. Khimiya tverdogo tela (Chemistry of solids). Leningrad, Izd-vo Leningr. univ., 1965, 173-180

TOPIC TAGS: glass conductivity, borosilicate glass, aluminosilicate glass, glass structure, polyalkaline effect

ABSTRACT: The temperature dependence of complex alkali-free silicate glasses was studied in series IX to XIII (the composition of each series is tabulated). In series IX, consisting of boron aluminosilicate glasses, the energy  $\epsilon_{\sigma}$  amounted to an average of  $2.25 \pm 0.04$  eV. The...

L. 60426-65

ACCESSION NR: AT5017273

polyalkaline effect. In series XIII, the blocking of alkaline polar structural units was associated, as expected, with the disappearance of the polyalkaline effect. Thus, it is concluded that, in alkali-free polar glasses, there are formed mainly associated groupings of polar structural units which include divalent cations of various types. "The glasses were prepared with the participation of V.S. Molchanov." Orth. art. has. 6 figures and



NO REF SOV: 007

OTHER: 001

Card 2/2 *dlp*

L 12672-63  
ACCESSION NR: AP3000640  
EWP(g)/EWT(a)/BDS. AFETC JD  
S/C080/63/036/003/0500/0506

54  
53

AUTHOR: Baydakov, L. A.; Borisova, Z. U.; Pronkin, A. A.

TITLE: Solution kinetics of vitreous arsenic sulfides in alkali solution

SOURCE: Zhurnal prikladnoy khimii, v. 36, no. 3, 1963, 500-506

TOPIC TAGS: solution kinetics, arsenic sulfides, activation energies, solution rate

ABSTRACT: The rates of solution of vitreous AsS sub 1.5, AsS sub 1.54, AsS sub 1.58, AsS sub 1.62, AsS sub 1.69 and AsS sub 2.5 in aqueous alkali solutions of different concentrations at temperatures from 15 - 45° were investigated. Tabulated data show an increase in solubility rate with an increase in temperature; with agitation; and with an increase in the NaOH concentration, where the rate of AsS sub 2.5, faster than for AsS sub 1.5, was explained by the dipole structure of the former and the chain-like structure for AsS sub 1.5. In the stoichiometric AsS sub 1.5 and AsS sub 2.5 (the other sulfides studied being As sub 2 S sub 3 with additions of S), the most stable and difficult to dissolve, the solubility proceeds with the formation of complex anions, hydration and finally solution. Without agitation, where activation energies are less than 10 kcal/mol, diffusion determines the rate of solution; with agitation, the effect of diffusion process is over-

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L 12672-63

ACCESSION NR: AP3000640

shadowed, activation energies are about 14 kcal/mol and the rate of solution determines the chemical reaction on the surface of the solid phase. In sulfides richer in S, the S settles out passivating the sample surface and not permitting reproducible results. "In conclusion [the authors] express deep appreciation to R. L. Myller for constant attention and valuable advice on the conduct of the present study." Orig. art. has: 5 tables, 3 figures, 9 equations.

ASSOCIATION: none

SUBMITTED: 5Dec61

SUB CODE: CH

DATE ACQ: 12Jun63

NO REF SOV: 020

ENCL: 00

OTHER: 003

Card 2/2

L 23285-65 EWT(d)/EWT(m)/EWP(w)/EWA(d)/E/EWP(t)/EWP(b) JD/EM

ACCESSION NR: AR4040334

S/0124/64/000/004/V041/V041

SOURCE: Ref. zh. Mekhanika, Abs. 4V261

AUTHOR: Fronkin, A. F.

18

TITLE: A method for calculating the tensile strength of unevenly heated rotating discs, considering flexure under conditions of creep and plasticity

CITED SOURCE: Sb. Polzuchest' i dlitel'n. prochnost'. Novosibirsk, Sib. otd. AN SSSR. 1963, 183-191

TOPIC TAGS: tensile strength calculation, unevenly heated disc, rotating disc, successive approximation, tensile stress, transverse stress, creep solution

TRANSLATION: The stated problem is solved by successive approximation, using the program of an elasto-plastic solution and generalizing a uniaxial deformation diagram to a multi-dimensional case in (intermediate) ...

Card 1/2

L 23285-65

ACCESSION NR: AR4040334

selected in relation to the yield point for the elasto-plastic solution or, for example, in relation to the creep limit at assigned time and temperature values for solutions of creep problems. O. V. Sosnin

SUB CODE: AS, MM

ENCL: 00

PRONKIN, G. I.

BEATY, M. J. Dent ; FLOWER, S. I.

"The Treatment of Early forms of Syphilis with a Suspension of Penicillin  
in Ointment."

Vestnik venerologii i dermatologii (Bulletin of Venerology Dermatol.),  
No 1, January-February 1954, (Number), Moscow.

PRONKIN, K.F.

Broaching of heat-resistant alloys by supplying the lubricant in the form of a high-pressure jet. Stan. 1 instr. 26 no.11:26-27 H '55.  
(Broaching machines) (Cutting fluids) (MIRA 9:2)

PRONKIN, N. F.

MG  
L2531\* Drawing of Heat-Resistant Alloy With High Pressure  
Jet Coating Liquid. ~~Propagivanie zharoпрочного сплава s~~  
~~podvodom zhidkosti vysokonapornoi struci.~~ (Russian.) N. F.  
Pronkin. *Stanki i Instrument*, v. 26, no. 11, Nov. 1955, p. 26-27.  
Die casting system, using a 10% emulsion with 2% of sulfo-  
"fresol" with jet aperture of 1-mm. and pressure of 25 kg.  
per sq. cm., doubles the life of dies. Graphs, diagrams.

DF



Subject : USSR/Engineering AID P - 5356  
Card 1/1 Pub. 103 - 11/25  
Author : Fronkin, N. F.  
Title : Surface finish and surface layer hardening in broaching heat-resisting materials.  
Periodical : Stan. i instr., 8, 32-34, Ag 1956  
Abstract : The author presents concise results of X-ray inspection of the EI437 alloy and the EI415 heat-resisting steel after they were cut or broached. Seven graphs, 2 tables, 1 photo; 2 Russian references (1950-52).  
Institution : None  
Submitted : No date

PRONKIN, N.F.

Effect of cold hardening on the broaching of heat-resisting  
metals. Stan. instr. 27 no.10:29-31 0 '56. (MIRA 9:12)  
(Metals--Hardening) (Broaching machines)

PRONKIN, N.F.

Effect of broaching conditions on the surface quality of the  
El437 heat resistant alloy, Vest.mash. 36 no.11:75-38 N '56.

(MIRA 10:1)

(Surfaces (Technology)) (Metal-cutting) (Heat resistant  
alloys)

PHASE I BOOK EXPLOITATION 1097

Pronkin, Nikolay Fedorovich, Candidate of Technical Sciences

Protyagivaniye zharoprochnykh i titanovykh materialov (Broaching of Heat-resisting and Titanium Materials) Moscow, Oborongiz, 1958. 169 p. 4,000 copies printed.

Reviewer: Gribov, S.M., Engineer; Ed.: Mezheritskiy, V.I., Engineer; Ed. of Publishing House: Kuznetsova, A.G.; Tech. Ed.: Zudakin, I.M.; Managing Ed.: Sokolov, A.I., Engineer.

PURPOSE: This handbook is intended for engineers and technicians concerned with broaching and broach designing. It may also be used by scientific workers and students of technical vuzes and tekhnikums.

COVERAGE: **The** author presents the theoretical principles of broaching heat-resisting and titanium alloys and makes practical recommendations based on research work and on actual Soviet and non-Soviet industrial achievements in the field of broaching. The results of research on forces acting during the cutting process, on the quality of the surface layer and on the chip-forming process are given. Re-

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Broaching of Heat-resisting (Cont.)

