

The Growth of Uranium Rods in an Aggressive Gaseous
Medium

SOV/89-7-4-3/28

wire having a diameter of from 0.5 to 1 mm increases in volume by several per cent when heated up to 900° in air within 30 minutes. With conditions otherwise being equal, the rate at which these wires increase in volume is inversely proportional to their diameter. Also the state of the wire surface exerts an influence on the increase in its volume. Finally, a possible mechanism for the volume increase of uranium rods is dealt with: Oxygen diffuses into the heated uranium rod, so that a film of the lowest oxides ($UO + UO_2$) is formed. Oxidation is irregular and independent of crystallographical directions. Thus, it is possible to observe a colored mosaic on the electropolished uranium surface. The planes (020) have the highest degree of oxidizability, and the planes (002) the lowest. In the course of time also the lowest oxides oxidize with progressing oxidation processes. The increase in the rod volume is caused by oxygen which diffuses into the layer and oxidizes the lowest oxide. The oxygen exercises its most intensive effect with respect to the volume increase of uranium rods if the conditions corresponding to the production of the lowest oxides exist. There are 5 figures, 2 tables, and 1 Soviet

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Medium

SOV/89-7-4-3/28

reference.

SUBMITTED: February 13, 1959

Card 4/4

28(5)

AUTHOR:

Sharov, B. V., Senior Engineer

05740

SOV/32-25-10-29/63

TITLE:

The Problem of the Classification and Manifestation of Residual Stresses. (Answers to the Article by Academician N. N. Davidenkov Published in Nr 3 of the Periodical for 1959 Have Arrived at the Editorial Office of the Periodical "Zavodskaya Laboratoriya". These Answers Are Given Below in the Form of a Discussion). IV.

PERIODICAL:

Zavodskaya laboratoriya, 1959, Vol 25, Nr 10, pp 1230 - 1231 (USSR)

IV

ABSTRACT:

The author points out that the advantage of classifying residual stresses in crystalline bodies into three classes is evident. The X-ray investigation methods are most sensitive with respect to structural changes, and permit various studies of residual stresses in crystalline bodies. The appearance of stresses of 1st class and of oriented stresses of 2nd class effects, by all means, a shifting of maxima of the X-ray diffraction spectrum as in both cases the interfacial distance is changed. In determining the stresses of 2nd class on the basis of the extension of X-ray lines, the breaking-up of blocks of coherent dispersion must, by all means, be considered, and further investigations in this respect will have to be carried out. Descriptions of the

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The Problem of the Classification and Manifestation of Residual Stresses. (Answers to the Article by Academician N. N. Davidenkov Published in Nr 3 of the Periodical for 1959 Have Arrived at the Editorial Office of the Periodical "Zavodskaya Laboratoriya". These Answers Are Given Below in the Form of a Discussion). IV.

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stresses of 3rd class, i. e. of the influence of lattice deformation on the weakening of the intensity of X-ray reflexes (according to N. N. Davidenkov), are explained by stating that the static lattice deformations can be separated from the dynamic ones by taking one X-ray picture of the sample e.g. at room temperature, and another at the temperature of liquid nitrogen. The development of technology of nuclear reactions permits further investigations of the deformation of crystalline structure; thus, heavy particles with a high energy may effect a lattice deformation of the pure element without causing a deformation of the macrovolume (which is unavoidable in the case of mechanical influences). In experiments in a neutron field, elements with a small capture cross section of neutrons must be chosen to avoid an alloying of the sample on irradiation. In agreement with N. N. Davidenkov it is stated that the "nonstraining" stresses (4th class) are best considered to be a special case of stresses of 2nd class.

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SOV/32-25-10-29/63
The Problem of ~~the Classification and Manifestation~~ of Residual Stresses. (Answers to the Article by Academician N. N. Davidenkov Published in Nr 3 of the Periodical for 1959 Have Arrived at the Editorial Office of the Periodical "Zavodskaya Laboratoriya". These Answers Are Given Below in the Form of a Discussion). IV.

The designations of residual macrostresses of 1st class, microstresses of 2nd class, and submicrostresses of 3rd class according to D. M. Vasil'yev (Ref 4) are found to be correct. There are 4 Soviet references.

Card 3/3

SHCHAPOV, N.P., prof.; VASIL'YEV, D.M., kand.fiz.-matem.nauk; ROVINSKIY,
B.M., prof., doktor fiz.-matem.nauk; SHAROV, B.V., starshiy
inzhener

Classification and exposure of residual stresses. Zav.lab. 25
no.10:1224-1231 '59. (MIRA 13:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut zheleznodorozh-
nogo transporta (for Shchapov).
(Strains and stresses)

SHARON, D.V.

216200 1138, 1403, 1308 only 8/020/60/134/004/008/023
8019/8067

AUTHORS: Belikov, I. V., Ilin, T. A., Kizikova, T. K.,
Radtsig, G. I., and others. // Abstracts of Soviet Sci. Ser. B.

TITLE: Effect of Neutron Irradiation on the Crystalline
Structure and the Properties of Metals and Alloys

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 134, No. 4,
pp. 802 - 805

NOTE: The authors studied the broadening of X-ray interference lines of iron, iron alloys, and copper by neutron irradiation ($10^{20} - 10^{25}$ n/cm²). Prior to the experiments the samples were annealed at 600 - 650 C. Fig. 1 shows the changes of the (220) and (400) interference lines of iron and copper due to neutron irradiation. In Fig. 2 the changes in the widths of the interference lines are summarized.

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Table 1

Material	Indices of the reflecting surface	Line width before irradiation, $\Delta a, \text{\AA}$	Line width after irradiation, $\Delta a', \text{\AA}$	Distortions of 11 kind $\Delta a/a, 10^3$	Block dimensions D, 10^6 cm
Fe	(110)	5.0	5.6	0.55	0
	(220)	7.3	9.4		
	(400)	5.9	7.0		
Cu	(110)	11.0	15.6	1	5

In Table 2 the changes in microhardness are given. The values are between 76 and 69%, according to the material and irradiation intensity. Since the authors do not indicate the irradiation dose, it is not possible to compare the results with the data in the literature. The authors also mention that the irradiation led to a reduction of the regions of coherent scattering and to dislocations, as is the case in cold-working. The solidification of the material is connected with the change in the crystal properties in the appropriate sense. Here, the resistance to dislocations in the lattice is increased. The authors conclude there.

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From that the increase in microhardness is caused by irradiation and cold-working. This exactly applies for iron, as is shown by the diagrams in Fig. 2. For the anomalous behavior of an iron tungsten alloy (6% W) it is assumed that irradiation not only causes defects of the type "external atomic vacancies" as is usually the case but also a change in the distribution of the tungsten atoms in the direction of the thermodynamically more stable state. There are 3 figures, 2 tables, and 6 Soviet references.

ASSOCIATION: Institut theoreticheskoy i eksperimental'noy fiziki Akademii nauk SSSR (Institute of Theoretical and Experimental Physics of the Academy of Sciences of the USSR), Institut metallovedeniya i fiziki khimicheskikh metallurgii im. I. P. Bardina (Institute of Metallurgy and Metal Physics of the Central Scientific Research Institute of Semiconducting Materials, 1960)
I. P. BARDIN
SUBMITTED: June 29, 1960
Card 3/3

BATENIN, I.V.; IL'INA, V.A.; KRITSKAYA, V.K.; KURDYUMOV, G.V., akademik;
SHAROV, B.V.

Effect of neutron bombardment on the fine crystal structure of
metals and alloys. Dokl.AN SSSR 134 no.4:802-805 0 '60.
(MIRA 13:9)

1. Institut teoreticheskoy i eksperimental'noy fiziki Akademii
nauk SSSR, Institut metallovedeniya i fiziki metallov
TSentral'nogo nauchno-issledovatel'skogo instituta chernoy
metallurgii im. I.P.Bardina.

(Neutrons)

(Metal crystals)

(Alloys)

SHAROV, B. V.

90

PHASE I BOOK EXPLOITATION

SOV/6176

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

Deystvive yadernykh 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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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 γ -radiation on the electrical, magnetic, and optical properties of metals, dielectrics, and semiconductors.

