BOL'SHAM, Ya.M.

Concerning the installation of lightning arresters in the pipes of building ventilating systems. Prom.energ. 16 no.5:61 My '61. (MIRA 14:7)

(Lightning protection)

KARVOVSKIY, Georgiy Antonovich; OKOROKOV, Sergey Petrovich; BOL'SHAM, Ya.M., FRIDKIN, L.M., tekhn. red.

[Handbook on asynchronous motors and start-regulating equipment] Spravochnik po asinkhronnym dvigateliam i puskoreguliruiushchei apparature. Moskva, Gosenergoizdat, 1962. 207 p. (MIRA 15:9)
(Electric motors, Industion--Handbooks, manuals, etc.)
(Electric motors--Starting devices)

KHORUNZHIY, Valentin Alekseyevich; RIBAS, Yuriy Mikhaylovich; NEDOSEKOV, Svyatoslav Semenovich; BOL'SHAM, Ya.M., retsenzent; BERSHITSKIY, M.D., red.; BUL'DYAYEV, N.A., tekhn. red.

[Explosionproof electrical equipment] Vzryvozashchishchennoe elektrooborudovanie. Moskva, Gosenergoizdat, 1962. 319 p. (MIRA 16:8)
(Electric apparatus and appliances--Safety measures)

GREYSUKH, M.V.; YERMILOV, A.A.; ZALESSKIY, Yu.Ye.; KAZYMOV, A.A.; KATSEVICH, L.S.; KIRPA, I.I.; KIREYEV, M.I.; KNYAZEVSKIY, B.A.; KOFMAN, K.D.; KRZHAVANIK, L.V.; KUZNETSOV, P.V.; MOROZOV, K.S.; RAKOVICH, I.I.; RYABOV, M.S.; SVENCHANSKIY, A.D.; SOKOLOV, M.M.; SYCHEV, L.I.; TVERDIN, L.M.; KHEYFITS, M.E.; SHULIMOV, Ye.V.; EPSHTEYN, L.M.; SHCHEGOL'KOV, Ye.I.; TSAPENKO, Ye.F.; FEDOROV, A.A., glav. red.; SERBINOVSKIY, G.V., red.; BOL'SHAM, Ya.M., red.; BRANDENBURGSKAYA, E.Ya., red.; TVERDIN, L.M., red.; FRIDKIN, L.M., tekhn. red.

[Handbook for power engineers of industrial enterprises in four volumes] Spravochnik energetika promyshlennykh predpriiatii v chetyrekh tomakh. Moskva, Gosenergoizdat. Vol.2. [Electric-power supply (conclusion), use of electric power and electrical equipment in some branches of industry] Elektrosnabzhenie (okonchanie), priemniki elektroenergii i elektrooborudovanie nekotorykh otraslei promyshlennosti. Pod obshchei red. A.A.Fedorova (glav. red.), G.V.Serbinovskogo i IA.M.Bol'shama. 1963. 880 p. (MIRA 16:7)

(Power engineering—Handbooks, manuals, etc.)
(Electric power distribution)

SOKOLOV, B.A., inzh., red.; ZHIVOV, M.S., inzh., red.; BOL'SHAM, Ya.M., inzh., red.; KUZNETSOV, M.P., inzh., red.; ZIL'BERMAN, R.I., inzh., red.; IFTINKA, G.A., red.izd-va; MOCHALINA, Z.S., tekhn. red.

[Construction specifications and regulations] Stroitel'nye normy i pravila. Moskva, Gosstroiizdat. Pt.3. Sec.I. ch.6.[Electrical systems; regulations for organizing and carrying out the work, acceptance of the works] Elektrotekhnicheskie ustroistva; pravila organizatsii i proizvodstva rabot, priemka v ekspluatatsiiu (SNiP III-I. 6-62) 1963. 134 p. (MIRA 16:10)

1. Russia (1923- U.S.S.R.) Gosudarstvennyy komitet po delam stroitel'stva. 2. Gosudarstvennyy komitet po delam stroitel'stva SSSR (for Sokolov). 3. Mezhduvedomstvennaya komissiya po peresmotru stroitel'nykh norm i pravil Akademii stroitel'stva i arkhitektury SSSR (for Zhivov). 4. Gosudarstvennyy proyektnyy institut Ministerstva stroitel'stva RSFSR (for Bol'sham, Kuznetsov). 5. Vsesoyuznyy gosudarstvennyy proyektnyy institut Ministerstva energetiki i elektrifikatsii SSSR (for Zil'berman).
(Electric power distribution)

ANASTASIYEV, P.I.; BROSTREM, A.A.; VESHENEVSKIY, S.N.; GEL'MAN, G.A.; GORNSHTEYN, L.A.; ZIMENKOV, M.G.; KARVOVSKIY, G.A.; KIBLITSKIY, V.A.; KLEYN, P.N.; KLIMIKSEYEV, V.M.; KLYUYEV, S.A.; KNORRING, G.M.; KORENEVSKIY, A.N.; LEYBZON, Ya.I.; LIVSHITS, D.S.; LIGERMAN, I.I.; LOGINOV, O.I.; MILICH, M.B.; NAYFEL'D, M.R.; OKOROKOV, S.P.; POLYAK, A.B.; ROYZEN, S.S.; RYABOV, M.S.; SINITSYN, O.A.; SOLODUKHO, Ya.Yu.; SOSKIN, E.A.; STASYUK, V.N.; BOL'SHAM, Ya.M., red.; GRACHEV, V.A., red.; SAMOVER, M.L., red.; BORICHEV, I. Ye., red.; DANILENKO, A.I., red.; KHRAMUSHIN, A.M., red.; YAKUBOVSKIY, F.B., red.; BRENDENBURGSKAYA, E.Ya., red.; KOMAR, M.A., red.; BORUNOV, N.I., tekhn. red.

[Handbook on electrical systems of industrial enterprises in four volumes] Spravochnik po elektroustanovkam promyshlennykh predpriiatii v chetyrekh tomakh. Pod obshchei red. I.E. Borichova i dr. Moskva, Gosenergoizdat. Vol.1. [Design of electrical systems of industrial enterprises in two parts] Proektirovanie elektroustanovok promyshlennykh predpriiatii v dvukh chastiakh. Pt.2. Pod red. IA.M.Bol'shama i dr. 1963. 598 p. (MIRA 17:3)

LIGERMAN, Iosif Izrailevich; BOL'SHAM, Ya.M., inzh., retsenzent

[Design of electric equipment of rolling mills] Konstruirovanie elektricheskikh ustanovok prokatnykh tsekhov. Izd. 2., perer. i dop. Moskva, Izd-vo "Metallurgiia," 1964. 366 p. (MIRA 17:7)

RAKOVICH, Ivan Iokhelevich; BOL'SHAM, Ya.M., red.

[Electrical equipment of premises with explosion hazards] Elektrooborudovanie vzryvoopasnykh proizvodstv. Moskva, Energiia, 1964. 397 p. (MIRA 17:10)

L 22593-66

ACC NR: AP6013000 SOURCE CODE: UR/0105/65/000/006/0091/0091

AUTHOR: Bamdas, A. M.; Bol'sham, Ya. M.; Borchaninov, G. S.; Glazunov, A. A.; Zalesskiy, A. M.; Konstantinov, B. A.; Livshits, D. S.; Lychkovskiy, V. L.; Miller, G. R.; Petrov, I. I.; Pleskov, V. I.; Samover, M. L.; Syromyatnikov, I. A.; Chilikin, M. G.

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B

ORG: none

TITLE: Professor Yu. L. Mukoseyev (on the occasion of his 60th birthday)

SOURCE: Elektrichestvo, no. 6, 1965, 91

TOPIC TAGS: scientific personnel, electric power production

ABSTRACT: Professor Yuriy Leonidovich Mukoseyev, 60, chairman of the department "Elektrosnabzheniye promyshlennykh predpriyatiy i gorodov (Electrical Supply of Industrial Enterprises and Cities)" of the Gor'kovskiy politekhnicheskiy institut (Gor'kiy Polytechnic Institute) began his studies at the Gorkiy (Nizhegorod) University. After several years at the "Krasnoye Sormovo" plant he joined in 1935 the Glavelektromontazh system where in 27 years he advanced to the position of chief engineer of the Gorkiy section of the designing institute Elektroproyekt. In 1951 he published his book "Voprosy elektrosnabzheniya promyshlennykh predpriyatiy (Problems of Electrical Supply of Industrial Enterprises)"; in 1956 at the Moskovskiy energeti-

Card 1/2 UDC: 621.311

L 22593-66

ACC NR: AP6013000

cheskiy institut (Moscow Power Institute) he defended his thesis "Distribution of Alternating Currents in Current Conductors". He became professor in 1960. From 1939 he has been continously the vice-president of the Gorkiy board of the Scientific-Engineering Society of Power Engineers (NTO energetikov). Recently, Yu. L. Mukoseyev participated in the work of the Uchebno-metodicheskaya komissiya MV (Pedagogical-Methodological Commission of the Ministry of Armament) and of the SSO [?] USSR for the Electrical Supply of Industrial Enterprises and of Cities." Orig. art. has: 1 figure. [JPRS]

SUB CODE: 10 / SUBM DATE: none

Card 2/2

UDC 22510-66

ACC NR: AP6012975 SOURCE CODE: UR/0094/65/000/009/0043/0043

AUTHOR: Bol'sham, Ya. M.; Vinogradov, A. A.; Volobrinskiy, S. D.; Geyler, L. B.; Grudinskiy, P. G.; Dolginov, A. I.; Zil'berman, R. I.; Kazak, N. A.; Kletenik, B. I.; Knyazevskiy, B. A.; Livshits, D. S.; Mel'nikov, N. A.; Minin, G. P.; Mukoseyev, Yu. L.; Nayfel'd, M. R.; Petrov, I. I.; Ravin, V. I.; Samover, M. L.; Serbinovskiy, G. V.; Syromyatnikov, I. A.