1097

commendations on how to improve the precision and quality of the broached parts are made. Existing methods of determining the chip-carrying capacity coefficients used in designing the chip gullets of broaches employed in broaching constructional steels were used as a basis for finding methods and for determining the corresponding coefficients for broaching heat-resisting and titanium alloys. Chip gullets designed according to these coefficients make it possible to design broaches with a minimum length and a relatively long service life. Studies of temperature phenomena in the cutting zone, of cutting characteristics of tool materials, and of broach wear dynamics led to the development of a new improved high-speed steel, type R9F5, of which high-quality broaches can now be made. Inasmuch as broaching of heat-resisting and titanium steels is most extensively used in broaching the fir-tree blade roots and rotor-disc attachments of turbojet engines, this study and the recommendations it contains are limited principally to this field. The author thanks Professors V.A. Krivoukhov and A.I. Isayev, Doctors of Technical Sciences and Candidate of Technical Sciences K.F. Romanov for help in the experimental work and in the preparation of the manuscript. There are 20 references, of which 16 are Soviet and 4 English.

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Broaching of Heat-resisting (Cont.) 1097

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GO/sfm  
2-17-59



*Пронкин, Н. Ф.*

PRONKIN, N.F., kand. tekhn. nauk.

Surface smoothness of broached titanium alloys. Vest. mash. 38 no.2:  
53-54 P '58. (MIRA 11:1)  
(Titanium alloys) (Surfaces (Technology))

S/536/60/000/045/003/006  
E194/E184

AUTHOR: Pronkin, N.F., Candidate of Technical Sciences  
TITLE: Improving the surface finish on broaching by the use  
of new lubricating and cooling fluids  
PERIODICAL: Moscow. Aviatsionnyy tekhnologicheskii institut.  
Trudy. No. 45. Moscow, 1960. Issledovaniye protsessov  
obrabotki metallov rezaniyem. pp. 101-109.  
TEXT: Experiments in broaching fir tree roots in turbine  
discs made from heat-resistant alloys ЭИ-437 (EI-437) and  
ЭИ-437Б (EI-437B) have shown that the use of cutting fluids  
improves surface finish, decreases the depth of the work hardened  
layer and reduces the adherence of chips to the broached faces  
and flanks. Current practice is to wet the broach with castor oil  
before use and to apply five or ten percent emulsion during use.  
Surface finish has been inadequate. Six formulations of active  
cutting oils were tested and those that gave the best surface  
finish were a 10% emulsion of sulphurised soluble oil, and a  
fluid consisting of 55% sulphurised distillate extract and  
45% diesel fuel. When the surface is cooled with these two  
Card 1/2

Improving the surface finish .....

S/536/60/000/045/003/006  
E194/E184

cutting oils the surface finish is much improved and additional  
lubrication of the broach with castor oil is not required.  
There are 5 figures, 1 table and 1 Soviet reference.



Card 2/2

PRONKIN, N.F.

122-2-17/33

AUTHOR: Pronkin, N.F., Candidate of Technical Sciences.

TITLE: The Surface Finish Produced by Broaching of Titanium Alloys  
(Kachestvo poverkhnosti pri protyagivanii titanovogo splava)

PERIODICAL: Vestnik Mashinostroyeniya, 1958, No.2, pp. 53-54 (USSR).

ABSTRACT: The results of original tests are reported. Micro-surface finish values are plotted against advance per tooth (Fig.1) and so are the depth of the cold-worked layer and the degree of cold work. The vertical and radial components of the cutting force are plotted against the advance per tooth (Fig.2). The depth of the cold-worked layer and the degree of cold work are also plotted against the cutting speed (Fig.3), the tooth nose radius (Fig.4) and its front clearance and rear rake angles, respectively (Fig.5). In rough broaching an advance per tooth of 0.01 - 0.015 mm and in finish broaching, of 0.02 - 0.03 mm are recommended. The cutting speed has little effect. The nose radius should be equal to the thickness of the layer removed by cutting. A high front clearance ( $25^{\circ}$ ) and a high rear rake ( $12^{\circ}$ ) are advisable to reduce the degree of cold work. There are 5 figures.

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Card 1/1

PRONKIN, V.S.

Stick for medical gymnastics. Vop.kur., fizioter.i lech.fiz.  
kul't. 27 no.2:170 Mr-Ap '62. (MIRA 15:11)  
(EXERCISE THERAPY)

VORONOV, Yu.F., inzh.; BELOKUROV, E.S., inzh.; PRON'KIN, V.Ye., inzh.

Mastering the operation of 600-ton open-hearth furnaces. Met. i  
gornorud. prom. no.3:11-17 My-Je '62. (MIRA 15:9)  
(Open-hearth furnaces)

PRONKIN, Ye.V., inzh.

Determining the interaction between wheel and track by the accelerations in non-spring-borne masses. Vest.TSNII MP3 ~~20.04.1963~~ 19.1.63.

(MIRA 16:10)

1. Sluzhba puti Oktyabr'skoy dcrogi.

PROIKIN, Ye.V., inzh.

Determining the percentage of boulders of various sizes in  
morainic soils. Transp. stroi. 15 no.11:50 N '65.  
(MIRA 18:11)



PRONKIN, Ye.V., inzh.

Take the dynamic actions into account in the evaluation of the condition  
of the track according to the level. Put' 1 put.khoz. 7 no.1:40-42  
'63.

(Railroads--Track)

(MIRA 16:3)

43306

1 1110

S/856/62/000/000/006/011  
E194/E135

AUTHORS: ~~Pron'ko, G.F.,~~ and Dmitriyeva, Yu.P.  
TITLE: Spark machining of narrow slots in stainless steel pipes  
SOURCE: Problemy elektricheskoy obrabotki materialov. Tsentr. nauchnoissl. labor. elek. obrab. mat. AN SSSR. Ed. by B.R. Lazarenko. Moscow, Izd-vo AN SSSR, 1962. 152-158

TEXT: As porcelain and plastic filter elements have proved unsatisfactory for power station use, it was decided to make the elements from stainless steel tubes into which were cut transverse slots 0.4 mm wide, by spark machining on a modified centre lathe. A mandrel carrying the aluminium disc electrodes (separated by spacers, 30-50 mm smaller in diameter than the electrodes) was mounted between the lathe centres and driven by the lathe at 800-1200 r.p.m. The tube to be slotted was set up parallel to the mandrel. Spark machining fluid was applied above the points of contact between discs and tube. Current was supplied to the lathe  
Card 1/3

Spark machining of narrow slots in ...

S/856/62/000/000/000/011  
E194/E135

shaft through brush-gear. The discs were originally 100-200 mm in diameter. The lathe feed had independent motor drive so that the rotor feed between the discs and tube could be smoothly controlled in the range 1-200 metres/minute independently of the lathe shaft speed. Automatic feed assists quick cutting, but where many discs are used an automatic controller cannot control the gap according to the total current because some discs may be closer than others. Various feed controllers have been developed but are not described in detail. The electrical conditions required careful adjustment to ensure that the gap width remained between 0.4 and 0.5 mm. Current from three-phase rectifiers or d.c. generators gives a better surface finish than a half-wave rectifier, and accordingly two single-phase full-wave rectifiers in parallel apply 8-10 V. The (empirical) maximum value of total working current is 10 A per disc. With this low-voltage circuit and heavy currents, the fluid may be water or emulsion and should contain the least possible amount of erosion products. The discs, 0.2-0.3 mm thick, are easily bent; precautions to prevent or correct bending are described. The machine time for cutting a  
Card 2/3

Spark machining of narrow slots ... S/856/62/000/000/006/011  
E194/E135

single slot 0.4 mm wide and 33 mm long with a tube wall thickness of 3 mm with five discs in operation is 0.7 minutes, which gives a production rate of 57 mm<sup>3</sup>/min. With more discs the machine time per slot is somewhat reduced. Finish of standard class 6 is obtained. Examination of the surface layer revealed no micro-cracks or intercrystallite corrosion. There was no molten layer when the current was limited to 10 amps per disc, but at 20 amps its depth may attain 150 microns. Further work is required to mechanise the process. With spark machining it would be possible to cut slots of any shape or orientation relative to the tubes. It may well prove desirable to use wire or tape electrodes, which will call for new kinds of supply source. Spark machining may also be used to produce an alloyed corrosion-resistant surface on carbon steel tubes. There are 5 figures.