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30V/6176

The Effect of Nuclear Radiation (Cont.)

- 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/cm² at temperatures from 150 to 220° [C?].
- Pronman, 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°C by fast neutron fluxes ($E > 1$ mev) of $2 \cdot 10^{20}$ and $4 \cdot 10^{20}$ n/cm² in the RFT Reactor.

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The Effect of Nuclear Radiation (Cont.)

SOV/6176

- Batenin, I. V., V. A. Il'ina, V. K. Kritskaya, G. V. Kurdyumov, and B. V. Sharov. Investigation of the Effect of Neutron Irradiation on Thin Crystalline Structure and Properties of Metals and Alloys 160
Annealed specimens (copper at 400°; iron and iron-nickel at 600°; iron-chromium and iron-tungsten at 650°; and chromium at 900°) were irradiated with neutron fluxes of $\sim 10^{20}$ and $\sim 10^{21}$ n/cm² at a temperature not exceeding 80° [C?].
- Karpukhin, V. I., and V. A. Nikolayenko. Remote Controlled Installation for X-Ray Diffraction Analysis of Radioactive Specimens 168
- Levitskiy, B. M., and Yu. A. Martynyuk. Installation for X-Ray Examination of Highly Active Specimens 173
- Sharov, B. V., I. V. Batenin, and A. N. Rudenko. X-Ray Unit for Structural Investigation of Radioactive Materials 180

Card 8/14

I 9234-66 EWT(m)/EPF(n)-2/T/EWP(t)/EWP(h)/EWA(h)/EWA(c) UR/0000/62/000/000/0160/0101
ACC NR: AT5023793 SOURCE CODE: 55

66
65
B+1

AUTHOR: Batenin, I. V.; Il'ina, V. A.; Kritskaya, V. K.; Kurdyumov, G. V.;
Sharov, B. V. 55 55 55

ORG: none

TITLE: Investigation of the effect of neutron on the fine crystalline structure and properties of metals and alloys

SOURCE: Soveshchaniye po probleme Deystviye yadernykh izlucheniya na materialy. Moscow, 1960. Deystviye yadernykh izlucheniya na materialy (The effect of nuclear radiation on materials); doklady soveshchaniya. Moscow, Izd-vo AN SSSR, 1962, 160-167 55, 16

TOPIC TAGS: copper, iron, chromium, iron alloy, nickel containing alloy, chromium containing alloy, tungsten containing alloy, metal structure, alloy structure, neutron irradiation, irradiation effect

ABSTRACT: Copper, iron, and chromium annealed at 400, 600, and 900C, respectively, and Fe-Ni, Fe-Cr, and Fe-W alloys annealed at 600, 600, and 650C, respectively, were irradiated with an integrated neutron flux of about 10^{20} and 10^{21} n/cm² at 80C. Irradiation caused a noticeable widening of interference x-ray lines in copper and iron resulting from fragmentation of coherent portions of the crystalline lattice (block) (5×10^{-6} and 8×10^{-6} cm in copper and iron, respectively) and from the presence of elastic microdeformations (1×10^{-3} and 0.65×10^{-3} in copper and

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ACC NR: AT5023793

iron, respectively). In the Fe-Ni alloy the widening of interference lines was much smaller, and none was observed in chromium and in the Fe-Cr and Fe-W alloys. Irradiation increased the microhardness of all the investigated metals and alloys; the increase varied for different metals and grew larger as flux density increased from 10^{20} to 10^{21} n/cm². The microhardness of the irradiated Fe-W alloy practically did not increase with a cold deformation of up to 60—70 deg, while that of the unirradiated alloy increased significantly with deformation, regardless of its magnitude. In the irradiated and unirradiated Fe-Ni alloy the changes in microhardness with cold plastic deformation were practically identical. The initial difference ($\Delta H_{0.45}$ units) in the microhardness of the irradiated and unirradiated Fe-Ni alloy practically disappeared with a 30—40-deg cold deformation, after which the changes in microhardness followed a conventional course. A similar pattern was observed for irradiated and unirradiated chromium, except that the initial difference (ΔH) was 30 units and it decreased to zero after a 70—80 deg deformation. Investigation of the dependence of the microhardness on the annealing temperature showed that the nature of the crystal lattice defects created by plastic deformation differed substantially from the nature of the defects created by neutron irradiation. The former were much more stable; hence, weakening of irradiated metals began at appreciably lower annealing temperatures. Orig art. has: 15 figures. [MS]

SUB CODE: 11, 20/ SUBM DATE: 18Aug62/ ORIG:REF: 001

Card ^{ac} 2/2

L 4036-66 EWT(m) DIAAP GS

ACCESSION NR: AT5023796

UR/0000/62/000/000/0180/0183

AUTHOR: Sharov, B. V.; Batenin, I. V.; Rudenko, A. N.

TITLE: X ray apparatus for structural study of radioactive materials

SOURCE: Soveshchaniye po probleme Deystviye yadernykh izlucheny na materialy. Moscow, 1960. Deystviye yadernykh izlucheny na materialy (The effect of nuclear radiation on materials); doklady soveshchaniya. Moscow, Izd-vo AN SSSR, 1962, 180-183

TOPIC TAGS: x ray diffraction analysis, radioactive source, x ray apparatus

ABSTRACT: The chief difficulty involved in the use of a scintillation counter for recording soft x-ray quanta (Cu K α -radiation) in x-ray diffraction units is the elimination of the photo-multiplier background. An improvement of the electronic part of the apparatus is proposed; it is established that an optimum supply voltage can be found for which the number of noise pulses having amplitudes equal to or greater than the amplitude of the pulses from x-ray quanta is negligibly small as compared to the intensity of the x-ray lines customarily recorded. The modification introduces a number of advantages: (1) Fewer parts are necessary to construct the unit (one-third as many radio tubes and resistances); (2) It is no longer necessary to convert the discriminators for coincidence

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ACCESSION NR: AT5023796

operation; (3) The efficiency of the apparatus is increased by 50%; (4) Adjustment of the apparatus is improved because of the convenient location of the NaI(Tl) scintillation crystal at the photomultiplier cathode. Orig. art. has: 4 figures. 0

ASSOCIATION: None

SUBMITTED: 18 August 62

ENCL: 00

SUB CODE: NP, OP

NO REF SOV: 002

OTHER: 000

Card 2/2 *DP*

L 8572-66 EPF(n)+2/EWP(z)/EWA(h)/EWT(l)/EWT(m)/EWP(b)/EWA(d)/EWP(t) GG/MJW/JD
ACC NR: AT5023787 SOURCE CODE: UR/0000/62/000/000/0100/0105

AUTHOR: Petrov, P. A.; Batenin, I. V.; Rudenko, A. N.; Sharov, B. V. ⁵⁷
ORG: none ^{44,55} ^{44,55} ^{44,55} ^{44,55}

TITLE: Investigation of the properties of Avial irradiated in a reactor ¹⁹ ¹⁸

SOURCE: Soveshchaniye po probleme deystviye yadernykh izlucheniya na materialy. Moscow, 1960. Deystviye yadernykh izlucheniya na materialy (The effect of nuclear radiation on materials); doklady soveshchaniya. Moscow, Izd-vo AN SSSR, 1962, 100-105. ¹⁴

TOPIC TAGS: ^{44,55} aluminum alloy, age hardenable alloy, neutron irradiated alloy, alloy creep resistance, neutron irradiation effect, /SAV-1 aluminum alloy ¹⁶ ^{21,44,55}

ABSTRACT: Specimens of SAV-1 Avial, an aluminum-base alloy containing (wt%) 0.085 Fe, 0.81 Si, 0.000043 B, 0.0026 Mn, 0.00002 Cd, 0.00058 Cu, 0.011 Zn, 0.004 Ti, 0.48 Mg, and 0.001 Ni, were annealed at 550-600C for 2 hours, furnace cooled, irradiated at 80C with an integrated flux of 10¹⁹ n/cm², cold strained, and after various heat treatment subjected to creep tests under a stress of 2.16 kg/mm² at temperatures up to 260C. The test results showed that while the creep rate of.

