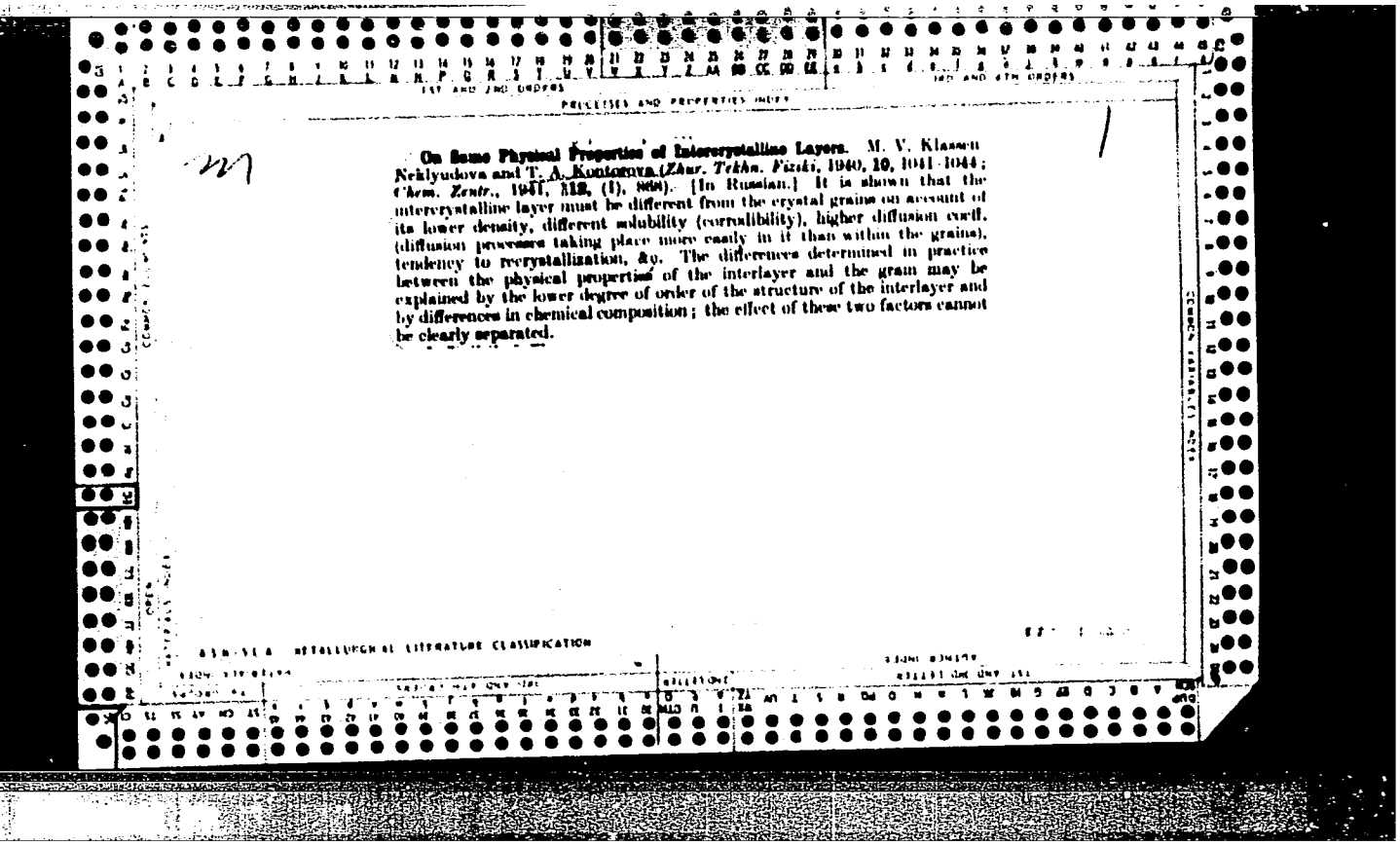
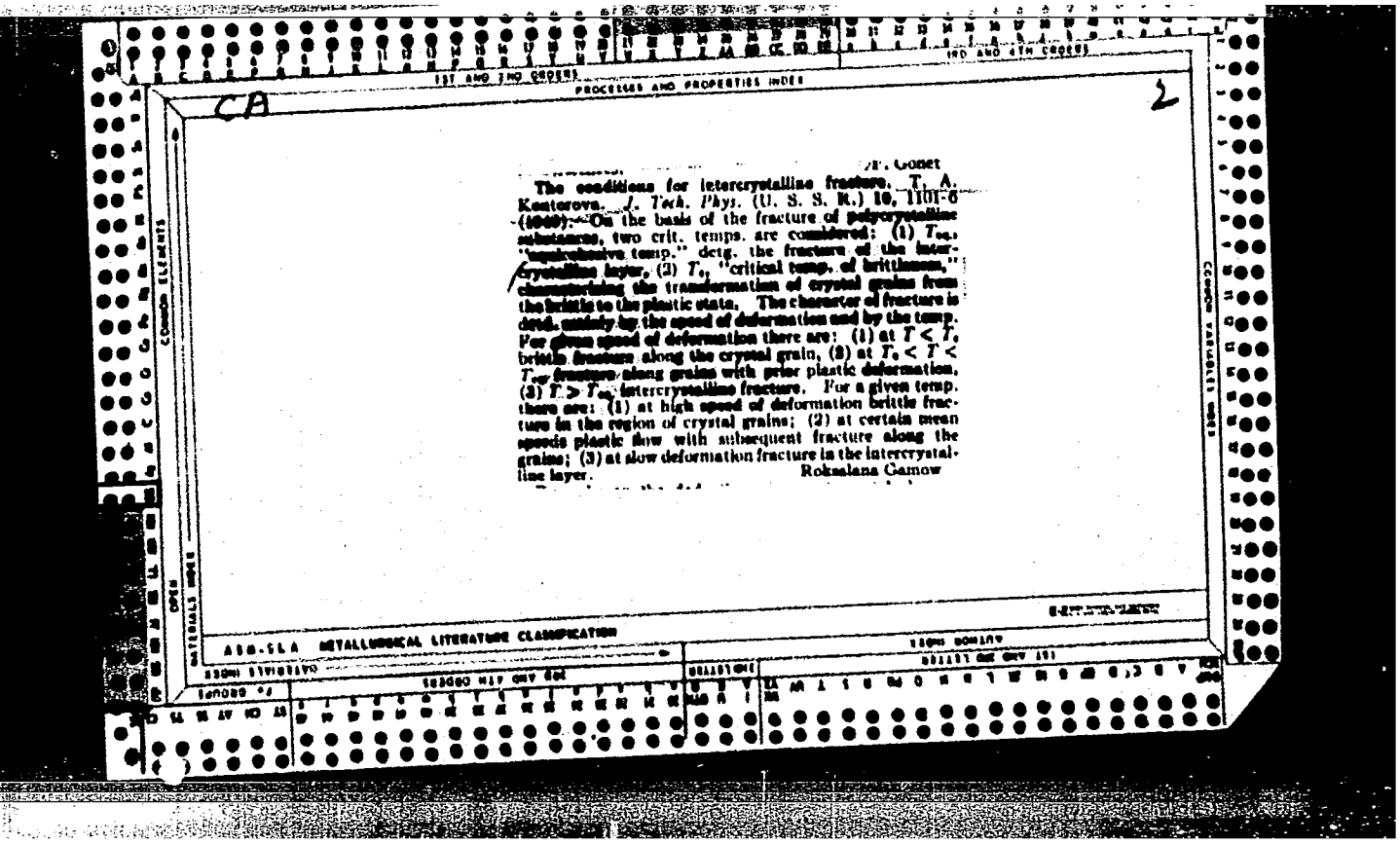


On Some Physical Properties of Intercrystalline Layers. M. V. Klassen-Neklyudova and T. A. Kontorova (*Zhur. Tekhn. Fiziki*, 1940, **10**, 1041–1044; *Chem. Zentr.*, 1941, **112**, (I), 868). [In Russian.] It is shown that the intercrystalline layer must be different from the crystal grains on account of its lower density, different solubility (corrodibility), higher diffusion coeff. (diffusion processes taking place more easily in it than within the grains), tendency to recrystallization, &c. The differences determined in practice between the physical properties of the interlayer and the grain may be explained by the lower degree of order of the structure of the interlayer and by differences in chemical composition; the effect of these two factors cannot be clearly separated.



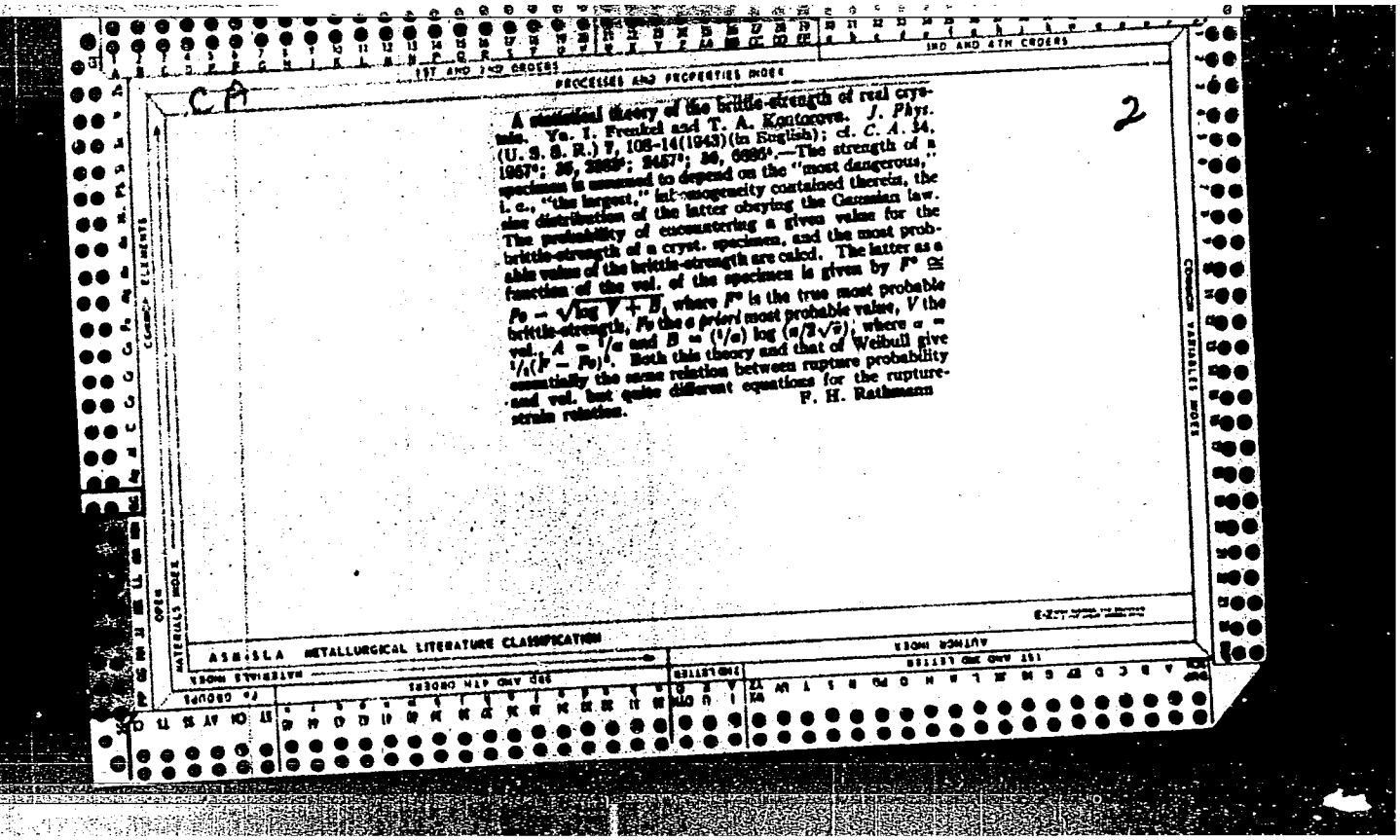
The conditions for intercrystalline fracture. T. A. Kontorova. *J. Tech. Phys.* (U. S. S. R.) 10, 1101-6 (1940).—On the basis of the fracture of polycrystalline substances, two crit. temps. are considered: (1) $T_{eq.}$ "equicohesive temp." deg. the fracture of the intercrystalline layer, (2) T_c "critical temp. of brittleness," characterizing the transformation of crystal grains from the brittle to the plastic state. The character of fracture is detd. mainly by the speed of deformation and by the temp. For given speed of deformation there are: (1) at $T < T_c$ brittle fracture along the crystal grain, (2) at $T_c < T < T_{eq.}$ fracture along grains with prior plastic deformation, (3) $T > T_{eq.}$ intercrystalline fracture. For a given temp. there are: (1) at high speed of deformation brittle fracture in the region of crystal grains; (2) at certain mean speeds plastic flow with subsequent fracture along the grains; (3) at slow deformation fracture in the intercrystalline layer.

Roksalana Gamow

M.a.