Card 3/3

*PRON'KO, V.N.*

PRON'KO, V.N., inzh. (Moskva)

Safety measures in electrical work in building projects. Stroi.  
pred.neft.prom. 2 no.8:26-27 Ag '57. (MIRA 11:1)  
(Electric engineering--Safety measures)

SOV/136-59-1-9/24

AUTHORS: Averchenkov D.O., Kopychenko D.S., Pron'kin V.F.,  
Sidorovskiy V.A., Kershanskiy I.I. and Ovcharenko V.P.

TITLE: Introduction of an Electrothermic Method of Distilling  
Zinc from Silver Crust at the Ust'-Kamenogorskiy Lead  
Works (Vnedreniye elektrottermicheskogo sposoba distill-  
yatsii tsinka iz serebristoy peny na Ust'-Kamenogorskom  
svintsovom zavode)

PERIODICAL: Tsvetnyye Metally, 1959, <sup>32</sup>Nr 1, pp 33-40 (USSR)

ABSTRACT: The authors point out that as continuous desilvering of  
lead is not used in the USSR, methods of crust enrichment  
are being sought. A system (Ref 7) in which fusion under  
carnalite is followed by vacuum distillation has proved  
unsatisfactory while that successfully used in Bulgaria  
(Ref 8) is not applicable to Soviet crusts. Based on  
enlarged laboratory and pilot plant work at the  
VNIITsvetmet in 1956-1957 (Ref 9) an experimental  
production unit based on electrothermic zinc-distillation  
was built at the Ust'-Kamenogorskiy lead works and has  
operated from November 1957 to the present. The authors  
give the results obtained and describe the plant.

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SOV/136-59-1-9/24

Introduction of an Electrothermic Method of Distilling Zinc from Silver Crust at the Ust'-Kamenogorskiy Lead Works

I.P. Volkov, N.V. Kungurov, K.B. Boztayev, D.R. Demurin and others from the works and V.P. Kuur, F.A. Mardamshin, Yu.K. Medel'tsov, A.I. Tkachenko and V.P. Shchurchkov of VNIITsvetmet, participated. The electro-thermic installation (Fig 1) consisting of an electric furnace, oxidation chamber and dust catchers, was designed by the design department of the UKSTsK under the direction of A.V. Bratchik. The works and VNIITsvetmet laboratories performed necessary chemical analyses. The 3-phase 300-kVA furnace has a hearth bottom area of 2 m<sup>2</sup> and an effective height of 1.8 m. Fig 2 shows a vertical section through the furnace. The normal tapping hole is situated 140 mm above the bottom. The furnace is charged with an Irtyshskiy medeplavil'nyy zavod (Irtysh copper-smelting works) type feeder (Fig 3). Power is supplied by two type EPOM-250/6 transformers with a total rating of 500 kVA. The electrodes are graphitized and 200 mm in diameter. Distillations of zinc were effected at 1150-1300°C, giving lead bullion (sent for cupellation), dust (discharged periodically and sent to the zinc works) and

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gases. All materials were weighed, gas flows were measured and, during runs for establishing materials balances, gas analyses were periodically carried out. In such runs a crust containing 64.35% lead, 25.8% zinc, 0.55% copper and 88407 g/ton silver of somewhat variable size-grading (Table 1 shows this for two samples) was used. The results (Table 2) of a 16-day run in 1957 show that 95% of the lead in the crust was transferred into the bullion which, the authors recommend, should be refined electrolytically. The products were almost exclusively lead bullion (which contains the major part of the noble metals) and distillate (71.3 and 35.2% respectively of the weight of crust taken). Losses, of lead, zinc and silver, were insignificant. The adoption of the electrothermic method at the works (Fig 4 shows the flowsheet) has led to a doubling of labour productivity and a Card 3/4 4.49% improvement in raw-materials utilization as well



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as to improved working conditions in the cupellation department and great economies.

There are 4 figures, 2 tables and 9 references, 8 of which are Soviet and 1 English.

ASSOCIATIONS: Ust'-Kamenogorskiy svintsovo-tsinkovyy kombinat (Ust'-Kamenogorsk Lead-zinc Combine) and VNIITsvetmet.

Card 4/4

BOLDYREV, V.V.; PRON'KIN, V.P.

Raising the thermal stability of silver acetylide by the addition  
of cadmium. Zhur.VKHO 6 no.4:476-477 '61. (MIRA 14:7)

1. Tomskiy politekhnicheskii institut.  
(Silver acetylide) (Cadmium)

KOBEZA, I.I.; BELOKUROV, E.S.; CHERNYAVSKIY, V.G.; POGORELYY, V.P.;  
KORKOSHKO, N.M.; VORONOV, Yu.F.; PRON'KIN, V.Ye.; BABENYSHEV, M.A.

Heating a 600-ton (mega-gram) single channel open-hearth furnace  
with self-carburizing natural gas. Stal' 25 no.12:1139-1143  
D '65. (MIRA 18:12)

PROSVIRNITSYN, D.D., inzh. (Leningrad); PRONKIN, Ye.V., inzh. (Leningrad)

Mechanizing the inspection of curves. Put' i put.khoz. 4 no.2:  
32-33 F '60. (MIRA 13:5)  
(Railroads--Curves and turnouts)

PRON'KO, A.

PRON'KO, A. (g.Zyryanovsk)

More concern for geologists. Sov.profsoliuzy 5 no.12:69 0 '57.  
(MIRA 10:11)

(Geology--Field work--Safety measures)

34053 S/123/62/000/003/007/018  
A004/A101

1.1110

AUTHOR:

Pron'ko, G. F.

TITLE:

Electrospark manufacture of components from stainless and high-manganese steels

PERIODICAL:

Referativnyy zhurnal, Mashinostroyeniye, no. 3, 1962, 34-35, abstract 3B175 ("Tr. Tsent. n.-i. labor. elektr. obrabotki materialov. AN SSSR", 1960, no. 2, 217-226)

TEXT:

A widespread introduction in industry of components made of stainless and high-manganese steel is obstructed by the difficulty of mechanical working of these materials. The electric arc process requires, in most cases, a subsequent mechanical working, it is uneconomical and leads to high metal waste. The enumerated drawbacks do not exist in the developed technology of electrospark machining of these steels. The low requirements as to the surface finish made it possible to use a low-voltage d-c supply source (three-phase selenium rectifier) whose voltage was changed by steps from 10 to 30 v while the operating current reached 800 amp. The working medium was industrial water. The method ensures a high efficiency and is recommended for those processes

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34053

Electrospark manufacture ...

S/123/62/000/003/007/018  
A004/A101

which do not require a very high surface finish, e.g. machining of shafts, locomotive undercarriage components, cutting of pipes and holes in pipe walls, cutting of stainless steel sheets, cutting of holes in rails for fixing purposes, etc. These processes are carried out on modernized metal cutting machine tools. The machining of shafts and cutting of sheets was effected by rotating steel disks 100 - 500 in diameter and 1 - 2 mm thick. Either the workpiece and the disk were immersed in a water bath or the water was fed to the machining zone. Holes for welding in the pipe walls are cut with a rotating hollow electrode whose diameter corresponds to that of the branch pipe being welded on. The flanges of sheet material are made with electrodes from pipe sections or composite electrodes whose cylindrical working part is made of sheet steel. On rough conditions the machining efficiency amounts to 12 - 18 mm<sup>3</sup>/min. ✓

A. Kruglov

[Abstracter's note: Complete translation]

Card 2/2

PROM'ISO, G F

PHASE I BOOK EXPLOITATION: SOV/5289

Akademiya nauk SSSR. Tsertral'raya nauchno-issledovatel'skaya laboratoriya elektricheskoy obrabotki materialov. Elektrolitrovaya obrabotka metalloy (Electric-Spark Machining of Metals) no. 2. Moscow, Izd-vo AN SSSR, 1960. 262 P. Errata slip inserted. (Series: Its: Trudy) 6,000 copies printed. Sponsoring Agency: Akademiya nauk SSSR.