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ACC NR: AT5023787

unirradiated Avial was linearly dependent on the test time, the creep rate was higher in irradiated Avial and increased sharply after a period of time whose length decreased with increasing test temperature. For safe use of irradiated Avial under the investigated tension stress of 2 kg mm² the working temperature should be about 180C. Solution heat treatment at 500C and subsequent aging eliminated the irradiation-induced high creep rate of Avial. Irradiation brought about no grain growth or other structural changes in the alloy, but it sharply increased its microhardness to a value comparable to that obtainable in solution-heat-treated and aged unirradiated alloys. Microhardness measurements of irradiated and unirradiated alloys aged at various identical temperatures showed that irradiation and aging brought about essentially the same changes in the alloy structure, but that the age hardening with irradiation probably is associated with finer phase precipitations than aging after solution heat treatment. Also, the irradiated alloys were less susceptible to work hardening with deformation than the solution-heat-treated and aged alloy. The high temperature level at which the hardness of the irradiated alloys decreased seems to indicate that irradiation can be compared to solution heat treatment with subsequent aging rather than to work hardening. [MS]

SUB CODE: MM, SS/ SUBM DATE: 18Aug62/

jw

Card 2/2

L-5181-65 EWT(1)/EWT(m)/EPF(c)/EPF(n)-2/T/EWP(t)/EEC(b)-2/EWP(z)/EWP(b)/EWA(c)
Pc-4/Pad/Pi-4/Pu-4 IJP(c) JD/HW/JG/GG

ACCESSION NR: AT5011207

UR/2717/64/000/008/0112/0124

AUTHOR: Batenin, I. V.; Il'ina, V. A.; Kritskaya, V. K.; Sharov, B. V. ⁵⁰₃₀ 81

TITLE: Effect of neutron irradiation on the crystal structure and properties of metals and solid solutions ¹⁹ ₂₁ ^f

SOURCE: Dnepropetrovsk. Institut metallovedeniya i fiziki metallov. Problemy metallovedeniya i fiziki metallov, no. 8, 1964, 112-124

TOPIC TAGS: neutron irradiation, crystal structure, metal physical property, solid solution, metal deformation, microhardness, recrystallization, iron, copper, chromium, nickel, tungsten

ABSTRACT: Iron, copper, chromium, and the solid solutions iron + 8 at. % chromium, iron + 4 at. % nickel, and iron + 0.6 at. % tungsten were irradiated with a neutron flux of 10^{20} n/cm² and 10^{21} n/cm² at temperatures not exceeding 80°C. Samples were rectangular and measured 20 x 20 x 1 mm. Irradiation produced a fine crystal structure similar to that obtained by cold working. Samples were deformed on a press at room temperature up to a degree of area

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L 45181-65

ACCESSION NR: AT5011207

reduction of 80-90%. It was found that the defects produced by irradiation, which cause an increase in microhardness, are almost eliminated by a high degree of subsequent deformation. The presence of atoms of another sort (nickel, chromium, tungsten) in an alpha-iron crystal lattice has practically no effect on the recrystallization of irradiated metals. Orig. art. has: 20 figures. 7

ASSOCIATION: None.

SUBMITTED: 00

ENCL: 00

SUB CODE: MM

NR REF SOV: 011

OTHER: 017

bip
Card 2/2

L 29891-66 EWT(m)/I/EWP(t)/ETI IJP(c) JD
ACC NR: AR6008794 SOURCE CODE: UR/0277/65/000/010/0006/0006

AUTHOR: Batenin, I. V.; Il'ina, V. A.; Kritskaya, V. K.; Sharov, B.V.

TITLE: Effect of neutron irradiation¹⁹ on the structure and properties
of metals and solid solutions₁₆

38
B

SOURCE: Ref. zh. Mashinostroitel'nyye materialy, konstruktsii i
raschet detaley mashin. Gidroprivod, Abs. 10.48.43

REF SOURCE: Sb. tr. In-t metalloved. i fiz. metallov Tsentr. n.-i.
in-ta chernoy metallurgii, vyp. 36, 1964, 112-124

TOPIC TAGS: neutron irradiation, iron, chromium, copper, iron alloy,
hardening

ABSTRACT: Results are given of the investigation of hardening and
softening processes in iron, copper, chromium, and Fe-8% Cr; Fe-4% Ni;
Fe-6% W, which underwent neutron irradiation (an integral neutron flow
of 10²⁰ and 10²¹ neutr/cm²). Neutron irradiation results in a signif-
icant hardening of material, similar to the effect of cold plastic
flow.

SUB CODE: 18,11/ SUBM DATE: none

Card 1/1 CC

ACCESSION NR: AP4029704

S/0089/64/016/004/0372/0373

AUTHORS: Batenin, P.V.; Sharov, B.V.

TITLE: The texture of hardened uranium rods

SOURCE: Atomnaya energiya, v. 16, no. 4, 1964, 372-373

TOPIC TAGS: hardening, deformation texture, textured sample, isotropic sample, crystal grain, diffusion transformation, beta phase crystal, isotropic uranium

ABSTRACT: The texture of the crystal grain found in uranium rods after they have been hardened is not a residual deformation texture but one apparently produced by the hardening process itself. The outward similarity of the hardening and residual textures has led a number of researchers to believe that they are both the same. Experiments have been made in this connection with pure uranium rods measuring 4 mm in diameter. After the hardening, the weak grain texture was found not only in the samples which had been grain-oriented before the hardening process but also in those which had been isotropic. The same sample can be heat-treated many times into an iso-

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ACCESSION NR: AP4029704

tropic state by annealing, or a weakly textured state by hardening. The above phenomenon can be explained by the assumed existence of two mechanisms: 1) the development of a hardening texture during the beta to alpha transformation, as the rod core undergoing rapid cooling before its transformation into an alpha state is compressed by the already transformed peripheral layers; 2) there are two types of transformation of commercially pure uranium from the beta phase into the alpha phase: diffusion (cooling at a slow rate) and martensite (cooling at a rapid rate to a temperature below 450C). Inasmuch as the residual texture has not been proved by the experiment, it is preferable to assume that the formation of a hardening texture is the direct outcome of the beta to alpha transformation. Orig. art. has: 3 figures.

ASSOCIATION: None

SUBMITTED: 02Oct63

DATE ACQ: 01May64

ENCL: 00

SUB CODE: NP

NR REF SOV: 001

OTHER: 000

Card 2/2

L 12915-65 EWT(m)/EPF(c)/EPF(n)=2/EWP(b)/EWP(t) Pr=4/Pu=4 AFWL/SSD/ASD(f)=2/
 ACCESSION NR: AP4047324 ESD(t) JD/JG/GG S/0020/64/158/004/0843/0845

AUTHORS: Il'ina, V. A.; Kritskaya, V. K.; Sharov, B. V.

TITLE: Anisotropy of atomic displacements in neutron-irradiated
Fe, Cu, and W.

SOURCE: AN SSSR. Doklady*, v. 158, no. 4, 1964, 843-845

TOPIC TAGS: ²⁷iron, ²⁷copper, ²⁷tungsten, radiation damage, neutron irradiation, x ray crystallography

ABSTRACT: The purpose of the investigation was to study radiation damage in a crystal lattice of metals by measuring the integral intensities of x-ray interferences. Polycrystalline samples were used. To ensure a fine-crystalline structure of the samples, they were prepared from fine powder. The materials investigated were U-9 brand carbon steel (α phase), copper, and tungsten. All samples were irradiated in the reactor of the Institute of Theoretical

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L 12915-65
 ACCESSION NR: AP4047324

and Experimental Physics. at a fast-neutron dose 10^{20} n/cm², the sample being kept at 80°. The x-ray counting rates were measured with a scintillation-counting setup in molybdenum monochromatic radiation. In general, the x-irradiation produced an exponential attenuation in the ratio of the irradiated to the non-irradiated intensity, but anomalies in the reflections from certain crystallographic planes indicated the presence of anisotropy of the atomic displacements in the lattice of the irradiated metals. The change produced in the integral intensity of the x-ray reflections on going from liquid-nitrogen temperature to room temperature was the same for irradiated and non-irradiated samples. This indicates that the change in the integral intensity of the x-ray reflections of the investigated metals after irradiation is due to the presence of static displacements of the atoms from the lattice sites, the magnitude of these displacements being noticeably dependent on the crystallographic direction. This report was presented by G. V. Kurdyumov. Orig. art. has: 3 figures.