ORG: none

TITLE: Lev Veniaminovich Litvak (on the occasion of his 60th birthday)

SOURCE: Promyshlennaya energetika, no. 9, 1965, 43

TOPIC TAGS: electric engineering personnel, electric power engineering

ABSTRACT: The noted specialist of industrial power production, Candidate of Technical Sciences, Docent of the Correspondence Power Institute Lev Veniaminovich LITVAK began his engineering activity at the Moscow Association of State Electric Stations in 1929. Later he became one of the coauthors of all the "Directives for the increase of the power factor" issued in 1954, 1955, and 1961. He published 70 scientific papers. For his successful activities in defense industries during World War II he was decorated by "Znak Pocheta." After the war he concentrated on scientific-pedagogical work and in recent years worked actively in

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ACC NR: AP6012975

the Teaching-Methodological Commission of the Ministry of Higher and Intermediate Special Education USSR, for the specialty "Electrical supply to industrial enterprises and cities." Orig. art. has: 1 figure. [JPRS]

SUB CODE: 05, 10, 09 / SUBM DATE: none

Card 2/2 BK

L 27947-66

ACC NR: AP6017709 SOURCE CODE: UR/0105/66/000/001/0086/0086

AUTHOR: Avilov-Karnaukhov, B. N.; Bol'sham, Ya. M.; Venikov, V. A.; Volobrinskiy, S. D.; Yermilov, A. A.; Konstantinov, B. A.; Knyazevskiy, B. Ye.; Minin, G. P.; Miller, G. R.; Mukoseyev, Yu. L.; Petrov, I. I.; Serbinovskiy, G. V.; Syromyatnikov, I. A.; Fedorov, A. A.; Kholmskiy, G. V.; Shagalov, A. S.; Chilikin, M. G.

ORG: none

TITLE: Prof. Georgiy Mikhaylovich Kayalov (on his 60th birthday)

SOURCE: Elektrichestvo, no. 1, 1966, 86

TOPIC TAGS: academic personnel, electric engineering personnel, electric equipment

ABSTRACT: In 1929, G. M. Kayalov completed the electrotechnical department of the Mechanical Faculty of the Novocherkassk Polytechnical Institute. Until 1947, he worked in the planning department of the Rostov Division of the All-Union Electrotechnical Union. In this time, he rose to the position of Chief Engineer. He directed the planning of a large number of important pieces of electrical equipment for various projects. He was active in the postwar restoration of many important industrial enterprises. He is the author of almost 70 published works, and has made a great contribution to modern, scientifically based methods of design and analysis of electrical loads for industrial equipment. He is on a number of commissions and in many scientific and technical societies. Orig. art. has: 1 figure. [JPRS]

SUB CODE: 09 / SUBM DATE: none

Card 1/1 BLG UDC: 621.34

BOL'SHAKOV, A. T. Cand Tech Sci

Dissertation: "On the Problem of Studying the Horizontal Deformations and Motions of Earth's Crust by Geodesic Methods."

24/3/50

Moscow Inst of Engineers of Geodesy, Aerial Photography and Cartography.

SO Vecheryaya Moskva
Sum 71

BOL'SHANIN, B.I.

Conversion of geodetic coordinates to rectangular ones and the other way around with the help of special tables. Izv.TPI 93:191-207 '58. (MIRA 13:5)
(Mine surveying)

L 60409-65 EWT(1) GW

ACCESSION NR: AR5014338 UR/0270/65/000/005/0032/0032
5.52.231:528.236

SOURCE: Ref. zh. Geodeziya. Otdel'nyy vypusk, Abs. 5.52.232

AUTHOR: Bol'shanin, B. I.

TITLE: Tables of rectangular coordinates and the switch from geodetic to rectangular coordinates and back according to a new method

CITED SOURCE: Dokl. 3-y Sibirsk. konferentsii po matem. i mekhan., 1964. Tomsk, Tomskiy un-t, 1964, 292-293

TOPIC TAGS: geodetic coordinate, rectangular coordinate, coordinate system conversion, Gauss coordinate

TRANSLATION: A proposal is made for switching from the geodetic system of coordinates to the Gauss system of rectangular coordinates (and back) with the aid of tables: basic tables, containing x and y values up to 0.0001 m for multiple of 5' of latitude and longitude in the range from 45 to 60° E, and l from 0 to 3°30', and additional tables serving to simplify interpolation. The possibility is noted

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ACCESSION NR: AR5014338

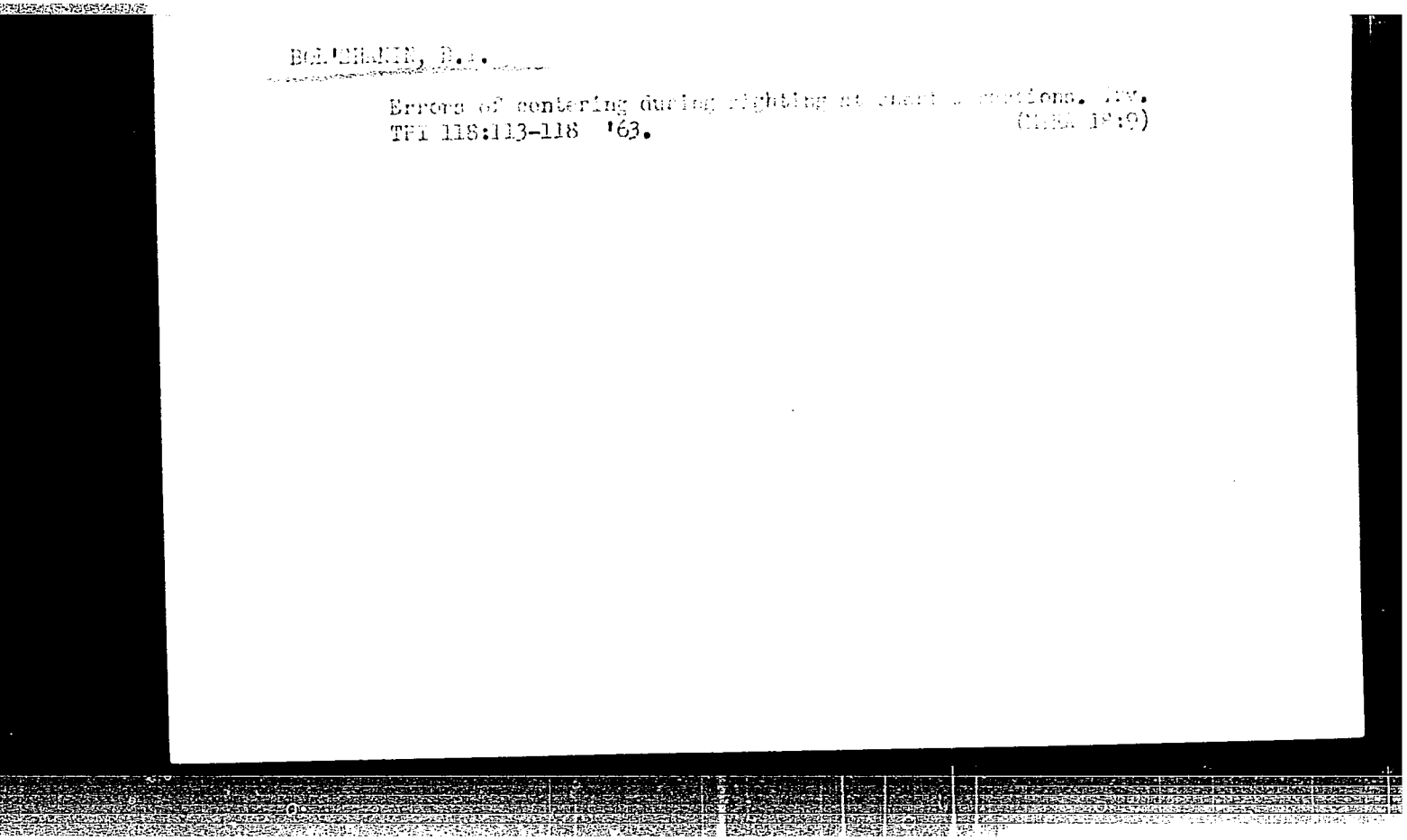
of using these tables for transition from one zone to another. The substance of the method has been previously published in greater detail (RZhMatr., 1960, No. 5, 4729).

SUB CODE: ES ENCL: 00

Card 2/2

BOL'SHEV, D.I.; REYMAN, I.A.

Operations with multiple-digit numbers. Izv. TPI 118:19-45 '63.
(MIRA 18:9)



BOLTON, D.

Errors of centering during sighting at short [illegible] motions. Percept. Mot. Skills 18:113-118 '63. (Illus. 1:9)

L 56076-65 EWT(m)/EWP(w)/EWA(d)/T/EWP(t)/EWP(z)/EWP(b)/EWA(c) IJP(c) JD

ACCESSION NR: AP5013809 UR/0126/65/019/005/0714/0721
539.292; 548.0 : 539

AUTHOR: Bol'shanina, M. A.; Yelsukova, T. F.