Resp. Ed.: B. R. Lazarenko; Ed. of Publishing House: S. M. Moyzhes; Tech. Ed.: A. P. Guseva.

PURPOSE: This collection of articles is intended for process engineers, and technical and research personnel engaged in the working of metals.

COVERAGE: Problems concerning the most effective application of electric-spark methods in industry are reviewed. Possible future developments in the field of electric-spark machining and its automation are discussed, and, for instance of its present utilization in industry, the technical-economic effectiveness of the process is examined, and the equipment involved is described. The relationship between the parameters of electric-spark machining and the production characteristics (productivity, machining stability, and surface quality) of electric-spark machining is established. An electric-spark method is advanced for the curvilinear cutting of materials with a 20 to 30 micron-thick wire thus directing the electric-spark machining. Non- Soviet developments in the field of electric-spark machining are also treated. No personalization or errata slip. There are 121 references: 82 Soviet, 20 English, 10 French, 8 German, and 1 Italian. These references accompany individual articles.

-Zolotykh, B. N., and I. P. Korobova. Selecting Optimum Regimes for Electric-Spark Machining of Sintered-Carbide Alloys	114
-Gnetverikov, S. S., and N. K. Poteyev. Electric-Spark Machining of the Cutting Elements of High-Carbon-Alloy Blanking Punch-Die Sets	120
-Gularyan, K. K. The Electric-Spark Method Applied to Threading	142
-Kholodnov, Ye. V. Manufacture of Precision Tools by the Electric-Spark Method	156
-Gularyan, K. K., and V. L. Kravchenko. Manufacture of Complex-Shaped Machine Parts by Using a Program-Controlled Electric-Spark Machining Unit	179
Aleksandrov, V. P., and B. N. Zolotykh. Selecting the Optimum Procedures for Electric-Spark Machining of Nickel-Base Heat-Resistant Alloys	196
Gorbunov, B. M. Electric-Spark Lapping Used on Flour-Mill Rolls	205
-Franko, O. P. Manufacture of Stainless and High-Manganese Steel Parts by the Electric-Spark Method	217
Ayzenshtok, V. L., and S. I. Kozmar. Electric-Spark Machining of Mass-Produced Parts	227
Levinson, Ye. M. The Development of Electric-Spark Machining in Mass Production	233

Card 4/5



PRON'KO, V.N., inzh.

Safe use of electricity on the construction site. Stroi. truboprov.  
8 no.1:29 Ja '63. (MIRA 16:5)  
(Electric apparatus and appliances--Safety measures)

PRON'KO, V.N.

NIKOLAYEV, S.I., inzhener; PRON'KO, V.N., inzhener.

Protective measures for electrical injuries, Stroi. pred. neft. prem.  
2 no.2:26-27 P '57. (MIRA 10:4)

(Electricity, Injuries from)

KANDAUROVA, Ye.I., vrach; MAZUNINA, G.N., kand.med.nauk; PRON'KOVA, Ye.P.  
vrach; TORUBAROVA, N.A., vrach; SHATALOV, N.N., kand.med.nauk;  
SIDEL'NIKOVA, T.Ya., kand.med.nauk; SHCHECHKIN, V.H., kand.med.  
nauk.

Hints of the "Zdorov'ie". Zdorov'ie 9 no.5:30-31 My'63.  
(MIRA 16:9)

(HYGIENE)

5(4),21(8)

AUTHORS:

~~Pronman, I. M., Shalashov, V. A.,~~  
~~Breger, A. Kh., Zubov, Yu. A.~~

SOV/20-127-6-32/51

TITLE:

Decomposition of the Carbide Phase of White Cast Iron-Cementite Under the Action of Neutron Radiation

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 127, Nr 6, pp 1259-1262 (USSR)

ABSTRACT:

The small number of papers written about phase conversions of metals and alloys under the action of neutron radiation is pointed out in the beginning (Refs 1-8). In order to study the above-mentioned process white cupola furnace-cast iron was used, from which cementite was extracted in form of a carbide sediment by electrolysis. The analysis of the initial material made under the management of N. M. Popova is given in table 1. Aluminum containers were placed for irradiation in the active zone of a nuclear reactor (concentrated uranium and ordinary water) with a total neutron flux of  $10^{12}$  neutrons per  $\text{cm}^2\cdot\text{sec}$ . The thermal neutrons were absorbed by an 1 mm thick Cd-filter. The amount of the flux of the 1 Mev fast neutrons was  $1-5 \cdot 10^{10}$  neutrons per  $\text{cm}^2\cdot\text{sec}$ , and therefore the

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Decomposition of the Carbide Phase of White Cast  
Iron-Cementite Under the Action of Neutron Radiation

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total dosage was  $0.2-1.10^{16}$  neutrons per  $\text{cm}^2$  for 50 hours of irradiation. The irradiated and the non-irradiated cementite samples were examined by X-ray analysis (Ionization apparatus type URS-50-I, Fe-K-radiation). The irradiated sample showed all lines of the cementite and the most intensive line of graphite (002) as well as lines of  $\text{Fe}_3\text{O}_4$  (311) with low intensity. After annealing there were no changes observed for the non-irradiated sample while remarkable phase conversions were indicated by the X-ray analysis of the irradiated sample (Fig 2). Table 2 and figure 1 show the phase conversion of  $\text{Fe}_3\text{C}$  dependent on the annealing temperature. The irradiated cementite already deposits almost  $2/3$  of its iron at only  $650^\circ$ . This decomposition of  $\text{Fe}_3\text{C}$  is caused by centers of crystallization formed by irradiation.  $\alpha$ -iron crystallizes at annealing temperatures below the austenite range, and  $\gamma$ -iron at temperatures of the austenite range. Carbon crystallizes in graphite only at temperatures above  $1000^\circ$ . The irradiation dosage applied was insufficient to form adequately active

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Decomposition of the Carbide Phase of White Cast  
Iron-Cementite Under the Action of Neutron Radiation

SOV/20-127-6-32/51

centers of graphite crystallization. The authors thank  
V. A. Kargin, Academician, and A. A. Zhukhovitskiy, Professor,  
for his judgment of the paper under review. There are 2 figures,  
2 tables, and 14 references, 8 of which are Soviet.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut po normalizatsii  
v mashinostroyenii (All-Union Scientific Research Institute of  
Standardization of Mechanical Engineering)  
Fiziko-khimicheskiy nauchno-issledovatel'skiy institut im.  
L. Ya. Karpova (Scientific Research Institute of Physical  
Chemistry imeni L. Ya. Karpov)

PRESENTED: April 10, 1959, by V. A. Kargin, Academician

SUBMITTED: April 9, 1959

Card 3/3

FRONMAN, I.M.

Theory of the graphitization of white cast iron. Lit. proizv. no.11:  
37-41 N '60. (MIRA 13:12)

(Cast iron--Metallography)

S/020/60/133/04/19/031  
B019/B060

AUTHORS: Pronman, I. M., Shalashov, V. A., Breger, A. Kh.