Card 2/3

L 12915-65

ACCESSION NR: AP4047324

ASSOCIATION: Institut metallovedeniya i fiziki metallov Tsentral'-
nogo nauchno-issledovatel'skogo instituta chernoy metallurgii im.
I. P. Bardina (Institute of Metal Research and Metal Physics of the
Central Scientific Research Institute of Ferrous Metallurgy); Insti-
tut teoreticheskoy i eksperimental'noy fiziki (Institute of Theo-
retical and Experimental Physics)

SUBMITTED: 15Apr64

ENCL: 00

SUB CODE: SS, NP

NR REF SOV: 005

OTHER: 007

Card 3/3

L 30009-65 EWT(m)/EPF(c)/EPF(n)-2/EFR/T/EWP(t)/EWP(b) Pr-4/Ps-4/Pu-4 IJP(c)
ACCESSION NR: AP5006339 JD/JG/GG S/0126/65/019/002/0301/0303

AUTHOR: Il'ina, V. A.; Kritskaya, V. K.; Sharov, B. V.

TITLE: Effect of irradiation with neutrons on the lattice parameters of certain
metals

SOURCE: Fizika metallov i metallovedeniye, v. 19, no. 2, 1965, 301-303

TOPIC TAGS: metal, lattice parameter, metal lattice parameter, neutron irradiation,
irradiation induced lattice change, iron, copper, chromium, molybdenum, aluminum

ABSTRACT: X-ray diffraction analysis showed neutron irradiation with a total dose
of $1 \cdot 10^{20}$ n/cm² increases the lattice parameter a of iron, chromium, and aluminum
by approximately 0.03% and of molybdenum, by 0.012%, but decreases that of copper by
0.075%. The increase of a in Fe, Cr, and Al is explained by the considerable
quantity of interstitial atoms, and the decrease in Cu, by the excess of vacancies.
Orig. art. has: 2 figures. [ND]

Card .1/2

H9
H7
B

L 30009-65

ACCESSION NR: AP5006339

2

ASSOCIATION: Institut teoreticheskoy i eksperimental'noy fiziki GKAE (Institute of Theoretical and Experimental Physics, GKAE); Institut metallovedeniya i fiziki metallov, TsNIICHERMET im I. P. Barin (Institute of Metal Science and the Physics of Metals, TsNIICHERMET)

SUBMITTED: 16Jun64

ENCL: 00

SUB CODE: MM, NP

NO REF SOV: 001

OTHER: 003

ATD PRESS: 3196

Card 2/2

L 06455-0: EW(m)/EWP(w)/EWP(t)/ETI IJF(c) ES/JD/WW/JG/RS/JH
ACC NR: AP6024545 SOURCE CODE: UR/0089/66/021/001/0060/0062

AUTHOR: Kuznetsova, A. P.; Sharov, B. V.

ORG: none

TITLE: Change of mechanical properties of an aged aluminum alloy after operation in a nuclear reactor

SOURCE: Atomnaya energiya, v. 21, no. 1, 1966, 60-62

TOPIC TAGS: aluminum alloy, neutron irradiation, mechanical property, ultimate strength, high temperature strength, thermal aging/ SAV-1 aluminum alloy

ABSTRACT: An aluminum alloy containing 0.6 - 1.2% silicon and 0.45 - 0.9% magnesium (brand SAV-1) and similar to the American alloy 6061 (61S) was investigated. This alloy is used as structural material in the active zone of nuclear reactors, in view of its low absorption of thermal neutrons. A tube made of this alloy was used as technological channel in the reactor of the Institute of Theoretical and Experimental Physics. The stress-elongation diagram, the ultimate strength, and the creep of several sections of the tube were measured before and after irradiation in a flux of 6×10^{20} neut/cm². The results show that neutron irradiation strengthens the alloy, but the residual deformation and the modulus of elasticity remain practically the same. No changes in the microstructure were observed. It is concluded that the changes that take place in the alloy during operation in the reactor are the results of its prolonged exposure to heat, and not the result of neutron irradiation. This agrees with

Card 1/2

UDC: 621.039.56: 669.715

L 26589-66 EWT(m)/EPF(n)-2/EWA(d)/T/EWP(t) IJP(c) GG/JD

ACC NR: AP6011429 SOURCE CODE: UR/0020/66/167/004/0789/0791

AUTHORS: Kritskaya, V. K.; Il'ina, V. A.; Kuznetsova, A. P.; Sharov, B. V.

50
B

ORG: Institute of Metal Science and the Physics of Metals of the Central Scientific Research Institute of Ferrous Metallurgy im. I. P. Bardin (Institut metallovedeniya i fiziki metallov Tsentral'nogo nauchno-issledovatel'skogo instituta chernoy metallurgii); Institute of Theoretical and Experimental Physics (Institut teoreticheskoy i eksperimental'noy fiziki)

TITLE: Anisotropy of displacements of the atoms in the crystal lattice of the alpha phase of neutron-bombarded carbon steel

SOURCE: AN SSSR. Doklady, v. 167, no. 4, 1966, 789-791

TOPIC TAGS: carbon steel, neutron bombardment, crystal lattice deformation, crystal lattice defect, crystal anisotropy

ABSTRACT: This is a continuation of earlier work by the authors (DAN, v. 158, no. 4, 843, 1964) where anomalies were observed in the atten-

Card 1/3 UDC: 539.12.04

2

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ACC NR: AP6011429

uation of certain x ray reflections from neutron-bombarded steels. Since the experimental material obtained in the earlier investigation was insufficient to draw definite conclusions concerning the crystallographic directions in the lattice of the investigated metals, the authors have carried out a more complete study, using the α phase of U-9 steel. The preparation of the samples, the heat treatment, the neutron-bombardment conditions, and the x ray photography procedure were the same as before, except that a mechanical pulse counter was added to the apparatus to improve the reliability and the accuracy. To determine the variation of the intensity of the x-ray reflections from different crystallographic planes, the authors measured the integral intensities of the x ray interferences of a large number of reflections with different multiple values of h , k , and l . The results show that neutron bombardment decreases the intensity of the scattered x rays more for some planes than for others. This is taken as convincing proof that the crystallographic orientation plays an important role in the formation of point defects by neutron bombardment. The distribution of these defects is anisotropic. The mean displacement of the atoms was 0.04 \AA for the $(h00)$ and (hhh) planes,

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L 26589-66

ACC NR: AP6011429

as against 0.025 \AA for most other planes. Certain planes (for example (631)) experienced no change in scattering ability at all after bombardment. This report was presented by Academician G. V. Kurdyumov on 24 July 1965. Orig. art. has: 2 figures and 1 table.

SUB CODE: 20/ SUBM DATE: 02Jul65/ ORIG REF: 005/ OTH REF: 004

Card

3/3 BLG

SHAROV, D.G.

Coefficient of base flow in the European part of the U.S.S.R.
Trudy GGI no.122,217,225 1956. (MIRA 18:9)

SOV/137-57-10-19038

Translation from: Referativnyy zhurnal, Metallurgiya, 1957, Nr 10, p 87 (USSR)

AUTHOR Sharov, G.V.

TITLE ~~Production of Lighter Rolled Sections at the Kuznetsk Metallurgical Kombinat~~ (O proizvodstve oblegchennykh profiley prokata na Kuznetskom metallurgicheskom kombinat)

PERIODICAL V sb. Ratsionalizatsiya profiley prokata. Moscow, Profizdat, 1956, pp 391-393

ABSTRACT It is noted that the Kuznetsk steel industry has perfected the production of >50 new sections (S) of rolled products, including 13 for the railways, periodically recurrent S of Nr 149D ploughshare steel, and S for agricultural machinery and automobiles. It is noted that the most serious difficulty in the making of new rolled S is the system of production planning at metallurgical plants. The KMK possesses significant possibilities for lightening rolled S and saving hundreds of thousands of t of metal. For example, a slight change in steel S stiffened on both sides for agricultural machinery makes it possible to effect a metal saving of not less than 15%. It is also rational to reduce the width of streetcar rail flanges from 180 to 160 mm.