Existence of Transition Zones in Twin Crystals. T. A. Kontorova (*Zhur. Eksper. i Teoret. Fiziki* (*J. Exper. Theoret. Physics*), 1942, 12, 69–78; C. A., 1943, 37, 2240).—[In Russian.] It is assumed that in twin crystals the twins are separated by some transition region the atomic orientation in which gradually changes from that of the mother crystal to that of the twin. A theoretical calculation of this region as to spatial extent and energy

1949

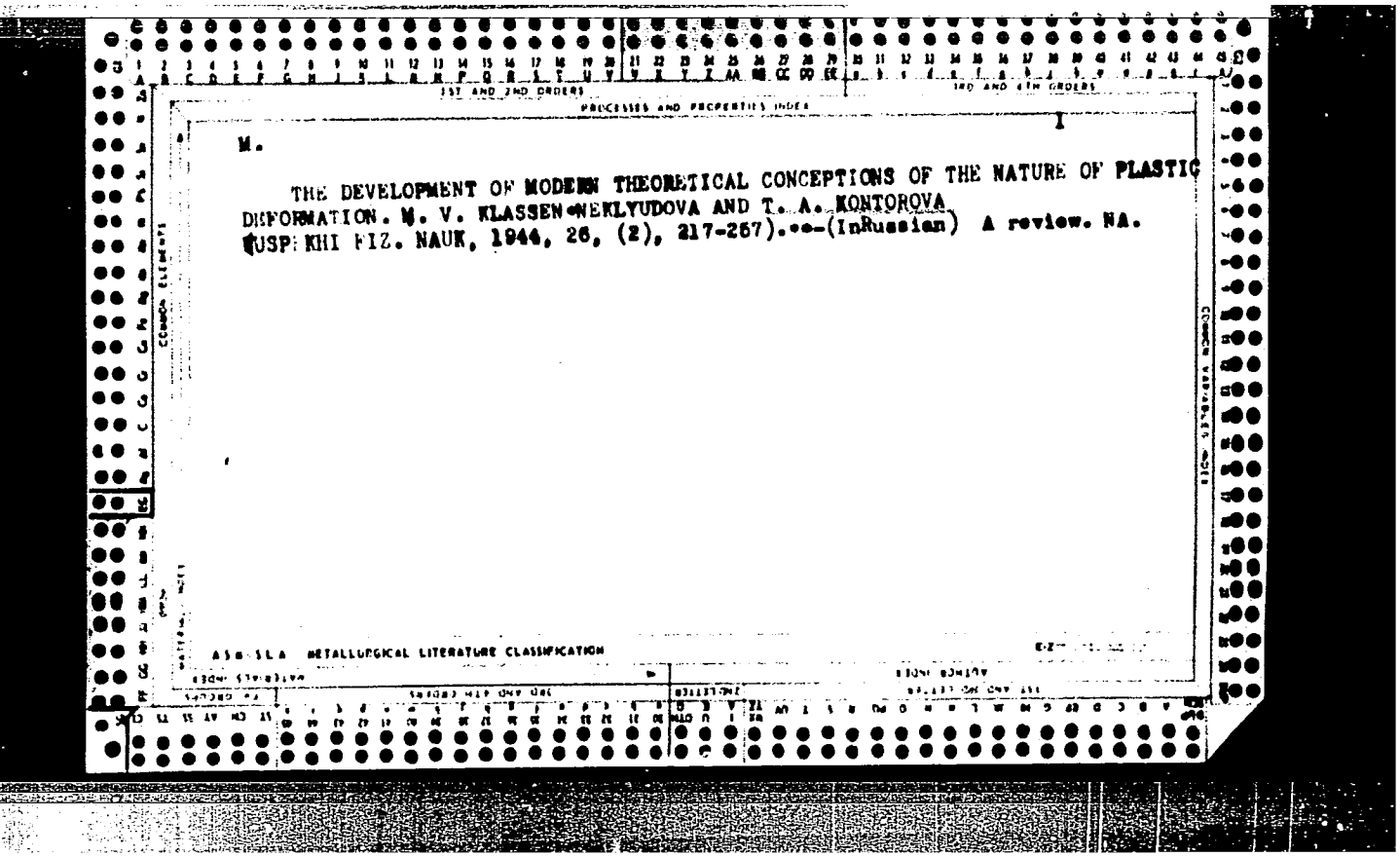


CA

2

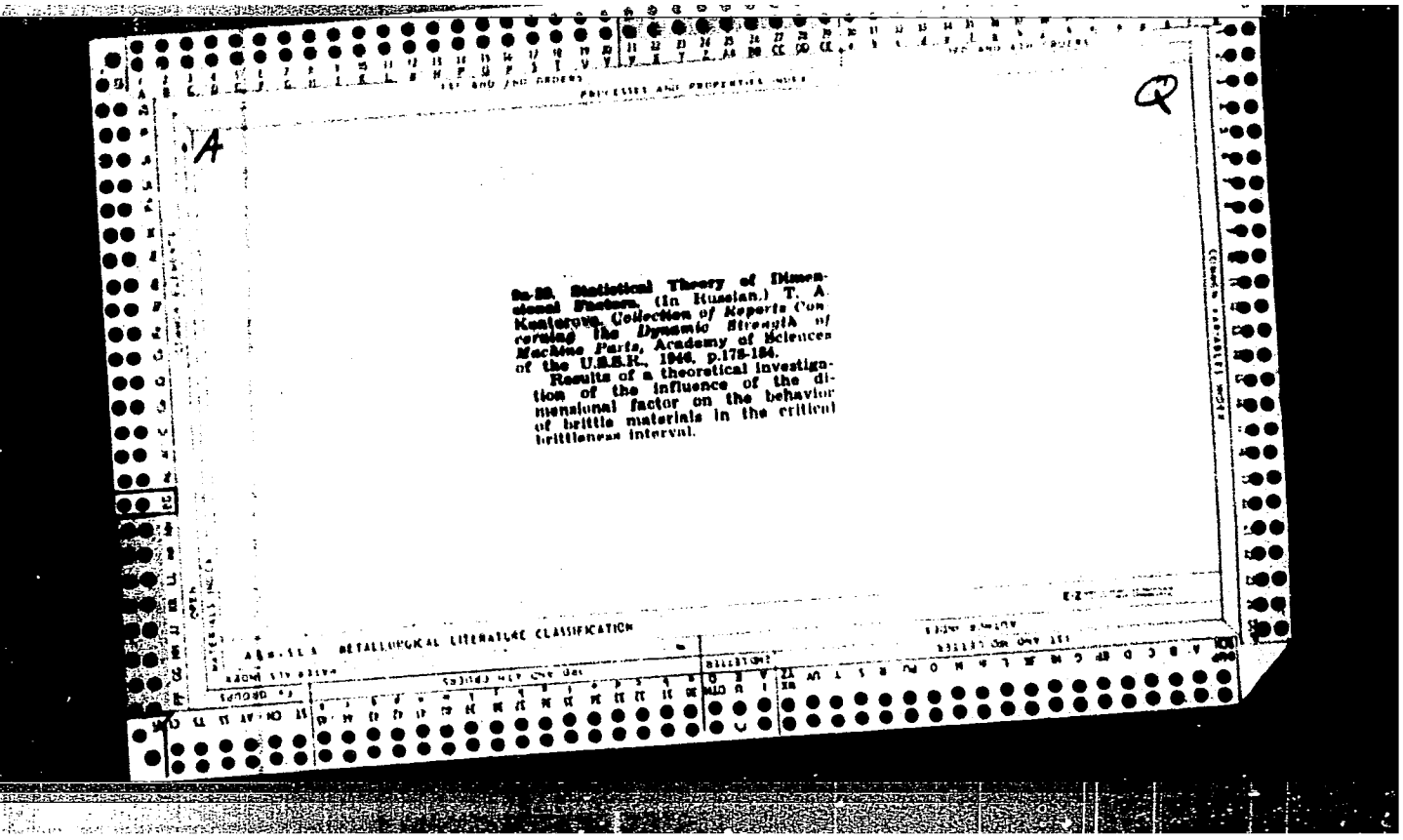
A statistical theory of the brittle-strength of real crystals. Ya. I. Frenkel and T. A. Kontorova. *J. Phys.* (U. S. S. R.) 7, 108-14(1943)(in English); cf. *C. A.* 34, 1967⁹; 36, 2965⁹; 2457⁹; 38, 6680⁹.—The strength of a specimen is assumed to depend on the "most dangerous," i. e., "the largest," inhomogeneity contained therein, the size distribution of the latter obeying the Gaussian law. The probability of encountering a given value for the brittle-strength of a cryst. specimen, and the most probable value of the brittle-strength are calcd. The latter as a function of the vol. of the specimen is given by $F^0 \cong F_0 - \sqrt{\log V + B}$, where F^0 is the true most probable brittle-strength, F_0 the *a priori* most probable value, V the vol., $A = 1/\alpha$ and $B = (1/\alpha) \log (\alpha/2\sqrt{\pi})$, where $\alpha = 1/4(F - F_0)^4$. Both this theory and that of Weibull give essentially the same relation between rupture probability and vol. but quite different equations for the rupture-strain relation.

F. H. Rathmann



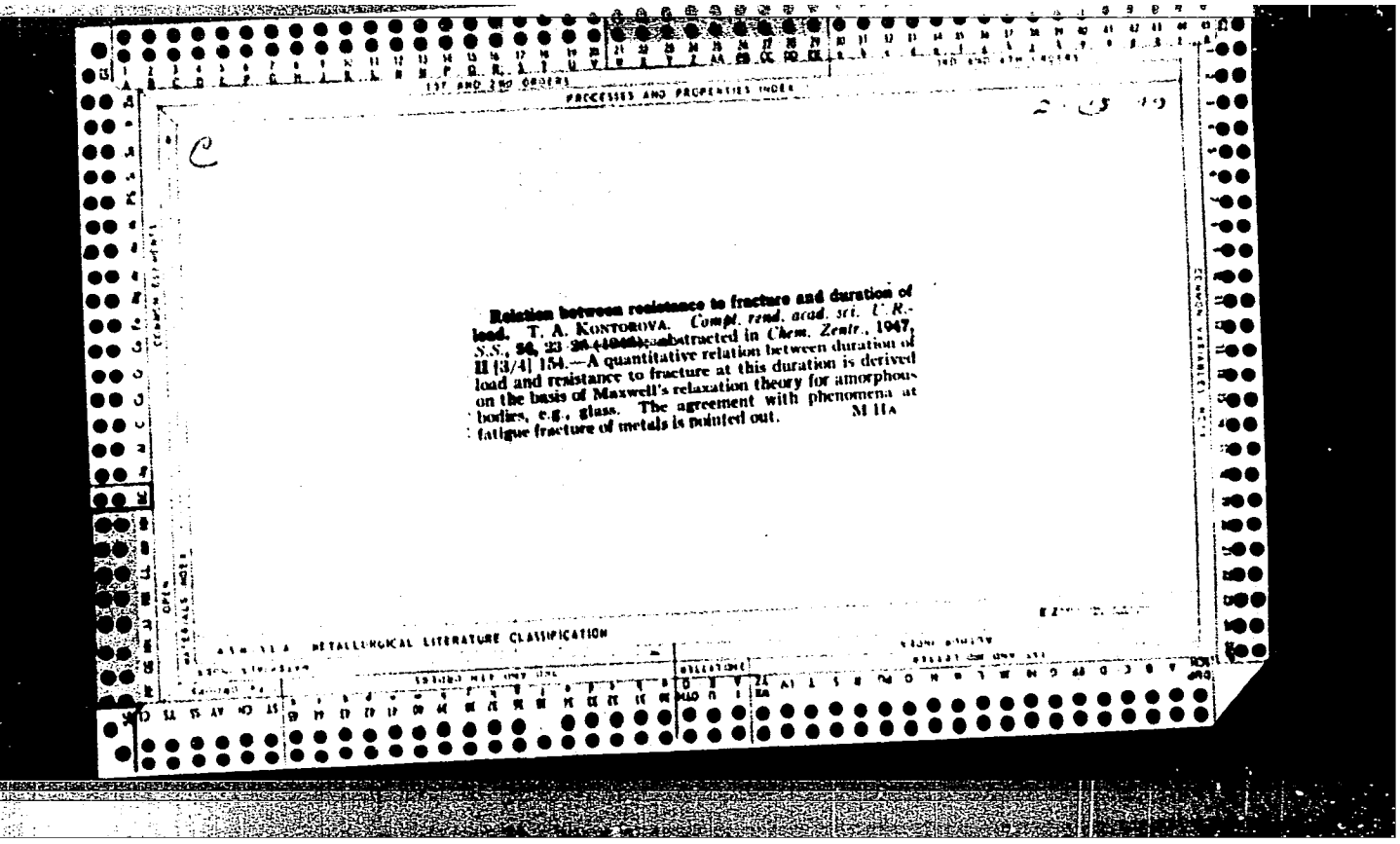
M.

THE DEVELOPMENT OF MODERN THEORETICAL CONCEPTIONS OF THE NATURE OF PLASTIC DEFORMATION. M. V. KLASSEN-NEKLYUDOVA AND T. A. KONTOROVA. (USP. KHI FIZ. NAUK, 1944, 26, (2), 217-267).--(In Russian) A review. NA.



