BUSHNEV, L.S. (Tomsk); DUDAREV, Ye.F. (Tomsk); PANIN, V.Ye. (Tomsk)

Dislocation structure formed during thermomechanical treatment of alloys with a low stacking fault energy. Izv. AN SSSR. Met. no.5:173-179 S-O '65. (MIRA 18:10)

L 24501-66 EWT(1)/T JK

ACC NR: AP6004502 SOURCE CODE: UR/0404/65/000/002/0056/0063

AUTHOR: Panin, V. Ya.

ORG: none

TITLE: Epizootology and prophylaxis of *Elaphostrongulus* in maral

SOURCE: AN KazSSR. Izvestiya. Seriya biologicheskikh nauk, no. 2, 1965, 56-63

TOPIC TAGS: epidemiology, animal disease, disease control

ABSTRACT: The present paper reviews the literature (Lyubimov, Osipov, Panin, and Pryadko) on the epizootology of the nematode *Elaphostrongulus panticola* in maral [Siberian deer] and recommends prophylactic measures against it. The author describes the maral as an important source of non-ossified antlers, a vital ingredient in the widely-used medical preparation *pantokrin*. It is noted that *E. panticola* (almost entirely absent in wild maral) afflicts maral confined to limited grazing areas in the Altay and Eastern Kazakhstan. Seven species of mollusks (intermediary hosts of *E. panticola*) are identified as the principal carriers of the disease: *Zenobiella nordenskioldi, Succinea altaica, B. fruticum, Z. aculeata, Perforatella bicallosa, Zonitoidus nitidus* and *Argiolimax agrestis*. Infestation of these hosts with *E. panticola* is highest in summer and early autumn. As a prophylactic measure, the author recommends that grazing land for fawns be changed three times during the grazing season and that

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L 24501-66
ACC NR: AP7004502

grazing land stand idle for at least two years before re-use.

SUB CODE: 06/ SUBM DATE: 00/ ORIG REF: 009/ OTH REF: 000

Card 2/2 IC

PANIN, V.Ya.

Epizootology and prophylaxis of elaphostrongylosis in marals. Izv. AN Kazakh. SSR. Ser. biol. nauk 3 no.2:56-63 Mr-Ap '65. (MIRA 18:5)

IVANOV, S.M.; RYBIN, V.A., prof., red.; PANIN, V.Ya., red.

[Causes of the desiccation of stone fruit trees] Prichiny usykhaniia derev'ev kostochkovykh plodovykh porod. Kishinev, Shtiintsa, 1961. 224 p. (MIRA 18:5)

ANDREYEV, Vladimir Nikolayevich(1889-1962), prof. doktor biol. nauk; PANIN, V., red.; BALABAN, M., red.

[Trees and shrubs of Moldavia] Derev'ia i kusta rniki Moldavii. Kishinev, Kartia moldoveniaske. No.2. 1964. 275 p. (MIRA 18:4)

PANIN, V.Ya.; SUMENKOVA, N.I.

Developmental cycle of Brachylaemus aequans Looss, 1899 (Trematoda, Brachylaemidae). Trudy Inst. zool. AN Kazakh. SSR 19:83-88 '63. (MIRA 16:9)

(Alma-Ata Province—Trematoda)

BOYEV, Sergey Nikolayevich, akademik; SOKOLOVA, Iya Borisovna; PANIN, Viktor Yakovlevich; POGOZHEV, A.A., red.; ROROKINA, Z.P., tekhn. red.

[Helminths of Ungulata in Kazakhstan in two volumes] Gel'minty kopytnykh zhivotnykh Kazakhstana v dvukh tomakh. Alma-Ata, Izd-vo AN Kaz.SSR. Vol.2. 1963. 535 p. (MIRA 16:10)

1. AN Kaz.SSR (for Boyev).
(Kazakhstan--Parasites--Ungulata)
(Kazakhstan--Worms, Intestinal and parasitic)

PANIN, V. Ya.; LAVROV, L. I.

Helminth fauna of wolves in Kazakhstan. Trudy Inst. zool. AN Kazakh. SSR 16:57-62 '62. (MIRA 15:10)

(Kazakhstan—Parasites—Wolves)
(Kazakhstan—Worms, Intestinal and parasitic)

FEDOTOV, Viktor Semenovich; PANIN, V.Ya., red.; BRAGINA, L.F., red.; POLONSKIY, S.A., tekhn. red.

[Terracing slopes for orchards and vineyards in Moldavia]Terrasirovanie sklonov pod sady i vinogradniki v Moldavii. Kishinev, Izd-vo "Shtiintsa," 1961. 174 p. (MIRA 16:2)
(Moldavia--Terracing) (Moldavia--Fruit culture)

FADIN, V.P.; PANIN, V.Ye.

Concentration dependence of the ordering energy in Cu - Zn solid solutions. Izv. vys. ucheb. zav.; fiz, 8 no.2:177-179 '65. (MIRA 18:7)

1. Sibirskiy fiziko-tekhnicheskiy institut imeni Kuznetsova.

FADIN, V. P.; PANIN, V. Ye.

Kinetic theory of ordered Cu-Al solid solutions. Fiz. met. i metalloved. 14 no.4:517-522 O '62. (MIRA 15:10)

1. Sibirskiy fiziko-tekhnicheskiy institut.

(Copper-aluminum alloys—Metallography)
(Crystal lattices)

L 26634-66 EWT(m)/EWP(w)/T/EWP(t) IJP(c) JD/JH

ACC NR: AP5025338 SOURCE CODE: UR/0126/65/ 020/003/0469/0472

AUTHOR: Panin, V. Ye.; Dudarev, Ye. F.; Butkevich, L. M.; Dolmatova, R. P.

ORG: Physico-Technical Institute of Siberia im. V. D. Kuznetsov (Sibirskiy fiziki-tekhnicheskiy institut)

TITLE: The effect of short-range order on the mechanical properties of solid solutions

SOURCE: Fizika metallov i metallovedeniye, v. 20, no. 3, 1965, 469-472

TOPIC TAGS: solid solution, copper alloy, aluminum alloy, zinc alloy, ordered alloy, solid mechanical property, material deformation, crystal dislocation

ABSTRACT: The authors present a more systematic investigation of solid solutions Cu-Al and Cu-Zn and express their findings on the causes of various effects of short-range order on the mechanical properties of the alloys. In order to confirm the assumption that various mechanical properties which result from the various degrees of alloy deformation will depend on the degree of short-range order, an investigation used the alloys Cu+17.3 mole% Al and Cu+38 mole% of Zn which have a considerable short-range order. The resistance of alloy to

Card 1/2 UDC: 548.0:539

L 26634-66

ACC NR: AP5025338

deformation as a function of temperature was also studied. The character of the effect of short-range order changes according to the resistance of deformation and degree of deformation. The effect of short-range order on the resistance of deformation with increase of degree of deformation at first decreases and then becomes inversely proportional to the Fischer effect. Similar results were obtained with Cu-Zn alloy. It was shown that the effect of character of the structural dislocation on the resistance of deformation greatly depends on the intensity of the system. Measurements of macrosolidity confirms that in this system of intensity the character of structural dislocation is signifficant and causes a strong abnormal dependence of the indicated characteristics on the degree of short-range order. Orig. art. has: 2 fig.

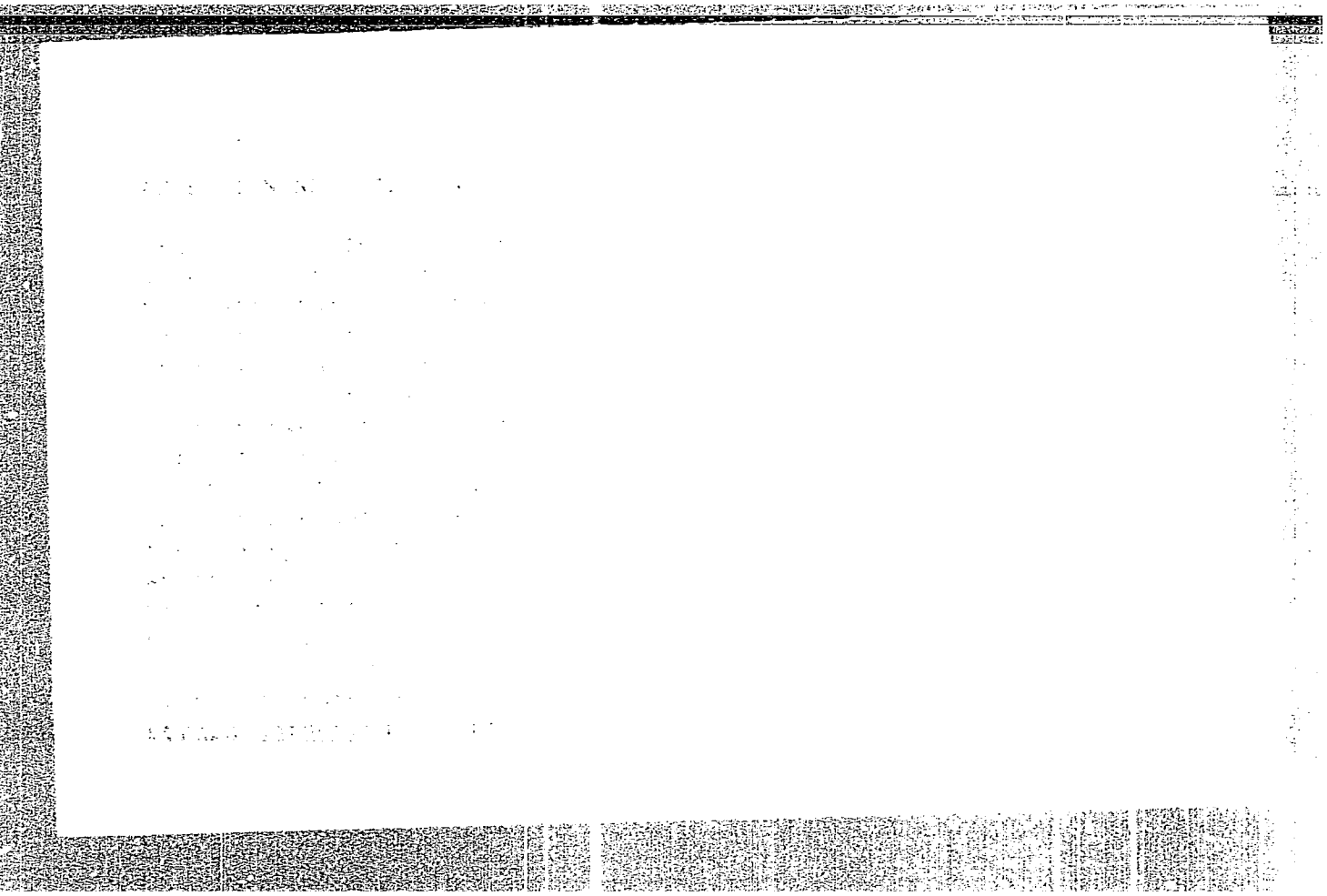
SUB CODE: 11,20/SUBM DATE: 05Oct64/ ORIG REF: 006/ OTH REF: 012