TITLE: The Influence of an Electron Irradiation Upon the Decomposition of Cementite and the Graphitization of White Cast Iron ✓

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 133, No. 4, pp. 825-828

TEXT: The authors report here on attempts made to study the influence of electron irradiation on the graphitization of white cast iron and the decomposition of cementite, which represents a metastable phase of white cast iron. The structure of industrial cast iron samples consisted of cementite, ledeburite, and perlite. The temperature of the samples was measured with Pt-PtRh thermocouples, and the energy of the electrons was about 1.7 Mev. Fig.3 shows the variation in hardness of irradiated and nonirradiated samples, annealed at 700°C, from which the effect of electron irradiation upon graphitization can be seen. Experiments made with irradiation of pure cementite prepared with the help of N. M. Popova, in vacuo at a temperature of 600 - 620°C, revealed that cementite is

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The Influence of an Electron Irradiation Upon S/020/60/133/04/19/031  
the Decomposition of Cementite and the Graphitiza- B019/B060  
tion of White Cast Iron

decomposed to form graphite. Fig. 4 shows an X-ray picture of irradiated cementite. From the fact that cementite irradiated by electrons is chiefly decomposed by their ionizing action, the authors draw the conclusion that iron and carbon atoms in the cementite lattice possess an ion bond. The authors believe that the same effects are bound to arise on a sufficiently strong  $\gamma$ -irradiation. The authors thank Professor Zhukhovitskiy for his discussion of the results. Ye. Ya. Rozinskiy is mentioned. There are 4 figures, 1 table, and 16 references: 11 Soviet, 1 British, 3 US, and 1 German. ✓

ASSOCIATION: Institut metallurgii im. A. A. Baykova Akademii nauk SSSR  
(Institute of Metallurgy imeni A. A. Baykov of the Academy  
of Sciences, USSR). Fiziko-tekhnicheskiy institut im. L. Ya.  
Karpova (Physicotechnical Institute imeni L. Ya. Karpov)

PRESENTED: January 19, 1960, by G. V. Kurdyumov, Academician

SUBMITTED: January 18, 1960

Card 2/2

PRONMAN, I. M., CAND TECH SCI, <sup>Effect</sup> "ACTION OF NUCLEAR RA-  
DIATIONS <sup>UPON</sup> GRAPHITIZATION OF WHITE IRON." MOSCOW, 1960.  
(MIN OF HIGHER AND SEC SPEC ED RSFSR. MOSCOW ORDER OF LA-  
BOR RED BANNER INST OF STEEL IM I. V. STALIN). (KL, 2-61,  
211).

-174-

S/129/61/000/0017  
E111/E152

AUTHOR:  
TITLE:

Pronman, I.M., Engineer  
Change in Mechanical and Physical Properties of  
Iron-Carbon Alloys Under the Action of Nuclear  
Radiations

PERIODICAL: Metallovedeniye i termicheskaya obrabotka metallov,  
1961, No. 1, pp. 36-47  
TEXT: High-energy nuclear-radiation particles cause  
disturbances in the crystal lattice of materials. Local high-  
temperature zones are briefly produced. Different materials  
react differently to irradiation. The author, who has made  
several contributions in this field of research (e.g. Refs 10,  
11, 30, 31), surveys the literature reproducing published data  
relating to irons and steels of various grades. The figures and  
tables are based on published data. After dealing with effects  
of irradiation on hardness, strength, plasticity and toughness  
the author goes on to the influence of temperature on radiation  
effects. This can vary widely between different steels.

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S/129/61/000/001/009/013  
E111/E152

Change in Mechanical and Physical Properties of Iron-Carbon Alloys  
Under the Action of Nuclear Radiations  
The influence of radiation dose and the action of radiation on  
physical properties such as density and electrical resistivity is  
next discussed, and the survey concludes with a section on the  
effect of irradiation on phase transformations.  
There are 11 figures, 3 tables and 31 references: 15 Soviet  
and 16 non-Soviet.

ASSOCIATION: Institut metallurgii AN SSSR  
(Institute of Metallurgy, AS USSR)

rd 2/2

L 10798-66 EWP(e)/EWI(m)/EPE(n)-2/EWA(d)/T/EWP(t)/EWP(z)/EWP(h)/EWA(h)/EWA(c)  
 ACC NR: AT5023786 JD/VW/GG/GS/WH SOURCE CODE: UR/0000/62/000/000/0081/0099  
 AUTHOR: Pronman, I. M.; Shalashov, V. A.; Breger, A. Kh.  
 ORG: none  
 TITLE: Decomposition of the carbide phase of iron-carbon alloys and the phase transformations in white cast iron under the action of nuclear irradiations  
 SOURCE: Soveshchaniye po probleme Deystviye yadernykh izlucheniy na materialy. Moscow, 1960. Deystviye yadernykh izlucheniy na materialy (The effect of nuclear radiation on materials); doklady soveshchaniya. Moscow, Izd-vo AN SSSR, 1962, 81-99  
 TOPIC TAGS: white cast iron, cementite, cast iron neutron irradiation, cementite neutron irradiation, cast iron electron irradiation, cementite electron irradiation, cementite gamma irradiation  
 ABSTRACT: White cast iron containing about 45% cementite (Fe<sub>3</sub>C) and pure cementite electrolytically precipitated from white cast iron were irradiated with a neutron flux of 10<sup>12</sup> n/cm<sup>2</sup>·sec, fast electrons, and gamma rays and vacuum annealed at a temperature varying from 650—1050C. The neutron irradiation dose for cementite and cast iron was 0.2—5 x 10<sup>16</sup> n/cm<sup>2</sup> and the irradiation temperature did not exceed 65C. Prolonged high-temperature annealing produced no structural changes in unirradiated cementite, but in irradiated cementite, annealing at lower temperatures for a shorter time resulted in a phase transformation. For example, annealing for 2 hours at 650C, i.e., below the austenitic transformation temperature, led to an  
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ACC NR: AT5023786

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appreciable decomposition of irradiated cementite and to the liberation of 66% of the total amount of iron. The iron nuclei, formed as a result of neutron irradiation during annealing at temperatures below the austenitic region crystallized into  $\alpha$ -iron, and those formed at temperatures corresponding to the austenite region, into  $\gamma$ -iron. Regardless of the amount of liberated iron, carbon crystallized into graphite only above 1000C. Thus, neutron irradiation of cementite even at a low flux (of the order of  $10^{16}$  n/cm<sup>2</sup>) led to the formation of iron and graphite nuclei. It is probable that larger irradiation doses can also lead to the crystallization of the new phases directly during irradiation. Neutron irradiation had no direct effect on the microstructure of white cast iron, and its effect became apparent only after subsequent annealing. Annealing brought about a complete phase transformation with the formation of ferrite and graphite in irradiated cast iron, and only fragmentation of cementite crystals in unirradiated cast iron. Irradiation with fast electrons (energy 1.6—1.8 Mev, current 30—35  $\mu$ amp, dose  $\sim 10^{19}$  Mev/cm<sup>2</sup>) in air at 100 and 130C produced surface oxidation of isolated cementite, but at -150C it produced no effect. However, irradiation in a vacuum at 600C for 2 hours resulted in almost complete decomposition and graphitization of cementite. Electron irradiation in air at 100C increased the hardness and electric conductivity of white cast iron. With increasing temperature, the hardness and electric conductivity decreased significantly, and irradiation in air or vacuum at 650—700C brought about complete phase transformation of white cast iron with the formation of ferrite and spheroidized graphite. Gamma-ray irradiation with a dose of about 1000 r/sec at 140C brought about no phase transformation in cementite, probably because of the low intensity and small irradiation dose. Orig. art. has: 14 figures and 5 tables.

Card 2/3 [MS]

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ACC NR: AT5023786

SUB CODE: 13, 20 SUBM DATE: 18Aug62/ ORIG REF: 015/ OTH REF: 004

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*BC*

Card 3/3

PRONMAN, I. M.

90

PHASE I BOOK EXPLOITATION

SOV/6176

Konobeyevskiy, S. T., Corresponding Member, Academy of Sciences  
USSR, Resp. Ed.

Deyatviye vadernykh izlucheniv na materialy (The Effect of  
Nuclear Radiation on Materials). Moscow, Izd-vo AN SSSR,  
1962. 383 p. Errata slip inserted. 4000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Otdeleniye tekhnicheskikh nauk; Otdeleniye fiziko-matematicheskikh nauk.