No.20. Statistical Theory of Dimensional Factors. (In Russian.) T. A. Kontorova. Collection of Reports Concerning the Dynamic Strength of Machine Parts, Academy of Sciences of the U.S.S.R., 1946. p.178-184.

Results of a theoretical investigation of the influence of the dimensional factor on the behavior of brittle materials in the critical brittleness interval.



Relation between resistance to fracture and duration of load. T. A. KONTOROVA. *Compt. rend. acad. sci. U.R.S.S.*, 54, 23 [1946]; abstracted in *Chem. Zentr.*, 1947, II [3/4] 154.—A quantitative relation between duration of load and resistance to fracture at this duration is derived on the basis of Maxwell's relaxation theory for amorphous bodies, e.g., glass. The agreement with phenomena at fatigue fracture of metals is pointed out. M IIA

USSR/Chemistry - Magnesium Compounds, Dec 48
Intermetallic
Chemistry - Energy

"Possible Zonal Structure of the Mg_3Sb_2 Energy Spectrum," T. A. Kontorova, Leningrad Physicotech Inst, Acad Sci USSR, 6 pp

"Zhur Tekh Fiz" Vol XVIII, No 12 - MF-1478-84

Utilized weakly bonded electrons for studying zonal structure of energy spectrum of a typical member of so-called intermetallic compounds having constant states. Determined that at low temperatures such metals can be termed poor metals, but at higher temperatures they take on properties of semiconductors. Submitted 29 Jul 48.

19/49T31

KONTOROV, T. A.

PA 38/49T84

USSR/Engineering — Mar 49
Stresses
Strength - Testing

"A Generalization of the Statistical Theory of Strength in a Nonuniform Stress State," T. A. Kontorov, O. A. Timoshenko, Leningrad Phys Tech Inst, Acad Sci USSR, Leningrad Polytech Inst imeni M. I. Kalinin, 16 pp

"Zhur Tekh Fiz" Vol XIX, No 3 - pp 355-70

Kontorov previously had developed the statistical theory of brittle strength for solids which was applicable to the uniform stress state of a material. Inasmuch as the dimensional factor

[redacted] 38/49T84

USSR/Engineering (Contd) — Mar 49

is observed in experiments, not only in the case of tension and compression of samples, but also in testing for bending strength, it is considered necessary to extend this theory to the more general case of nonuniform stress states. Submitted 21 Nov 48.

Evaluation B-81183

[redacted] 38/49T84

KONTOROVA, T. A.

USSR/Physics - Thermoelectromotive force FD-908

Card 1/1 Pub 153-17/26

Author : Kontorova, T. A.

Title : Limits of practical application of Pisarenko's formula

Periodical : Zhur. tekh. fiz. 24, 1291-1297, Jul 1954

Abstract : Although the classical formula of Pisarenko differs from the criterion established by K. S. Shifrin (ZhTF 14,44 (1944)) it may be partially applied for computing the thermoelectromotive force of semiconducting materials. Seven references including 3 foreign.

Institution : --

Submitted : March 15, 1954

KONTOROVA, T. A.
USSR/Physics-Semiconductors

FD-1233

Card 1/1 Pub. 153-17/22

Author : Kontorova, T. A.

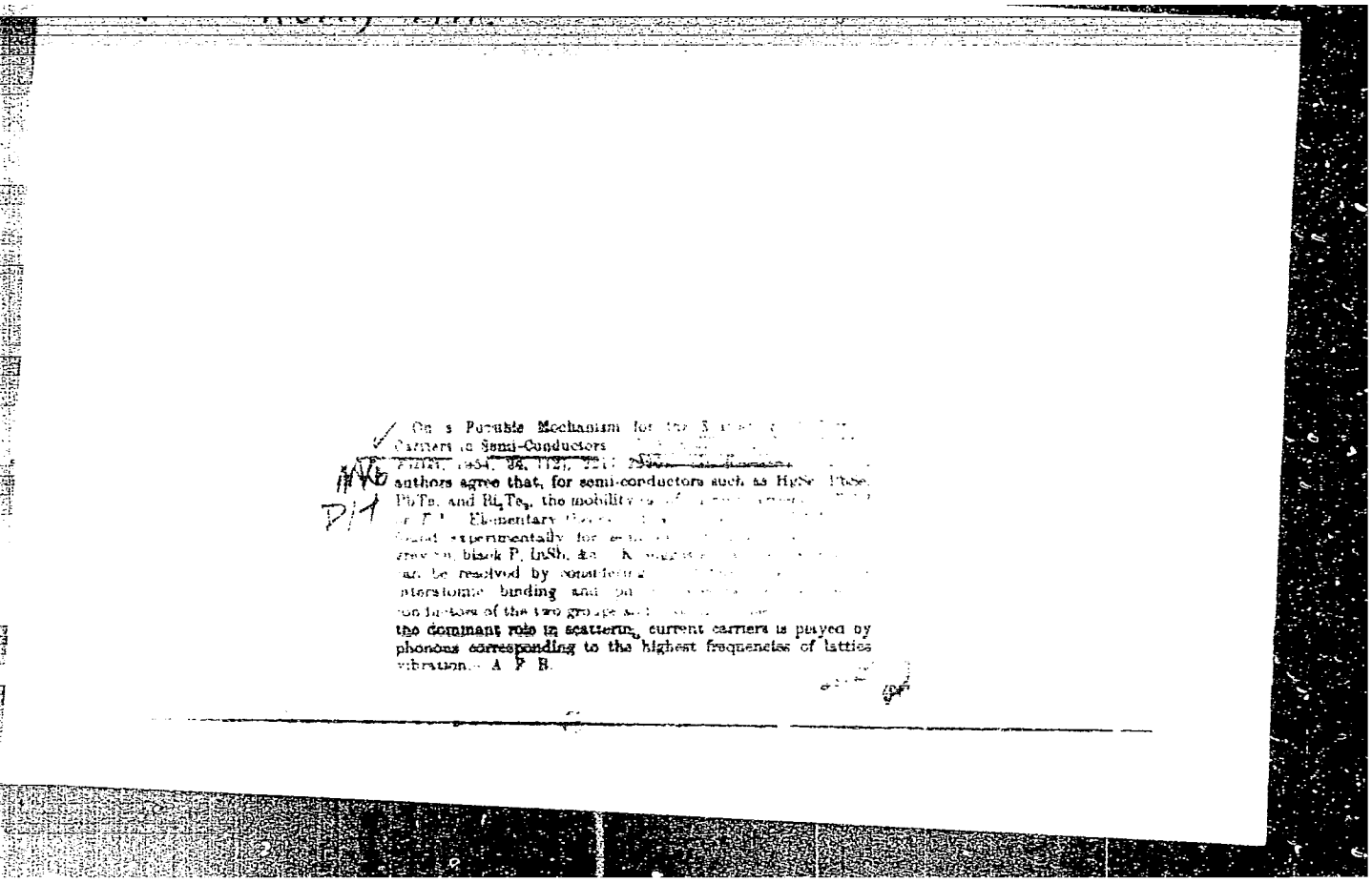
Title : Problem of temperature dependence of thermal e.m.f. of impure semiconductors

Periodical : Zhur. tekh. fiz., 24, 1687-1696, Sep 1954

Abstract : Theoretical analysis of a model of impure semiconductors leads to the conclusion that at very low temperatures the thermal emf should rise proportionally to T and decrease after passing through a peak. Thereafter the thermal emf may drop to a minimum which at high concentration of impurities may indicate a degenerate state. Seventeen references including 11 foreign.

Institution :

Submitted : April 17, 1954



On a Possible Mechanism for the [illegible]
Carriers in Semi-Conductors
[illegible]
authors agree that, for semi-conductors such as HgSe [illegible]
PbTe, and Bi_2Te_3, the mobility [illegible]
[illegible] Elementary [illegible]
[illegible] experimentally for [illegible]
[illegible] bismuth P, InSb, &c. [illegible]
[illegible] can be resolved by considering [illegible]
[illegible] interatomic binding and [illegible]
[illegible] conductors of the two groups [illegible]
the dominant rôle in scattering current carriers is played by phonons corresponding to the highest frequencies of lattice vibration. — A. P. B.

KONTOROVA, T. A.

Jan 54

USSR/Physics - Plasticity

"Concerning the Dislocation Hypothesis of Plasticity," M. V. Klassen-Neklyudova and T. A. Kontorova

Usp Fiz Nauk, Vol 52, No 1, pp 143-151

Criticize as unfruitful and harmful to uncritical USSR readers the Western concept of dislocations in crystals, which was fully treated in the Russian-language version (UFN, Vol 46, No 2, pp 179-230, 1952) of Cottrell's "Theory of Dislocations in

276T97

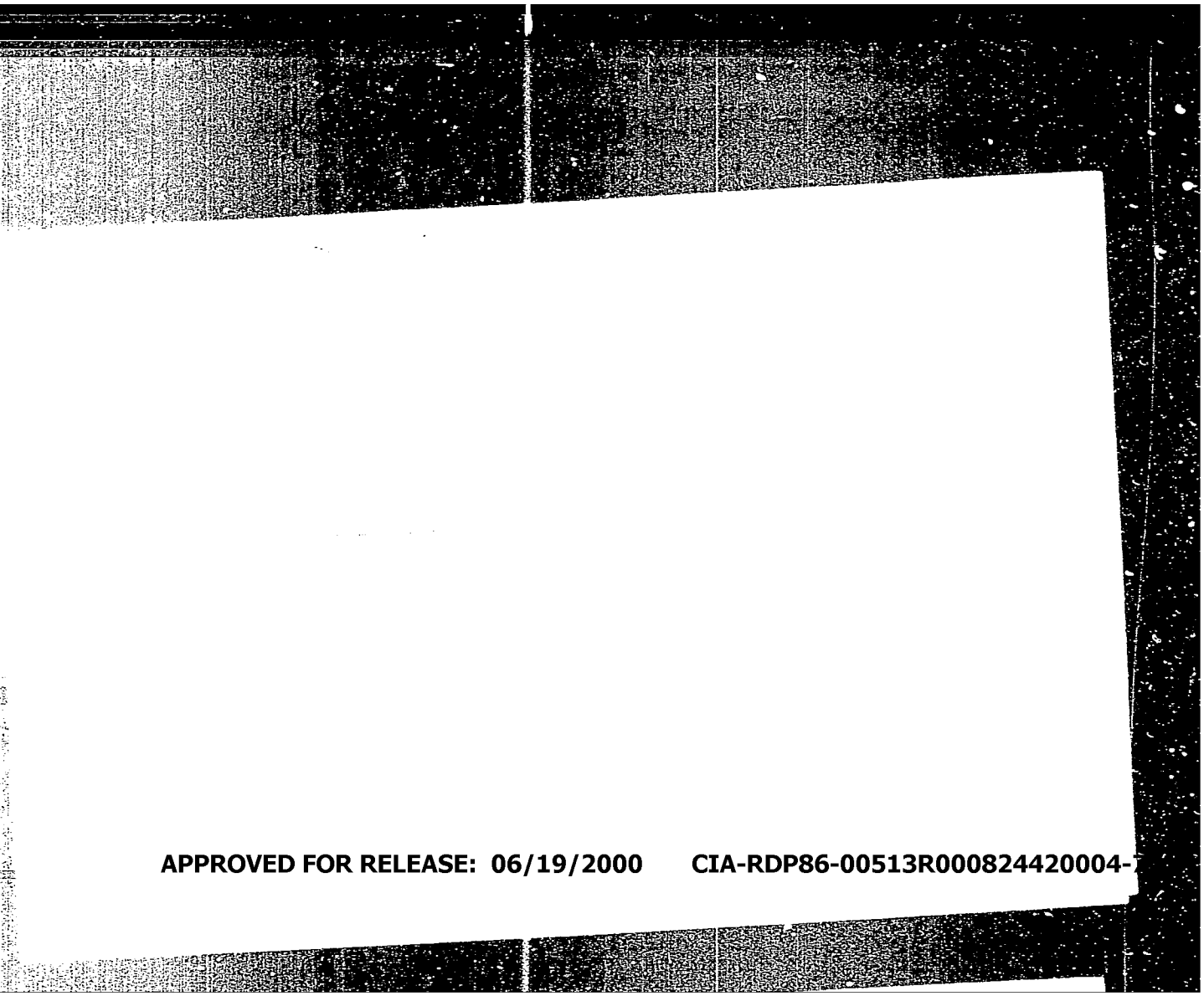
Crystal Lattices." The accepted view was represented in their "Development of Present-day Theoretical Representations Concerning the Nature of Plastic Deformation," UFN, Vol 26, No 2, 1944.