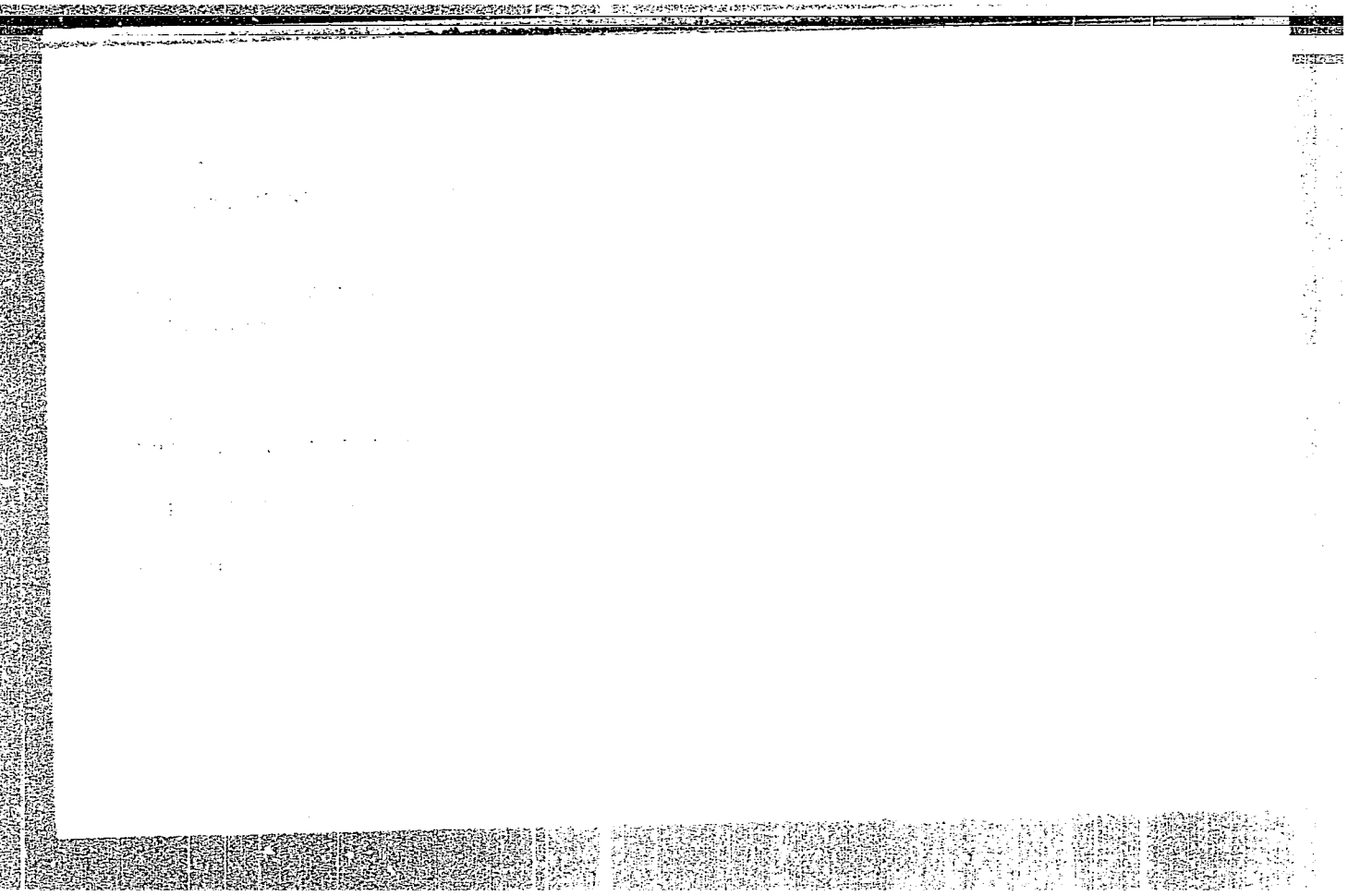
Card 2/2

TITLE:

SOURCE: AN SSSR. Doklady, v. 160, No. 1, 1965, 95-98

TOPIC TAGS: solid solution, alloy, alloy mechanical property, dis-





DUDAREV, Ye.F.; PANIN, V.Ye.; BUSHNEV, L.S.; RUDCHENKO, V.V.; SIDOROVA, T.S.

Implementation of Cottrell - Stokes's law in solid solutions.
Izv. vys. ucheb. zav.; fiz. 8 no.4:184 '65. (MIRA 18:12)

1. Sibirskiy fiziko-tekhnicheskiy institut imeni V.D. Kuznetsova.
Submitted February 17, 1965.

DUDAREV, Ye.F.; PANIN, V.Ye.; SIDOROVA, T.S.

Nature of the yield strength of copper-base solid solutions. Fiz. met. i metalloved. 18 no.2:288-293 Ag '64. (MIRA 18:8)

1. Sibirskiy fiziko-tekhnicheskiy institut.

PANIN, V.Ye.; FADIN, V.P.

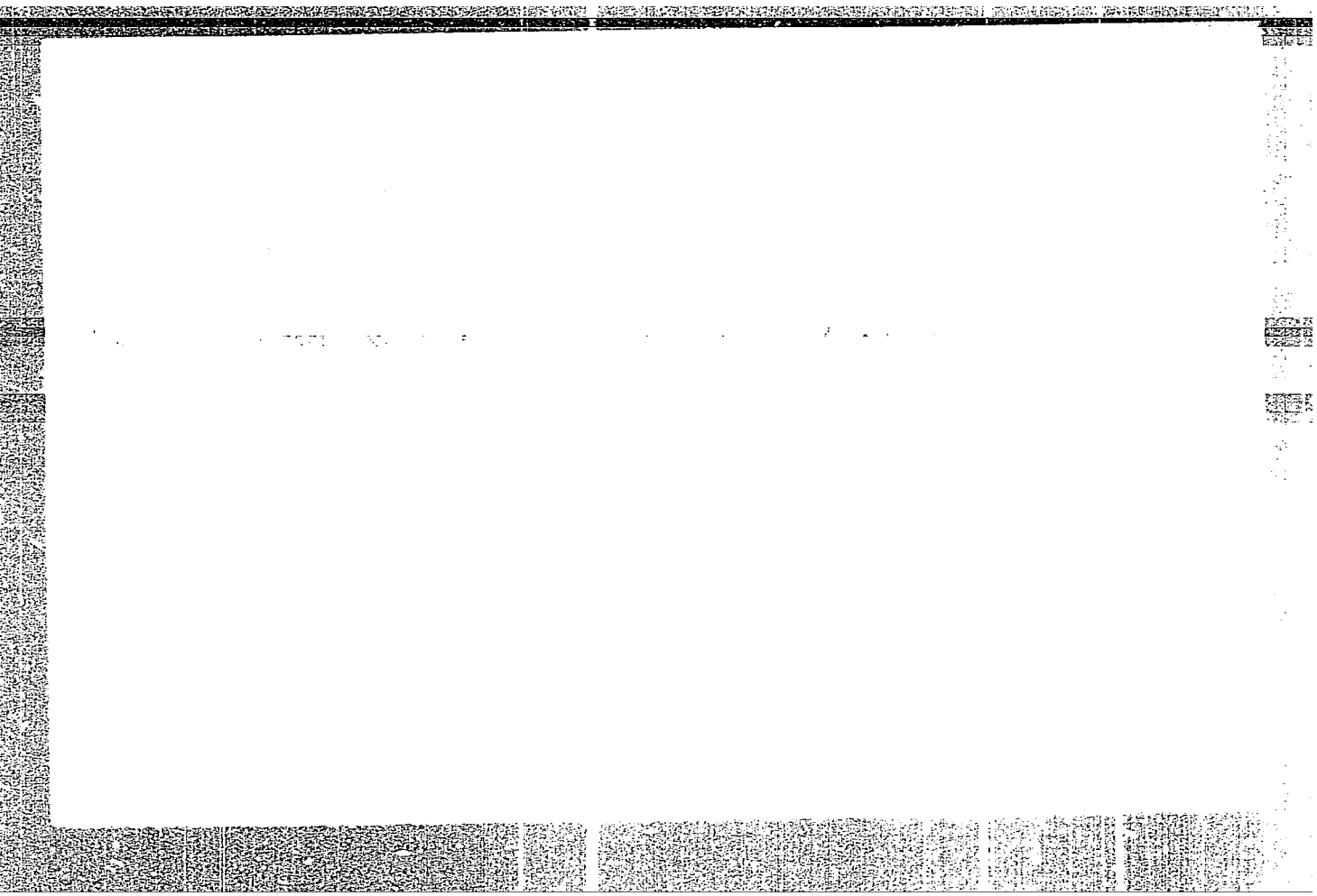
Short-range order contribution to the change in the properties of Cu - Al solid solutions due to thermal treatment. Izv. vys. ucheb. zav.; fiz. 8 no.2:119-124 '65. (MIRA 18:7)

1. Sibirskiy fiziko-tekhnicheskiy institut imeni Kuznetsova.

PANIN, V.Ye.; DUDAREV, Ye.F.; BUSHNEV, L.S.