Card 1/2

SOV/137-57-10-19038

Production of Lighter Rolled Sections (cont.)

The use of composite sheet steel results in a major saving in expensive stainless steel. In connection with the rising demand for composite sheet steel, it is recommended that a second center of manufacture of this steel be set up in our country

B. Ye.

Card 2/2

KOSAR', A.V., red.; VOLOSHIN, A.N., red.; GUREVICH, R.V., red.; KROPACHEV,
N.G., red.; PARENCHENKO, N.S., red.; PLEKHANOV, P.S., red.; SUSKOV,
I.A., red.; SHAROV, G.V., red.; OGAREV, A.P., tekhn.red.

[First in Siberian metallurgy] Pervenets Sibirskoi metallurgii.
Kemerovskoe knizhnoe izd-vo, 1957. 289 p. (MIRA 12:4)

1. Sekretar' partkoma Kuznetskogo kombinata (for Parenchenko).
2. Nachal'nik tekhnicheskogo otdela Kuznetskogo kombinata (for Sharov).
(Kuznetsk Basin--Metallurgical plants)

AUTHOR SCHAROV, G.W., Head of the Technical Department of the Kusnetzsk Metallurgical Combine. PA - 2761

TITLE Perspectives in the Development of the Kusnetzsk Metallurgical Combine. (Perspektivy razvitiia Kuznetzskogo Metallurgicheskogo Kombinata - Russian)

PERIODICAL Metallurg, Vol 2, Nr 4, pp 5-8, (U.S.S.R.) 1957. Received 5/1957 Reviewed 7/1957

ABSTRACT During the last 25 years the development of the combine was characterized by a constant output increase of steel due to a more rational utilization of production capacities. This was achieved by a perfection of production methods together with the endeavor to complete work before the prescribed time. By this means an additional amount pig iron was produced equalling the output of a new and big furnace. The total output exceeded the production of the last five years by 1 million tons of steel. The capacity of the ingot milling train was increased, but it still is a bottleneck. The iron production substantially surpassed the output capacities originally envisaged, and this circumstance caused considerable discrepancies between the main branches of production. This caused much disorder in power economy, led to a number of bottlenecks and to the exhaustion of many necessary capacity reserves. This became worse in 1956, when the ore supply for pig iron production became increasingly insufficient. Furthermore, there was a danger of a shortage of coke for furnaces, and the mechanical means of repair could not meet the demands. The most important and decisive condition for continued successful operation is the speedy increase of the local supply. The reserves in

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Perspectives in the Development of the Kusnetzk
Metallurgic Combine.

PA - 2761

West-Siberia are large enough to meet the demands of further plants to be established in the course of the next years. Further development without construction work on a large scale is hardly possible in view of the present increase of furnace output capacity (to 1'8 times the original amount up to 1957). The supply of iron ore therefore remains decisive for maintenance of a high level of productivity. A further extension of the concentration and agglomerating plant in Abagur (operating since the end of 1956) will certainly remove the present shortage of ore destined for Martin furnaces. The state of 4 coking piles operating now for almost 25 years without repair deteriorates in the course of time. In 1957 2 new piles, each consisting of 72 furnaces are to be constructed. Several other bottlenecks which are decisive for the development of the combine retard the further increase of production of Martin-steel. An important factor in the steel production are the newly developed floating casting caps constructed from iron instead of the ceramic ones, which offer every advantage of the latter but reduce production costs. In spite of the fact that the blooming mill has attained highest output of the entire USSR, its capacity is less than that of steel production. The combine is forced to send thousands of tons of ingot material to other plants for milling. The overburdening of the blooming mill caused dangerous voltages of the main electric motor. These circumstances obstructed a further increase of iron output. For 1957 the replacement of the

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Perspectives in the Development of the Kusnetzk
Metallurgic Combine.

PA - 2761

motor by a heavier one is planned. Even then, however, the insufficient strength of the milling train will prevent an increase. The erection of a second blooming mill train has become a necessity long ago. In spite of remonstrances made over a period of several years, the Ministry for Iron and Steel took no steps in this direction. Even if a decision that building should begin were arrived at immediately, a considerable amount of finished products will be lost during the subsequent 3 years. The erection of a second blooming mill train will not only cause a step-up in steel production, but it will also result in additional output of several 100,000 tons of rolling material by the utilization of the capacity of the heavy-duty milling trains, which operate at present only with 78% of their capacity. The increased demands made on the quality of railway rails, necessitated a number of measures, comprising the reconstruction of the plant for the finishing of rails. By this measure the output of 25 meter rails, hardened by high frequency treatment was made possible. The increased production of sheet steel of high quality necessitated the erection of a pickling plant and a cold milling train. There is still much to be done in the fields of power economy of the haulage system, of the repair shop, of mechanizing heavy work, and of automation.

Card 3/4

PA - 2761

Perspectives in the Development of the Kusnetz Metallurgical Combine.

ASSOCIATION Kusnetz Metallurgical Combine, (Kuznetzkij Metallurgitscheskij Kombinat),
Kusnetz R.S.F.S.R., Sibiria .

PRESENTED BY
SUBMITTED
AVAILABLE
Card 4/4

SHAROV, I., inzh.; DOLIN, I., inzh.

Using plastic materials in building apartment houses. Zhil.-
khoz. 9 no.6:17-18 '59. (MIRA 12:10)
(Moscow--apartment houses) (Plastic materials)

SHAROV, I., incl.

Rebirth of the ether??? Tekh. dokl. 30 no.11:5-8 '62. (MIRA 16:9)
(Ether (Of space))

PUBLISHED AND PRINTED IN U.S.S.R.

112

Sh

Significance of water in the life of a plant I. A. Sharov.
Doklady Vsesoyuz. Akad. Nauk Khim. Nauk 1938, No. 10, 3-9; *Herbage Abstracts* 9, No. 4, 300(1939).
 The velocity and concn. of the water soln. within the plant det. the extent of supply of mineral nutrients to the cells of leaves. The speed of water movement is defined by the capillarity of vascular bundles and intercellular cavities, by the force of sepn. of water mols. from the surface of menisc and outer cells and by the water concn. in the soil. S. Soloveichik

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

E 270000 00000

MATERIALS INDEX										AUTHOR INDEX									
SUBGROUPS WITH ONLY ONE										SUBGROUPS									
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SHARV, Ivan Aleksandrovich

The Utilization of Sprinkler Systems, 1946.

CHIROV, F. A.

Irrigation on the Basis of the Local Water Flow, 1948.

SHAROV, I. A.

25051. SHAROV, I. A. K Voprosy O Peredelke Agroklimate. Doklady Vsesoyuz. Akad. S.-KH Nauk Im. Lenina, 1949, Vyp. S 78-89.

SO: Letopis' No. 33, 1949

— D. 1414 — 117
1979, I, No. 3, S. 3-9.

1979.

Рубл'якіздателства іноземних кредитних установ. Підприємства і
співтовариства, 1979, № 3, С. 3-9

So: Lot is' No. 40

1. SUAROV, T. A.
2. USSR (600)
4. Agriculture
7. Great Stalin Plan for irrigation and watering of lands in U.S.S.R. Nauch.-popul. lektsiia, Moskva, "Pravda," 1951.

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

...ионов, Л.

"Great Plan for Irrigation of Soviet Fields," Velikie Stroiki Kommunizma (Great
Constructions of Communism), Acad. of Pedagogic Scis. of the RSFSR, Moscow,
1951, 383 p.

SHAROV, I. A.

USSR/Geophysics - Floods

Jun 51

"Soviet Methods for Fighting Floods," Acad I. A. Sharov

"Gidrotekh i Meliorat" No 6, pp 17-22

In Jan 51 the Tech Conf on the Struggle Against Floods, conducted by the Econ and Social Council of the UN, was held in Delhi, India. Lectures and articles were presented to elucidate causes of floods. Sharov describes Soviet methods.

186T31

SHARCV, I.

Cotton Growing

Irrigation cycles and principles for distributing water to farms. Khlopkovodstvo no. 10, 1951.