TITLE: Reinforcement of grain boundaries by alloy elements

SOURCE: Fizika metallov i metallovedeniye, v. 19, no. 5, 1965, 714-721

TOPIC TAGS: grain boundary, fatigue breakdown, tellurium containing alloy, antimony containing alloy, grain displacement, lead alloy deformation resistance, ternary alloy, slip line / MIM-7 microscope

ABSTRACT: The reinforcement of grain boundaries by alloying is of major interest considering that diffusion plasticity and grain-boundary effects become major factors in the fatigue breakdown of alloys in the presence of high temperatures and low deformation rates. Numerous studies have shown that the adsorption of even negligible amounts of impurities over the grain boundaries may markedly affect the mechanical properties of alloys. This problem was encountered by the authors when developing vibration-resistant lead alloys for cable sheaths. Antimony and tellurium were selected as the additives, since both are relatively insoluble in lead and have high coef-

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L 56076-65

ACCESSION NR: AP5013809

ficients of atomic disparity and therefore tend to concentrate at grain boundaries. Ingots of alloys based on pure lead (99.99%) with 0.5% Sb, 0.02% Te, 2% Tl, and 0.5 Sb + 0.02% Te, were homogenized at 270°C for 48 hr and rolled into 1.2 mm thick strips from which flat specimens were die-punched for metallographic examinations. After their annealing, the specimens were chemically polished and etched. Thin lines were etched in polished specimens and the relative displacement of grains was determined from the rupture in these lines at the point of intersection with the boundary between two grains. After this the specimens were subjected to tensile tests at the rates of v_1 = 0.1 and v_3 = 30%/min at room temperature. The structure arising as a result of the deformation was examined with the aid of a MIM-7 microscope. In addition, wire specimens stretched at the same two rates in the presence of 17-22, 70, 120, 170, 220, and 250°C were investigated to determine the degree of deformation ε. At room temperature antimony proved to be more effective in increasing deformation resistance than tellurium and thallium, since it enters the solid solution in greater concentrations. At high temperatures (200-250°C) and low deformation rates tellurium proved to be the most effective. Thus the ternary Pb-Sb-Te alloy is particularly advisable, since its antimony considerably strengthens the body of the grain

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L 56076-65

ACCESSION NR: AP5013809

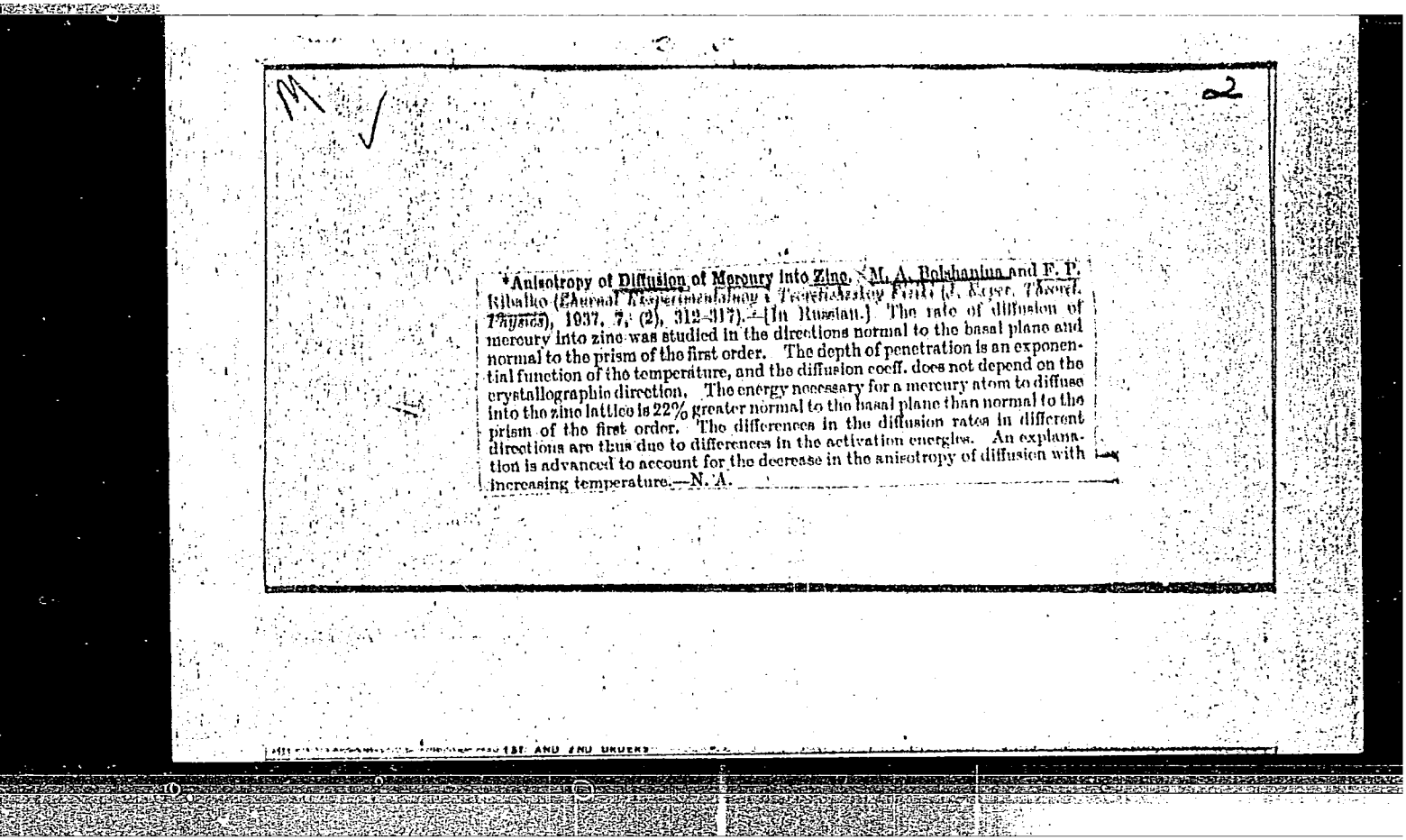
while its tellurium, in the authors' opinion, mainly strengthens the grain boundaries, so that this alloy is suited for both high and low temperatures and is, among alloys of this kind, the most resistant to fatigue breakdown. The effect of the alloying on the displacement along grain boundaries was microstructurally investigated. Since the alloy elements strengthen the grain body, the slip lines, as was to be expected, in the alloys were more rectilinear, finer, and closer to each other than in unalloyed lead. Orig. art. has: 5 figures, 2 tables.

ASSOCIATION: Sibirskiy fiziko-tekhnicheskiy institut (Siberian Physico-technical Institute)

SUBMITTED: 04May64 ENCL: 00 SUB CODE: SS, MM

NO REF SOV: 010 OTHER: 025

Card 3/3



M V

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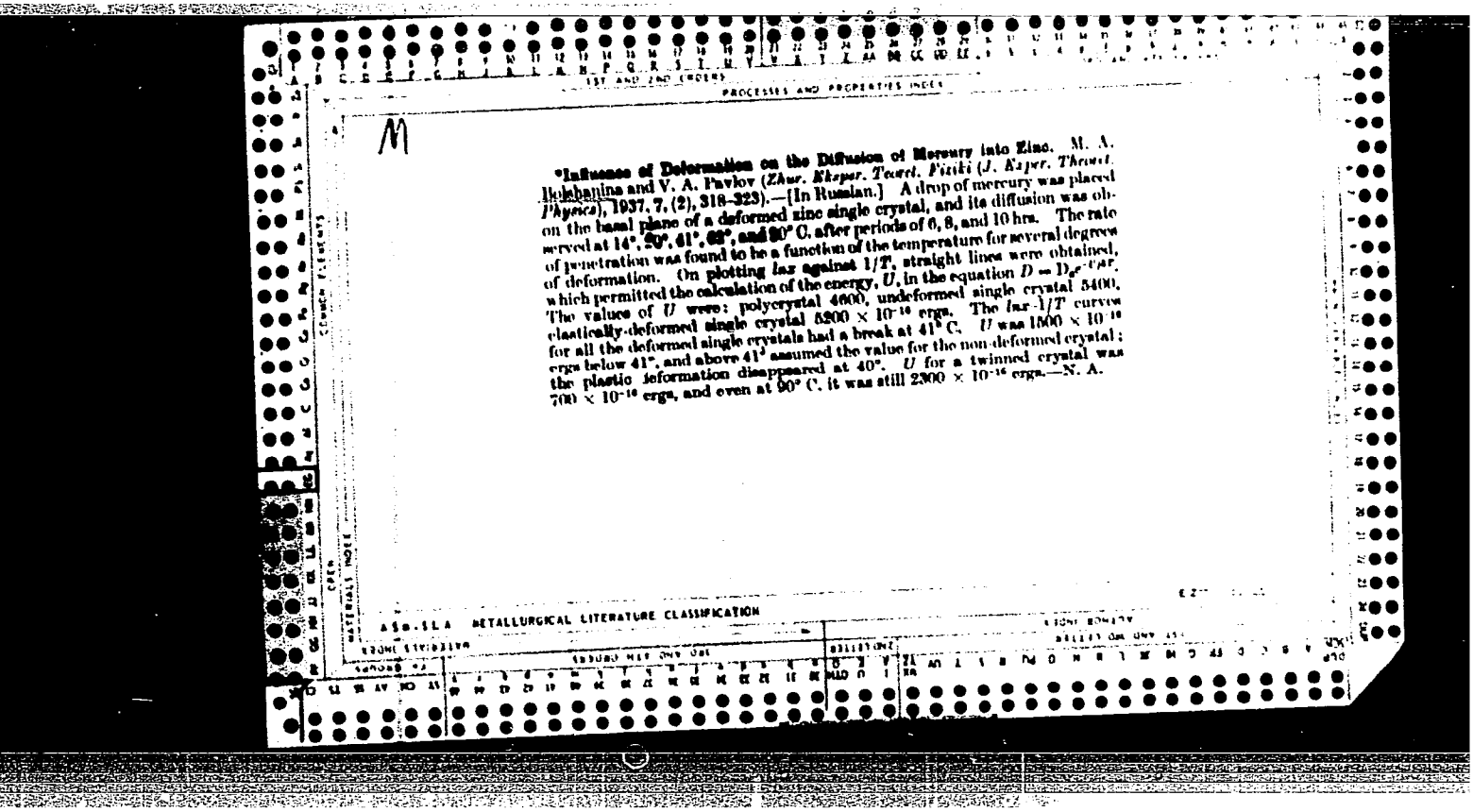
*Anisotropy of Diffusion of Mercury into Zinc. M. A. Bolshanina and F. P. Sibalko (Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki [J. Exper. Theoret. Physics], 1937, 7, (2), 312-317). [In Russian.] The rate of diffusion of mercury into zinc was studied in the directions normal to the basal plane and normal to the prism of the first order. The depth of penetration is an exponential function of the temperature, and the diffusion coeff. does not depend on the crystallographic direction. The energy necessary for a mercury atom to diffuse into the zinc lattice is 22% greater normal to the basal plane than normal to the prism of the first order. The differences in the diffusion rates in different directions are thus due to differences in the activation energies. An explanation is advanced to account for the decrease in the anisotropy of diffusion with increasing temperature.—N. A.