Resp. Ed.: S. T. Konobeyevskiy; Deputy Resp. Ed.: S. A. Adasinskiy; Editorial Board: P. L. Gruzin, G. V. Kurdyumov, B. M. Levitskiy, V. S. Lyashenko (Deceased), Yu. A. Martynyuk, Yu. I. Pokrovskiy, and N. F. Pravdyuk; Ed. of Publishing House: M. G. Makarenko; Tech. Eds: T. V. Polyakova and I. N. Dorokhina.

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SOV/6176

The Effect of Nuclear Radiation (Cont.)

**PURPOSE:** This book is intended for personnel concerned with nuclear materials.

**COVERAGE:** This is a collection of papers presented at the Moscow Conference on the Effect of Nuclear Radiation on Materials, held December 6-10, 1960. The material reflects certain trends in the work being conducted in the Soviet scientific research organization. Some of the papers are devoted to the experimental study of the effect of neutron irradiation on reactor materials (steel, ferrous alloys, molybdenum, avial, graphite, and nichromes). Others deal with the theory of neutron irradiation effects (physico-chemical transformations, relaxation of internal stresses, internal friction) and changes in the structure and properties of various crystals. Special attention is given to the effect of intense  $\gamma$ -radiation on the electrical, magnetic, and optical properties of metals, dielectrics, and semiconductors.

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## The Effect of Nuclear Radiation (Cont.)

SOV/6176

Lyashenko, V. S. (Deceased), and Sh. Sh. Ibragimov. Effect of Neutron Field on Structure and Properties of Steels 74  
The specimens were irradiated in the fast reactor BR-5 with a neutron flux of  $1.9 \cdot 10^{20}$  n/cm<sup>2</sup> at temperatures from 150 to 220° [C?].

Fronman, I. M., V. A. Shalashov, and A. Kh. Breger. Decomposition of Carbide Phase in Iron-Carbide Alloys and Phase Transformation in White Cast Iron Under Nuclear Irradiation 81

Petrov, P. A., I. V. Batenin, A. N. Rudenko, and B. V. Sharov. Investigation of Properties of Avial Subjected to Nuclear Radiation in a Reactor 100

Platonov, P. A. Stress Relaxation in Metals Under Neutron Irradiation, Recovery, and Annealing of Radiation Defects 106  
Specimens were irradiated at  $-150^{\circ}\text{C}$  by fast neutron fluxes ( $E > 1$  mev) of  $2 \cdot 10^{18}$  and  $4 \cdot 10^{19}$  n/cm<sup>2</sup> in the RFT Reactor.

Card 6/14

FRONMAN, I.M.

Role of fast electrons in the study of the iron-carbon alloy  
graphitization process. Trudy Inst.met. no.10:83-107 '62.

(MIRA 15:8)

(Iron alloys--Metallurgy)

(Electrons)

POPOV, I..N.; PROMNIKOVA, M. I., Eng.

Dynamos

Controlling out-of-balance generator loads. Elek. sta., 23, No. 6, 1952.

Monthly List of Russian Accessions, Library of Congress, October 1952. UNCLASSIFIED.

BUDZKO, I.A., akademik; PRONNIKOVA, M.I., kand. tekhn. nauk.

Method of two boundary points for the calculation of short-circuit currents in network with steel wires. Izv. vys. ucheb. zav.; energ. 8 no.7:13-20 J1 '65. (MIRA 18:9)

1. Moskovskiy institut inzhenerov sel'skokhozyaystvennogo proizvodstva. 2. Vsesoyuznaya akademiya sel'skokhozyaystvennykh nauk im. Lenina (for Budzko).

KNYAZEVA, M.S. (Moskva); LANIN, V.A. (Moskva); PRONINA, M.Y. (Moskva)

On the unsaturated character of aromatic hydrocarbons derived from  
lowtemperature tars. Izv.AN SSSR.Otd.tekh.nauk no.4:168 Ap '56.

(MLBA 9:8)

(Coal tar--Hydrocarbons)

PRONNIKOVA, M.I., kandidat tekhnicheskikh nauk.

Calculation of short-circuit currents in networks with steel  
conductors. Trudy NIMESKH 3:142-164 '56. (MLRA 10 8)  
(Electric conductors) (Short circuits)

PRON', N.; KRYLOV, M., inzh, po podgotovke kadrov

Mastering a second occupation. Prof.-tekh. obr. 20 no. 1:27 Ja '63,  
(MIRA 16:2)

1. Nachal'nik otdela truda i zarabotnoy platy tresta "Promstroyre-konstruktsiya" (for Pron').  
(Moscow Province--Building trades--Study and teaching)



BERZIN, A.A., inzh.; BORODIN, I.F., kand. tekhn. nauk; LUKOVNIKOV,  
A.V., kand. tekhn. nauk; PROKHNIKOVA, M.I., kand. tekhn.  
nauk; SERGOVANTSEV, V.T., kand. tekhn. nauk; YURASOV, V.V.,  
kand. tekhn. nauk; BURGUCHEV, S.A., zasl. deyatel' nauki i  
tekhniki RSFSR doktor tekhn. nauk, prof., red.; NIKITINA,  
V.I., red.; SOLODENIKOVA, G.A., red.; SOKOLOVA, N.N., tekhn.  
red.

[Course on electric power plants, substations, and power  
systems] Praktikum po elektricheskim stantsiam, podstantsi-  
iam i sistemam. [By] A.A.Berzin i dr. Moskva, Sel'khozizdat,  
1963. 303 p. (MIRA 16:12)

(Electric power plants)  
(Electric power distribution)

L 22150-66

ACC NR: AP6012965

SOURCE CODE: UR/0143/65/000/007/0013/0020

AUTHOR: Budzko, I. A. (Candidate of technical sciences; Academician VASKhNIL)  
Pronnikova, M. I. 25  
B

ORG: Moscow Institute of Agricultural Engineering (Moskovskiy institut inzhenerov sel'skokhozyaystvennogo proizvodstva)

TITLE: Method of two boundary points for calculating short-circuit currents in steel-wire systems

SOURCE: Izvestiya vysshikh uchebnykh zavedeniy. Energetika, no. 7, 1965, 13-20

TOPIC TAGS: electric impedance, electric current, boundary value problem, wire, steel

ABSTRACT: Steel-wire power systems are used on a fairly broad scale in Soviet agriculture. The calculation of short-circuit currents in these systems is fairly difficult in view of the non-linear dependence of their impedance on the current flow. In this connection, the authors propose simplified methods of calculating these currents according to two boundary values of the current:  $I_{kI}$  in the absence of increment in steel-wire impedance; and  $I_{kII}$  in the presence of maximum increments in steel-wire impedance. On this basis, the appropriate equations are derived. It is shown how allowance can be made for the maximum error due

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UDC: 621.3.064.001.24

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ACC NR: AP6012965

to the nonlinear increment in steel-wire impedance and how the time factor can be taken into account. The compensation method and nomogram for calculating short-circuit currents when power is supplied by a large grid are described. The evaluation of maximal errors with respect to current owing to the increment in steel-wire impedances during a short circuit may be determined over a broad range of currents (70-200 a) for 10 kv systems by means of the formula  $\Delta I\% = \sqrt{3} (\frac{l}{L})$ , where ( $l$  is the overall length of successive steel-wire segments. Orig. art. has: 6 figures and 13 formulas. [JPRS]

SUB CODE: 09 / SUBM DATE: 25May64 / ORIG REF: 005

Card 2/2 *ddw*

1ST AND 2ND ORDERS PROCESSES AND PROPERTIES INDEX

**B**

**Steel Melting Experiments with Application of Diffusive Deoxidation.** A. N. Pronov. 11 pages. From *Bulletin de l'Academie des Sciences de l'URSS (Classe des Sci. Techn.)*, nos. 1 and 2, 1943, p. 39-43. Henry Bratcher, Altadena, Calif. (Translation No. 1920.)