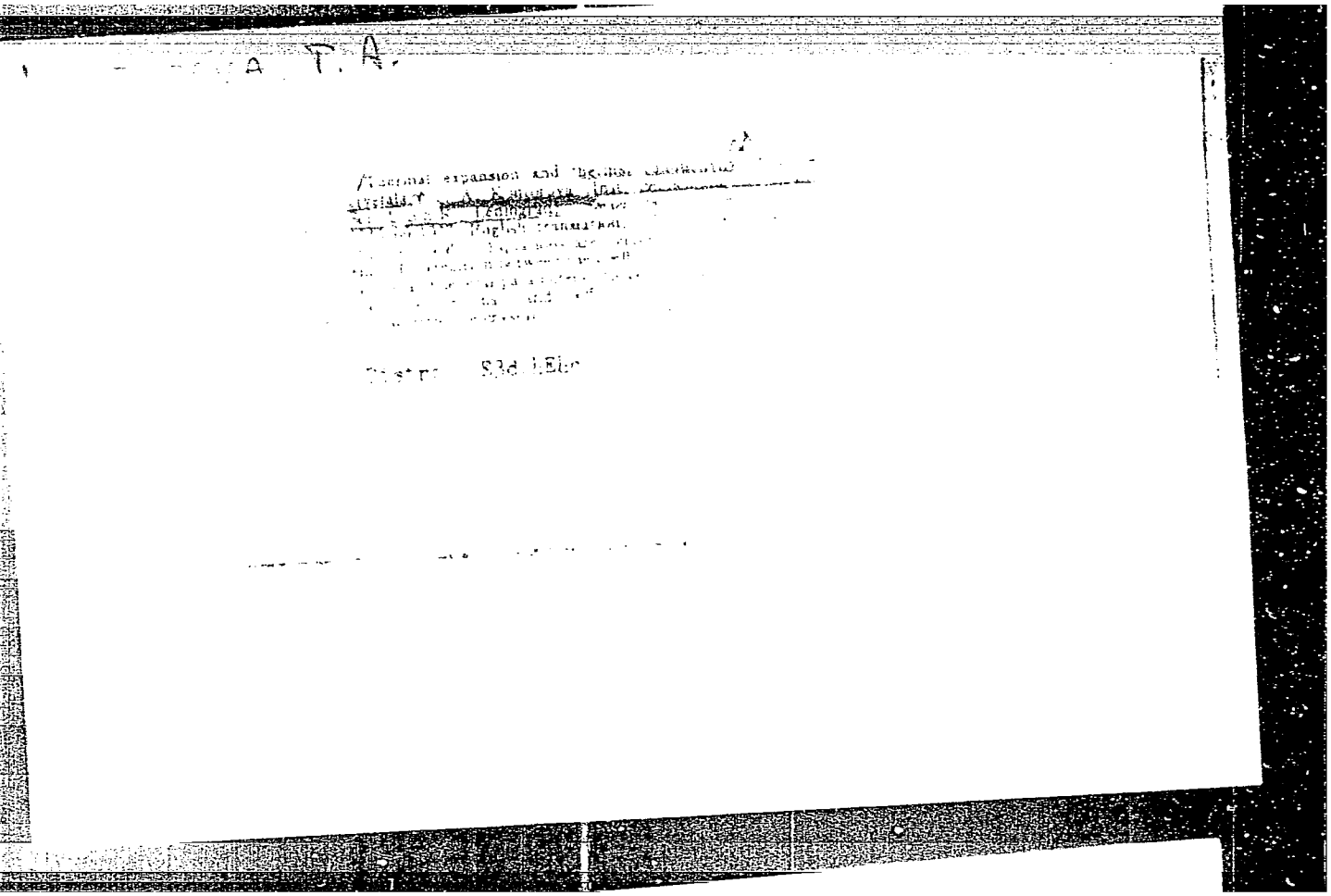
FRENKEL', Ya.I., akademik, redaktor; SOKOLOV, A.A., doktor fiziko-matematicheskikh nauk, redaktor; BOGOLIUBOV, N.N., redaktor; TAMM, I.Ye., akademik, otvetstvennyy redaktor; ANSEL'M, A.I., doktor fiziko-matematicheskikh nauk, redaktor; BLOKHINTSEV, D.I., doktor fiziko-matematicheskikh nauk, redaktor; KONTOROVA, T.A., kandidat fiziko-matematicheskikh nauk, redaktor; GOLANT, V.Ye., redaktor izdatel'stva; SMIRNOVA, A.V., tekhnicheskiy redaktor

[Selected works] Sobranie izbrannykh trudov. Moskva, Izd-vo Akademii nauk SSSR. Vol.1. [Electrodynamics; general theory of electricity] Electrodinamika; obshchaia teoriia elektrichestva. 1956. 370 p. (MLRA 9:11)

1. Chlen korrespondent AN SSSR (for Frenkel')
(Electrodynamics)

carriers. Various derivations of u lead to the same dependence of u on T, m*, and many other parameters. However, the numerical values of u, calculated from different equations, may differ from each other by 1.5-2 times.





PA - 2122

AUTHOR: KONTOROVA, T.A.

TITLE: On the Problem of the Dispersion of Current Carriers in Semiconductors with a Compound Ionic type. (K voprosu o rasseyanii nositeley toka v poluprovodnikakh s ionnym tipom svyazi. Russian).

PERIODICAL: Zhurnal Tekhn. Fiz., 1957, Vol 27, Nr 2, pp 269 - 274 (U.S.S.R.)

Received: 3 / 1957 Reviewed: 4 / 1957.

ABSTRACT: First dispersion in the case of optic oscillations is dealt with. In accordance with the theory developed by Fröhlich the mobility of current carriers in semiconductors with a compound ionic type is determined essentially by their interaction with the optical longitudinal oscillations of a long wavelength. It is shown that the formula worked out by Fröhlich and Mott is wrong because it does not take the electron polarization of ions into account. Furthermore it is shown that the assertion that the mobility of current carriers in ion crystals would have to change at room temperature in accordance with the law $u \sim T^{-\frac{1}{2}}$ is wrong, because reference is always made to the case $T < \Theta_1$ (Θ the Debey temperature which corresponds to the oscillation frequency of ν_e , ν_e-maximum frequency of optical transverse oscillations). While the interaction of current carriers with optic oscillation can play an important part only

Card 1/2

PA - 2122

On the Problem of the Dispersion of Current Carriers in Semiconductors with a Compound Ionic type.

at relatively high temperatures, dispersion in the case of acustic oscillations of the lattice gain in importance if temperature drops. In ion crystals it is necessary to distinguish between a "polar" and a "nonpolar" dispersion. Here only "nonpolar" dispersion is dealt with. The case is investigated in which dispersion takes place both in the case of optical and acoustic oscillations of the lattice. First the free length of path is investigated for which a formula is set up. Next, the mobility of carriers is investigated and a formula is set up for them as a function of ß. ß has the following physical significance: at a given value of T it may be considered to be an index of the ionization of particles in the crystal. Generally, the amount of ß is determined both from the character of the connection of the particles among themselves as also by the temperature at which the experiment is carried out. Approximated formulae for the mobility of the carriers and finally the formulae for the dependence of mobility on temperature are derived.

ASSOCIATION: Institute for Semiconductors of the Academy of Science of the U.S.S.R., Leningrad.

PRESENTED BY:

SUBMITTED: 23.7.1956.

AVAILABLE: Library of Congress.

Card 2/2

FONTOROVA, T. A.

"The Effect of Anharmonical Lattice Vibrations on the Process of Deformation."

paper presented at the Conf. on Mechanical Properties of Non-Metallic Solids, Leningrad, USSR, 19-26 May 58.

Institute of Semiconductors of the Academy of Sciences of the USSR, Leningrad

SOV/57-58-8-20/37

AUTHORS: Zhuze, V. P., Kontorova, T. A.

TITLE: Correlation of Strength and of Heat Conductivity of Non-Metallic Crystals (O korrelatsii mezhdu tverdost'yu i teploprovodnost'yu nemetallicheskikh kristallov)

PERIODICAL: Zhurnal tekhnicheskoy fiziki, 1958, 28, Nr 8, pp. 1727 - 1733 (USSR)

ABSTRACT: This paper presents a comparison of the properties of the group of ternary semiconductor compounds with the general formula ABX_2, and with a chalkopyrite structure exhibiting the properties of such non-metallic crystals. Such crystals are produced by the elements of the IV-B column of the periodic system and by the binary compounds of an $A^{III}B^{V}$ type, which exhibit the same covalent binding and the same lattice structure. A comparison of the data bearing on the strength and the heat conductivity of these three groups shows that the micro-strength H and the heat conductivity κ of these substances are correlated in a definite way. κ decreases as H. On the other hand, H shows a definite increase with the increase of the interatomic distance. Such a correlation between H and κ, however, is also found in the halide compounds of alkali metals,

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although these compounds exhibit a different type of chemical binding, mainly of an ionic kind, and a different crystal lattice (NaCl structure). The considerations concerning this correlation advanced are by no means intended to be a consistent theory to these phenomena. The transition from light to heavier elements or compounds in the homologous series in question (increase of $\bar{M}$) is accompanied by a reduction of the lattice energy U_o and an increase of the lattice constant r_o. As specified by formula (8) for κ the heat conductivity must decrease systematically in accordance with the experiment. Since, however, this transition is also accompanied by a reduction of the coefficient α of the quasi-elastic binding, which determines H a definite correlation between H and κ must exist. There are 2 figures, 2 tables, and 6 references, 5 of which are Soviet.

ASSOCIATION: Institut poluprovodnikov AN SSSR Leningrad (Institute of Semiconductors, AS USSR, Leningrad)

SUBMITTED: December 12, 1957

KONTOROVA, T.A.

24(6) PHASE I BOOK EXPLOITATION SOV/2385

Akademiya nauk SSSR

Nekotoryye problemy prochnosti tverdogo tela; sbornik statey (Some Problems in the Strength of Solids; Collection of Articles) Moscow, Izd-vo AN SSSR, 1959. 386 p. Errata slip inserted. 2,000 copies printed.

Ed. of Publishing House: V. I. Aver'yanov; Tech. Ed.: R. S. Pevzner; Editorial Board: A.F. Ioffe, Academician; O. V. Kurdyumov, Academician; S. N. Zhurkov, Corresponding Member, USSR Academy of Sciences; B. P. Konstantinov, Corresponding Member, USSR Academy of Sciences; F. F. Vitman, Doctor of Physical and Mathematical Sciences, Professor (Resp. Ed.); L. A. Glikman, Doctor of Technical Sciences, Professor; N. A. Zlatin, Doctor of Physical and Mathematical Sciences; V. V. Stepanov, Doctor of Technical Sciences; Ya.B. Fridman, Doctor of Technical Sciences, Professor; B. B. Ioffe, Candidate of Technical Sciences (Deputy Resp. Ed.).

PURPOSE: This book is intended for construction engineers, technologists, physicists and other persons interested in the strength of materials.

COVERAGE: This collection of articles was compiled by the Otdeleniye fiziko-matematicheskikh nauk AN SSSR (Department of Physical and Mathematical Sciences) and the Fiziko-tekhnicheskiy institut AN SSSR (Institute of Applied Physics, Academy of Sciences, USSR) in commemoration of the 80th birthday of Nikolay Nikolayevich Davidenkov, Member of the Ukranian Academy of Sciences, founder and head of the Otdel prochnosti materialov (Department of the Strength of Materials) at the Institute of Applied Physics, Academy of Sciences, USSR, founder of the Fakul'tet fizicheskogo metallovedeniya (Department of Physical Metallurgy) at the Leningradskiy politekhnicheskiy institut (Leningrad Polytechnic Institute), recipient of the Stalin Prize (1943), the Order of the Red Banner of Labor (1945) and the Order of Lenin (1953). The articles deal with the strength of materials, phenomena of imperfect elasticity, temper brittleness, hydrogen embrittlement, cold brittleness, influence of deformation speed on the mechanical properties of materials, fatigue of metals, and general problems of the strength, plasticity, and mechanical properties of nonmetals. Numerous personalities are mentioned in the introductory profile of Professor Davidenkov. References are given at the end of each article.

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A006/A001

Translation from: Referativnyy zhurnal, Metallurgiya, 1960, No. 9, p. 221, # 21284

AUTHOR: Kontorova, T.A.

TITLE: On the Correlation of Mechanical and Thermal Characteristics of Crystals

PERIODICAL: V sb.: Nekotoryye probl. prochnosti tverdogo tela. Moscow-Leningrad, AN SSSR, 1959, pp. 99-104

TEXT: The correlation of thermal and mechanical characteristics is established by investigating the analytical expression for the energy of interatomic interaction: $U = -A/r^m + B/r^n$, where r is the interatomic space; A, B, m, n are constants. Considering that the coefficient of quasi-elastic bond, determining the mechanical characteristics, is $\alpha = (d^2U/dr^2)_{r=r_0}$ and the coefficient of anharmonicity, determining the thermal properties $\beta \approx -(\frac{1}{2}) \cdot d^3U/dr^3)_{r=r_0}$, the correlation of both these coefficients is established as follows:

$$\beta = (m + n + 3)\,\alpha/2r_0 \qquad (1)$$

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Card 2/2

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SOV/181-1-11-23/27

~~24(2)~~ 24.7700

AUTHOR: Kontorova, T. A.