PROCESSES AND PROPERTIES INDEX

1ST AND 2ND ORDERS

M

Influence of Deformation on the Diffusion of Mercury into Zinc. M. A. Ilyukhanina and V. A. Pavlov (*Zhur. Eksper. Teoret. Fiziki* (*J. Exper. Theoret. Physics*), 1937, 7, (2), 318–323).—[In Russian.] A drop of mercury was placed on the basal plane of a deformed zinc single crystal, and its diffusion was observed at 14°, 20°, 41°, 62°, and 90° C, after periods of 6, 8, and 10 hrs. The rate of penetration was found to be a function of the temperature for several degrees of deformation. On plotting $\log x$ against $1/T$, straight lines were obtained, which permitted the calculation of the energy, U, in the equation $D = D_0 e^{-U/RT}$. The values of U were: polycrystal 4600, undeformed single crystal 5400, elastically-deformed single crystal 5200 × 10^{-16} ergs. The $\log x$–$1/T$ curves for all the deformed single crystals had a break at 41° C. U was 1800 × 10^{-16} ergs below 41°, and above 41° assumed the value for the non-deformed crystal; the plastic deformation disappeared at 40°. U for a twinned crystal was 700 × 10^{-16} ergs, and even at 90° C, it was still 2300 × 10^{-16} ergs.—N. A.

A50.51A METALLURGICAL LITERATURE CLASSIFICATION

BOL'SHANINA, Maria Aleksandrovna

Professor of Physics and Technical Institute

"Physics of the Solid Body" (Co-author)

Soviet Source: N: Stalinskiy Komsomol'sk
Komsomol'sk Na Amure 8 August 45

CA

9

Hardening and relaxation as fundamental phenomena in plastic deformation. M. A. Bul'shanina. *Izvest. Akad. Nauk S.S.S.R., Ser. Fiz.* 14, 223-31(1950).—Based on the assumption that hardening is proportional to the relative deformation and that relaxation is proportional to time, an equation for a flow curve is developed to replace Maxwell's equation: $\sigma = \sigma_0 (l/l_0)^{b-a\dot{\epsilon}}$ (a and b consts., $\dot{\epsilon}$ is rate of deformation). An improved flow curve should consist of 2 parts given by $\sigma/(\sigma - u) = c((l/l_0)^{a\dot{\epsilon}})$ where c, u, σ_0 are consts. and $\sigma = \sigma_0 (l/l_0)^{b-a\dot{\epsilon}}$ ($\sigma = b - (a\dot{\epsilon})$). For different rates $\dot{\epsilon}$, different stresses σ are necessary to obtain the same deformation. The coeff. σ_1/σ_2 corresponding to $\dot{\epsilon}_1$ and $\dot{\epsilon}_2$ is called the dynamic coeff. Measurements on Pb show that this coeff. diminishes at low temp. Tests with Sn, Pb, Al, Cu, and Fe show that the dynamic coeff. is higher in lower melting metals. Knowledge of the dynamic coeff. is important in metallurgical work. During dynamic deformation the lattice is more distorted than during static deformation and therefore the resistance to static deformation increases with the rate of a primary dynamic deformation. Examples are given of the change of properties as a result of dynamic deformation.

S. Pakswer

BOL'SHANINA, M. A.

PHASE I BOOK EXPLOITATION 225 Rev.

Tomsk. Universitet. Sibirskiy fiziko-tekhnicheskiy institut.

Issledovaniya po fizike tverdogo tela (Research in the Physics of Solids) Moscow, Izd-vo AN SSSR, 1957. 277 p. 4,000 copies printed.

Resp. Ed.: Bol'shanina, M. A., Dr. of Physical and Mathematical Sciences, Prof.; Ed. of Publishing House: Bankvitser, A. L.; Tech. Ed.: Kashina, P. S.

Approved for printing: Akademiya nauk SSSR. Otdeleniye fizikomatematicheskikh nauk.

PURPOSE: This collection of articles is meant for metallurgical physicists and for engineers of the metalworking industry.

COVERAGE: This book contains results of research in the field of failure and plastic deformation of materials, mainly of metals. The work was conducted along two main lines: 1) study of the physical principles of plasticity, study of the effect of temperature, rate of deformation, character of alloys, etc., on the mechanical properties, and 2) the study of the cutting, wear, and friction characteristics of metals and alloys. This collection is

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dedicated to Vladimir Dmitriyevich Kuznetsov, Corresponding Member of the Academy of Sciences of the USSR, Professor, Doctor of Physical and Mathematical Sciences. The physicists of the Tomsk State University Siberian Physics-technical Institute (SFTI) and other scientists participated in this work.

TABLE OF CONTENTS:

Personalities mentioned are Kosenko, I. A., In'shakov, N. N., Seredenko, B. N., Khrushchov, M. M., Professor, Radchik, V. S., and Radchik, A. S. Wear-testing machines used were the type A Ye.-5 and type MI; materials tested, steel 45, bronze BrAZhMts, and plexiglass; lubricant used, type MS plus abrasive. There are 3 figures, 2 tables, and 13 references, 12 of which are Soviet.

Kiselev, G. I. Effect of Scale on the Scratch Test of Metals 49

Personalities mentioned are Davidenkov, N. N., Savitskiy, K. V., and Kudryavtseva, L. A., from SFTI; Gogoberidze, D. B. and Maslov, Ye. N. Materials tested were lead, tin, copper, iron, brass L-62, and aluminum; cutting points used, ShKh 15, hard alloy VK -8, and a diamond point. The testing machine was developed by SFTI. Microscope used was the type MIS -11. There are 5 figures, 2 tables, and 8 references, 7 of which are Soviet.

Personalities mentioned are Kuznetsov, V. D., Rebinder, A. P., Shreyner, L. A., Loskutov, A. I., Boyarskaya, Yu. S., Maslov, Ye. N., Troitskiy, A. V., Kachalov, N. N., Kashcheyev, V. N., and Fersman, A. Ye. Materials studied were the monocrystals of alkali metal halides. There are 2 figures, 4 tables, and 11 Soviet references.

Nikitina, A. K., and Bol'shanina, M. A. Effect of the Rate of Deformation on the Softening of Copper 146

Personality mentioned is Lashko, N. F. Material tested was Ml. There are 3 figures, 1 table, and 7 Soviet references.

Zhdanova, V. N. X-Ray Study of Structural Defects in Metals Due to Tensile Deformation 152

Personalities mentioned are Kurdyumov, G. V., Kritskaya, V. K., Il'ina, V. A., Lysak, L. I., Vasil'yev, L. T., and Umanskiy, Ya. S. Materials tested were aluminum, copper, and nickel. There are 3 figures, 1 table, and 7 Soviet references.

Personalities mentioned are Veynberg, B. P., Kuznetsov, V. D., and Ioffe, A.F. Materials used were alloy prepared from aluminum AV000 and electrolytic magnesium. There are 6 figures and 18 references, 9 of which are Soviet.

Personalities mentioned are Bol'shanina, M. A., Khotkevich, V. I., Kunin, N. F., Senilov, G. V., Fedorov, A. A., Degtyarev, M. M., Studenok, Yu.A., Panin, V. Ye., Tyzhnova, N. V., Fastov, N. S., Shermergor, T. D., Nikitina, A.K., Shelepukhin, P. R., Gruzin, P. L., and Milevskaya, V. G. Materials studied were copper, aluminum, nickel, steel, steel 3, iron, brass, bronze, zinc, silver, and tin. There are 19 figures, 4 tables, and 64 references, 23 of which are Soviet.

Personalities mentioned are Samoylov, V. N., Obolentsev, A. V., and Vasil'yev, L. I. Materials studied were a total of 13 lead alloys: binary alloys of lead with antimony, tin, cadmium, bismuth, and tellurium; ternary alloys of lead-antimony-tin, lead-antimony-tellurium, lead-antimony-arsenic, lead-antimony-sodium, and lead-antimony-selenium; quaternary alloys of lead-antimony-tin-copper and lead-tin-bismuth-arsenic. Research was done from specifications of the Tomsk Cable Plant "Tomkabel" with the participation of engineers of this plant. There are 4 figures, 3 tables, and 4 Soviet references.

Bol'shanina, M. A., Yelsukova, T. F., Kondrat'yev, P. A., and Fomina, M.A. Vibrational Stability of Certain Lead Alloys Used for Cable Sheathing, Part 2. 242

Personalities mentioned are Zakharov, P. A., Pereslegin, V. A., Dnestrovskiy, N. Z., and Shpagin, A. I. Materials studied included 19 different lead alloys: binary alloys of lead-antimony, lead-cadmium, lead-tin, lead-bismuth, and lead-tellurium; ternary alloys of lead-antimony-tin, lead-antimony-sodium, lead-antimony-arsenic, lead-antimony-tellurium, and lead-antimony selenium; quaternary alloys of lead-antimony-

tin-copper and lead-antimony-bismuth-arsenic. There are 17 figures, 4 tables, and 12 references, 3 of which are Soviet, 1 German, and 8 in English.

Kiselev, G. I. and Ilyushchenkov, M. A. Physical and Mechanical Properties of Low-Carbon Steel 262

Personalities mentioned are Shramkov, Ye. G., Akulov, N. S., and Lifshits, B. G. There are 9 figures, 3 tables, and 16 references, 13 of which are Soviet.

Karpenko, G. V. Universality of the Adsorption Effect of Hardness Decrease in Metals 273

Personalities mentioned are Aslanova, M. S., Chayevskiy, M.I., Markova, N. Ye., Rebinder, P. A., and Likhtman, V. I. Materials used were the steel ShKh 15 and brass L-62. There are 9 Soviet references and 1 figure and 1 table.

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9-11-58

SOV/124-58-11-13596

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 11, p 229 (USSR)

AUTHORS: Bol'shanina, M. A., Donets, A. T.