Monthly List of Russian Accessions. Library of Congress, November, 1952. Unclassified.

1951, 1.

Water Supply

Great Stalin irrigation and water supply plan for the U.S.S.R. Sots. sel'khoz. no. 12, 1951.

9. MONTHLY LIST OF RUSSIAN ACCESSIONS, Library of Congress, June 1952. Uncl.

SHAROV, Ivan Aleksandrovich

Utilization of Water Conservation Systems, (Eksploatatsiya Gidromeliorativnykh Sistem), 1952.

SHAROV, I. A.

SHAROV, I. A. Operation of irrigation and drainage systems. Moskva, Gos. izd-vo sel'khoz. lit-ry, 1952. 448 p. (54-18381)

TC895.S48

1. SHAROV, I.
2. USSR (400)
4. Irrigation Farming
7. Deep saturation irrigation as a basis for obtaining high yields of cotton in new irrigation areas. Khlopkovodstvo. No. 12 1952.

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

1952, 1.

Irrigation

Great building projects of communism and development of irrigation farming. Kolkh. proizv., 12, No. 1, 1952.

9. MONTHLY LIST OF RUSSIAN ACCESSIONS, Library of Congress, June 1952. Uncl.

SEARCHED

Volga-Don Canal

The Volga-Don is for agriculture. Nauka i zhizn' 19, No. 7, 1952

Monthly List of Russian Accessions. Library of Congress. September 1952. UNCLASSIFIED

SHAROV, I.A., deystvitel'nyy chlen.

Automatic controls in irrigation. Nauka i zhizn' 20 no.4:29-30 Ap '53.
(MLRA 6:5)

1. Vsesoyuznaya akademiya sel'skokhozyaystvennykh nauk imeni V.I. Lenina.
(Automatic control) (Irrigation)

2209 Sharov, I.A.

Pokoreniye Stikhii. Rasskaz O Vozrozhdenii Zemel'. M., Goskul'tpr-
osvetizdat, 1954. 167s. s Ill.; 20 L. Ill. 22sm. 50.000 EKZ. 7r. 40k. V Per.
(54-56478)p 631.6 (0:8)

SHAROV, I. A.

Reclamation of the Bottom Lands of the Non-Blackearth Belt

On the basis of observations on the regime governing the moisture and temperature of peaty soil in portions covered by a drainage network 0.5-0.7 meters, 1.3-1.4 meters, and about 2 meters deep the author establishes the advantage of deep drainage of bottom lands according to a comparison with small drainage networks. Deep drainage networks give more favorable dynamics of moisture of the soil, and increase the aeration, besides decreasing the total evaporation by 20%, inasmuch as water efficiency is increased and more even changes in the water regime are created during fluctuations in the weather conditions; also, the fluctuations in the level of ground waters is decreased. (IzVest. Vsesoyuzn. Nauchn. Issled. Inst. Khim. Geol., No. 4, 1955) Dokl. VASKhNIL. No. 4, 1954, 11-13

SO: Sum. No. 744, 8 Dec 55 - Supplementary Survey of Soviet Scientific Abstracts (17)

AVER'YANOV, S.F.; ALEKSANDROV, B.K.; ASKOCHENSKIY, A.N.; BLIZNYAK, Ye.B.;
ZAMARIN, Ye.A.; KOVALENKO, I.I.; KOCHINA, P.Ya.; KUZNETSOV, I.A.;
POSLAVSKIY, V.V.; SRIBNYY, M.F.; TURCHINOVICH, V.T.; FAVORIN,
N.N.; SHAROV, I.A.

Aleksei Nikolaevich Kostiaikov; obituary. Izv. AN SSSR. Otd. tekhn.
nauk no.10:113-114 O '57. (MIRA 10:12)
(Kostiaikov, Aleksei Nikolaevich, 1887-1957)

SHAROV, I.A., akademik.

Cultivated fields instead of swamps. IUn.nat. no.11:10 N '57.
(MIRA 10:10)

(Reclamation of land)

SHANDV 111

AUTHOR: Gerardi, I.A., Engineer SOV/99-58-10-13/13

TITLE: Melioration Problems at the Joint Session of the All-Union Academy of Agricultural Sciences imeni V.I. Lenin in Minsk (Voprosy melioratsii na ob'yedinennoy S'ssii Vsesoyuznoy akademii sel'skokhozyaystvennykh nauk imeni V.I. Lenina v g. Minske)

PERIODICAL: Gidrotekhnika i melioratsiya, 1958, Nr 10, pp 61-64 (USSR)

ABSTRACT: From 8-11 July 1958, a joint scientific session of the All-Union Academy of Agricultural Sciences imeni V.I. Lenin took place in Minsk. The main subject of this conference was the generalization of scientific achievements and experience in the draining and utilization of swamps in the non-black soil regions of the European part of the USSR. Representatives of many scientific research institutes, the respective ministries and of some kolkhozes took part in this meeting. P.P. Lobanov, President of the All-Union Academy of Agricultural Sciences imeni V.I. Lenin reported on "The Growing Role of Scientific Institutions in the Organization of Agricultural Production According to the Regulations of the July Plenum of the TsK KPSS". I.S. Lupinovich, President of the Byelorussian Academy of Agriculture spoke on the necessity of a fundamental change in

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SOV/99-58-10-13/13

Melioration Problems at the Joint Session of the All-Union Academy of Agricultural Sciences imeni V.I. Lenin in Minsk

drainage methods in the BSSR and the Baltic Republics. Te.Ye. Smirnov, head of the kolkhoz BVO and Hero of Socialist Labor, and K.I. Shaplyko head of the kolkhoz "Chyrvonaya zmena" and Hero of Socialist Labor, reported on the importance and influence of drainage methods in the production of kolkhozes. Academician I.A. Sharov dealt with "The Improvement of Drainage Methods in Other Than Chernozem Regions of the USSR, and Its Further Development". I.A. Celcys, Director of the Lithuanian Scientific Research Institute of Melioration, reported on progress made in this field in the Lithuanian Republic. Ya.Ya Bergman, Director of the Latvian Scientific Research Institute of Hydraulic Engineering and Melioration, presented some data on a harvest increase in drained areas of the kolkhozes "Nakotne" and "Dayle". There is 1 table.

1. Soils--Moisture content
2. Water--Control
3. Drainage
4. Scientific reports

Card 2/2

USCOMM-DG-60239

SHAROV, Ivan Aleksandrovich, akademik; OZEROV, V.N., red.; KRZHIZHA-
NOVSKAYA, G.V.; ZUBRILINA, Z.P., tekhn.red.

[Operation of hydraulic land-improvement systems] Ekspnatatsia
gidromeliorativnykh sistem. Izd.2., ispr. i dop. Moskva, Gos.
izd-vo sel'khoz.lit-ry, 1959. 576 p. (MIRA 12:8)
(Irrigation) (Drainage)

PECHKUROV, A.F., kand.sel'skokhoz.nauk, glavnyy red.; ASKOCHENSKIY,
N.A., red.; SHAROV, I.A., akademik, red.; SKOROPANOV, S.G.,
red.; RUSINOV, F.I., red.; BOROVIKOVA, R.P., red.; SOSINOVICH,
A.I., tekhred.

[Drainage of bog and swampy soils of the non-Chernozem zone of
the European U.S.S.R.; materials of the joint session, July 8-11,
1958] Osushenie bolotnykh i zabolochennykh pochv nechernozemnoi
zony Evropeiskoi chasti SSSR; materialy ob*edinennoi sessii
8-11 iuliia 1958 g. Minsk, Izd-vo ASKhN BSSR, 1960. 364 p.
(MIRA 14:4)

1. Vsesoyuznaya akademiya sel'skokhozyaystvennykh nauk imeni
V.I.Lenina. 2. Vsesoyuznaya akademiya sel'skokhozyaystvennykh
nauk imeni V.I.Lenina (for Sharov).
(Drainage)

SHAROV, I.A., akademik

Role of land improvement in the programmed management of
agriculture [with summary in English]. Izv. TSKhA no.2:
201-209 '61. (MIRA 14:8)

1. Vsesoyuznaya Akademiya sel'skokhozyaystvennykh nauk imeni
Lenina.

(Irrigation) (Drainage)

TARASOV, S.V.; SAL'MAN, S.I.; SHAROV, I.A., red.; TYURINA, A.Z., red.;
BRATISHKO, L.V., tekhn. red.