TITLE: On the Melting of Ge and Si

PERIODICAL: Fizika tverdogo tela, 1959, Vol 1, Nr 11, pp 1761-1763 (USSR)

ABSTRACT: Regel' et al (Refs 1, 2) previously showed that the melting of Ge and Si is accompanied by considerable changes in the electric properties of the crystals. The resistivity decreases abruptly, and the temperature coefficient of the resistance reaches a positive value. In reference 3 it was shown that the density increases on melting. From these data the author of the present paper concluded that Ge and Si on melting change into the metallic state, the coordination number thereby increasing from 4 to a somewhat higher value. The coordination number of Ge was proved by means of radiographic investigation to increase to 8. Density measurements and measurements of the absolute electrical conductivity of InSb and GaSb, as well as investigations of the temperature dependence of the latter showed that these compounds are converted to the metallic state on melting. This was verified by means of investigations of the thermoelectric properties and measurement of the Hall-effect. Then, the author endeavored to solve the problem as to how such

Card 1/2

KONTOROVA, T.A., (Leningrad)

Characteristics of short-range order changes during the melting of certain semiconductors. Izv. AN. SSSR. Otd. tekh. nauk. Met. i topl. no.3:157-158 My-Je '61. (MIRA 14:7)

1. Institut poluprovodnikov Akademii nauk SSSR.
(Semiconductors) (Crystal lattices)

13336
S/181/62/004/011/040/049
B108/B186

5.4100

AUTHOR: Kontorova, T. A.

TITLE: The effect of impurities on the mechanical and thermal properties of semiconductors with covalent bonds

PERIODICAL: Fizika tverdogo tela, v. 4, no. 11, 1962, 3328-3330

TEXT: Impurities in the lattice of a semiconductor will locally weaken the covalent bonds. The same will happen if there are additional free carriers. These smooth out the anisotropic carrier distribution which is characteristic of the covalent bond and thus lead to a "metallization" of the initially covalent bonds. Such effects, i.e. the weakening of the microhardness, are accompanied by an increase in the thermal expansion coefficient δ. Its relative change is

$$\frac{\Delta\delta}{\delta_0} = \frac{2|\Delta\Theta|/\Theta_0}{1 - 2|\Delta\Theta|/\Theta_0}$$

, where Θ_0 is the Debye temperature for the purest material. For Ge containing impurities this relative change reaches some 7-9%. Similar changes of δ can be found in metals also. This fact

Card 1/2

ACCESSION NR: AP4041745 S/0181/64/006/007/2219/2222

AUTHOR: Kontorova, T. A.

TITLE: On the nature of the "electromechanical" effect in semiconductors

SOURCE: Fizika tverdogo tela, v. 6, no. 7, 1964, 2219-2222

TOPIC TAGS: semiconductor, dislocation motion, microhardness, silicon, germanium, indium antimonide, silicon carbide

ABSTRACT: In spite of the detailed investigation made by Westbrook and Gilman (J. Appl. Phys. v. 33, 2360, 1962) of the change in microhardness of current-carrying Ge, Si, InSb, and SiC, they made no definite assumptions concerning the mechanism of this "electromechanical" effect. The author proposes an explanation based on elementary properties of dislocations in crystals with covalent bonds, where the dislocations serve as centers for predominant set-

Card 1/2

L 00762-66 EWT(l)/T/EWA(h) IJP(c) AT

ACCESSION NR: AP5012591 UR/0181/65/007/005/1584/1586

AUTHOR: Zhdanova, V. V.; Kontorova, T. A.

TITLE: $C_p - C_v$ for Ge with different content of electrically active impurities

SOURCE: Fizika tverdogo tela, v. 7, no. 5, 1965, 1584-1586

TOPIC TAGS: germanium, crystal impurity, impurity center, specific heat, thermal expansion coefficient, carrier density

ABSTRACT: This is a continuation of an earlier paper by one of the authors (Kontorova, FTT v. 4, 3328, 1962), in which the hypothesis was advanced that doping of Ge and Si with electrically active impurities can lead to some increase in the numerical values of their coefficients of thermal expansion. This was confirmed by later experiments (FTT v. 5, 3341, 1963). The authors therefore calculate the difference in the specific heat $C_p - C_v$ and show that this difference depends on the density of the free carriers, which must be taken into account in various types of precision thermal measurements and calculations. The temperature dependence of the relative difference in specific heat is shown in Fig. 1 of the Enclosure. It is assumed that a similar dependence should be exhibited also by Si, α-Sn, and many semiconductor compounds with diamond-like lattice (type $A_{III}B_V$ and $A_{II}B_{VI}$). Orig. art. has: 1 figure and 2 formulas.

Card 1/3

L 00762-66

ACCESSION NR: AP5012591

ASSOCIATION: Institut poluprovodnikov AN SSSR, Leningrad (Institute of Semiconductors AN SSSR) 44,55

SUBMITTED: 29Sep64 ENCL: 01 SUB CODE: SS

NR REF SOV: 003 OTHER: 001

Card 2/3

L 00762-66

ACCESSION NR: AP5012591 ENCLOSURE: 01

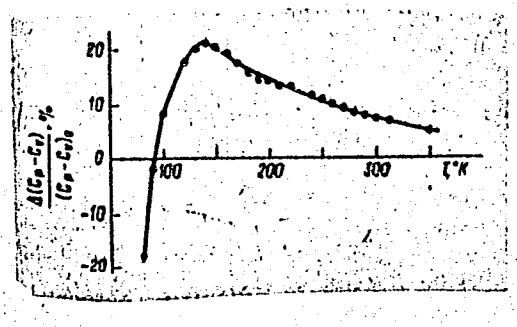

Fig. 1. Temperature dependence of $\frac{\Delta (C_p - C_v)}{(C_p - C_v)_0}$ for p-Ge.

Card 3/3

L 6415-66 EWT(l)/EWT(m)/T/EWP(t)/EWP(b)/EWA(h) IJP(c) JD/AT

ACC NR: AP5027412 SOURCE CODE: UR/0181/65/007/011/3331/3338

AUTHOR: Zhdanova, V. V.; Kontorova, T. A.

ORG: Institute of Semiconductors, AN SSSR, Leningrad (Institut poluprovodnikov AN SSSR)

TITLE: Thermal expansion of doped germanium

SOURCE: Fizika tverdogo tela, v. 7, no. 11, 1965, 3331-3338

TOPIC TAGS: germanium semiconductor, semiconductor research, semiconductor theory, thermal expansion

ABSTRACT: The authors study the effect of impurities on the coefficient of thermal expansion α in *n*-Ge. Germanium doped with phosphorus, arsenic, antimony and silicon was studied. Measurements were made in the 77-350°K range. The carrier concentration was determined from the Hall effect. It was found that α increases with the concentration of electrically active impurities. Curves plotted for α as a function of temperature show that the coefficients of thermal expansion for P-doped Ge and for Ge containing small quantities of antimony were identical throughout the entire

Card 1/2

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L 6415-66
ACC NR: AP5027412

temperature range. In As-doped Ge with $n = 2.1 \cdot 10^{18}$ cm^{-3}, α nearly coincides with that for Sb-doped Ge with approximately the same concentration. These data indicate that α in n-Ge is determined solely by the concentration of free carriers, and not by the type of impurity responsible for these carriers. A study of n-Ge single crystals doped with silicon shows that distortions in the crystal lattice due to replacement of Ge atoms by Si atoms have little effect on the thermal expansion of Ge. The experimental data indicate that the increase in the coefficient of thermal expansion in germanium doped with electrically active impurities is due to free charge carriers, and not to distortions of the lattice by impurity atoms. Theoretical calculations and experimental data show that the thermal expansion of degenerate semiconductors with covalent bonds may be due to the effect of free charge carriers on the specific heat of the crystal lattice and on the Grüneisen constant. Orig. art. has: 2 figures, 1 table, 16 formulas.

SUB CODE: SS,TD/ SUBM DATE: 22Mar65/ ORIG REF: 006/ OTH REF: 008

Card 2/2

BGATOV, V.I.; AKUL'SHINA, Ye.P.; BUDNIKOV, V.I.; GERASIMOV, Ye.K.; GUROVA, T.I.; KAZANSKIY, Yu.P.; KAZARINOV, V.P.; KONTOROVICH, A.E.; KOSOLOBOV, N.I.; LIZALEK, N.A.; MATUKHIN, R.G.; MATUKHINA, V.G.; PETRAKOV, V.U.; RODIN, R.S.; SAVITSKIY, V.Ye.; SHISHKIN, B.B.; GRIN, Ye.P., tekhn. red.

[Lithoformational analysis of sedimentary rocks] Litologo-formatsionnyi analiz osadochnykh tolshch. Pod red. V.I. Bgatova i V.P.Kazarinova). (MIRA 16:7)

1. Sibirskiy nauchno-issledovatel'skiy institutu geologii, geofiziki i mineral'nogo syr'ya.
(Rocks, Sedimentary--Analysis)

KONTOROVICH, A.E.; SADIKOV, M.A.; SHVARTSEV, S.L.

Distribution of some chemical elements in surface and subsoil waters of the northwestern part of the Siberian Platform. Dokl.AN SSSR 149 no.1:179-180 Mr '63. (MIRA 16:2)

1. Sibirskiy nauchno-issledovatel'skiy institut geologii, geofiziki i mineral'nogo syr'ya. Predstavleno akademikom N.M.Strakhovym.

(Siberian Platform--Chemicals)
(Siberian Platform--Water--Analysis)

KONTOROVICH, A.E.; BABINA, N.M.; MININA, L.D.

Some geochemical features of the Mesozoic sediments in the Turukhansk and Napas areas of the West Siberian Plain. Geol. i geofiz. no.6:3-14 '61. (MIRA 14:7)

1. Sibirskiy nauchno-issledovatel'skiy institut gelogii, geofiziki i mineral'nogo syr'ya, Novosibirsk.
(West Siberian Plain—Trace elements)

KONTOROVICH, A.E.; MININA, L.D.; ANTAKOV, R.M.

Use of the method of subjecting samples to the electric discharge of air jets in quantitative spectrum analysis. Trudy SNIIGGIMS no.14:142-148 '61. (MIRA 15:8)

(Rocks—Spectra)

GURARI, F.G.; ZAPIVALOV, N.P.; KONTOROVICH, A.E.; NESTEROV, I.I.; STAVITSKIY, B.P.

Regularities of change in the composition of Mesozoic crudes of the West Siberian Plain. Geol. nefti i gaza 8 no.12:23-27 D '62. (MIRA 18:2)

1. Sibirskiy nauchno-issledovatel'skiy institut geologii, geofiziki i mineral'nogo syr'ya.

KONTOROVICH, A.E.; REZAPOV, A.N.; SADIKOV, M.A.

Some geochemical characteristics of Mesozoic sediments in the northwestern part of the West Siberian Plain. Trudy Inst.geol.i geofiz.Sib. otd.AN SSSR no.20:85-101 '63. (MIRA 17:10)

KONTOROVICH, A.E.

Rare and disseminated elements in the formation waters of oil-bearing sediments in the West Siberian Plain. Lit.i pol.iskop. no.3:282-287 '63. (MIRA 17:10)

1. Sibirskiy nauchno-issledovatel'skiy institut geologii, geofiziki i mineral'nogo syr'ya Gosudarstvennogo geologicheskogo komiteta SSSR, Novosibirsk.

KONTOROVICH, A.E.; STASOVA, O.F.

Geochemistry of oils in the West Siberian Plain. Geol. i geofiz. no.2:13-24 '64. (MIRA 18:4)

1. Sibirskiy nauchno-issledovatel'skiy institut geologii, geofiziki i mineral'nogo syr'ya, Novosibirsk.

BUDNIKOV, V.I.; KONTOROVICH, A.E.

Composition of petroleums as related to the degree of the post-diagenetic change of rocks and the metamorphism of coals. Geol. nefti i gaza 9 no.8:22-26 Ag '65. (MIRA 18:8)

1. Sibirskiy nauchno-issledovatel'skiy institut geologii, geofiziki i mineral'nogo syr'ya, Novosibirsk.

KONTOROVICH, A.E.

Chemical composition of sedimentary rocks in the West Siberian Plain. Dokl. AN SSSR 163 no.4:984-987 Ag '65. (MIRA 18:8)

1. Sibirskiy nauchno-issledovatel'skiy institut geologii, geofiziki i mineral'nogo syr'ya. Submitted April 27, 1965.

S/194/61/000/008/022/092
D201/D304

AUTHORS: Kontorovich, A.E. and Antakov, R.M.

TITLE: Applying the pouring-aerating method in semi-quantitative spectral analysis

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 8, 1961, 18, abstract 8 V148 (Tr. Sibirsk. n.-i. in-ta geol., geofiz. i mineral'n. syr'ya, 1960, no. 10, 60-62)

TEXT: The spectral laboratory of the SNIIGGIMS uses a device for uniform feeding of powders into the discharge region, independently of the powder looseness. A sample weighing 300 ÷ 500 mg is uniformly poured from a tipping measure into a vibrating hopper and from it into the discharge zone. The vibration of the measure and hopper is sustained by an electromagnet. The screw-cylinder tipping the measure is rotated by a СД-2 (SD-2) motor. Such a design makes it possible to use the SD-2 motor as a time relay and to

Card 1/2

S/200/61/000/071/004/005
D207/D304

AUTHOR: Kontorovich, A.E.