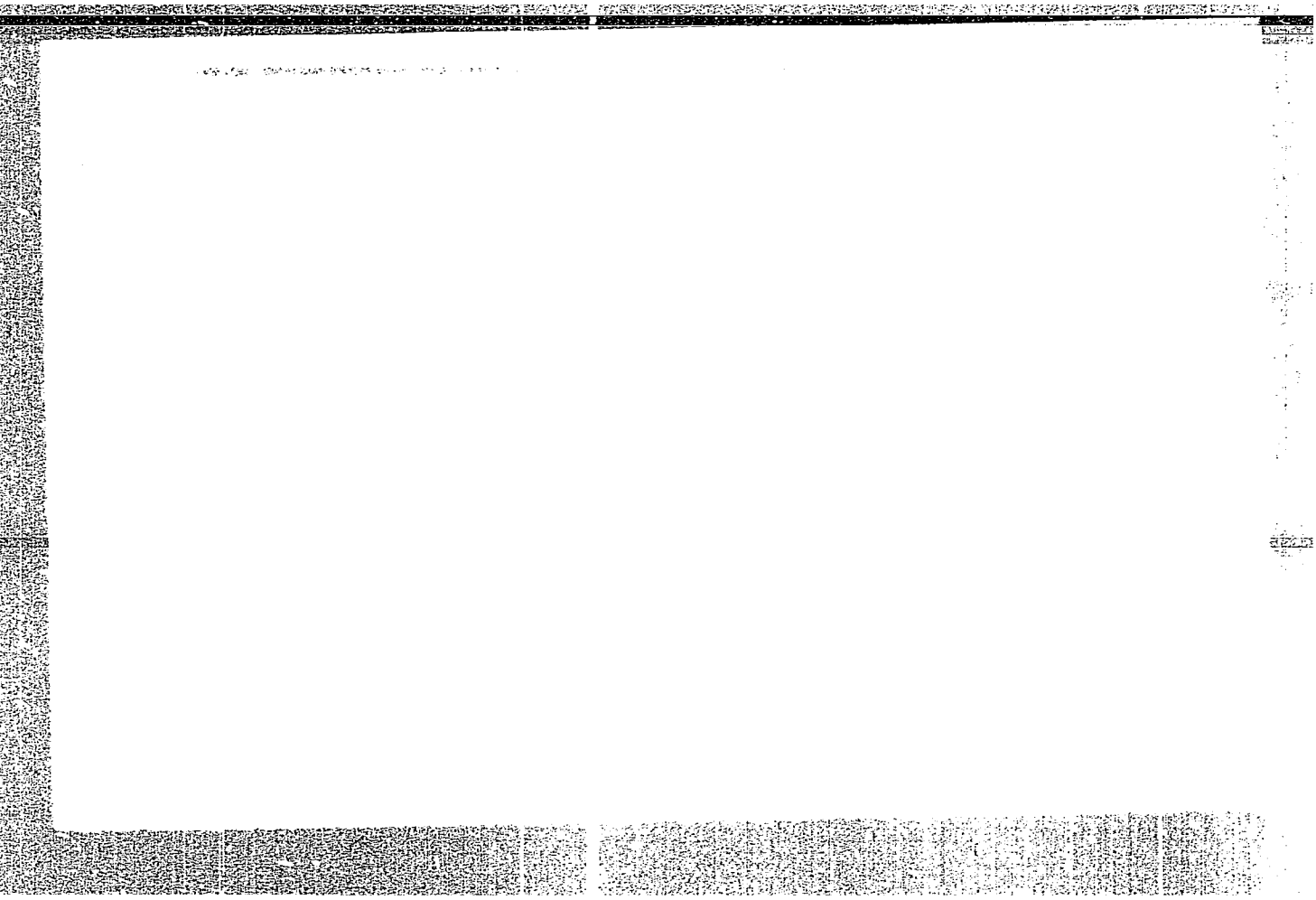
Effect of the character of the dislocation structure on the mechanical properties of Cu - Al solid solutions. Dokl. AN SSSR 160 no.1:95-98 Ja '65. (MIRA 18:2)

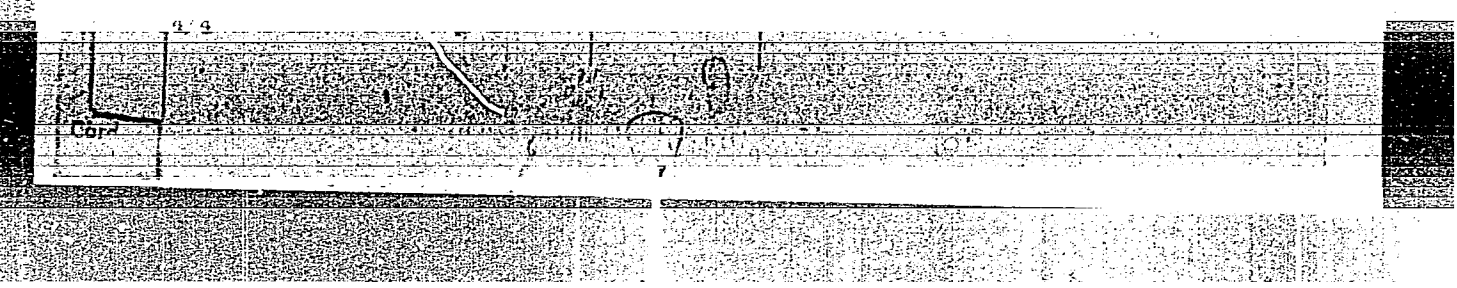
1. Sibirskiy fiziko-tekhnicheskiy institut pri Tomskom gosudarstvennom universitete im. V.V. Kuybysheva. Submitted July 30, 1964.



ASSOCIATION NO.

SUBMITTED: 16Jun64 ENCL: 02 SUB CODE: MM





DUDAREV, Ye.F.; PANIN, V.Ye.

The yield threshold effect in deformed solid solutions of Cu - Al. Izv. vys. ucheb. zav.; fiz. 8 no.6:107-115 '65. (MIRA 19:1)

1. Sibirskiy fiziko-tekhnicheskiy institut imeni V.D. Kuznetsova. Submitted June 19, 1964.

DUDAREV, Ye.F.; PANIN, V.Ye.; SIDOROVA, T.S.; DEMIDOV, G.A.

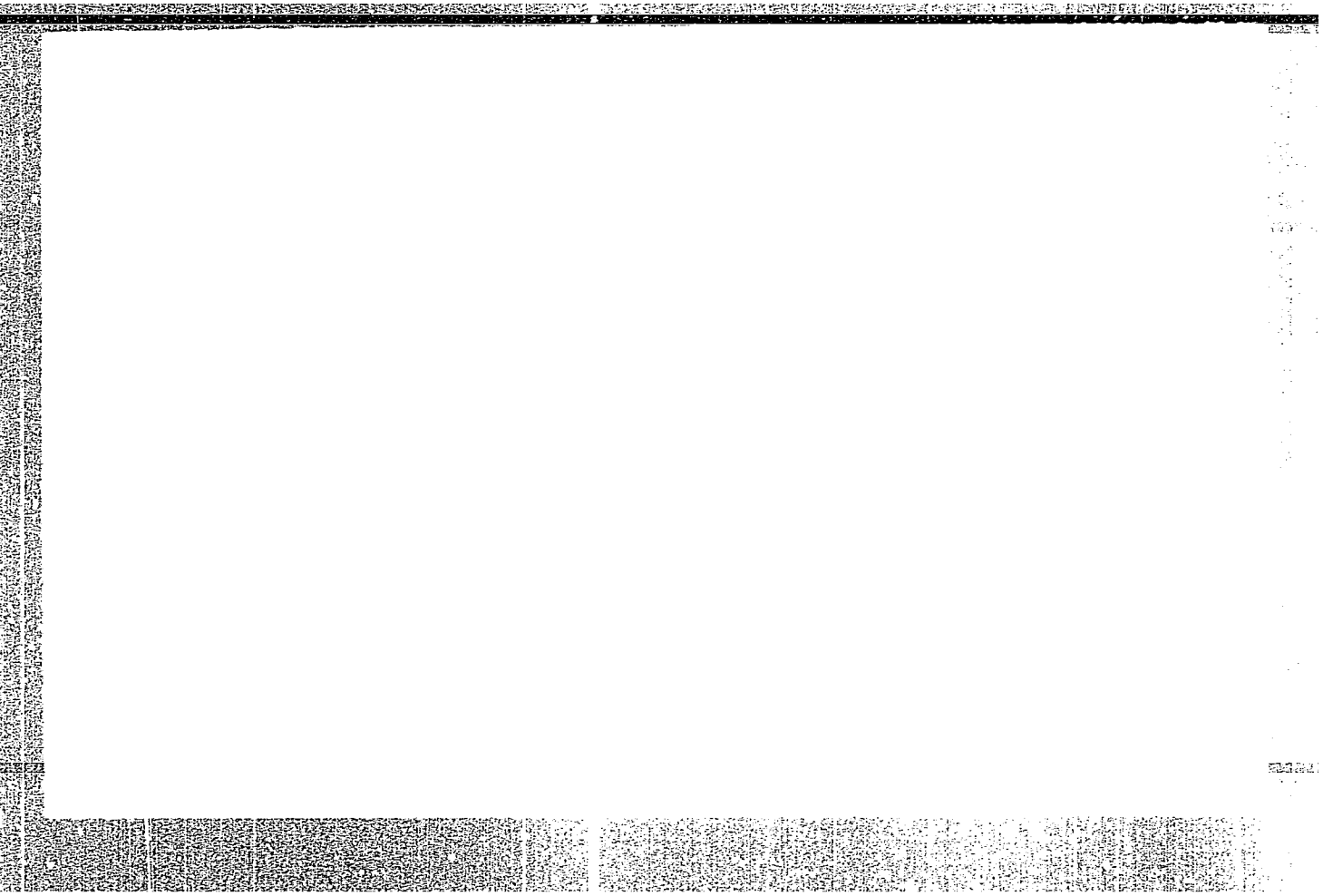
Temperature dependence of resistance to deformation in Cu - Al solid solutions. Izv. vys. ucheb. zav.; fiz. 8 no.6:115-124 '65. (MIRA 19:1)