Deoxidation of steel by a diffusion method, in an open-hearth furnace, is recommended for wider use, especially with high alloy steels. Technique is described and test results are tabulated.

ASME-ISA METALLURGICAL LITERATURE CLASSIFICATION

GROUP	SECTION	SUBSECTION	TERMINAL	ALPHABETIC
11	11	11	11	11
12	12	12	12	12
13	13	13	13	13
14	14	14	14	14
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98	98	98	98	98
99	99	99	99	99
100	100	100	100	100

AKSENOV, P.N., doktor tekhn.nauk, prof.; PRONOV, A.P., kand.  
tekhn. nauk, retsenzent; CHERNYAK, O.V., inzh., red.;  
UVAROVA, A.F., tekhn. red.

[Mold making] Formovochnoe proizvodstvo. Izd.4. Moskva,  
Mashgiz, 1963. 287 p. (MIRA 16:7)  
(Molding (Founding))

PROCEDURES AND PROPERTIES INDEX

B-1-6

BC

~~Investigation into the effect of the addition of A. P. ...  
 (Dokl. Akad. Nauk S.S.S.R., 1943, Part 1/2, ...  
 28-29) - Diffusion decarburization with these additions to the Fe~~

bath: chalk + sand, chalk + coke + fireclay, and ferro-silicon + ...  
 Since these additions limit the thermal work of the furnace, ...  
 part of the sand in the first mixture is substituted by hematite, and ...  
 the amount of the second mixture is reduced. J. J. B.

ASB-31A METALLURGICAL LITERATURE CLASSIFICATION

E-2

*Pronov, A. P.*

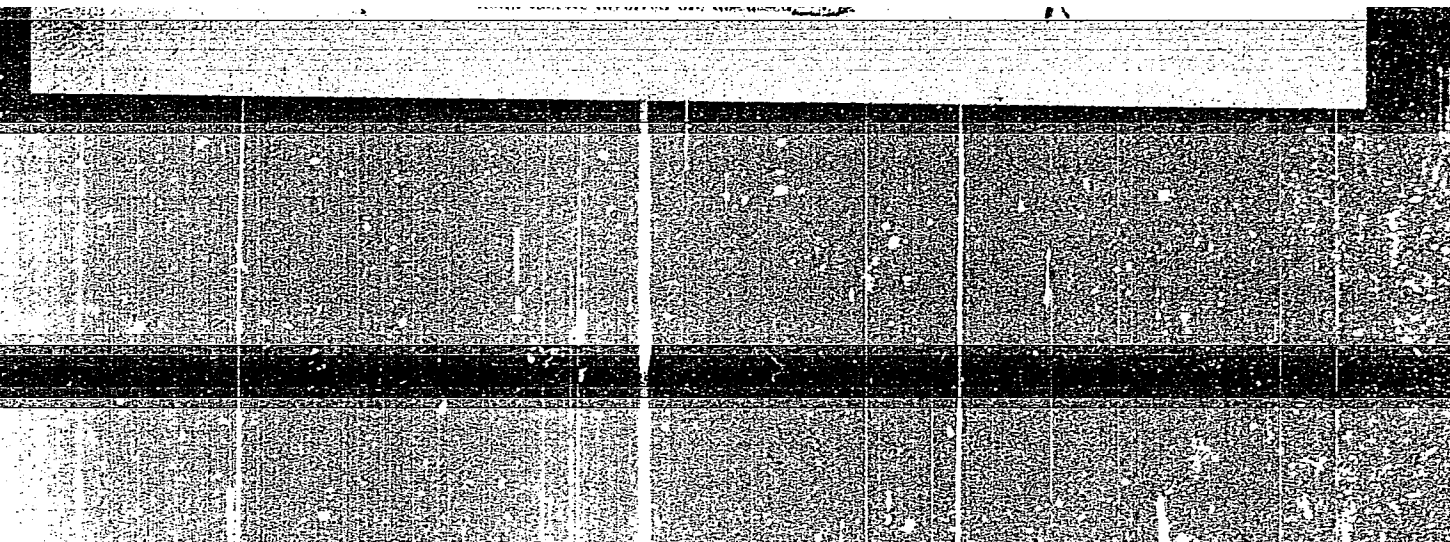
Problems of Metallurgy. Academy of Sciences of the U.S.S.R., Moscow, 1953. Mechanical Properties of Bessemer Low-Alloy Structural Steel / S. P. Suchanov and V. S. Vasylyanskaya. (409-441). (In Russian). An account is given of a comprehensive investigation of the mechanical properties of a low-alloy Bessemer steel (0.06-0.13% C, 0.28-0.64% Mn, trace-0.44% Si, 0.044-0.051% P, 0.026-0.048% S, 0.00-0.90% Cr, 0.00-0.65% Ni, 0.04-0.44% Cu, 0.013-0.018% N, 0.00005-0.00019% H, 0.00179-0.0165% O<sub>2</sub>). The main conclusions drawn are: through alloying, the steel is actually less liable to brittle fracture than the corresponding O.H. steel and has a higher yield point; the ageing properties and sensitivity to stress-concentration in cyclic loading remain relatively poor. It is suggested that by using other measures in addition to alloying, the properties of Bessemer steel can be improved still further. Investigation of Processes Occurring during the Tempering of Hardened Steel. K. E. Starodubov. (442-450). Changes occurring in hardened steel during tempering.

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PA 190T88

USSR/Metals - Steel Structure

Apr 51

"Causes of Differences in Primary Structure Formed During Crystallization of Steel," A. P. Pronov, Inst of Metallurgy Imeni A. A. Baykov, Acad Sci USSR

"Iz Ak Nauk SSSR, Otdel Tekh Nauk," No 4, pp 576-578

Expts revealed contradiction between results of investigation and existing assumption of certain authors that crystals grow exclusively on non-metallic inclusions. Dendritic primary structure of steel ingot originates due to intensity of

190T88

USSR/Metals - Steel Structure (Contd) Apr 51

cooling only to slight extent; mainly depends on state of liquid steel, its heat content, purity from metallic and nonmetallic centers of crystal. One of principal causes of fine-cryst structure is cooling of steel before pouring to temp of liquidus, when microcrystals of iron are formed. Submitted by Acad I. P. Bardin.

190T88 ✓

PRONOV, A. P.

FD-2619

*Pronov, A.P.*  
USSR/Engineering - Metallurgy

Card 1/1 : Pub. 41-5/21

Author : Pronov, A. P., Moscow

Title : ~~.....~~  
The effect of the temperature of liquid steel on ingot structure

Periodical : Izv. AN SSSR, Otd. Tekh. Nauk 4, 58-62, Apr 1955

Abstract : Studies the effect of the temperature of liquid killed steel upon the crystallization of the ingot. Finds that steel should be heated to a point above its melting temperature sufficient to assure optimum crystallization. Believes a 30-40° overheating above liquidus point is adequate. Discusses macrostructure and crystallization pattern of a basic open hearth steel ingot. Optimum dimensions of ingot and adequate thermal insulation of deadhead part are studied. Photograph of ingot cross section. Seven USSR references.

Institution : Institute of Metallurgy imeni A. A. Baykov, Academy of Sciences  
USSR

Submitted : July 24, 1954

SAMARIN, A.M., otvetstvennyy redaktor; SOKOLOV, P.Ye., redaktor;  
KHABAKHPASHEV, A.A., redaktor; GOSTEV, K.I., redaktor; PRONOV, A.P.,  
redaktor; CHERNOV, A.N., redaktor izdatel'stva; SOMOBEV, B.A.,  
tekhnicheskiiy redaktor

[Continuous casting of steel] Nepreryvnaia razlivka stali; 17-19  
oktiabria. Moskva, Izd-vo Akademii nauk SSSR, 1956. 299 p. (MLRA 9:7)

1. Vsesoyuznaya konferentsiya po nepreryvnoy razlivke stali,  
1st, 1955. 2. Chlen-korrespondent AN SSSR (for Samarin)  
(Steel--Metallurgy) (Continuous casting)

RUTES, V.S.; PRONOV, A.P.