[Catalog-handbook of flax and hemp-and-jute processing equipment; spinning machinery] Katalog-spravochnik l'nianogo i pen'kodzhutovogo oborudovaniia; mashiny priadil'nogo proizvodstva. Moskva, 1962. 179 p. (MIRA 16:3)

1. Tsentral'nyy institut nauchno-tekhnicheskoy informatsii legkoĭ promyshlennosti. 2. Rukovoditel' pryadil'noy laboratorii Tsentral'nogo nauchno-issledovatel'skogo instituta promyshlennosti lubyanykh volokn (for Tarasov). 3. Nachal'nik tekhnicheskogo otdela Vses. nauchno-issledovatel'skogo instituta legkogo i tekstil'nogo mashinostroyeniya (for Sal'man).
(Spinning machinery)

KOSTYAKOV, Aleksey Nikolayevich, 1887-1957; SHAROV, I.A., red.

[Selected works] Izbrannye trudy. Moskva, Gos.izd-vo sel'-
khoz.lit-ry, 1961. 2 v. (MIRA 16:2)
(Irrigation) (Drainage)

SHAROV, Ivan Aleksandrovich, akademik; LEONOVA, T.S., red.; RAKITIN,
I.T., tekhn. red.

[Fields quench their thirst; irrigation farming] Polia utoliat zhazhdu; oroshaemoe zemledelie. Moskva, Izd-vo "Znanie," 1963. 47 p. (Novoe v zhizni, nauke, tekhnike. V Seria: Sel'koe khoziaistvo, no.5) (MIRA 16:3)

1. Vsesoyuznaya akademiya sel'skokhozyaystvennykh nauk imeni V.I.Lenina (for Sharov).
(Soviet Central Asia--Irrigation farming)

SHAROV, I.A., akademik; NATAL'CHUK, M.F., kand. tekhn. nauk, dotsent

Continuous methods of irrigation organization. Izv. TSKHA no.5:
219-225 '63. (MIRA 17:7)

1. Vsesoyuznaya akademiya sel'skokhozyaystvennykh nauk imeni
Lenina (for Sharov).

SHAROV, I.A., prof.

Irrigation farming. Priroda 53 no.3:36-43 '64.

(MIRA 17:4)

1. Deystvitel'nyy chlen Vsesoyuznoy akademii sel'skokhozyaystvennykh nauk im. V.I.Lenina.

PA 167T81

SHAROV, I. F., Engr

USSR/Metals - Welding

Sep 50

"Flame Hardening of Rail Ends on Railroad Tracks," Engineers I. F. Sharov and Ye. I. Gurainik

"Avtogen Delo" No 9, pp 25-27

Procedure of flame hardening and tempering ends of rails on RR tracks in operation. Medium-pressure injector-type torch (GPZ-1) was accepted as best heating appliance. Hourly consumption of acetylene is 1850-1950 l; oxygen, 1900-2000 l. Heating head has 24 holes of 0.65 mm diameter spaced at 3 mm intervals.

167T81

USSR/Metals - Welding (Contd)

Sep 50

Acetylene generator with productive capacity of 2000-2500 l/hr was part of equipment. Method, in use since 1948, is being applied more widely.

167T81

RABINOVICH, A.Ya.; DIMOV, L.V.; SHAROV, I.F.; GURAL'NIK, Ye.L.; OBUKHOV, A.V., inzhener, retsenzent; ZHEREBIN, M.I., inzhener, retsenzent; ZELEVICH, P.M., inzhener, redaktor; KHITROV, P.A., tekhnicheskij redaktor.

[Welding and weld deposition of parts of the upper track structure]
Svarka i naplavka detalei verkhnego stroeniia puti. Moskva, Gos. transportnoe zheleznodorozhnoe izd-vo, 1951. 206 p. (MIRA 8:1)
(Railroads--Track) (Electric welding)

SHAROV, I.F., inzhener.

Welded rails for tracks. Zhel.dor.transp.37 no.11:80 N '55.
(MLRA 9:2)

1.Nachal'nik tekhnicheskogo otdela Rel'sosvarechnogo tresta.
(Railroads--Rails)

SHAROV, I.F., inzhener

Effectiveness of welding rails. Zel.dor.transp. 39 no.4:49-53
Ap '57. (MLRA 10:5)

(Railroads--Rails)

SHAROV, I.F., glavnyy tekhnolog po svarke

Building up saddle joints on rails. Put' i put.khoz. no.11:23
N 158.

(Railroads--Rails)

(MIRA 11:12)

SHAROV, I.F., inzh.

Regularize the production setup and the number of engineers and technicians in electric power plants and power systems. Elek.sta.
29 no.6:46-50. Ja '58. (MIRA 11:9)
(Electric power plants)

SHAROV, I.E., inzh.

Repair and maintenance of rails as an important potentiality
in track maintenance. Zhel. dor. transp. 40 no.8:45-48 Ag '58.
(MIRA 11:9)

(Railroads--Rails)

SHAROV, I. F. Cand Tech Sci -- (diss) "Concerning the question of selecting a type of rail-welding unit," Kiev, 1960, 13 pp, 260 cop. (Institute of Electrowelding in Ye. O. Paton, AS UkSSR) (KL, 45-60, 127)

SHAROV, I.F., tekhnolog; po svarke

Eliminating worn-out spots on rails. Put' i put.khoz. 4
no.3:13-14 Mr '60. (MIRA 13:5)
(Railroads--Rails--Welding)

SHAROV, I.F., glavnyy tekhnolog po svarke rel'sov

Rail welding needs mechanization and automatization. Put' i put.
khodz. 4 no.11:24-25 N '60. (MIRA 13:12)

(Railroads--Rails--Welding)

SHAROV, I.F., inzh.; KUZNETSOVA, V.N., inzh.

Make better use of welding equipment. Put' i put.khoz. 5 no.6:26-27
Je '61. (MIRA 14:8)

(Railroads--Rails--Welding)

SHAROV, I.F., kand.tekhn.nauk

Rail welding with the method of continuous lengths. Put' i put.
khoz. 6 no.3:20-22 Mr '62. (MIRA 15:3)

(Railroads--Rails--Welding)

KHRENOV, Leonid Sergeyevich, prof.; Primal uchastiye ZAPRUDNOV,
B.D., inzh.; KAMENEV, N.P., dots., ofitsial'nyy retsenzent;
SHAROV, I.E., ofitsial'nyy retsenzent; BRUYEVICH, N.I.,
nauchnyy red.; LYAKHOVICH, Ye.A., red.; SHIBKOVA, R.Ye.,
tekhn. red.

[Geodesy] Geodeziya. Izd.2. Moskva, Goslesbumizdat, 1962.
476 p. (MIRA 16:6)

1. Vsesoyuznyy zaachnyy lesotekhnicheskiy institut (for
Kamenev). 2. Khrenovskiy lesnoy tekhnikum (for Sharov).
(Geodesy)

KVASHNIN, I.N.; SHAROV, I.F., kand.tekhn.nauk

Adopting a progressive method of rail welding. Put' i put.khoz. 9
no.5:23 '65. (MIRA 18:5)

1. Nachal'nik rel'sosvarochnogo poyezda, stantsiya Kastornaya-
Novaya, Yugo-Vostochnoy dorogi (for Kvashnin). 2. Stantsiya
Kastornaya-Novaya, Yugo-Vostochnoy dorogi (for Sharov).

SHAROV, S.F.

Category of normal electric power plants and wages. Energetik
13 no.5:32-37 May '65. (MIRA 18:8

1. Zamestitel' rabot'nika Upravleniya po normirovaniyu truda
i zarabotnoy platy Gosudarstvennogo proizvoditvennogo komiteta
po energetike i elektrifikatsii SSSR.