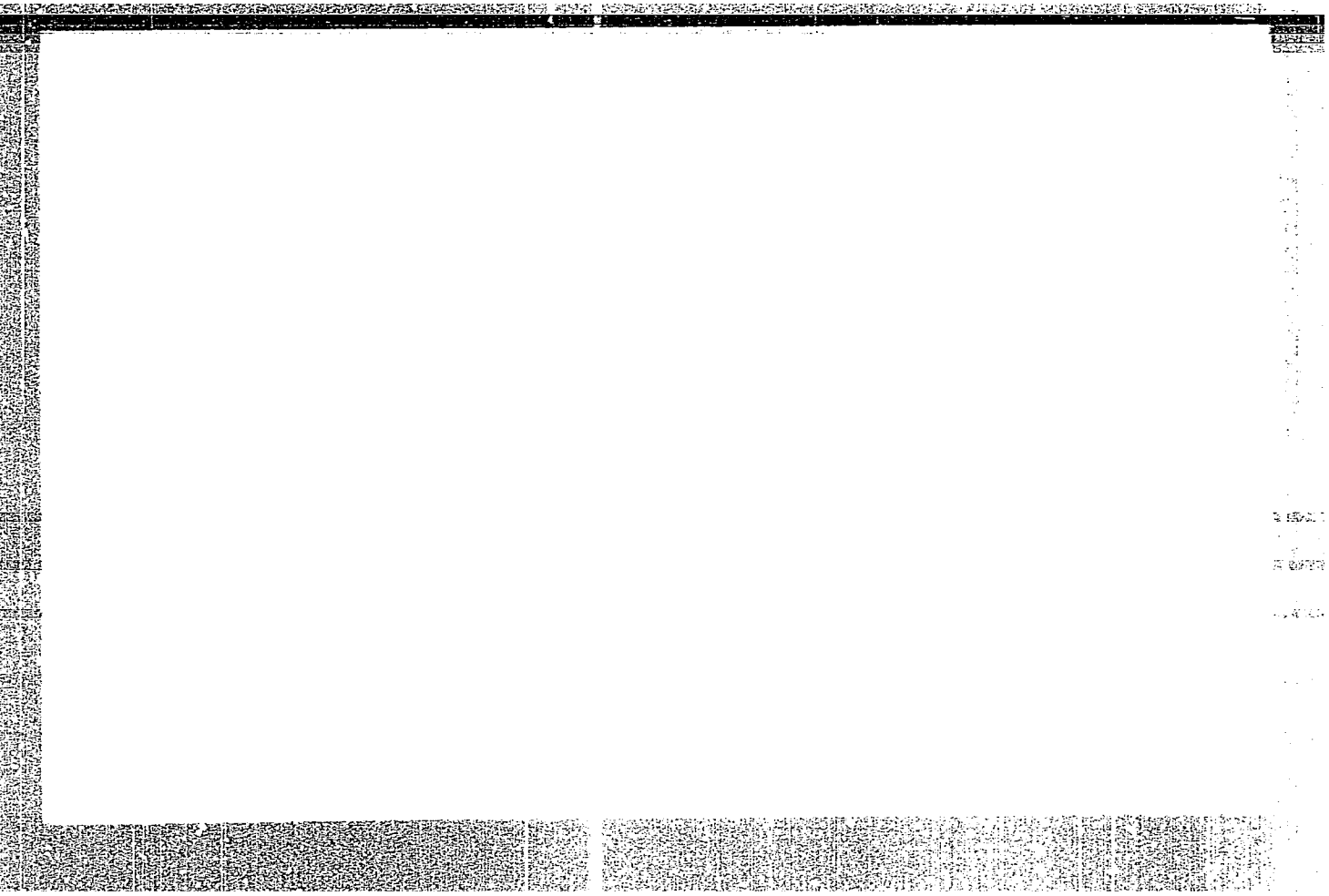
1. Sibirskiy fiziko-tekhnicheskiy institut imeni V.D. Kuznetsova. Submitted May 30, 1964.

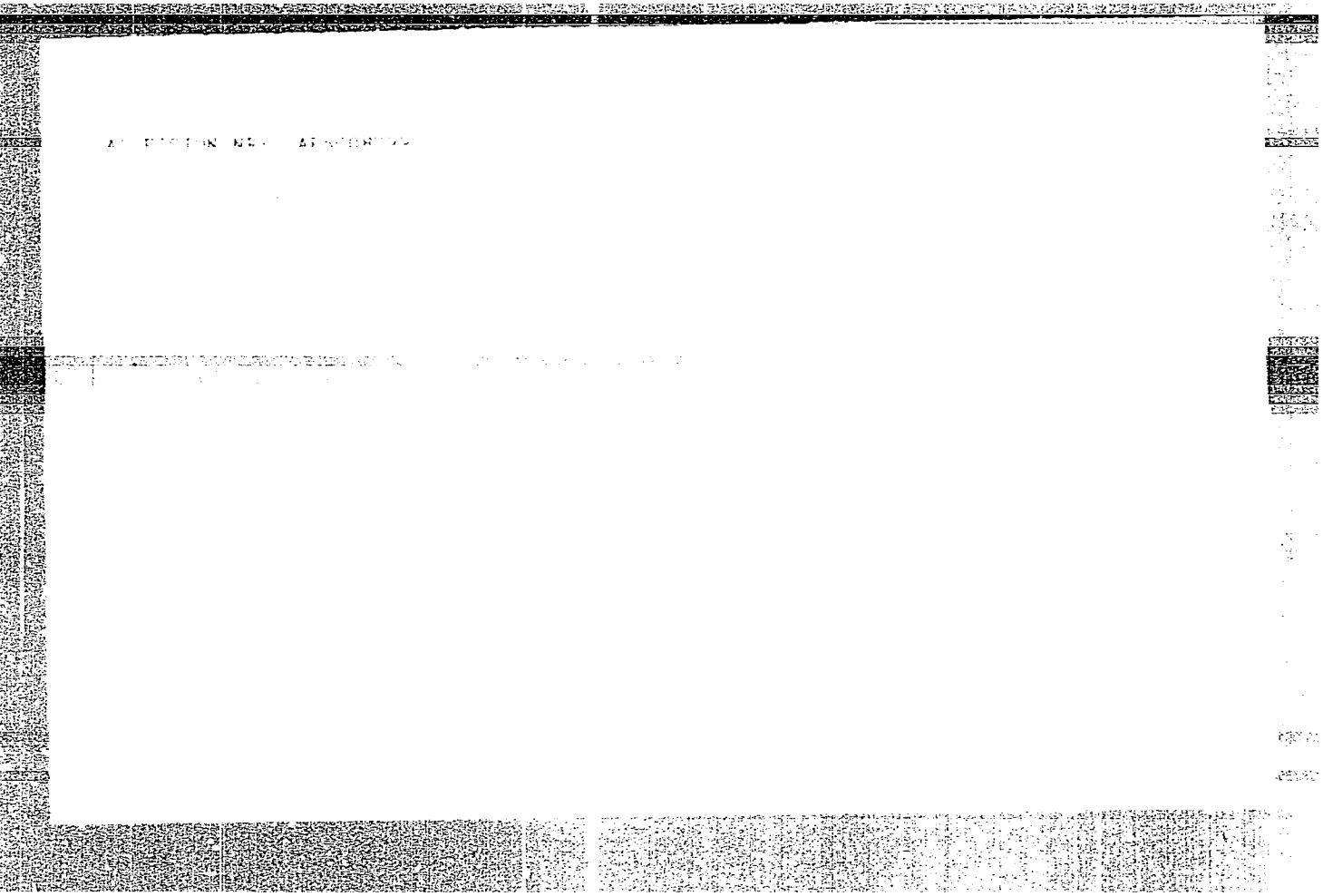
BUSHNEV, L.S.; BUTKEVICH, L.M.; PANIN, V.Ye.

Electron microscopy of the effect of low-temperature annealing on the structure of cold-worked Br. 27 and L62 alloys. Fiz.-met. i metalloved. 20 no.5:691-696 N '65.
(MIRA 18:12)

1. Sibirskiy fiziko-tekhnicheskiy institut imeni V.D.Kuznetsova.
Submitted November 21, 1964.







POPOV, L.Ye.; PANIN, V.Ye.

Detachment of a split dislocation from the Suzuki atmosphere. Fiz. met. i metalloved. 19 no.4:624-626 Ap '65. (MIRA 18:5)

1. Sibirskiy fiziko-tekhnicheskiy institut.

DUDAREV, Ye.F.; PANIN, V.Ye.; NIKITINA, N.V.

Temperature dependence of impurity concentration in Suzuki atmospheres in a number of solid solutions. Fiz. met. i metalloved. 17 no.6:924-930 Je '64. (MIRA 17:8)

1. Sibirskiy fiziko-tekhnicheskiy institut.

DUDAREV, Ye.F.; PANIN, V.Ye.; SIDOROVA, T.S.; DEMIDOV, G.A.

Temperature dependence of the resistance to deformation of Cu-Al solid solutions. Fiz. met. i metalloved. 19 no.3:477-480 Mr '65. (MIRA 18:4)

1. Sibirskiy fiziko-tekhnicheskiy institut.

PANIN, V.Ye.; FADIN, V.P.; DUDAREV, Ye.F.

Effect of quenching temperature on the ordering processes in solid Cu-Al solutions. Ukr. fiz. zhur. 8 no.2:195-201 F '63. (MIRA 16:2)

1. Sibirskiy fiziko-tekhnicheskiy institut, g. Tomsk.
(Copper-aluminum alloys—Hardening)

PANIN, V.Ye.; FADIN, V.P.

Effect of the purity of the alloy on the nature of ordering in Cu-Al solid solutions. Ukr. fiz. zhur. 8 no.2:201-206 F '63. (MIRA 16:2)

1. Sibirskiy fiziko-tekhnicheskiy institut, g. Tomsk.
(Copper-aluminum alloys)

PANIN, V.Ye.; DUDAREV, Ye.F.; BOL'SHANINA, M.A.

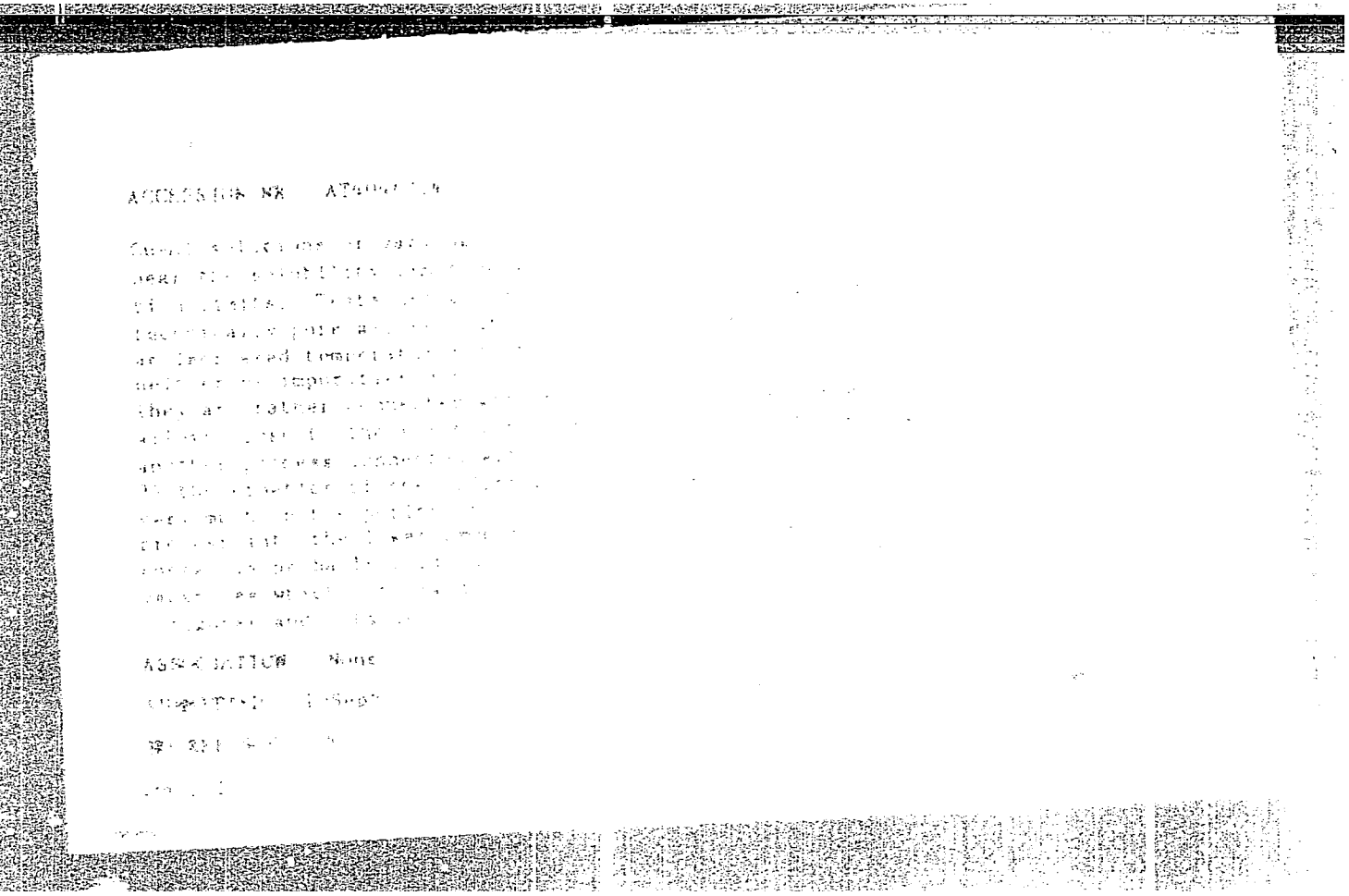
Suzuki atmospheres in brass and aluminum bronze. Dokl. AN SSSR 152 no.1:92-95 S '63. (MIRA 16:9)