TITLE: Some features of an arc as a light source for spectrochemical analysis using an air jet to introduce a sample into the discharge

PERIODICAL: Akademiya nauk SSSR. Sibirskoye otdeleniye. Izvestiya, no. 11, 1961, 132-135

TEXT: The author describes a study of an electric arc in air used as a spectroscopic light source and shows the advantages of using an air jet to introduce powdered samples into the arc. The arc was connected to a ДГ-2 (DG-2) generator. Powdered samples of K, Ba, Al, Ca, Fe, Si salts or oxides, of sulphur and of spectrally pure carbon were fed to the arc for 30 sec. each. The spectra were recorded with a ИСП-28 (ISP-28) spectrograph on "Pankhrom" film of 16 ГОСТ (GOST) sensitivity units. Between 30 and 70 spectrograms were taken in each test run. The arc temperature was deduced from Cu I lines at 5105.6 and 5153.2 Å; the degree of ionization was found from the ratio of the Mg I and Mg II lines

Card 1/3

Card 2/3

Some features of an ...

sample itself should be carefully ground to a fine powder. There are 2 figures and 14 references: 13 Soviet-bloc and 1 non-Soviet bloc. The reference to the English-language publication reads as follows: N.W.H. Addink, Colloquium Spectroscopium Internationale VI, Spectrochimica acta, Pergamon Press, London, 1957.

ASSOCIATION: Sibirskiy nauchno-issledovatel'skiy institut geologii, geofiziki i mineral'nogo syr'ya, Novosibirsk (Siberian Scientific-Research Institute for Geology, Geophysics and Mineral Ores, Novosibirsk)

SUBMITTED: January 20, 1961

Card 3/3

KONTOROVICH, A.E.; BOGORODSKAYA, L.I.; LIPNITSKAYA, L.F.; MEL'NIKOVA, V.M.; STASOVA, O.F.

Disseminated hydrocarbons in the Jurassic sediments of the West Siberian Plain. Dokl. AN SSSR 162 no.2:428-431 My '65. (MIRA 18:5)

1. Submitted June 22, 1964.

PUGACHEV, Aleksandr Sergeyevich; LEBEDEV, V.I., inzh., retsenzent; NESTEROV, P.A., inzh., retsenzent; KORKIN, F.S., dotsent, nauchnyy r[illegible]; SOSIPATROV, O.A., red.; KONTOROVICH, A.I., tekhn. red.

[Developed area of sheet structure elements] Razvertki elementov listovykh konstruktsii. Izd. 2., perer. i dop., Leningrad, Sudpromgiz, 1963. 319 p. (MIRA 16:6)
(Sheet—Metal work) (Shipfitting)

KONTOROVICH, A.I.

KITAYENKO, G.I, laureat Stanlinskoy premii, redaktor.POVYSHEV, A.D., inzhener; KHOKHLOV, A.I., inzhener, retsenzent;KONTOROVICH, A.I. tekhnicheskiy redaktor; FRUMKIN, P.S., tekhnicheskiy redaktor.

[Electrician's manual] Spravochnik elektromontazhnika.Moskva, Gos. nauchno-tekhn.izd-vo mashinostroitel'noi i sudostroitel'noi lit-ry. — Vol. 2 1953. 275 p. [Microfilm] (MLRA 8:9)
(Electricity on ships) (Telegraph, Wireless- Installation on ships)

KONTOROVICH, A.I., (Leningrad).

Make-up of technical book manuscripts in printing without galley proofs. Poligr. proiz. 4:19-22 Ap '53. (MLRA 6:6)

(Printing industry--Make-up)

BUZIK, Valentin Filippovich; DORMIDONTOV, F.K., redaktor; KONTOROVICH, A.I., tekhnicheskiy redaktor

[Intershop operational planning and production accounting in shipbuilding plants] Mezhtsekhovoe operativnoe planirovanie i uchet proizvodstva na sudostroitel'nykh zavodakh. Leningrad, Gos. soiuznoe izd-vo sudostroit. promysl., 1955. 85 p. (MLRA 9:10)
(Shipbuilding)

KONTOROVICH, Arkadiy Iosifovich; PASHCHINSKAYA, G.N., redaktor; ALEKSANDROV, V.I., tekhnicheskiy redaktor.

[Printing technical works without using galley proofs)
Bezgranochnyi metod izdaniia tekhnicheskoi literatury. Moskva, Gos.izd-vo "Iskustvo," 1955. 93 p. (MLRA 9:1)
(Printing)

KON[illegible]

[illegible]tional amplifiers and multipliers for automatic control systems. Sbor. st. NIITIAVTOMASHm Uralmashzavoda no.7:65-103 '65.
(MIRA 18:10)

KONTOROVICH, B.I.

Electronic tachometer in automatic control systems for cold rolling mills. Prokat. proizv. no.2:85-91 '60. (MIRA 14:11)
(Rolling mills)
(Automatic control)

GURVICH, E.D.; DRALYUK, B.N.; KONTOROVICH, B.I.

Equipment of automatic breaking and precision stoppage of a reversing cold rolling mill. Prokat. proizv. no.2:73-84 '60. (MIRA 14:11)

(Rolling mills)
(Automatic control)

Card 1/1

IVASHUK, N.F.; KONTOROVICH, B.M.

Designing and building the hulls of ships of the Soviet transport fleet. Sudostroenie no.11:15-20 N '65
(MIRA 19:1)

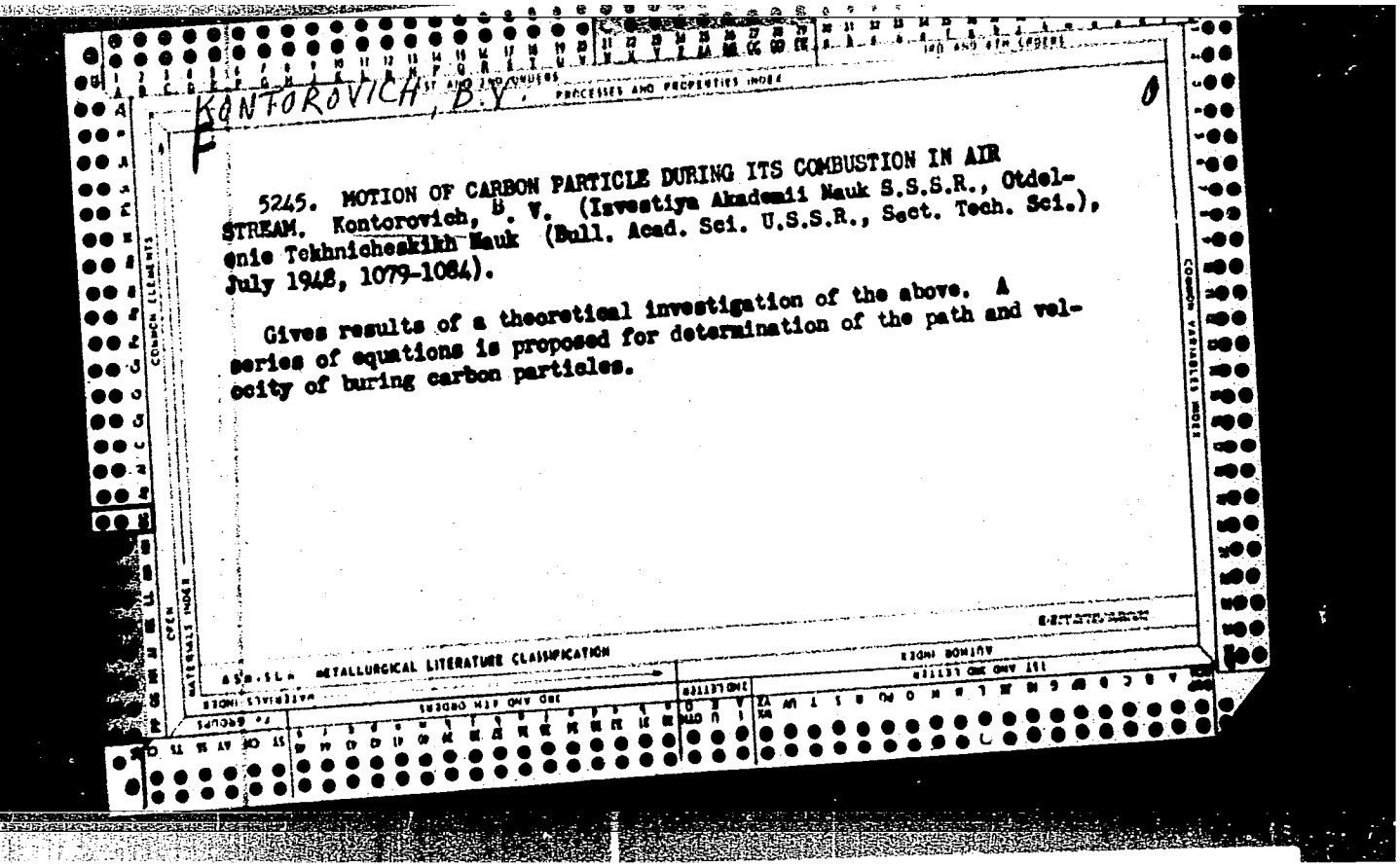
KONTOROVICH, B.M.

BELKIN, V.P., doktor tekhn.nauk, prof.; BEL'GOVA, M.A., kand.tekhn.nauk; KOVALEVSKIY, G.V., kand.tekhn.nauk; MASYAGIN, A.V., kand.tekhn.nauk; NEBYLOV, V.M., kand.tekhn.nauk; RYABOV, L.I., kand.tekhn.nauk; SIVERS, N.L., kand.tekhn.nauk; SOKOLOVA, A.S., kand.tekhn.nauk; TAUBIN, G.O., kand.tekhn.nauk; KONTOROVICH, B.M., inzh.

"Designing ships' hulls" by A.A. Pravdin. Reviewed by V.P. Belkin and others. Sudostroenie 24 no.8:78-79 Ag '58. (MIRA 11:10)
(Hulls(Naval architecture))

VASIL'YEV, Aleksey Leonidovich; GLOZMAN, Moisey Kalmanovich; PAVLINOVA, Yevgeniya Alekseyevna; FILIPPEO, Maksim Valentinovich; GOMBERG, Ye.M., inzh., retsenzent; KOROTKIN, Ya.I., kand. tekhn. nauk, retsenzent; KONTOROVICH, B.M., nauchn. red.; KLIORINA, T.A., red.

[High-strength corrugated ship bulkheads] Prochnye sudovye gofrirovannye pereborki. [By] A.L.Vasil'ev i dr. Leningrad, Sudostroenie, 1964. 315 p. (MIRA 18:3)



KANTOROVICH, B.V.

5245. MOTION OF CARBON PARTICLE DURING ITS COMBUSTION IN AIR STREAM. Kontorovich, B. V. (Izvestiya Akademii Nauk S.S.S.R., Otdelenie Tekhnicheskikh Nauk (Bull. Acad. Sci. U.S.S.R., Sect. Tech. Sci.), July 1948, 1079-1084).

Gives results of a theoretical investigation of the above. A series of equations is proposed for determination of the path and velocity of buring carbon particles.

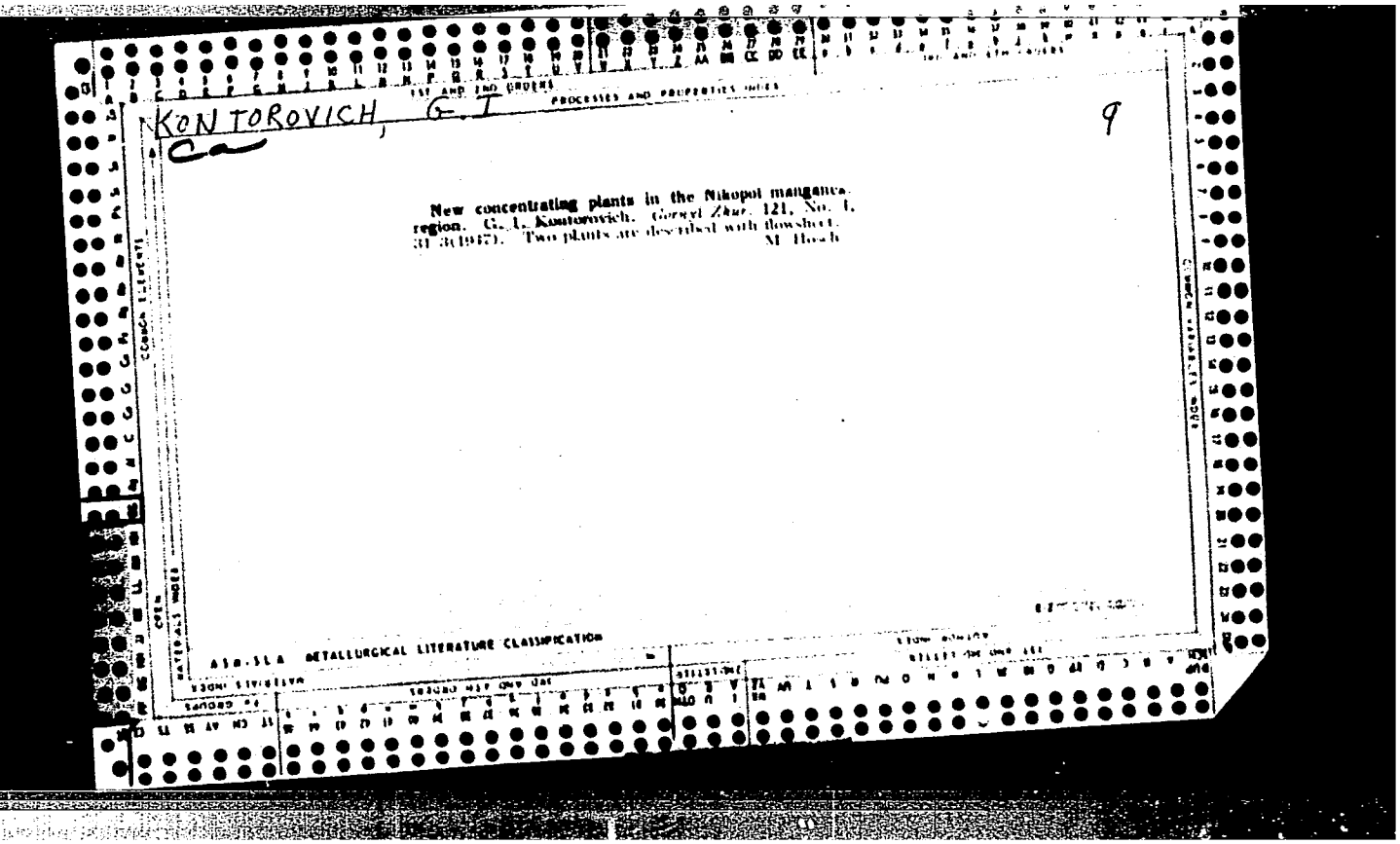
KONTOROVICH, B.Ya.