TITLE: On the Influence of the Strain Rate on the Relaxation Process (K voprosu o vliyanii skorosti deformatsii na protsess relaksatsii)

PERIODICAL: Izv. vyssh. uchebn. zavedeniy. Fizika, 1957, Nr 1, pp 17-22

ABSTRACT: Stress relaxation was studied following the twisting of tubular aluminum specimens at various rates of deformation (from 0.025 to 74.4 rpm) and at various temperatures (from 17 to 400°C). The mean rate of relaxation was evaluated by the recovery coefficient a, which was determined from the "torque moment vs. time" curve according to the formula $a = \Delta M/M_0\Delta t$, where M_0 is the torque corresponding to the end of the deformation and the beginning of relaxation, ΔM is the decrease in torque during the time of relaxation Δt seconds. It is shown that with increasing rate of deformation the initial rate of relaxation grows, whereas the torque moment remains almost unchanged. The results obtained are explained by the presence of less stable distortions of the crystal lattice at greater rates of deformation. It is established that at temperatures up to 200° the mean rate of

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On the Influence of the Strain Rate on the Relaxation Process

relaxation is a linear function of the logarithm of the rate of deformation; at higher temperatures a more complex relationship is observed.

G. A. Tulyakov

SOV/137-58-10-21669

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 10, p 174 (USSR)

AUTHORS: Bol'shanina, M.A., Makogon, M.B., Panin, B.Ye.

TITLE: Resistance-to-deformation Properties of Copper and its Alloys as a Function of Temperature and Rate of Deformation (Temperaturno-skorostnaya zavisimost' soprotivleniya deformatsii medi i yeye splavov)

PERIODICAL: Dokl. 7-y Nauchn. konferentsii, posvyasch. 40-letiyu Velikoy Oktyabr'skoy sots. revolyutsii. Nr 2. Tomsk, Tomskiy un-t, 1957, pp 55-57

ABSTRACT: Resistance to compressive deformation of Cu and its Ni, Al, and Zn alloys (5, 10, and 15 atom-%) which have been subjected to various degrees of work hardening (with reductions of up to 40%) was studied at different strain rates (6, 0.05, and 0.005 mm/min) at seven different temperatures ranging from 20 to 600°C. The results of the investigation demonstrated the complete applicability of theory of hardening and recovery to a wide range of temperatures and rates of deformation. An analogy, established for laws governing the deformation of low-melting metals and Cu alloys, makes it possible to carry out

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SOV/137-58-10-21669

Resistance-to-deformation Properties of Copper and its Alloys (cont.)

research on physical principles of high-temperature plasticity of metals (as applied to the problem of heat-resistant properties) on modelling materials.

P.N.

1. Copper--Deformation 2. Copper alloys--Deformation

Card 2/2

SOV/137-58-10-21684

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 10, p 176 (USSR)

AUTHORS: Bol'shanina, M.A., Kondrat'yev, P.A.

TITLE: Metallographic Studies of the Deformation of Lead (Metallograficheskoye izucheniye deformatsii svintsa)

PERIODICAL: Dokl. 7-y Nauchn. konferentsii, posvyashch. 40-letiyu Velikoy Oktyabr'sk. sots. revolyutsii. Nr 2. Tomsk, Tomskiy un-t, 1957, pp 62-63

ABSTRACT: Investigations were carried out in order to study the microscopic deformations occurring in coarse-grained and fine-grained Pb subjected to static elongation and fatigue tests. A comparison of the microscopic nature of deformations in Pb, Al, and heat-resistant alloys (high temperatures and small strain rates were employed in the case of the latter) revealed an analogy in the laws governing the flow of polycrystalline materials. It is proposed that Pb be utilized as a model in investigations dealing with the behavior of heat-resistant materials at elevated temperatures and small strain rates.

Card 1/1 1. Lead--Deformation 2. Lead---Microanalysis P.N.

SOV/137-58-10-21687

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 10, p 176 (USSR)

AUTHORS: Bol'shanina, M.A., Yelsukova, T.F., Kondrat'yev, P.A.

TITLE: Employment of Tellurium in the Manufacture of Electrical Cable Sheathing (Primeneniye tellura v kabel'noy promyshlennosti)

PERIODICAL: Dokl. 7-y Nauchn. konferentsii posvyashch. 40-letiyu Velikoy Oktyabr'sk. sots. revolyutsii, Nr 2. Tomsk, Tomskiy un-t, 1957, pp 67-68

ABSTRACT: The effect of adding Te to Pb alloys employed in manufacture of sheathing for electrical cables was studied. An addition of 0.02-0.05% Te to the alloy Pb+0.5 Sb improves the technological properties of the latter and increases its σ_w value. The addition of Te favors the progress of structural changes which occur in the alloy and improves its heat-resistant properties (up to 200°C). Mechanical properties of the alloy, particularly the σ_w, are improved as the Te content is increased. It is recommended that the Te be introduced in the form of an Sb-Te alloy. 1. Tellurium---Applications 2. Electric cables ---Shielding 3. Lead-tellurium alloys---Properties

Card 1/1 P.N.

SOV/137-58-11-23397

Translation from: Referativnyy zhurnal. Metallurgiya, 1958, Nr 11, p 222 (USSR)

AUTHORS: Nikitina, A. K., Bol'shanina, M. A.

TITLE: The Effect of Strain Rate on the Softening of Copper (Vliyaniye skorosti deformatsii na razuprochneniye medi)

PERIODICAL: V sb.: Issled. po fiz. tverdogo tela. Moscow, AN SSSR, 1957, pp 146-151

ABSTRACT: The temperature stability of distortions produced in Cu at various strain rates (R) was investigated experimentally together with the kinetics of the softening of the metal at different annealing temperatures. The tests were carried out on a Cu wire (M1 grade, 0.5 mm diam) which was cut into specimens (S) of a design length of 50 mm. Preliminary cold hardening was achieved by means of static elongation of the S by an amount equivalent to 26% at rates v_1=0.03%/min and v_2=28.5% min. The S were then annealed in vacuum for a period of one hour at temperatures ranging from 150 through 350°C. After annealing, all S were again elongated, this time by 4%, at a rate of 0.3%/min. The true-stress value thus obtained served as a measure of the degree of cold-hardening remaining after annealing. The test

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The Effect of Strain Rate on the Softening of Copper

results were plotted in the form of curves representing the true stresses arising during the second elongation (at a rate of 0.3%/min) as a function of the annealing temperature. It is shown that increasing the elongation rate results in an increased resistance to deformation. Compared with S which have been elongated at a slow rate, specimens which have been subjected to rapid elongation and which exhibited a higher resistance to deformation at room temperature begin to soften at a lower temperature. The recovery isotherms derived as functions of the anneal time possess the customary shape. The sharpest drop in the isotherm is observed during short periods of annealing; it is also most pronounced as the preliminary elongation rate and the annealing temperature are increased. Based on an analysis of the experimental results it is concluded that an increase in the rate of elongation not only leads to quantitative changes in the degree of cold-hardening but also results in a modification of the nature of this process which is manifested by a change in the temperature stability of the distortions induced in the metal at various rates of elongation.

V. N.

Card 2/2

BOL'SHANINA, M.A.; BUSHNEV, L.S.

Effect of short heating on mechanical properties of duralumin. Izv. vys. ucheb. zav.; fiz. no.3:43-47 '58. (MIRA 11:9)

1. Sibirskiy fiziko-tekhnicheskiy institut pri Tomskom gosuniversitete imeni V.V. Kuybysheva.
(Duralumin--Testing)

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)

BOL'SHANINA, M.A., prof., red.; MORDOVINA, L.G., tekhn.red.

[Laboratory manual in physics] Fizicheskii praktikum. Pod red. M.A.Bol'shaninoi. Tomsk. Pt.1. [First physical laboratory, mechanics and molecular physics] Pervaia fizicheskaia laboratoriia, mekhanika i molekuliarnaia fizika. 1959. 136 p. (MIRA 13:8)

1. Tomsk. Universitet.
(Physics--Laboratory manuals)

KONDRAT'YEV, P.A.; BOL'SHANINA, M.A.

Mechanism of fatigue rupture in lead. Izv. vys. ucheb. zav.; fiz. no.4:84-87 '59. (MIRA 13:3)

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

(Lead--Fatigue)

Bol'shanina, M.A.

PHASE I BOOK EXPLOITATION SOV/4164

Vsesoyuznoye soveshchaniye po splavam redkikh metallov. 1st, Moscow, 1957

Redkiye metally i splavy; trudy... (Rare Metals and Alloys; Transactions of the First All-Union Conference on Rare-Metal Alloys) Moscow, Metallurgizdat, 1960. 436 p. 3,150 copies printed.

Sponsoring Agencies: Akademiya nauk SSSR. Institut metallurgii; USSR Komissiya po redkim metallam pri nauchno-tekhnicheskom komitete.

Ed.: I.I. Shapovalov; Ed. of Publishing House: O.M. Kamayeva; Tech. Ed.: P.G. Islent'yeva.

PURPOSE: This collection of articles is intended for metallurgical engineers, physicists, and workers in the machine-building and radio-engineering industries. It may also be used by students of schools of higher education.

COVERAGE: The collection contains technical papers which were presented and discussed at the First All-Union Conference on Rare-Metal Alloys, held in the Institute of Metallurgy, Academy of Sciences USSR in November 1957. Results of investigations of rare-metal alloys, titanium, and copper-base alloys with additions of rare metals are presented and discussed along with investigations of rhenium, vanadium, niobium, and their alloys. The effect of rare-earth metals on properties of magnesium alloys and steels is analyzed. The uses of rhenium as a dehydrating catalyst, electroplating material, and material suitable for making plugs for automobile electrical systems are discussed. Also, the effect of the addition of certain elements on the properties of heat-resistant steel is examined and alloys with special physical properties (particularly semiconductive alloys) are discussed. No personalities are mentioned. Soviet and non-Soviet references accompany some of the articles.

PART II. TITANIUM, AND COPPER-BASE ALLOYS WITH RARE-METAL ADDITIONS

Rare Metals (Cont.) SOV/4164

PART VI. ALLOYS WITH SPECIAL PHYSICAL PROPERTIES

PART VII. RESOLUTION

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VK/wrc/sfm
10/14/60

BOL'SHANINA, M.A.; KONDRAT'YEV, P.A.