1. Sibirskiy fiziko-tekhnicheskiy institut pri Tomskom gosudarstvennom universitete im. V.V.Kuybysheva. Predstavleno akademikom G.V.Kurdyumovym.
(Brass--Metallurgy) (Aluminum bronze--Metallurgy)

mobility, copper alloy,

property, alloy crystal structure

C. B. Mouska, B. L. Auerbach, J.



PANIN, V.Ye.; KUDRYAVTSEVA, L.A.; SIDOROVA, T.S.; BUSHNEV, L.S.

Intercrystallite internal adsorption in Cu-Al solid solutions during hardening from high temperatures. Fiz. met. i metalloved. 12 no.6:927-928 D '61. (MIRA 16:11)

1. Sibirskiy fiziko-tekhnicheskiy institut.

PANIN, V.Ye.

Theory of the near-range order contribution to the hardening of solid solution alloys. Fiz. met. i metalloved. 17 no.1:150-152 Ja '64. (MIRA 17:2)

1. Sibirskiy fiziko-tekhnicheskiy nauchno-issledovatel'skiy institut.

FADIN, V.P.; PANIN, V.Ye.

Kinetics of near order changes in copper-aluminum solid solutions. Fiz. met. i metalloved. 17 no.2:192-196 F '64. (MIRA 17:2)

1. Sibirskiy fiziko-tekhnicheskiy institut.

PANIN. V.Ye.; KUZNETSOVA, L.D.

Nature of transformations in unformed α-brasses. Fiz. met. i metalloved. 17 no.5:798-800 My '64. (MIRA 17:9)

1. Sibirskiy fiziko-tekhnicheskiy institut.

PANIN, V.Ye.; DUDAREV, Ye.F.; SIDOROVA, T.S.; BOL'SHANINA, M.A.

Suzuki atmospheres and their contribution to the hardening of hard alloys. Fiz. met. i metalloved. 16 no.4:574-582 O '63. (MIRA 16:12)

1. Sibirskiy fiziko-tekhnicheskiy institut.

PANIN, V.Ye.; ZENKOVA, E.K.; FEDIN, V.P.; KUDRYAVTSEVA, L.A.

Diffusion transformations in solid solutions at high temperatures. (MIRA 16:6)
Issl.po zharopr.splav. 8:161-168 '62.
(Copper-aluminum alloys--Metallography)
(Metals at high temperatures)

PANIN, V. Ye.; FADIN, V. P.; DUDAREV, Ye. F.

Variation of the electric resistance of Cu-Al solid solutions during heat treatment. Izv. vys. ucheb. zav.; fiz. no.6:48-51 '61. (MIRA 16:1)

1. Sibirskiy fiziko-tekhnicheskiy institut pri Tomskom gosudarstvennom universitet imeni Kuybysheva.

(Copper-aluminum alloys--Electric properties)
(Metals at high temperatures)

KUDRYAVTSEVA, L. A.; PANIN, V. Ye.

Temperature dependence of internal friction in Cu-Al solid solutions. Izv. vys. uch. zav.; fiz. 3:93-98 '62. (MIRA 15:10)

1. Sibirskiy fiziko-tekhnicheskiy institut pri Tomskom gosudarstvennom universitete imeni Kuybysheva.

(Copper-aluminum alloys—Thermal properties)

PANIN, V. Ye.; FADIN, V. P.; BOBYREVA, G. A.

Effect of the purity of alloys on the nature of ordering in Cu-Al solid solutions. Part 1. Izv. vys. uch. zav.; fiz. 3: 153-159 '62. (MIRA 15:10)

1. Sibirskiy fiziko-tekhnicheskiy institut pri Tomskom gosudarstvennom universitete imeni Kuybysheva.

(Copper-aluminum alloys)

PANIN, V.Ye.; SUKHOVAROV, V.F.

Hardening of solid solutions. Issl. po zharopr. splav. 9:145-150 '62. (MIRA 16:6)

(Copper alloys--Hardening)

PANIN, V.Ye.; FADIN, V.P.; RED'KIN, V.P.; IGNATYUK, V.A.

Temperature dependence of the short-range order in Cu - Al solid solutions. Fiz. met. i metalloved. 15 no.2:264-268 F '63. (MIRA 16:4)

1. Sibirskiy fiziko-tekhnicheskiy institut.
(Copper-aluminum alloys—Metallography)
(Metals, Effect of temperature on)

DUDAREV, Ye.F.; PANIN, V.Ye.

Suzuki atmospheres in the series of copper solid solutions. Fiz. met. i metalloved. 17 no.4:578-583 Ap '64. (MIRA 17:8)

1. Sibirskiy fiziko-tekhnicheskiy institut.

L 12478-63 EWP(q)/EWT(m)/BDS AFFTC/ASD JD

S/185/63/008/003/004/009

58
57

AUTHOR: Sidorova, T. S., Panin, V. Ye. and Bol'shanina, M. A.

TITLE: Effect of deformation of order-disorder processes in Cu-Al alloys

PERIODICAL: Ukrains'kyy Fizychnyy Zhurnal, v. 8, no. 3, 1963, 359-363.

TEXT: It is known that the existence of close order in alloys may contribute significantly to strengthening of alloy and in changing its deformation properties. This contribution may be evaluated after subsequent annealing of deformed alloy, when the close order is restored. At the same time, ordering process in deformed alloys has a number of peculiarities which are associated with the presence of a large number of dislocations and vacancies in the material. Therefore, study of ordering not only aids the understanding of nature of deformed state, but is of interest in itself. This work is involved with study of these processes in Cu-Al alloys having significant short order. The methods of measuring density, hardness, electrical resistance and temperature dependence of resistance were used to investigate the deformed state of Cu Alloy. It is shown that a small plastic deformation additionally orders the annealed Cu-Al alloy. Ordering is enhanced in the course of a small deformation if the alloy is quenched from high temperatures. The conclusion is

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L 12478-63

S/185/63/008/003/004/009

Effect of deformation of order-disorder processes...

that basic ordering of Cu-Al alloys during deformation is not associated with the presence of short-range order in the alloy. The article contains 2 figures and a 17 item bibliography.

ASSOCIATION: Sibirskiy Fiziko-tekhnicheskiy institut (Siberian Technical Physics Institute, Tomsk.)

Card 2/2

FADIN, V. P.; PANIN, V. Ye.

Effect of purity on the nature of ordering in Cu-Al solid solutions. Part 2. Izv. vys. ucheb. zav.; fiz. no.6:85-89 '62. (MIRA 16:1)

1. Sibirskiy fiziko-tekhnicheskiy institut pri Tomskom gosudarstvennom universitete imeni Kuybysheva.

(Copper-aluminum alloys)
(Physical metallurgy)

AUTHORS: Panin, V. Ye., Padin, V. P., Bushnev, L. S. and Minayeva, G. G.

TITLE: Imperfect long-range order in solid solutions Cu-Al

PERIODICAL: Ukrayins'kyy fizychnyy zhurnal, v. 8, no. 2, 1963, 206-210

TEXT: The authors calculate the theoretical isotherms of the variation of short-range parameter σ during tempering of the harden- of alloy Cu + 14.7 at.% Al. Experimental curves, obtained from the tempering isotherms of [illegible] theoretical curves. Temperatures of tempering were [illegible] test of tempering [illegible]

AUTHORS: Panin, V. E., [illegible]

TITLE: Effect of hardening temperature on the ordering processes in solid solutions of Cu-Al

PERIODICAL: Ukrayins'kyy fizychnyy zhurnal, v. 8, no. 2, 1963, 199-200

TEXT: The authors investigated the alloy Cu + 14.3 at.% Al hardened at T_h = 320°, 600° and 900°. The electric resistance ρ was chosen as the characteristic of state, and its temperature variation [illegible]. The ordering process during tempering [illegible] very slow for T_h = 320° [illegible]. Values for the activation energy of the ordering process are given for the above values of T_h and for T_h = 400°, and it is found that the activation energy is independent of T_h for T_h = 400 - 900°, but increases sharply for T_h = 320°. There are 3 figures and 1 table.

Card 1/2

Effect of hardening ...

S/185/63/008/002/003/012
D234/D308

ASSOCIATION: Sibirskiy fiziko-tekhnicheskiy institut (Siberian Physicotechnical Institute), Tomsk

Card 1/2

AUTHORS: Panin, V. [illegible]

TITLE: [illegible] dering in solid solutions of Cu-Al

PERIODICAL: Ukrayins'kyy fizychnyy zhurnal, v. 8, no. 2, 1963, 201-206

TEXT: The alloys investigated were: 1) Cu + 14.3 at.% Al of high [illegible] and 0.07 weight% P. The de- [illegible] the temperature [illegible] The activation energies [illegible] clusions: the temperature interval of the existence of [illegible] increases at the same time, [illegible] is between 400° or 500°C and 700°C. Atomic mobility in Cu-Al [illegible] can be sharply decreased by adding small quantities of P. There

Card 1/2

S/185/63/008/002/004/012
D234/D308

Effect of purity ...

are 3 figures and 1 table.