The SSP-1, 5 multipurpose grading tables. Biul.tekh.-ekon.inform. no.7:80-82 '61. (MIRA 14:8)
(Corn (Maize)--Grading)

DMITRENKO, L.M.; KUZNETSOV, L.D.; KANYSHINA, Ye.A.; KONTOROVICH, G.I.

Selection of raw materials for the production of catalysts for ammonia synthesis. Khim. prom. no.10:750-752 O '63. (MIRA 17:6)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut azotnoy promyshlennosti i produktov organicheskogo sinteza i TSentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii imeni I.P. Bardina.



KONTOROVICH, G.I.

9

New concentrating plants in the Nikopol manganese region. G. I. Kontorovich. Gornyi Zhur. 121, No. 1, 31-3(1947). Two plants are described with flowsheet. M. Hoch

A10-51A METALLURGICAL LITERATURE CLASSIFICATION

KONTOROVICH, G. I., ENGINEER — Cand Tech Sci

Dissertation: "Technological Peculiarities of Dressing the Manganese Ores of Nikopol' and Chiatura Districto and Classification of the Ores of Major Manganese Deposits in the USSR ."

25 Feb 49

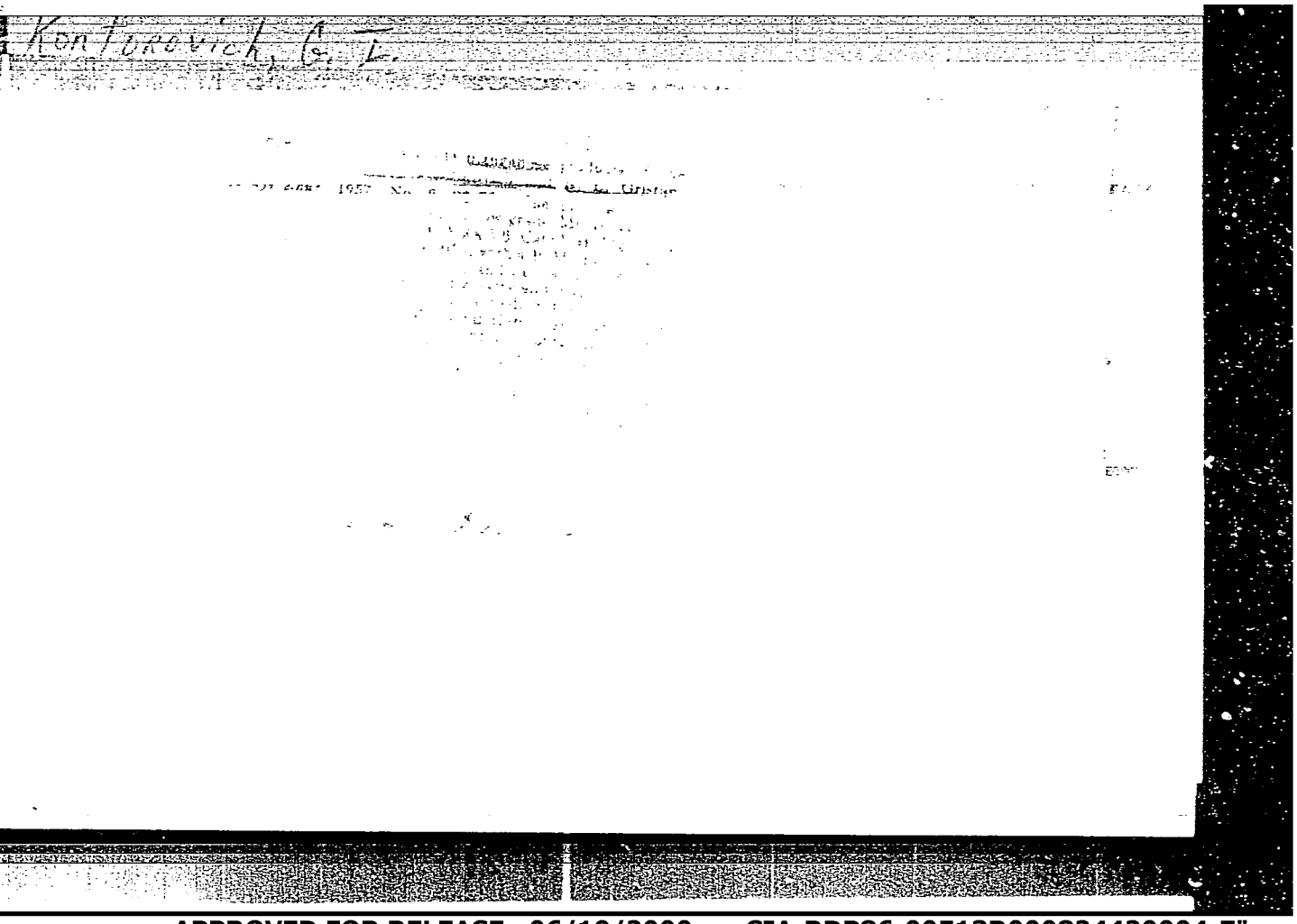
Inst of Mining, and Acad Sci USSR

SO Vecheryaya Moskva
3um 71

C. A.

9

Behavior of phosphorus in dressing manganese ores. G. I. Kuntorovich. *Gornyi Zhur.* 125, No. 10, 33(1931). - A study of the principal deposits of Mn ores in the U.S.S.R. was the basis for a classification of these ores and of processes for reducing P in the concentrates to a min. The P was assocd. primarily with the gang and with psilomelane. The latter absorbs P in the process of braunite oxidation. In the 2 examples quoted raising the Mn content and lowering the P content in the concentrate was attained by proper sizing. M. Hosch



KONTOROVICH, G.I.

AUTHOR: Kontorovich, G.I. 32-8-56/61

TITLE: Central Scientific Research Institute for the Treatment of Ores (Tsentralnyy nauchno-issledovatel'skiy institut podgotovki rud). Review (Referat)

PERIODICAL: Zavodskaya Laboratoriya, 1957, Vol. 23, Nr 8, pp. 1008-1008 (USSR)

ABSTRACT: Reference is made to the work by Luigi Usoni: Il Centro di Studi per la preparazione dei minerali, Roma (1956). A report is made on the Central Institute of Scientific Research for the Treatment of Ores, which was founded in Rome in 1954. The tasks to be undertaken by the Institute and the research work to be carried out by it are dealt with. A particularly detailed report is given concerning all scientific plants and apparatus of the said Institute, as well as of the latest achievements and methods employed, such as the application of radioactive isotopes, etc.

AVAILABLE: Library of Congress

Card 1/1

KONTOROVICH, G.I.

127-58-5-18/30

AUTHOR: Kontorovich, G.I., Candidate of Technical Sciences

TITLE: Improvement of the Concentrate Quality and Iron Extraction in the Olenegorsk Plant (Povysheniye kachestva kontsentrata i izvlecheniya zheleza na Olenegorskoy fabrike)

PERIODICAL: Gornyy Zhurnal, 1958, Nr 5, pp 59-61 (USSR)

ABSTRACT: The comparatively low quality of concentrate produced by the Olenegorsk Plant and low extraction of iron, about 75%, is explained by imperfect concentration processes. Research carried out by the Laboratory of Concentration of the TsNIIChM at the end of 1957 (in co-operation with A.D. Samsonov) proved the possibility of obtaining concentrate with 62% iron content and extraction over 80%. Calculations performed on the basis of this research and experiments have shown that the introduction of magnetic separation of the intermediate product into the concentration process increased the degree of iron extraction and reduced more than twice the load on the concentration devices, thereby considerably improving their operation.

Card 1/2

127-58-5-18/30

Improvement of the Concentrate Quality and Iron Extraction in the Olenegorsk Plant

There are 2 diagrams, 2 tables, and 2 Soviet references.

ASSOCIATION: TsNIIchermet

AVAILABLE: Library of Congress

Card 2/2 1. Ores-Processing 2. Iron 3. Mines

S/127/60/000/012/005/005
B012/B054

AUTHORS: Yarkho, N. A. and Kontorovich, G. I. (Moscow)

TITLE: Enrichment of oxide iron ores to obtain concentrates containing metallic iron

PERIODICAL: Gornyy zhurnal, no. 12, 1960, 44-46

TEXT: Since oxide iron ores are finely interspersed in most deposits of the USSR (Krivorozhskiy Basin, Lisakovskoye deposit, Ayatskoye deposit, Kerchenskoye deposit, etc.), gravity- and magnetic dressing are not sufficient to meet the high demands made on the quality of concentrates. As calculations of the institut Mekhanobr (All-Union Scientific Research Institute for Mechanical Processing of Minerals) for the Tsentral'nyy gorno-obogatitel'nyy kombinat (Central Combine of Mining and Dressing) in Krivoy Rog have shown, flotation is cheaper but very difficult with brown iron ores of complex composition. In 1956, the authors carried out investigations at the laboratoriya obogashcheniya (Laboratory of Dressing) of their association. It was shown to be possible to obtain lumps with 60-70% of metallic iron from the concentrates of the KMA, YuGOK, and the

Enrichment of oxide iron ores...

Olenegorskaya obogatitel'naya fabrika (Olenegorskaya Dressing Plant). The development of a method of dressing oxide iron ores to obtain concentrates with a metallic iron content (Ref., footnote p.45, patent application no. 622312/22) has been started in 1957. Oxide quartzites from Krivoy Rog and brown iron ores from the Akkermanovskoye deposit, Lisakovskoye deposit, and Kerchenskoye deposit were used as initial materials. On the basis of these investigations, the authors state as follows: 1) Roasting of iron ores at high temperatures (1100-1200°C) permits to obtain concentrates with more than 90% iron (85-90% of which is metallic iron) in high yields. Brown iron ores which are difficultly enriched can be efficiently dressed by this method. 2) The use of this method for dressing naturally alloyed iron-chrome-nickel ores warrants a nearly complete transfer of nickel into the concentrates, and the elimination of the major part of chromium from them. 3) Due to solidification of the charge, and increase in thermal conductivity, the reduction rate increases by the 5-7 fold. 4) The increase in costs is compensated by the saving of coke and the increase in output of metallurgical machines. 5) The concentrates obtained can be formed to pieces by briquetting or sintering in a reducing medium. The principal advantage of this method

KONTOROVICH, G.I.

Phosphorus distribution during the dressing of manganese ores.
Obog.rud. 7 no.1:11-14 '62. (MIRA 15:3)
(Manganese ores) (Ore dressing)

KONTOROVICH, G.I. kand.tekhn.nauk

Efficeint use of Chiatura pyrolusite,base ore resources. Gor. zhur. no.3:78 Mr '62. (MIRA 15:7)

1. TSentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii, Moskva.
(Chiatura region--Pyrolusite) (Ore dressing)

KONTOROVICH, G. I., kand. tekhn. nauk; KRASNYKH, I. F., inzh.;
SHIRER, G. B., kand. tekhn. nauk

Efficient use of Nikopol' manganese ores in the production of manganese alloys. Gor. shur. no.10:56-62 O '62.
(MIRA 15:10)

1. TSentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii im. I. P. Bardina, Moskva.

(Nikopol' region—Manganese ores)
(Ore dressing)

ZVEREV, L.V.; KONTOROVICH, G.I.; CHERNYSHEV, G.B., nauchnyy red.; STOLYAROV, A.G., red.izd-va; BYKOVA, V.V., tekhn. red.