Metallographic study of the formation of the sub structure in lead in stress deformation. Izv.vys.ucheb.zav.; fiz. no.3: 119-122 '60. (MIRA 13:7)

1. Sibirskiy fiziko-tekhnicheskiy institut pri Tomskom gosuniversitete im. V.V.Kuybysheva.
(Lead--Metallography)

KUZNETSOV, V.D. Prinimali uchastiye: KOSTYLEVA, A.I., dotsent, kand. fiz.-mat.nauk; KARPOV, G.I., starshiy nauchnyy sotrudnik, kand. fiz.-mat.nauk; DOBROVIDOV, A.N., prof., doktor tekhn.nauk; DEGTYAREV, V.P., dotsent; BOL'SHANINA, Mariya Aleksandrovna, prof., doktor fiz.-mat.nauk, laureat Stalinskoy premii, otv.red.

[Solid state physics] Fizika tverdogo tela. Tomsk, Izd-vo Poligrafizdat. Vol.4. [Materials on the physics of external friction, wear, and internal friction in solids] Materialy po fizike vneshnego treniia, iznosa i vnutrennego treniia tverdykh tel. 1947. 542 p. Vol.5. [Materials on the physics of the plasticity and brittleness of metals] Materialy po fizike plastichnosti i khrupkosti metallov. 1949. 699 p.
(MIRA 14:4)

1. Tomskiy gosudarstvennyy universitet (for Kostyleva, Bol'shanina). 2. Sibirskiy fiziko-tekhnicheskiy institut (for Karpov). 3. Tomskiy politekhnicheskiy institut (for Dobrovidov). 4. Sibirskiy metallurgicheskiy institut, g. Stalinsk (for Degtyarev).
(Solids)

KONDRAT'YEV, P.A.; BOL'SHANINA, M.A.

Formation of cracks at the edges of annealing twins in lead because of fatigue. Izv.vys.ucheb.zav.;fiz. no.2:127-128 '60.
(MIRA 13:8)

1. Sibirskiy fiziko-tekhnicheskiy institut pri Tomskom gosuniversitete im. V.V.Kuybysheva.
(Lead—Fatigue)

KONDRAT'YEV, P.A.; BOL'SHANINA, M.A.

Deformations at grain boundaries in lead. Izv.vys.ucheb.zav.; fiz. no.3:103-104 '63. (MIRA 16:12)

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

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)

DONETS, A.T.; BOL'SHANINA, M.A.

Studying relaxation in aluminum under plastic torsion at various rates and temperatures. Izv.vys.ucheb.zav.;fiz. no.2:190-200 '60. (MIRA 13:8)

1. Sibirskiy fiziko-tekhnicheskiy institut pri Tomskom gosuniversitete im. V.V. Kuybysheva i Rostovskiy-na-Donu institut inzhenerov zheleznodorozhnogo transporta.
(Aluminum) (Torsion)

BOL'SHANINA, M.A., prof., red.; MORDOVINA, L.G., tekhn. red.

[Practical work in physics] Fizicheskii praktikum. Sost. kollektivom kafedr eksperimental'noi i obshchei fiziki Tomskogo gosudarstvennogo universiteta im. V.V.Kuibysheva, pod red. M.A.Bol'shaninoi. Tomsk, Izd-vo Tomskogo univ. Pt.2-3.[Electricity and magnetism. Optics] Elektrichestvo i magnetizm. Optika. 1960. 189 p. (MIRA 14:8)

1. Kafedra eksperimental'noy i obshchey fiziki Tomskogo gosudarstvennogo universiteta im. V.V.Kuybysheva (for Bol'shanina)
(Optics) (Electricity) (Magnetism)

S/139/60/000/006/005/032
E073/E335

AUTHORS: Bol'shanina, M.A. and Fadin, V.P.

TITLE: On the Dependence of the Electric Resistance and the Resistance to Plastic Deformation in Molybdenum, Nickel and Zinc on the Equivalent Deformation During Torsion and Tension

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika, 1960, No. 6, pp. 38 - 43 + 1 plate

TEXT: It is known (Refs. 1-6) that for many technically pure metals the flow curves which are plotted in the coordinates stress-equivalent deformation, for various types of deformation, are in good agreement. Thus, according to these authors, one of the important characteristics of the material-the yield point expressed as a function of the equivalent deformation, can be considered as not being dependent on the type of deformation for commercially pure metals. On the other hand, a number of other authors (Refs. 7-11) consider that all the physical properties of metals are linked to some extent with the presence in them of collectivised conductivity electrons.

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On the Dependence of the Electric Resistance and the Resistance to Plastic Deformation in Molybdenum, Nickel and Zinc on the Equivalent Deformation During Torsion and Tension

Therefore, it is of interest whether other non-mechanical characteristics of the material do depend on the type of plastic deformation if expressed as a function of the equivalent deformation. In particular, it would be of interest to study this dependence for the specific electric resistance of metals. Furthermore, it is of interest to compare the changes as a result of plastic deformation in the mechanical and electric properties of metals for elucidating whether there is a similarity in the change of these properties during plastic deformation. The experiments were carried out on wire specimens of commercially pure Mo, Ni and Zn, 12-15 cm long, 1 mm dia. (Mo and Ni) and 1.5 mm dia. (Zn). The nickel specimens were preliminarily vacuum-annealed at 850 °C for 1 hour; the Mo specimens were also vacuum-annealed, at 1150 °C

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On the Dependence of the Electric Resistance and the Resistance to Plastic Deformation in Molybdenum, Nickel and Zinc on the Equivalent Deformation During Torsion and Tension.

for 10 min. The electric resistance was measured by means of a double Thomson bridge with an accuracy of up to 10^{-5} ohm, the length was measured by means of a comparator with an accuracy of up to 0.01 mm, the mass was weighed with an accuracy of up to 10^{-4} g. It was assumed that during deformation the density did not change. The properties during torsion and tension were compared on the basis of equivalent deformations calculated by three methods, using the formula of Taylor and Quinney (Ref. 4) and relations proposed by Nadai (Ref. 12). Figs. 1, 2 and 6 show the dependence of the electric resistance $P(\mu\Omega_2 cm)$ and the resistance to plastic deformation $t_n(kg/mm^2)$ on the octahedric displacement in torsion and in tension. The following conclusions are arrived at; 1) For Ni and Mo no

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On the Dependence of the Electric Resistance and the Resistance to Plastic Deformation in Molybdenum, Nickel and Zinc on the Equivalent Deformation During Torsion and Tension

generalised curves of the specific electric resistance versus equivalent deformation exist; the curves depend on the type of deformation, those for torsion being higher than those for tension. 2) The flow curves of Mo and Zn depend on the type of the stress state whereby the curves for torsion are also higher than the curves for tension. 3) Probably there is no similarity between the change in the mechanical properties and the electric resistance during plastic deformation of Zn, Mo and Ni. 4) The least divergence of the flow curves as well as of the curves of the specific electric resistance are observed in the case that octahedric strains are applied as a means for measuring the equivalent deformation.

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S/139/60/000/006/005/032
E073/E335

On the Dependence of the Electric Resistance and the Resistance to Plastic Deformation in Molybdenum, Nickel and Zinc on the Equivalent Deformation During Torsion and Tension

There are 6 figures and 13 references: 9 Soviet and 4 non-Soviet.

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

SUBMITTED: December 4, 1959

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S/139/60/000/006/005/032
E073/E335

On the Dependence of the Electric Resistance and the Resistance to Plastic Deformation in Molybdenum, Nickel and Zinc on the Equivalent Deformation During Torsion and Tension

Fig.1

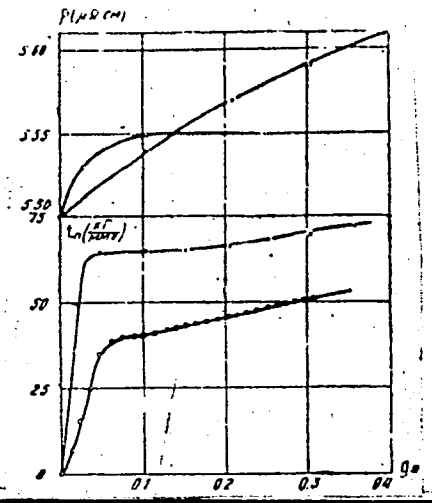
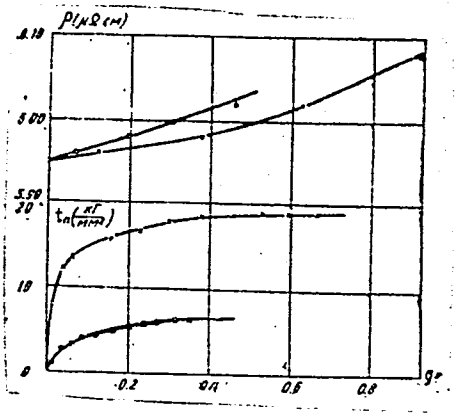


Fig.2



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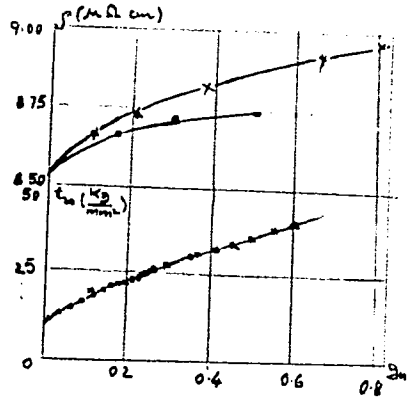
On the Dependence of the Electric Resistance and the Resistance to Plastic Deformation in Molybdenum, Nickel and Zinc on the Equivalent Deformation During Torsion and Tension

Fig.6



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S/139/62/000/002/019/028
E073/E535

12.8160

AUTHORS: Bol'shanina, M.A. and Korotayev, A.D.

TITLE: On the temperature-speed dependence of flow stresses of NiFeMo alloys. 1

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika, no.2, 1962, 125-130

TEXT: The authors investigated the influence of the short-range order and of the K-state on the temperature-speed dependence of flow stresses of three nickel alloys in the annealed state. The choice of the materials was based on the consideration that domains with short-range order in alloys with a K-state will be characterized by stronger chemical bonds than domains of ordinary short-range order, which will affect considerably the mechanical properties of the alloys. The following alloys were chosen: NiFe alloy containing 81% Ni as the alloy with the short-range order; ternary Ni-Fe alloys plus 3 wt.% Mo and 3 wt.% Cr, respectively, as the alloys with a K-state. In the first of these ternary alloys the K-state is highly pronounced, whilst in the second one the K-state is much less pronounced. Furthermore, the

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electric resistance (at 20°C) of specimens, deformed by 7% at various temperatures between 20 and 600°C, was measured. The authors conclude that formation of the K-state during preliminary tempering of quenched specimens leads to an appreciable improvement of the mechanical properties in the temperature range 20 to 600°C. The formation of the K-state during deformation of quenched specimens at elevated temperatures is associated with the jump-like plastic deformation and anomalous temperature-speed dependence of the flow stresses. The temperature range of these anomalies and of the jump-like deformation coincides with the interval of intensive increase of the electric resistance of deformed specimens. There are 3 figures.