ASSOCIATION: Sibirskiy fiziko-tekhnicheskiy institut (Siberian Physicotechnical Institute), Tomsk

Card 2/2

S/126/63/015/002/017/033
E193/E383

AUTHORS: Panin, V.Ye., Fadin, V.P., Red'kin, V.P. and Ignatyuk, V.A.

TITLE: The temperature-dependence of short-range order in solid Cu-Al solutions

PERIODICAL: Fizika metallov i metallovedeniye, v. 15, no. 2, 1963, 264 - 268

TEXT: The object of the present investigation was to evaluate the contribution of the variation in short-range order to the variation in properties of Cu-Al alloys during heat-treatment. Using the theoretical concepts of Kidin and Shtremel' (FMM, 1961, 11, no. 5), Le Claire and Lomer (Acta met., 1954, 2, 11) and the experimental data due to Houska and Averbach (J. Appl. Phys., 1959, 30, no. 10) on the equilibrium probability p_{AB} of a given bond of an atom A being satisfied by an atom B, the present authors calculated the values of p_{AB} and the parameter of the short-range order σ for the 14.3 at.% Al-Cu alloy at 0 - 1 000 °C. The results indicated that a considerable degree of short-range order

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The temperature-dependence ....

was retained in the alloy studied even at temperatures approaching its melting point. The values of σ obtained were used to estimate the variation in electrical resistivity due to the gradual destruction of short-range order on heating; it was shown that the resistivity of the alloy should gradually increase with increasing temperature. The temperature-dependence of ρ_{AB} was used to determine the temperature-dependence of the energy required to destroy the short-range order. Finally, the heat effect associated with disordering was experimentally determined by studying the temperature-dependence of the specific heat of the 17.3 at.% Al-Cu alloy. The results obtained for this alloy are reproduced in Fig. 3, showing the temperature-dependence of the short-range order parameter (σ, righthand scale, curve 1), the energy required to destroy the short-range order (ΔE, cal/mole, lefthand scale, curve 2) and the heat effect due to disordering (ΔQ, cal/mole, lefthand scale, curve 3). The fact that curves 2 and 3 in Fig. 3 did not coincide at high temperatures was taken to indicate that transformations in the solid Cu-Al solution were

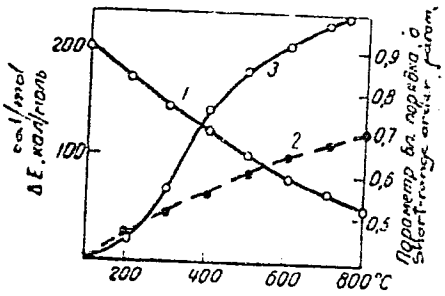
The temperature-dependence ....

associated not only with changes in the degree of short-range order but with other phenomena. There are 3 figures and 1 table.

ASSOCIATION: Sibirskiy fiziko-tekhnicheskiy institut
(Siberian Physicotechnical Institute)

SUBMITTED: July 10, 1962

Fig. 3:



Card 3/3

PANIN, V.Ye.; SIDOROVA, T.S.; SOL'SHANINA, M.A.

Characteristics of alloy hardening with a low energy of packing defects. Fiz. met. i metalloved. 14 no.2:238-243 Ag '62. (MIRA 15:12)

1. Sibirskiy fiziko-tekhnicheskiy institut pri Tomskom gosudarstvennom universitete.
(Alloys--Hardening) (Crystal lattices)

PANIN, V.Ye.; FADIN, V.P.; BUSHNEV, I.S.; MINAYEVA, G.G.

Incomplete long-range order in Cu-Al solid solutions. Ukr. fiz. zhur. 8 no.2:206-210 F '63. (MIRA 16:2)

1. Sibirskiy fiziko-tekhnicheskiy institut, g.Tomsk.
(Copper-aluminum alloys)

FADIN, V.P.; PANIN, V.Ye.; DUBAREV, Ye.F.

Nature of ordering in Cu-Al solid solutions. Ukr. fiz. zhur. 8 no.2: 210-216 F '63. (MIRA 16:2)

1. Sibirskiy fiziko-tekhnicheskiy institut, g. Tomsk.
(Copper-aluminum alloys)

BOYEV, Sergey Nikolayevich, akademik; SOKOLOVA, Iya Borosovna; PANIN, Viktor Yakovlevich; SHEVCHUK, T.I., red.; LEVIN, M.L., red.; ROROKINA, Z.P., tekhn. red.

[Helminths of ungulates of Kazakhstan; in two volumes]Gel'minty kopytnykh zhivotnykh Kazakhstana; v dvukh tomakh. Alma-Ata, Izd-vo Akad. nauk Kazakhskoi SSR. Vol.1. 1962. 373 p. (MIRA 15:10)

1. Akademiya nauk Kazakhskoy SSR (for Boyev).
(Kazakhstan—Parasites—Ungulata)
(Kazakhstan—Worms, Intestinal and parasitic)

BUSHNEV, L.S.; MINAYEVA, G.G.; PANIN, V.Ye.

Electron microscopy of dislocation loops in hardened Cu-Al alloys. Fiz. met. i metalloved. 14 no.3:470-472 S '62. (MIRA 15:9)

1. Sibirskiy fiziko-tekhnicheskiy institut.
(Copper-aluminum alloys--Metallography)

PANIN, V.Ye.; FADIN, V.P.; SOLOV'YEV, L.A.

Investigating the ordering phenomena in Cu-Al alloys. Fiz. met. i metalloved. 13 no.2:219-224 F '62. (MIRA 15:3)

1. Sibirskiy fiziko-tekhnicheskiy institut.
(Copper-aluminum alloys--Metallography) (Solubility)

45006

S/139/62/000/006/008/032
E193/E383

AUTHORS: Panin, V.Ye., Fadin, V.P. and Dudarev, Ye.F.

TITLE: On the problem of the nature of the changes of electrical resistivity of Cu-Al solid solutions during heat-treatment

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika, no. 6, 1962, 48 - 51

TEXT: According to Coles' theory, the electrical resistivity ρ of nonferromagnetic alloys at a given temperature T is given approximately by:

$$\rho = F(P_A + P_T) \quad (1)$$

where P_A and P_T are scattering disturbances due, respectively, to atomic and thermal disordering and F is a function of the degree of freedom of the conduction electrons. For an alloy quenched from a temperature T_3 and for $T = 0\ ^oK$, Eq. (1) becomes:

$$\rho_0^{T_3} = F^{T_3} \cdot P_A^{T_3} \quad (2);$$

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S/139/62/000/006/008/032
E193/E383

On the problem of ....

here, ρ_o is the residual resistance and the index T_3 indicates the temperature from which the alloy has been quenched. Combining Eq. (2) with the equation for the temperature coefficient of electrical resistivity:

$$\alpha^{T_3} = (\partial\rho/\partial T)^{T_3} ,$$

it can be shown that:

$$\alpha^{T_3} = K^{T_3} F^{T_3} \qquad (4) ,$$

where $k^{T_3} = \partial P_T^{T_3} / \partial T \cdot {}_{T_3}$ Since it is easy to show that the relative variation in k^{T_3} is equal to the relative variation in Young's modulus, the variation in the latter property as a function of the degree of order in a Cu-Al alloy was studied. Experimental work was carried out on two alloys: a high-purity Cu+14.3 at.% Al alloy and a technical-grade Cu+14.9 at.% Al material, both preliminarily annealed by holding for 2 h at 750 °C and cooling at 50 °C/h. The Young modulus was determined by measuring the natural vibration frequency of specimens quenched from various

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On the problem of ....

S/139/62/000/006/008/032
E193/E383

the forces of atomic interaction by the order-disorder transformation in the Cu-Al alloys is very small, not exceeding 3%, for alloys quenched from 450 °C. There are 2 figures.

ASSOCIATION: Sibirskiy fiziko-tekhnicheskiy institut pri Tomskom gosuniversitete imeni V.V. Kuybysheva (Siberian Physicotechnical Institute of Tomsk State University imeni V.V. Kuybyshev)

SUBMITTED: January 23, 1962

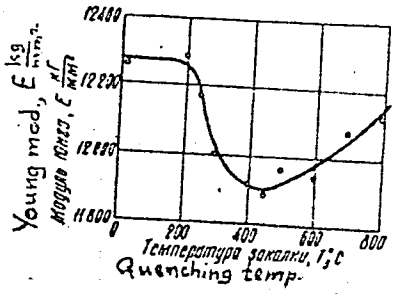

Fig. 1:

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SIDOROVA, T.S.; PANIN, V.Ye.; BOL'SHANINA, M.A.

Investigating the nature of low-temperature transformations in deformed Cu-Al alloys. Fiz.met.i metalloved. 14 no.5:750-756 N '62. (MIRA 15:12)

1. Sibirskiy fiziko-tekhnicheskiy institut.
(Copper-aluminum alloys—Metallography)
(Deformations (Mechanics))

S/126/62/014/005/007/015
E193/E383

AUTHORS: Sidirova, T.S., Panin, V.Ye. and Bol'shanina, M.A.

TITLE: A study of the nature of low-temperature transformations in deformed Cu-Al alloys

PERIODICAL: Fizika metallov i metallovedeniye, v. 14, no. 5, 1962, 750 - 756

TEXT: The object of the present investigation was to study the changes taking place on heating in preliminarily deformed alloys with a low-energy of stacking faults. Experimental work was carried out on the 14.3 at.% Al-Cu alloy. It consisted of determining the effect of ageing on the density D, electrical resistivity ρ, temperature coefficient of ρ and microhardness of a) specimens annealed in vacuum for 2 hours at 1 750 °C and b) specimens that, after annealing, had been deformed at room temperature to 4, 8, 27 and 44% reduction; in the latter case, the first measurements were carried out immediately after the plastic deformation. Ageing was effected by raising the temperature of the specimens (either continuously or in stages) up to 800 °C; heating was periodically interrupted, the specimen quenched and its

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S/126/62/014/005/007/015
E193/E383

A study of the nature of ....

properties measured at room temperature. The temperature-dependence of ρ of both cold-worked and annealed specimens was also determined. The results for annealed specimens and the material given a slight plastic deformation are shown in Fig. 2; the scales (from right to left) relate to ρ ($\mu\Omega$ cm), microhardness (kg/mm^2) and $(\Delta D/D)10^4$; curves 1 and 4 show the variation in ρ, curves 2 and 5 the change of $\Delta D/D$ and curve 3 the variation in microhardness; curves 1-3 relate to specimens deformed to 8% reduction, curves 4 and 5 to annealed specimens. Fig. 4 presents results equivalent to those reproduced in Fig. 2, except that in this case the deformed specimens (curves 1-3) have been given 44% reduction. Conclusions. 1) Light plastic deformation of an annealed Cu-Al alloy brings about additional ordering of the alloy, as a result of which ρ of the annealed specimens is somewhat higher than that of annealed and cold-worked material. A further increase in the degree of order (indicated by a decrease in ρ) is caused by heating a lightly deformed specimen to a temperature of up to 200 °C; disordering takes place at higher temperatures. 2) The deformation-induced increase in strength

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of Al-Cu alloys is caused by stacking faults and associated Suzuki atmosphers; the increase in strength due to short-range order is insignificant. 3) The first stage of the decrease in ρ on heating a lightly deformed Al-Cu alloy is not caused by ordering alone, a considerable part being played by the formation of additional Suzuki atmospheres. Whereas the first stage of the decrease in ρ (below 200 °C) is determined by the diffusion mobility of the Al atoms in the alloy, the second stage (higher than 450 °C) is associated with softening of the alloy due to re-crystallization. There are 5 figures.