L 07128-67 EWP(k)/EWT(d)/EWT(m)/EWP(h)/EWP(l)/EWP(v)/EWP(t)/ETI JD/EM
ACC NR: AP6030274 (A) SOURCE CODE: UR/0125/66/000/008/0060/0061

38
B

AUTHOR: Sharov, I. F.

ORG: TsNII MPS

TITLE: Using the K-155 and K-255 rail welders for maintaining continuous-rail tracks

SOURCE: Avtomaticeskaya svarka, no. 8, 1966, 60-61

TOPIC TAGS: railway track, welding equipment

ABSTRACT: The authors discuss the use of the PRSM installation equipped with K-155 and K-255 suspension rail welders currently used in the Soviet Union for maintenance of continuous-rail tracks. A method is proposed for calculating the pressure adjustment necessary in the hydraulic system of the rail welder to overcome the resistance to longitudinal displacement generated by melting and upsetting. The PRSM unit has been used for repairing defective and broken tracks on the Southwest and October Railroads without much interruption of railway traffic and with a cost reduction by a factor of 10-11 in comparison with conventional methods. Welded joints on 29 track sections on the Southwest Railway show no defects after handling more than 100 million tons of cargo. The proposed method may be used for laying continuous tracks with 100- and 200-meter sections which cost less to transport than standard 800-meter section. Orig. art. has: 2 figures.

SUB CODE: 13/ SUBM DATE: 25Jan66

Card 1/1

UDC: 621.791.76.03:625.143

SHAROV, I.I., inzhener.

Increase the size of working assignments. Izobr.v SSSR 2 no. 2:42
Jl '57. (XERA 1017)

(Labor productivity)

ZALIOPO, M.N., inzh.; SHAROV, I.I., inzh.

Preparation of toilet soap from fats split without the aid of a catalyst. Masl.-shir: prom. 24 no. 6:17-19 '58. (MIRA 11:7)

1. Fabrika "Svchoda" (for Zaliopo). 2. Upravleniye meditskinskoy i parfyumernoy promyshlennosti Mosgorsovnarkhosa (for Sharov).
(Soap)

SHAROV, I.I.; PAVLOVSKIY, Ye.N., akademik.

Repairative epidermal regeneration in cyclostomata. Dokl. AN SSSR 91 no.2:
429-432 J1 '53. (MLRA 6:6)

1. Akademiya nauk SSSR (for Pavlovskiy). (Lampreys)

USSR/General Biology - Cytology.

B-2

Abs Jour : Ref Zhur - Biologiya, No 1, 1957, 157.

Author : I.I. Sharov.

Inst :

Title : New Investigations of the Cell (on the Works of Prof.
O.B. Lepeshinskiy)

Orig Pub : Tr. Stalinav. med. in-ta, 1954, 9, 185-195.

Abst : The basic premises developed in the works of O.B.
Lepeshinskiy are presented. The author considers
these works as being theoretically important.

Card 1/1

SHAROV, I.I.

Histochemical investigation of the activity of alkaline and acid phosphatases in uterine and placental tissues in pregnant white rats [with summary in English]. Biul. eksp. biol. i med. 45 (MIRA 11:5) no. 2:108-112 F' 58.

1. Iz kafedry gistologii i embriologii (zav. - dotsent I.I. Sharov) Stalinabadskogo meditsinskogo instituta imeni Avitsenny (dir. - chlen-korrespondent Akademii nauk Tadzhikskoy SSR Ya. A. Rakhimov). Predstavlena deystvitel'nym chlenom AMN SSSR prof. S. Ye. Severinym.

(UTERUS, metabolism,
phosphatases in **pregn. white rats, histochem. determ. (Rus)**)
(PLACENTA, metabolism,
phosphatases in white rats, histochem. determ. (Rus))
(PHOSPHATASES,
in placenta & uterus in pregn. white rats, histochem.
determ. (Rus))
(PREGNANCY, metabolism,
placental & uterine phosphatases in white rats, histochem.
determ. (Rus))

SHAROV, I.I.

Histochemical analysis of the glucogen content of the uterus and placenta of white rats in various periods of pregnancy [with summary in English]. *Biul. eksp. biol. i med.* 46 no.8:109-113
Ag '58 (MIRA 11:10)

1. Iz kafedry gistologii (zav. - dots. I.I. Sharov) Stalinabadskogo gosudarstvennogo meditsinskogo instituta imeni Abu-Ali Ibn-Siny i laboratorii embriologii (zav. - chlen-korrespondent AMN SSSR prof. P.G. Svetlov) Instituta eksperimental'noy meditsiny AMN SSSR, Leningrad. Predstavlena deystvitel'nym chlenom AMN SSSR V.N. Chernogovskim.

(PREGNANCY, metab.

glycogen content of uterus & placenta, histochem. determ. in rats (Rus))

(UTERUS, metab.

glycogen content of uterus & placenta, histochem. determ. at various periods of pregn. in rats (Rus))

(PLACENTA,

glycogen content of placenta & uterus, histochem. determ. at various periods of pregn. in rats (Rus))

(GLYCOGEN, metab.

uterus & placenta, histochem. determ. at various periods of pregn in rats (Rus))

DINKELIS, S.S.; SHAROV, I.I. (Stalinabad)

Phosphatase in the lungs and liver in experimental silicosis in
white rats. Gig. truda i prof. zab. 4 no. 7:52-54 JI '60.
(MIRA 13:8)

1. Kafedra gigiyeny i gistologii Meditsinskogo instituta im.
Avitsenny.
(PHOSPHATASE) (LUNGS--DUST DISEASES)

SHAROV, I.I.

Localization of glycogen in the human placenta. *Biul. eksp. biol. i med.* 50 no.9:112-116 S '60. (MIRA 13:11)

1. Iz kafedry gistologii (zav. - dotsent I.I.Sharov) Stalinabadskogo meditsinskogo instituta imeni Avitsenny i laboratorii embriologii (zav. uchlen-korrespondent AMN SSSR prof. G.P.Svetlov) Instituta eksperimental'noy meditsiny AMN SSSR, Leningrad.
(PLACENTA) (GLYCOGEN)

SHAROV, I.I.

Phosphatases in the human placenta. *Biul. eksp. biol. i med.*
56 no.8:64-68 Ag '63. (MIRA 17:7)

1. Iz kafedry gistologii (zav. - dr. med. nauk G.G. Samsonidze)
Tadzhikskogo meditsinskogo instituta imeni Avitsenny i labora-
torii embriologii (zav. - chlen-korrespondent AMN SSSR prof.
P.G. Svetlov) Instituta eksperimental'noy meditsiny AMN SSSR,
Leningrad. Predstavleno deystvitel'nym chlenom AMN SSSR A.V.
Lebedinskim.

BOZNEVSKIY, Nikolay Alekseyevich, GIMOVUSHKIN, M. I., reprints;
SHAROV, L.M., reprints; SAMOSHCHIN, V.F., red.;
FILIMONOVA, A.I., red.

[Dredging] Enougublenie. Moskva, Transport, 1965. 339 p.
(MIR-18412)

GRABETSKIY, A.A., kand.pedagog.nauk. Prinimali uchastiye: GOSTEV, M.M.,
kand.pedagog.nauk [deceased]; GLORIOZOV, P.A.; IVANOV, P.P.,
uchitel' sredney shkoly. VLASOV, G.S., otv.red.; SHAROV, I.N.,
red.; CHIZHIKOVA, O.M., red.; SMIRNOV, G.I., tekhn.red.; GOLOVKO,
B.N., tekhn.red.

[Chemical apparatus for the study of chemistry in secondary schools;
catalog and handbook] Uchebnoe oborudovanie po khimii dlia srednei
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M-va prosv.RSFSR, 1958. 134 p. (MIRA 13:6)

1. Russia (1917- R.S.F.S.R.) Ministerstvo prosveshcheniya.
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(for Gloriov).
(Chemistry--Handbooks, manuals, etc.) (Chemical apparatus)

SHAROV, I.V. (Engr) and ZILTTINKEVICH, S. I. (Prof.,Dr.Tech.Sci.)

"Review of H.J.Reich's Book: 'Theory and Applications of Electronic Apparatus'," Elektrichestvo, No.10, 1949

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SO: Knizhnaya Letopis', No. 25, 18 Jun 55

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