ASSOCIATION: Sibirskiy fiziko-tekhnicheskiy institut pri Tomskom gosuniversitete imeni V. V. Kuybysheva (Siberian Physico-Technical Institute at the Tomsk State University imeni V. V. Kuybyshev)

SUBMITTED: July 13, 1961

37723
S/139/62/000/002/020/028
E073/E535

12.8160

AUTHORS: Bol'shanina, M.A., Korotayev, A.D. and Nikitina, A.K.

TITLE: On the temperature-speed dependence of the flow stresses of NiFe and NiFeCr. II

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika, no.2, 1962, 131-137

TEXT: In an earlier paper (pp.125-130 of this issue) the influence of the short-range order and the K-state on the temperature-speed dependence of flow stresses in nickel-base alloys was investigated. In this paper the same dependence was studied for the binary alloy NiFe containing 81% Ni and the ternary alloy Ni_3Fe+3% Cr. It was found that the formation of a K-state in the NiFeCr alloy does not bring about considerable strengthening as compared with the strengthening during formation of an ordinary short-range order in the alloy. Plastic deformation in the range of intensive formation of the K-state and the short-range order occurs in jumps and the nature of the deformation in jumps is identical in all cases. In the alloy NiFeMo, the deformation in jumps is accompanied by an anomalous

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temperature-speed dependence of the flow stress. In the NiFeCr alloy no speed dependence was observed, whilst in the NiFe alloy a normal dependence of the flow stress on the temperature and speed of deformation was found to exist. At the temperatures of formation of the K-state and of the short-range order, a sharp drop in the plasticity was observed. There are 4 figures and 2 tables.

ASSOCIATION: Sibirskiy fiziko-tekhnicheskiy institut pri Tomskom gosuniversitete imeni V. V. Kuybysheva (Siberian Physico-technical Institute at the Tomsk State University imeni V. V. Kuybyshev)

SUBMITTED: July 13, 1961

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S/659/62/009/000/005/030
I003/1203

AUTHORS Bol'shanina M. A. and Popov, L. E.

TITLE The temperature dependence of the resistance to deformation and the K-state of nickel-chromium alloys

SOURCE Akademiya nauk SSSR. Institut metallurgii. Issledovaniya po zharoprochnym splavam v. 9. 1962. Materialy Nauchnoy sessii po zharoprochnym splavam (1961 g.), 37–40

TEXT: Some hardened and cold-worked alloys of the transition elements show a considerable increase in the electric resistance as a result of tempering. This condition is called the K-state. In the present work, the deformation, relaxation, and electric conductance of stressed samples of a nickel alloy containing 9.2 wt% Cr, which were heated for 2 hours to 950°C and then air cooled, were investigated for a temperature range from room temperature to 600°C. The results show that the relationship between the above properties and the temperature is not linear, and the authors conclude that the most probable transformation taking place in the alloys responsible for the irregularities is the creation of a short-range order in the crystal lattice of the alloy. The variation in electric resistance of the alloy with temperature is the same as for its mechanical properties, which shows that the creation of the K-state is due to the same structural transformation which are responsible for the plastic properties of the alloy. In the discussion N. N. Davidenkov, pointed out that the irregularities in the resistance to deformation at various temperatures may be due to phenomena other than those indicated by the authors, as for instance aging. There is 1 figure.

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

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

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

BUTKEVICH, L.M.; KONDRAT'YEV, P.A.; BOL'SHANINA, M.A.

Magnitude of the energy of packing defects in lead. Fiz.met.i metalloved. 14 no.5:783-784 N '62. (MIRA 15:12)

1. Sibirskiy fiziko-tekhnicheskiy institut.
(Crystal lattices—Defects)

BOL'SHANINA, M.A.

Equivalence of the effects of temperature and deformation rate of mechanical properties. Izv. vys. ucheb. zav; fiz. no.1: 63-77 '63. (MIRA 16:5)

1. Sibirskiy fiziko-tekhnicheskiy institut pri Tomskom gosudarstvennom universitete imeni Kuybysheva.
(Metals, Effect of temperature on) (Deformation (Mechanics))

KONDRAT'YEV, P.A.; BOL'SHANINA, M.A.

Structure of deformed lead. Izv. vys. ucheb. zav; fiz. no.1: 99-102 '63. (MIRA 16:5)

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

BOL'SHANINA, M.A.; YELSUKOVA, T.F.

Temperature and velocity dependence of creep strains in lead. Izv. vys.ucheb.zav.;fiz.no.2:157-166 '63.

(MIRA 16:5)

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

(Creep of lead)

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.)

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APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206130009-0"

L 12477-63 EWP(q)/EWT(m)/BDS AFFTC/ASD JD/HW-2
S/185/63/008/003/005/009

38
57

AUTHOR: Bol'shanina, M. A., Popov, L. Ye. and Aleksandrov, N. A.

TITLE: Characteristics of jump deformation in nickel alloys with close-order

PERIODICAL: Ukrains'kyy Fizychnyy Zhurnal, v. 8, no. 3, 1963, 363-369.

TEXT: Deformation of many alloys in definite temperature interval and at different deformation rates occurs in a jump fashion. For investigation of the process which lies at the basis of jump flow it is necessary to conduct a detailed study of patterns of this phenomenon. This article investigates the temperature-deformation rate of Ni alloy with 17.5% Cr. It is shown that the dependence of the minimum degree of deformation ε min on temperature and the rate of deformation on temperature and the rate of deformation is described by the equation

$$\varepsilon \text{ min} = \text{const} \cdot \nu^{\varepsilon} \cdot \dot{\varepsilon} \cdot \ell^{-U/rt}$$

where ν is the strengthening coefficient of the alloy at ε min; m=3/2; U=30 kcal/mole. A qualitative explanation is given for the characteristic of transition from jump to gradual type deformation at elevated temperatures. The article contains 3 figures and a 27-item bibliography.

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Association: Siberian Technical Physics Inst., Tomsk.

BOL'SHANINA, M.A.; YELSUKOVA, T.F.

Preparation of lead alloy samples for the metallographic analysis. Zav.lab. 30 no.3:315 '64. (MIRA 17:4)

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

ACCESSION NR: AP4034049 S/0126/64/017/004/0512/0518

AUTHORS: Bol'shanina, M. A.; Korotayev, A. D.

TITLE: Concerning the studies on the kinetics of low temperature transformations in alloyed permalloys

SOURCE: Fizika metallov i metallovedeniye, v. 17, no. 4, 1964, 512-518

TOPIC TAGS: transformation, permalloy, short range order, K state, nickel, iron, chromium, molybdenum, tempering, annealing, plastic deformation

ABSTRACT: The aim of the present work was to study the effects of high-temperature annealing and plastic deformation on the kinetics of formation of short range orders (K-states) in tempered alloys of Ni_3Fe with the addition of Cr or Mo. It was found that the kinetics of this process depended essentially on the nature of the preliminary treatment of the alloy. After quenching in water, the intensity of the formation process of short range orders was far higher than that after quenching in air. Plastic deformation of hardened specimens treated in hydrogen definitely lowered the rate of transformation during tempering. It was shown that the process of K-state formation could be suppressed almost

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ACCESSION NR: AP4034049

completely in well-deformed specimens (in spite of the fact that the state of the alloy could be far from equilibrium). In connection with these results, the authors investigated the role played by surplus vacancies in the process of redistribution of atoms in nonequilibrium alloys at relatively low temperatures. Orig. art has: 6 figures and 1 table.

ASSOCIATION: Sibirskiy fiziko-tekhnicheskiy institut (Siberian Physico-technical Institute)

SUBMITTED: 25Mar63 ENCL: 00

SUB CODE: SS,MM NO REF SOV: 014 OTHER: 027

Card 2/2

KONDRAT'YEV, P.A.; BOL'SHANINA, M.A.