ASSOCIATION: Sibirskiy fiziko-tekhnicheskiy institut
(Siberian Physicotechnical Institute)

SUBMITTED: February 26, 1962

S/126/62/014/004/005/017
E132/E160

AUTHORS: Fadin, V.P., and Panin, V.Ye.

TITLE: Theory of the kinetics of ordering in solid solutions of Cu and Al

PERIODICAL: Fizika metallov i metallovedeniye, v.14, no.4, 1962, 517-522

TEXT: On the basis of the theory of I,N. Kidin and M.A. Shtremel' (Fiz. met. i metalloved., v.11, no.5, 1961) theoretical isotherms of the kinetics of ordering during annealing of quenched solid solutions of Cu and Al are derived. Theoretical and experimental isotherms are compared and agree satisfactorily for low quenching temperatures, but there are sharp divergences for high quenching temperatures. The alloy used for testing the theory was Cu with 14% Al, vacuum melted. It was quenched from 320 and from 600 °C, at which temperatures the degrees of disorder are substantially the same, but the ordering processes subsequently differ because of the different concentrations of quenched-in vacancies. The short-range ordering

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S/126/62/014/003/018/022
E193/E383

AUTHORS: Bushnev, L.S., Minayeva, G.G. and Panin, V.Ye.

TITLE: Electron-microscopy examination of dislocation loops in a quenched Cu-Al alloy

PERIODICAL: Fizika metallov i metallovedeniye, v. 14, no. 3, 1962, 470 - 472

TEXT: It has already been established that ordering of Cu-Al alloys, disordered by quenching from relatively high (800 - 900 °C) temperatures, is accompanied by other side effects leading to anomalous variation in the properties of the alloy.. The results of the investigation described in the present paper showed that coalescence of excess vacancies and subsequent formation of dislocation loops played an important part in these processes. The experiments were conducted on vacuum-melted alloy containing 14.3 at.% Al. Transmitted-light electron-microscopy was used to reveal the formation of dislocation loops in thin (1 000 - 2 000 Å thick) foil specimens obtained by electrolytic polishing of preliminarily heat-treated 0.2 mm thick strips. The heat-treatment consisted of quenching the alloy from 900 °C and ageing

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it for one hour at 100, 200 or 300 °C. A large number of dislocation loops, measuring 300 - 500 Å, were observed in specimens aged at 200 °C. The number of dislocation loops decreased after ageing at 300 °C but their size increased to 800 - 1 000 Å. Similar effects had been observed previously in other alloys. Other effects of quenching from high temperatures are demonstrated in Fig. 2, where the hardness (HV, kg/mm^2) is plotted against the ageing temperature (°C) for specimens preliminarily quenched (curve 1) or slowly cooled (curve 2) from 900 °C. It will be seen that the ageing-induced hardness of the preliminarily quenched specimens was always higher than that of material that had been slowly cooled before ageing. This difference, which cannot be explained in terms of the disorder-order transformation, is obviously associated with the presence of dislocation loops in the quenched specimens, it having been shown by Mori, Meshii and Kauffman (Acta met., 1961, 9, no. 1, 71) that dislocation loops brought about a marked increase in the strength of alloys, this effect persisting even at relatively high temperatures. The results of the present investigation show

S/659/62/008/000/021/028
I048/I248

AUTHORS: Panin, V.Ye., Zenkova, E.K., Fedin, V.P., and Kudryavtseva, L.A.

TITLE: The problem of high-temperature diffusion transformations in solid solutions

SOURCE: Akademiya nauk SSSR. Institut metallurgii, Issledovaniya po zharoprochnym splavam. v.8. 1962. 161-168

TEXT: The alloys (Cu + 14.9% Al, Cu + 14.9% Al + 0.025% P, Cu + 14.9% Al, + 0.06% P, all percentages atomic) were homogenous solid solutions up to 1030°C. The electric resistivity of the alloys (ρ), measured at room temperature, was a function of the quenchin temperature (T_q), reaching a maximum value of 10.48 and 11.02 microohm. cm. for pure and P-containing alloys respectively at T_q=400-500°C. The ρ of the alloys quenched in water was higher than that of the alloys cooled in air. The hardness (H_v) - T_q relationship was similar to the ρ - T_q one, with $H_{v(max)}$= 55 kg./sq.mm. for the pure

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S/659/62/008/000/021/028
I048/I248

The problem of high-temperature diffusion...

alloy quenched from 450° in water. This indicates that the increase in ρ is not caused by excessiv vacancies in the alloy, and that the P from the P-containing alloys combines with the vacancies reducing their mobility. Both ρ and H_v in the alloys quenched from 700°C are lower than in non-quenched specimens, indicating the existence of a highly ordered structure in the alloys quenched from high-temperatures. During annealing, ρ decreases with time at the annealing temperature, the decrease in the pure alloys being much larger than in the P-containing ones, i.e., the stability of the quenched state is much higher in P-containing alloys. The energy of activation of the diffusion processes increases with the P content of the alloy and reaches 35±3.7 kcal./mole in an alloy containing 0.06% P, which is almost twice the value for the pure Cu-Al alloy; due to the decreased mobility of vacancies in the P-containing alloys. Diagrams show the effect of temperature on the electric resistivity and internal friction in the alloys. In the friction

S/139/62/000/003/018/021
E193/E383

AUTHORS: Panin, V.Ye., Fadin, V.P., Bobyreva, G.A.

TITLE: The effect of purity of the alloy on the character of ordering in solid Cu-Al solutions. I

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika, no. 3, 1962, 153 - 159

TEXT: It has been established in the course of several earlier investigations that the disorder-order transformation in Cu-Al alloys can be considerably affected by the degree of purity of the alloy. Since they were indications that P was one of the impurities responsible for the different behaviour of various specimens, the investigation described in the present paper was undertaken to study the effect of trace quantities of this element on the ordering transformation in the alloy under consideration. The experimental materials comprised a high-purity vacuum-melted alloy containing 14.3 at.% Al and two commercial-grade alloys containing 14.9 at.% Al and 0.025 or 0.7 wt.% P. Various test pieces were heated in vacuum at temperatures ranging from 100 - 800 °C and then cooled in air or

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water-quenched, after which they were aged isothermally at various temperatures or heated slowly through the disorder-order transformation range, the progress of the ordering transformation being studied by measuring the electrical resistivity and determining the temperature-dependence of both the electrical resistivity and specific heat of the test pieces. The activation energy of the process studied was also determined. Several conclusions were reached.

1) The disorder-order transformation temperature range is greatly affected by the degree of purity of the alloy and is shifted towards a higher temperature with increasing impurity content. Thus, for instance, the temperature corresponding to the maximum intensity of ordering in specimens containing 0.025 and 0.07% P, quenched from 500 °C and heated at a rate of 0.6 °C/min, was 137 and 227 °C, respectively.

2) With increasing P content, the activation energy for ordering in Cu-Al alloys increases, amounting to approximately 17 kcal/mole for the pure (P-free) material and 26 and 35 kcal/mole for specimens containing 0.025 and 0.07% P, respectively.

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The effect of purity S/139/62/000/003/018/021
E193/E383

ASSOCIATION: Sibirskiy fiziko-tekhnicheskiy institut pri Tomskom gosuniversitete imeni V.V. Kuybysheva (Siberian Physicotechnical Institute of Tomsk State University imeni V.V. Kuybyshev)

SUBMITTED: November 30, 1961

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S/139/62/000/003/012/021
E193/E383

AUTHORS: Kudryavtseva, L.A. and Panin, V.Ye.

TITLE: The temperature-dependence of internal friction of Cu-Al solid solutions

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika, no. 3, 1962, 93 - 98

TEXT: In undertaking the present investigation, the authors were prompted by the lack of understanding of the nature of transformations taking place in Cu-Al alloys and leading to anomalous variation in the properties of these alloys on heating. The main objective was to establish whether the alloys obeyed laws typical of ordering alloys and, if so, how these laws were affected by various factors such as thermal history of the alloy, presence of impurities, etc. To this end internal-friction measurements were carried out at temperatures between 18 and 700 °C on high-purity, vacuum-melted alloy containing 14.3 at.% Al and on commercial-grade Al bronzes (14.9 at.% Al) which, among other impurities, contained 0.025% phosphor. The results for the

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The temperature-dependence ....

high-purity alloy are reproduced in Fig. 1, where the internal friction (Q^{-1}) is plotted against temperature (^{o}C), curve 1 relating to homogenized material (6 hours at 900 ^{o}C, cooling at 50 ^{o}C/h to 600 ^{o}C, 3 hours at 600 ^{o}C, furnace-cooling to room temperature), curves 2-4 to specimens quenched from 500, 700 and 900 ^{o}C, respectively. Similar curves for the commercial-grade bronze are reproduced in Fig. 2. Several conclusions were reached.
1) The results obtained confirmed the view that the disorder-order transformation took place in the alloys studied.
2) The character of the temperature-dependence of internal friction of this alloy depended on its thermal history and the degree of its purity.
3) The internal-friction background increased with increasing quenching temperature, reached a maximum for a certain temperature T_o and then decreased again. Increasing the degree of purity of the alloy shifted T_o towards lower temperatures.
4) An additional internal-friction peak at 70 ^{o}C appeared in

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32215
S/150/61/000/004/
E073/E535