Conference on continuous pouring of steel. Stal' 16 no.3:263-265  
Mr '56. (Smelting--Congresses) (MLRA 9:7)

PRONOV, A.P.,

"Studies of Large Ingot Crystallisation,"  
lecture given at the Fourth Conference on Steelmaking, A.A. Baikov, Institute of  
Metallurgy, Moscow, July 1-6, 1957

SARATOVKIN, Dmitriy Dmitriyevich; PRONOV, A.P., kandidat tekhnicheskikh nauk, retsenzent; BAKSHTEYN, S.Z., kandidat tekhnicheskikh nauk, retsenzent; SHPICHINETSKIY, S.S., redaktor; KAMAYEVA, O.M., redaktor izdatel'stve; ISLENT'YEVA, P.G., tekhnicheskiiy redaktor

[Dendritic crystallization] Dendritnaya kristallizatsiya. Izd. 2-oe, ispr.i dop. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1957. 125 p. (MLRA 10:10)  
(Solidification)

SOVIET

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 8, p 23 (USSR)

AUTHOR: Pronov, A.P.

TITLE: Determination of the Fluidity of Steel With the Aid of a U-shaped Test Mold (Opredeleniye zhidkotekuchesti stali s pomoshch'yu U-obraznoy proby)

PERIODICAL: Inform.-tekhn. byul. Vses. proyektno-tekhnol. in-t M-va stroit. i dor. mashinostr. SSSR, 1957, Vol 2 (5), pp 56-59

ABSTRACT: The influence of various factors on the fluidity (F), as determined with the U-shaped test mold, was studied. Practical directions are given on the problems of the manufacture and the use of the U test mold. It is asserted that the F is affected mainly by the state of the liquefied metal which is characterized by its viscosity, which in turn depends upon the composition, temperature, and the presence of insoluble impurities. The effect of surface tension on F, as the calculation by the A.G. Spasskiy formula demonstrates, is very small and can be disregarded. All other conditions being equal, the overheating of the melt above its liquidus temperature has the greatest effect upon its F. Upon an overheating by 8-15°C carbon steels

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Card

137-58-4-6738,

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 4, p 62 (USSR)

AUTHOR: Pronov, A. P.

TITLE: Effect of the Physical and Chemical Properties of Molten Steel Upon the Process of Crystallization, the Structure, and the Quality of an Ingot (Vliyaniye fizicheskikh i khimicheskikh svoystv zhidkoy stali na protsess kristallizatsii, stroeniye i kachestvo slitka)

PERIODICAL: V sb.: Fiz.-khim. osnovy proiz-va stali. Moscow, AN SSSR, 1957, pp 705-717. Diskus. pp 781-791

ABSTRACT: The effect of Al on the fluidity (F) of various grades of steel when molten, and also upon the tendency of steels to crack formation in accordance with [ C ], was studied. Study of F was performed on the Nekhendzi-Samarin's and Prof. B. B. Gulyayev's instrument under laboratory conditions, and by recording the level to which the transfer ladle was filled with liquid steel in continuous casting under factory conditions. It was found that under optimum conditions for the smelting of rimmed steel, its high F made it possible to obtain a good ingot. Introduction of Al into rimmed steel sharply diminishes F and impairs the

Card 1/2



137-58-4-6738

Effect of the Physical and Chemical (cont.)

structure of the ingot. Capped steel is particularly sensitive in this respect. Addition of 1.4-1.5 kg Al per t of capped steel reduces F by half. In killed low and medium carbon steel, addition of Al over a definite minimum has a very pronounced effect on F and on the formation of blisters in the ingot. The diminution of the F of steel upon addition of Al is explained not only by the formation of  $Al_2O_3$  but by the reduction of the amount of FeO in the steel. The appearance of blisters is related to the secondary oxidation of the steel during teeming. The presence of Al in steel is a protective measure against secondary oxidation. In addition to the customary processes of combining Al with O and N, it is proposed that it be combined with S in sulfides. Steel containing [C] in the amount of 0.15-0.35% shows the greatest tendency to crack formation, and this is explained by the intensive development of shrinkage during hardening of this type of steel and the fact that it is of low strength. 0.08-0.10% [C] steel has twice as much strength during the process of crystallization and consequently, for this reason, shows less of a tendency to crack formation. When [C] > 0.35%, the appearance of shrinkage is slowed, and this makes for solidification of the steel without cracks.

A. R.

1. Steel--Properties--Study and teaching    2. Crystallization -Processes--Appl.  
Card 2/2    cations    3. Ingots--Structure

PRONOV, A. P.

"Deoxidation of Steel with Aluminum and its Influence on Flowability."

Hydrodynamics of Molten Metals (Gidrodinamika rasplavlennykh metalov; trudy pervogo soveshchaniia po teorii liteinykh protsessov. Moskva, Izd-vo Akad. nauk SSSR, 1958, 257 pp.

(Proceedings of the First Conference on the Theory of Casting Processes)

Institute of Metallurgy, imeni A. A. Baykov Academy of Sciences USSR

A.P. BRENDU

**AUTHOR:** Gulyayev, B.B.  
**TITLE:** Conference on Crystallisation of Metals (Soveshchaniye po Kristallizatsii Metallov)  
**PERIODICAL:** Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1958, Nr. 4, pp 153 - 155 (USSR)

**ABSTRACT:** This conference was held at the Institut Mashinovedeniya AN SSSR (Institute of Mechanical Engineering of the Ac.Sc. USSR) on June 28-31, 1958. About 400 people participated and the participants included specialists in the fields of casting, metallography, physical metallurgy, heat treatment, physical metallurgy, and physical metallurgy. Related subjects in addition to Soviet participants foreign visitors included Professor D. Cziki (East Germany) and M.I. Chvorinov (Czechoslovakia). This conference on crystallisation of metals was the fourth conference relating to the general problem of the theory of foundry processes.

**CRYSTALLIZATION OF STEEL AND ALLOYS WITH SPECIAL PROPERTIES:** V.I. Lapin, N.I. Stukov. Papers were read:  
 V.I. Lapin, N.I. Stukov. "Influence of the Primary Structure of Steel on its Properties";  
 V.L. Dikarevko, A.I. Maslov, F. Rudakov. "Methods of Reducing Non-uniformities of Large Castings (Up to 20 t) and V.V. Bilbay - "Influence of Internal Crystallizers on the Structure and Properties of Steel Ingots";  
 B.I. Evtorin (Czechoslovakia) - "On the Crystallization of Steel";  
 A.P. Erosov - "Crystallization of Continuously Cast Ingot and Influence on it of the Properties of Liquid Steel";  
 L.I. Korozemskiy and O.D. Zigel - "Influence of Movement of the Metal in the Liquid Core on the Crystallization of Steel Ingots and Castings";  
 R.M. Gagin, A.A. Novikova and B.B. Gulyayev - "Crystallization and Mechanical Properties of Steels at Elevated Temperatures";  
 V.Ye. Neymark - "Influence of Inoculation on the Refinement of the Grain and the Speed of Solidification of Ingots";  
 G.P. Pavlov - "Crystallization and Deformation in the Core of a Cast Ingot";  
 I.G. Grushin and P.I. Kabanov - "Influence of the Primary Structure of Refractory Alloys on their Properties";  
 The features of crystallization of castings made of alloys with special properties and of austenitic steels were dealt with in the following papers:  
 I.I. Goryunov - "Influence of Inoculation on the Structure and on the Physico-mechanical Properties of High-alloy Steels";  
 F.F. Elushtin, F.V. Aksemy, N.P. Laktion and S.I. Rodina - "Occurrence of Non-uniformities in High-temperature alloys During Crystallization and Heat Treatment" and "Experimental Investigation of the Process of Crystallization of Cast Blades Made of Refractory Alloys";  
 A.M. Kufgrov considered the process of recrystallization of steel.

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