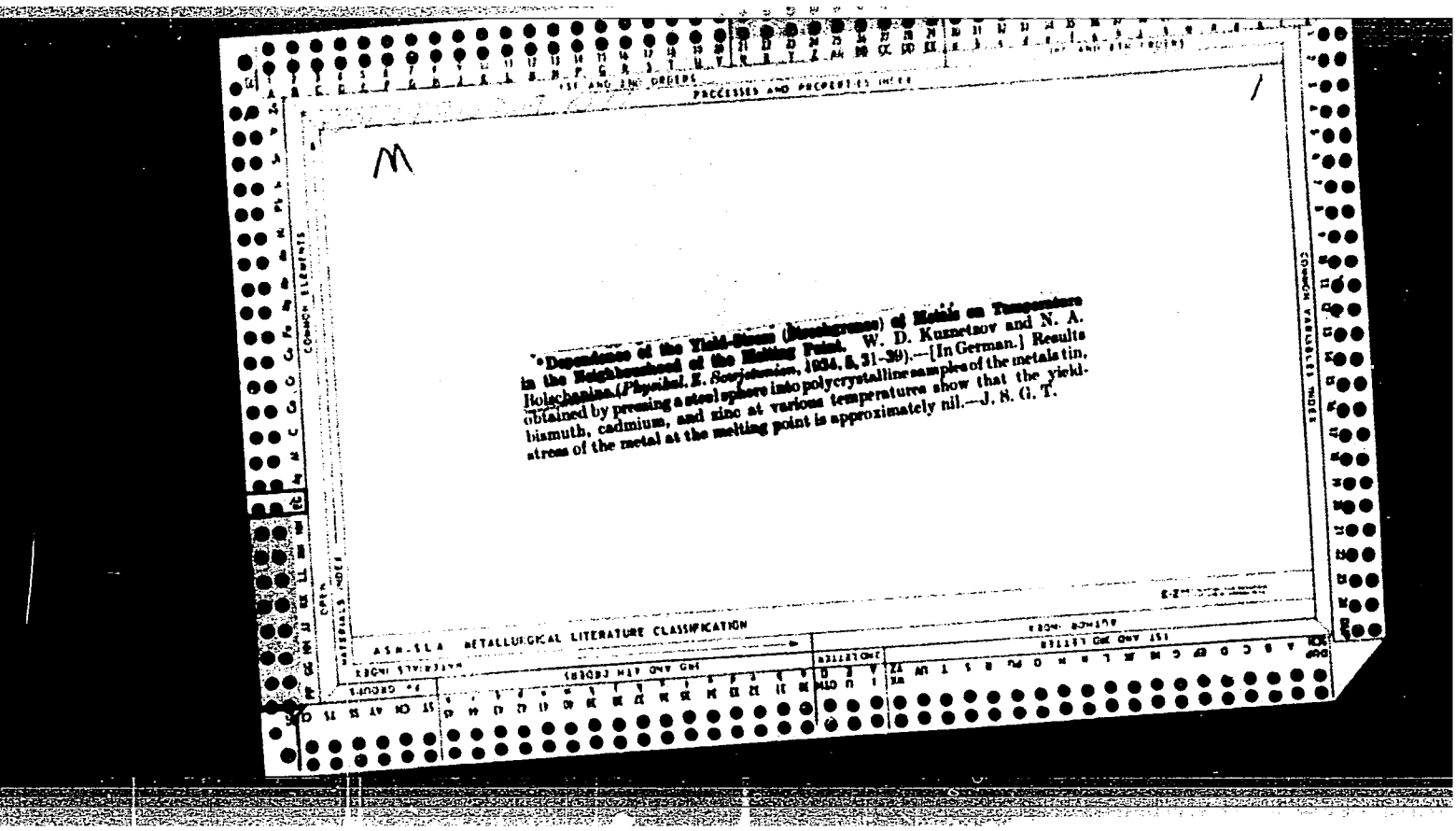
Mechanism underlying the formation of dislocation bands in lead. Izv. vys. ucheb. zav.; fiz. no.5:38-40 '64.
(MIRA 17:11)

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

BOL'SHANINA, M.A.; MAKOGON, M.B.

Effect of short-range order and various concentration inhomogeneities on the mechanical and physical prope.ties of alloys--solid solutions. Izv. vys. ucheb. zav.; fiz. no.5:45-55 '64. (MIRA 17:11)

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



"Dependence of the Yield-Stress (Streckgrenze) of Metals on Temperature in the Neighborhood of the Melting Point. W. D. Kuznetsov and N. A. Holschanina. (*Physikal. Z. Sowjetunion*, 1934, 5, 31–39).—[In German.] Results obtained by pressing a steel sphere into polycrystalline samples of the metals tin, bismuth, cadmium, and zinc at various temperature show that the yield-stress of the metal at the melting point is approximately nil.—J. S. G. T.

BOL'SHANINA, N. A.

Bol 'Shanina, N. A. "Driving prismatic punches of various tool angles into aluminum at various temperatures," Trudy Sib. fiz, -tekhn. in-ta, Issue 26, 1948, p. 40-50

SO: U-5241, 17 December 1953, (Letopis 'Zhurnal 'nykh Statey, No.26, 1949)

BOL'SHANINA, N. A.

Bol'Shanina, N. A. "The effect of alternate blow and rest onthe driving of a punch into aluminum," Trudy Sib. fiz,-tekhn. in-ta, Issue 26, 1948, p, 51-54

SO: U-5241, 17 December 1953, (Letopis 'Zhurnal 'nykh Statey, No. 26, 1949)

BOL'SHANINA, N. A.

"Study of the Process of Depression of a Rigid Plunger Into a Plastic Metal." Cand Phys-Math Sci, Tomsk State U imeni V. K. Kuybyshev, Tomsk, 1955. (KL, No 16, Apr 55)

SO: Sum. No. 704, 2 Nov 55 - Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions. (16).

VOROB'YEVA, A.I.; BOL'SHANINA, N.A.

Zink and iron content in the food served in Tomsk children's institutions. Vop. pit. 23 no.5:78-79 S-O '64.

(MIRA 18:5)

1. Kafedra gigiyeny (zav. - prof. V.I.Suzdal'skiy [deceased]) i kafedra fiziki (zav. - dotsent V.D.Gol'tsev) Tomskogo meditsinskogo instituta.

BOL'SHAKINA, Ye. A.

"Epidemiology of Tick Encephalitis in the Prokop'yevsk Foci," Trudy of Tomsk Inst. of Vaccines and Sera, No. 7, pp 69 from 62, found in Medits. Parazitol. i Parazitar. Bolez., 3rd quarter, 1956.

SUM: 1391

BOL"SHANINA, YE. A., IZRAILEVA, G. I., SARIONAKI, A. F. and TSELISHCHEVA, A. M.

"On the Complex diagnosis of Brucellosis," was a report given at an interoblas t scheintific-practical conference on problems of laboratory diagnosis of infectious dis eases which was held at the Tomsk Scientific Research Institute of Vaccines and Sera, 12-16 March 1956.'

SUM: 1360 p 238

BEL'SHANINA, YE. A.

"On the work of the Prokop'yevsk City Sanitary-Epidemiological Station in the diagnosis of enteric encephalitis," was a report given at theinteroblast scientific-practical conference on problems of laboratory diagnosis of infectious diseases was wheld at the Tomsk Scientific Research Institute of Vaccines and Sera, 12-16 March 1956.

SUM: 1360 p 237

MARCHUK, L.I.; BOL'SHAYA, M.L.; GANDZYA, S.M. [Handzia, S.M.]

Use of sodium glutamate for improving the taste of canned whale meat. Khar.prom. no.3:30 Jl-S '62. (MIRA 15:8)

1. Ukrainskiy nauchno-issledovatel'skiy institut konservnoy promyshlennosti.

(Whale meat, Canned)

L 18458-66 EWT(d)/EWP(1) IJP(c) BB/GG
ACC NR: AP6006382 SOURCE CODE: UR/0413/66/000/002/0115/0115

INVENTOR: Bol'shchikov, V. A.; Lyasko, A. B.; Matafonova, E. P.; Syrykh, A. N.

ORG: none

TITLE: Ten-position multistable element. Class 42, No. 178168

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 2, 1966, 115

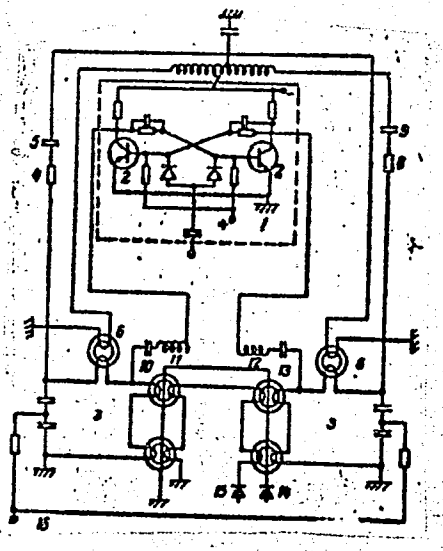
TOPIC TAGS: flip flop circuit, RC circuit, parametron, logic element, computer component

ABSTRACT: This Author's Certificate introduces a ten-position multistable element containing pentastable parametrons and a delay line. Reliability of the device is improved by using a transistorized symmetric potential flip-flop of the counter type. The collectors of the transistors are connected to circuits of parametric elements on the fifth subharmonic through decoupling networks containing a series-connected choke and capacitor. The circuit of the first pentastable parametron is connected to the coupling transformer of the second parametron through a decoupling network made up of a resistor and capacitor. The circuit of the second parametron is connected to the coupling transformer of the first parametron through a similar decoupling network and a delay line.

Card 1/2 UDC: 681.142.07

L 18458-66

ACC NR: AP6006382



1 - potential static flip-flop; 2 - transistors; 3 - pentastable parametrons; 4 and 5 - RC decoupling network; 6 - input transformers; 7 - 72° delay line; 8 and 9 - RC decoupling network; 10-13 - LC decoupling network; 14 - bias current; 15 - pumping current; 16 - bias voltage.

SUB CODE: 09/ SUBM DATE: 27Feb64

Card 2/2 MJS

VINOKUROV, Ye.F.; MAKARUK, P.N.; BOL'SHEDONOV, I.I.

Study of the character of the performance of series II-03-02 footing blocks in a sandy foundation bed. Osn.,fund. i mekh.grun. 6 no.6:19-22 '64. (MIRA 18:1)

MAKARUK, P.N. [Makaruk, P.M.]; BOL'SHEDONOV, I.I. [Bal'shadonau, I.I.]

Study of the performance of resilient reinforced concrete foundations. Vestsi AN BSSR. Ser. fiz.-tekh. nav. no.3:111-117 '64. (MIRA 18:2)

BUKHVOSTOV, N.V., inzh. Prinimali uchastiye: KOZEL, Yu.V., inzh.; BOL'SHEM, N.Ya., inzh.. GORSKIY, G.Yu., kand.tekhn.nauk, red.; POZNYAKOV, A.P., red.izd-va; KAMINSKIY, M.P., tekhn.red.

[Temporary instructions on the use of lightweight walls built of solid bricks in earthquake-proof construction of houses and public buildings (VSN 02-58)] Vremennaia instruktsiia po primeneniiu sten oblegchennykh konstruktsii iz polnotelogo kirpicha v seismostoikom stroitel'stve zhilykh i grazhdanskikh zdanii (VSN 02-58). Tashkent, Izd-vo Respublikanskogo proektnogo in-ta "Uzgosproekt," 1958. 67 p. (MIRA 12:6)

1. Uzbek S.S.R. Ministerstvo stroitel'stva. 2. Respublikanskiy proyektnyy institut "Uzgosproyekt" (for Bukhvostov, Kozel, Bol'shem). (Walls) (Earthquakes and building)