18.8200 1454

AUTHORS: Panin V Ye and Yelsukova T F

TITLE: On the stimulating effect of deformation on softening during extension

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy Fizika no 4 1961 23-27

TEXT: In earlier work the authors and their team studied the stimulating influence of deformation on the softening of polycrystalline copper during compression In the case of extension the deformation is more uniform and the stimulating effect on softening may be less pronounced The authors investigated this problem under various conditions of secondary high temperature deformation In the experiments 0 5 mm diameter 50 mm long copper wire was stretched at room temperature by 24% at a rate of 5%/min Following that some of these specimens were additionally stretched at a higher temperature at the rates of 0 135%/min and 30%/min, respectively For the duration of this deformation the remaining specimens were merely annealed at the same temperature Following that the resistance to deformation at room

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On the stimulating effect of ...

temperature of all the specimens was tested. The temperature range of the secondary deformation was so chosen that there should be no reversal during ordinary annealing at these temperatures. In the case of uniform tension, this range may be large and in the given case amounted to about 230°C. The investigations have shown that the stimulating effect of deformation also exists in the case of extension but compared to compression it is less pronounced and will not always occur. Fig 1 shows the obtained results (true stress, kg/mm^2 vs. reduction, %). Curve 1 relates to specimens not additionally deformed (i.e. which were only annealed); curve 2 relates to specimens that have been additionally stretched by 1.5% at 200°C at a rate of 0.135%/min. Curve 3 relates to specimens which have been annealed only at 200°C after being preliminarily stretched at 20°C; curve 4 relates to specimens that have been additionally deformed at 200°C after being preliminarily stretched at 20°C. According to curves 3 and 4 the specimens that have been additionally stretched at 200°C have a resistance to deformation during subsequent stretching about 0.7 - 0.1 kg/mm^2 lower than specimens which have been

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On the stimulating effect of ...

annealed only at that temperature. For specimens for which the high temperature deformation was carried out at a rate of 30%/min, the difference dropped to only 0.2-0.3 kg/mm^2. If at this higher deformation rate the additional deformation was increased to 4%, the effect became negative. The authors did not arrive at final conclusions relating to the nature of the stimulating influence of the secondary deformation on softening, which is associated with elimination of preliminary work hardening at a lower temperature. The reduction of the low temperature work hardening depends on the speed and temperature of the second high temperature deformation. There are 1 figure and 20 references: 13 Soviet-bloc and 7 non-Soviet-bloc. The four latest English-language references read as follows: Ref.11: Titchener, M.B.Bever. Acta met., No.10, 1959; Ref.14: T. Broom, R.Ham. Vacancies and other Point Defects in Metals and Alloys, L., 1958; Ref.15: A.H.Cottrell, R.J.Stokes. Proc. Roy. Soc., A 233, No.1192, 1955-56; Ref.16: Adams, A.H.Cottrell. Phil.Mag., 46, No.382, 1955.

ASSOCIATION: Sibirskiy fiziko-tekhnicheskiy institut pri Tomskom gosuniversitete imeni V. V. Kuybysheva

PANIN, V.Ye.; YELSUKOVA, T.F.

Stimulating effect of a deformation on softening in tensile tests. (MIRA 14:10)
Izv.vys.ucheb.zav.; fiz. no.4:23-27 '61.

1. Sibirskiy fiziko-tekhnicheskiy institut pri Tomskom gosudarstvennom universitete imeni V.V.Kuybysheva.
(Deformation (Mechanics)) (Strength of materials)

MAKOGON, M.B.; PANIN, V.Ye.; SUKHOVAROV, V.F.

Stimulating effect of straining on softening during the deformation process. Issl.po zharopr.splav. 4:50-57 '59.
(MIRA 13:5)

(Metals--Cold working) (Deformations(Mechanics)

PANIN, V.Ye.; MAKOGON, M.B.

Anomaly of the temperature-rate dependence of the deformation resistance of aluminum bronze. Izv.vys.ucheb.zav.; fiz. no.3: 142-145 '60. (MIRA 13:7)

1. Sibirskiy fiziko-tekhnicheskiy institut pri Tomskom gosuniversitete im. V.V.Kuybysheva.
(Aluminum bronze)
(Deformations (Mechanics))

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/ 67911
SOV/20-129-5-17/64

AUTHORS: Panin, V. Ye., Zenkova, E. K.

TITLE: The Problem of Superstructure in Aluminum Bronze

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 129, Nr 5, pp 1024-1027 (USSR)

ABSTRACT: The present paper deals with a more detailed investigation of the ordering-phenomena in aluminum bronze and of the influence exerted by superstructure upon the course of the plastic deformation of the alloy at various temperatures and velocities. The investigations were carried out with an alloy, viz. a solid solution of Cu + 15.9 at% Al. The authors repeated earlier experiments concerning ascending diffusion and obtained the same results. In the case of the alloys under investigation, usual aluminum bronze thus appears to be concerned. In order to be able to investigate the state of the alloy, the specific heat C_p, the electric resistivity ρ, and the Vickers hardness H_V were measured at a load of 5 kg. Hardening temperature exerts considerable influence upon the state of the alloy. Alloy hardness increases with rising temperature within the interval of

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The Problem of Superstructure in Aluminum Bronze

400-600°, after which it decreases sharply until 900°. The electric resistivity here increases until 500°, decreases slightly at 600°, after which it rises again. This is apparently due to the decrease in the degree of the short-range order. In the case of a hardening temperature of more than 535°, the alloy approaches the solubility limit. With an increase in hardening temperature, especially to more than 535°, the alloy deviated more and more from equilibrium. Hereby the ordering process in the alloy is facilitated and the temperature of the specific heat minimum decreases. Especially, the state of the alloy quenched at 500° was thoroughly investigated by determining the kinetic tempering curves of the Vickers hardness H_V and the electric resistivity at various temperatures. The tempering isothermal lines of electric resistivity have the usual shape. Among the tempering isothermal lines for hardness the curve for 280° is, above all, conspicuous. It first has a sharp maximum, but later hardness decreases considerably and the curve takes a lower course than all other isothermal lines. Already a slight deviation of the tempering temperature from

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280° changes the shape of the isothermal lines considerably. The hitherto discussed results clearly indicate the existence of a superstructure in aluminum bronze. An alloy quenched at 500° is ordered at 280°. Naturally, the superstructure of aluminum bronze must become noticeable in its plastic deformation. This influence naturally depends on temperature and on the deformation rate. The authors investigated this during the compression of the alloy Cu + 15.9 at% Al at the velocities v_3 = 6 mm/min, v_2 = 0.05 mm/min, and v_1 = 0.005 mm/min within the temperature interval 20-600°. At from 20 to 200° the velocity exerted practically no influence on the resistivity to deformation. Also the deformation temperature influences the position of the flow curve only little. At 300° the velocity exerts an inverse influence upon resistivity to deformation, and the wave-like course of the flow-curves is distinctly marked. Within the entire temperature interval 20-300° deformation is jump-like. Above 300° temperature and velocity exert a normal influence upon resistivity to deformation. The results thus found agree well with the concepts on the super-

The Problem of Superstructure in Aluminum Bronze

structure in the alloy. The results obtained by the present paper apply to a less extent also to the alloy Cu + 10 at% Al. There are 4 figures and 11 references, 7 of which are Soviet.

ASSOCIATION: Sibirskiy fiziko-tekhnicheskiy nauchno-issledovatel'skiy institut pri Tomskom gosudarstvennom universitete im. V. V. Kuybysheva (Siberian Scientific Research Institute of Physics and Technology of Tomsk State University imeni V. V. Kuybyshev)

PRESENTED: August 6, 1959, by G. V. Kurdyumov, Academician

SUBMITTED: July 30, 1959

Card 4/4

BOL'SHANINA, M.A.; MAKOGON, M.B.; PANIN, V.Ye.

Temperature-rate relation in the resistance to deformation of copper and its alloys. Issl. po zharopr. splav. 3:189-205 '58. (MIRA 11:11)

(Copper alloys--Testing) (Deformations (Mechanics))
(Metals at high temperature)

S/139/60/000/03/026/045
E073/E314

AUTHORS: Panin, V.Ye and Makogon, M.B.

TITLE: Anomaly of the Temperature-speed Dependence of the Resistance to Deformation of Aluminium Bronze

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika, 1960, Nr 3, pp 142 - 145 (USSR)

ABSTRACT: The aim of the work described in this paper was to elucidate the influence of hardening processes on the progress of plastic deformation of aluminium bronze at various temperatures and deformation speeds. Investigations were carried out on an aluminium bronze Cu+ 15.9 at.% Al, which is a solid solution nearing the boundary of solubility. The investigations were carried out at various temperatures using various speeds of compression. The curve of the temperature dependence of the resistance to deformation shows an anomaly, namely, with increasing temperature the resistance to deformation drops slightly at first then increases to a maximum which is followed by a sharp drop. The temperature of the beginning of the

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S/139/60/000/03/026/045
E073/E335

Anomaly of the Temperature-speed Dependence of the Resistance to Deformation of Aluminium Bronze

intensive softening depends on the conditions of deformation; increase in the speed of deformation brings about a shift in this temperature towards elevated temperatures, whilst an increase in the degree of deformation brings about a decrease in the observed effect and may even lead to its cessation. In the range of anomalous temperature dependence of the mechanical properties, the deformation is in jumps and there is an anomaly in the dependence of the resistance-to-deformation on the deformation speed. Such anomalous temperature-speed dependence of the resistance-to-deformation was also observed to a lesser extent in the alloy Cu + 10 at.% Al. There are 3 figures and 13 references, 1 of which is international, 1 English, 1 Japanese (in English) and 10 are Soviet.

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S/139/60/000/03/026/045
E073/E335

Anomaly of the Temperature-speed Dependance of the Resistance to Deformation of Aluminium Bronze

ASSOCIATION: Sibirskiy fiziko-tekhnicheskiy institut pri Tomskom gosuniversitete imeni V.V. Kuybysheva (Siberian Institute of Physics and Technology of Tomsk State University imeni V.V. Kuybyshev)

SUBMITTED: July 6, 1959

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S/139/60/000/03/026/045
E073/E335

Anomaly of the Temperature-speed Dependence of the Resistance to Deformation of Aluminium Bronze

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Author : Panin, V.Ya.
Institut. : Institute of Zoology, Academy of Sciences KazSSR
Title : Variability of Morphologic Signs and Its Importance in the Classification of the Trematodes of the Genus Prosthogonimus Luhe, 1909

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Abstract : On the basis of an analysis of the variations in morphologic signs in the genus Prosthogonimus, signs were demonstrated which had taxonomic significance (position of the caudal limits of the vitellaria with respect to the testes, the position of the ovaries with respect to the ventral sucker, and the position of the uterine loop with respect to the branches of the intestine and the ventral sucker). Revision was carried out in the genus, as a result of which the genus Prosthogonimus now contains 7 species. Determinative tables, detailed descriptions, and information on the biology of these species are given. Bibliography 47 titles. - T.A.Ginetsinskaya

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