[Industry's requirements as to the quality of mineral raw materials]Trebovaniia promyshlennosti k kachestvu mineral'nogo syr'ia; spravochnik dlia geologov. Izd.2., perer. Moskva, Gosgeoltekhizdat. No.24. [Manganese]Marganets. 1960. 57 p. (MIRA 16:3)

1. Moscow. Vsesoyuznyy nauchno-issledovatel'skiy institut mineral'nogo syr'ia.

(Manganese)

KONTOROVICH, G.I., kand.tekhn.nauk

Dressing iron-manganese ores of the Atasu group of deposits. Gor. zhur. no.9:64-66 S '63. (MIRA 16:10)

KONTOROVICH, G.I., kand. tekhn. nauk

Obtaining low-phosphorus manganese concentrates from low-grade products. Gor. zhur. no.2:67-68 F '65. (MIRA 18:4)

KONTOROVITCH, I.

"Cancer primaire du poumon." Kontorovitch, I., et Petrino, K., (p. 472)

SO: Journal of General Chemistry (Zhurnal Obshchei Khimii) 1940, Volume 18, no. 5.

GORBUSHIN, P.B.; GUREVICH, M.S.; NEBOL'SIN, I.S.; BUKSHTEYN, D.I.; VAYNTSVAYG, A.S.; LAZAREVICH, S.K.; KARTSEV, Yu.V.; KONTOROVICH, I.A.; KHLYBOVA, A.S.; TSIMBALYUK, A.F.; KUTSENOVA, A.A., red. izd-va; NAUMOVA, G.D., tekhn.red.; TEMKINA, Ye.L., tekhn.red.

[Long-range planning for the expansion and location of sources of supply of building materials and equipment for the construction industry in economic administrative regions; basic regulations] Perspektivnoe planirovanie razvitiia i razmeshcheniia material'no-tekhnicheskoi bazy stroitel'stva v ekonomicheskikh administrativnykh raionakh; osnovnye polozheniia. Moskva, Gos.izd-vo lit-ry po stroit., arkhit. i stroit.materialam, 1960. 78 p. (MIRA 13:9)

1. Akademiya stroitel'stva i arkhitektury SSSR. Institut ekonomiki stroitel'stva. 2. Institut ekonomiki Akademii stroitel'stva i arkhitektury SSSR (for Nebol'sin, Bukshteyn, Vayntsvayg, Lazarevich, Kartsev). 3. Otdel ekonomiki i organizatsii Gosstroya SSSR (for Kontorovich, Khlybova, TSimbalyuk).
(Building materials industry) (Construction industry)

KONTOROVICH, I., kand.arkhitektury

Building density in a microdistrict. Na stroi.Ros. 3 no.4: 5-6 Ap '62. (MIRA 15:9)
(City planning)

YEGOROVA, Tat'yana Mikhaylovna; KANIVETS, M.A., retsenzent; RYZHYKH, I.I., starshego prepod., retsenzent; STEPANOV, S.P., assistent, retsenzent; GENDEL'MAN, M.A., prof., retsenzent; GENDEL'MAN, A.M., kand. ekon. nauk, retsenzent; KUROPATENKO, F.K., prof., retsenzent; KONTOROVICH, I.A., starshiy prep., retsenzent; YEROFEYENKO, A.G., assisten, retsenzent; DAVYDOV, G.P., red.; SHAMAROVA, T.A., red. izd-va; SUNGUROV, V.S., tekhn. red.

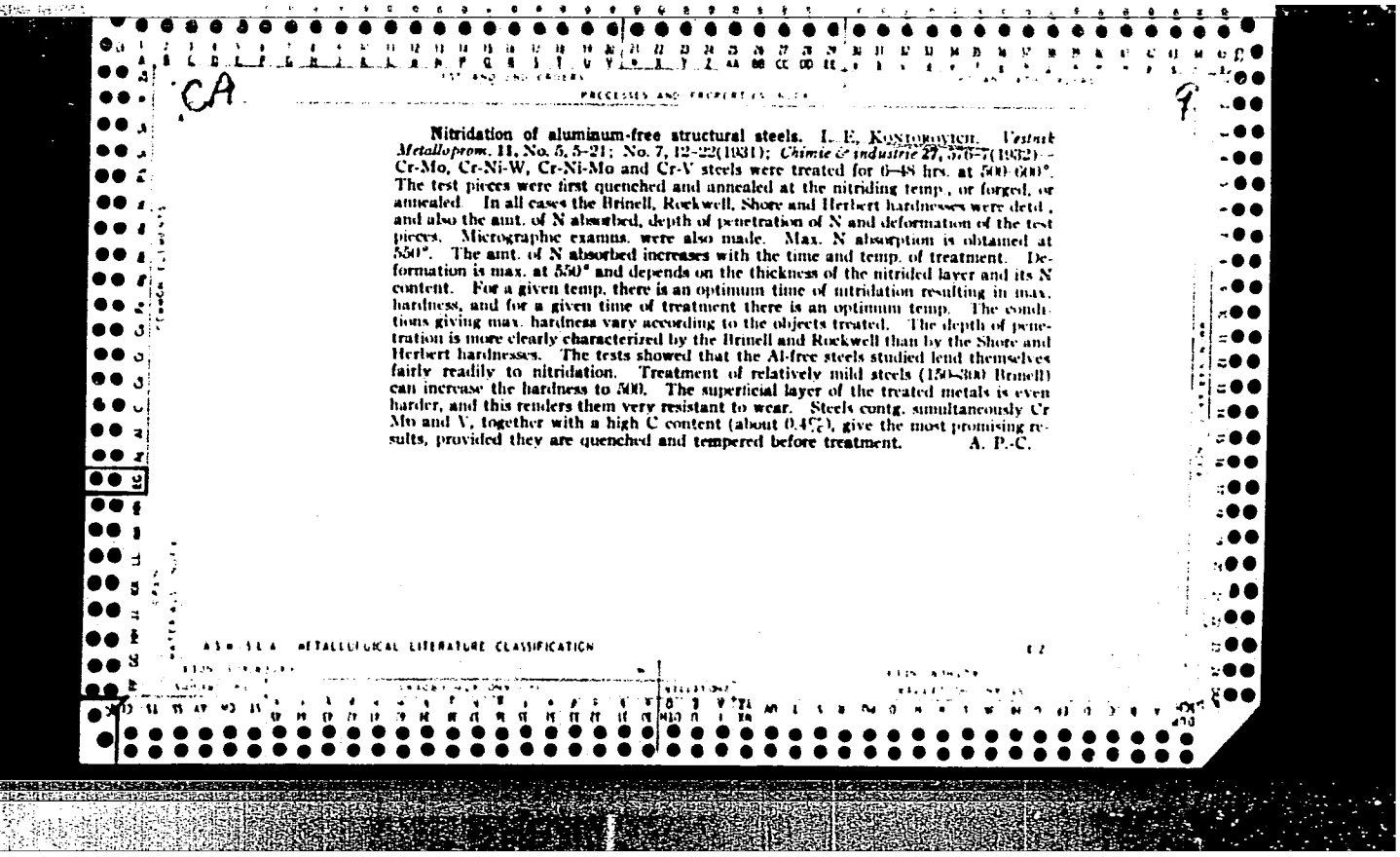
[Topographical drawing]Topograficheskoe cherchenie. Moskva, Geodezizdat, 1961. 158 p. (MIRA 15:8)

1. Zaveduyushchiy kafedroy geodezii Omskogo sel'skokhozyaystvennogo instituta (for Kanivets). 2. Zaveduyushchky kafedroy zamleustroystva TSelinogradskogo sel'skokhozyaystvennogo instituta (for Gendel'man, M.A.). 3. Zaveduyushchiy kafedroy zemleproyektirovaniya i planirovki sel'skikh zaselennykh mest Belorusskoy sel'skokhozyaystvennoy akademii (for Kuropatenko). (Topographical drawing)

DROZDOVA, Z.S.; KONTOROVICH, I.A.

Removal of a solitary liver adenoma of large dimensions. Vest. khir. no.6:83 '62. (MIRA 15:11)

1. Iz Kuybyshevskogo oblastnogo gospitalya dlya invalidov Otechestvennoy voyny (nach. - V.P. Kolevatykh).
(LIVER--TUMORS)

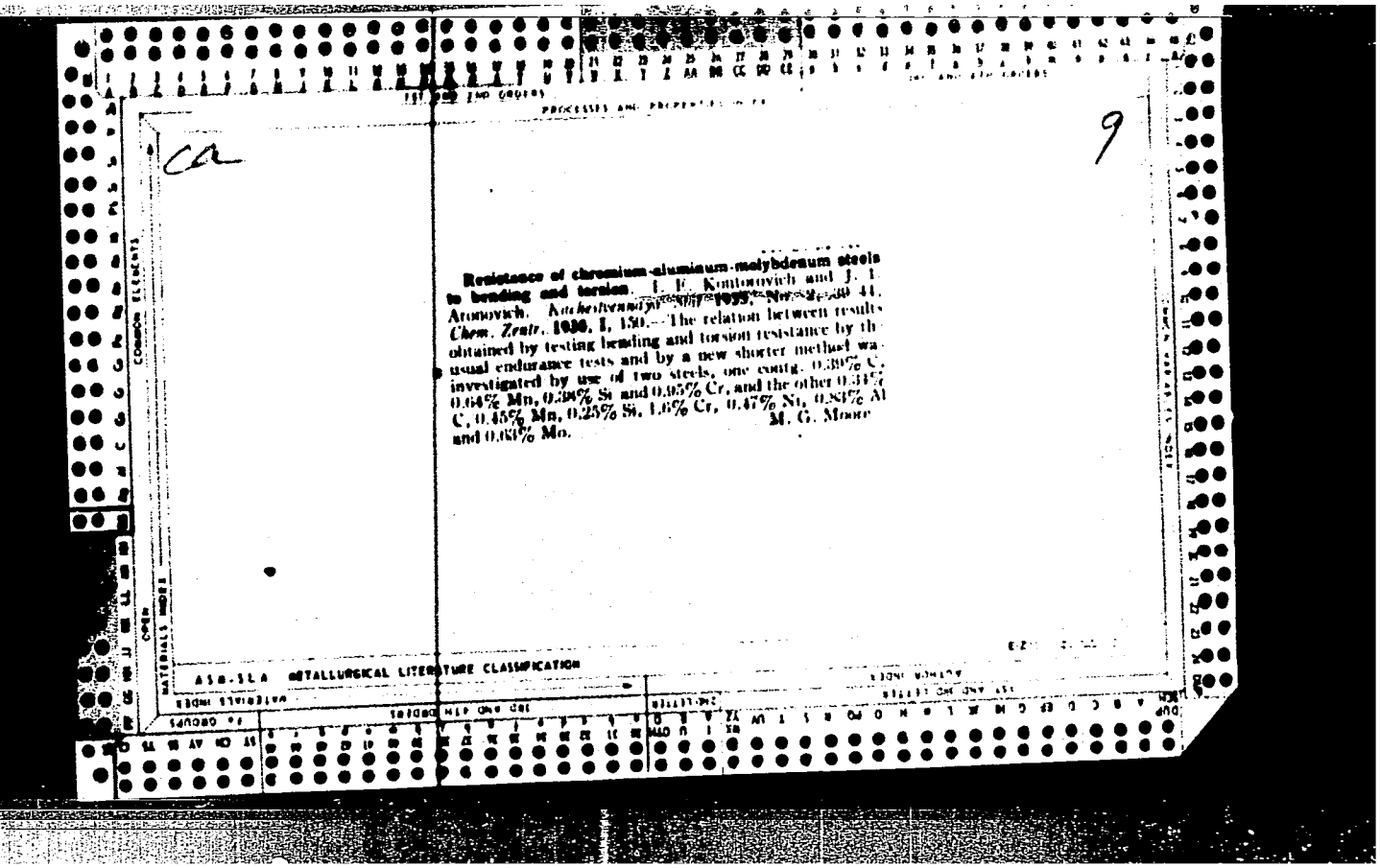


CA

PROCESSES AND PROPERTIES

Nitridation of aluminum-free structural steels. I. E. Kontorovich. *Vestnik Metalloprom.* 11, No. 5, 5–21; No. 7, 12–22(1931); *Chimie & industrie* 27, 570–7(1932).—Cr-Mo, Cr-Ni-W, Cr-Ni-Mo and Cr-V steels were treated for 0–48 hrs. at 500–600°. The test pieces were first quenched and annealed at the nitriding temp., or forged, or annealed. In all cases the Brinell, Rockwell, Shore and Herbert hardnesses were detd., and also the amt. of N absorbed, depth of penetration of N and deformation of the test pieces. Micrographic examns. were also made. Max. N absorption is obtained at 550°. The amt. of N absorbed increases with the time and temp. of treatment. Deformation is max. at 550° and depends on the thickness of the nitrided layer and its N content. For a given temp. there is an optimum time of nitridation resulting in max. hardness, and for a given time of treatment there is an optimum temp. The conditions giving max. hardness vary according to the objects treated. The depth of penetration is more clearly characterized by the Brinell and Rockwell than by the Shore and Herbert hardnesses. The tests showed that the Al-free steels studied lend themselves fairly readily to nitridation. Treatment of relatively mild steels (150–300 Brinell) can increase the hardness to 500. The superficial layer of the treated metals is even harder, and this renders them very resistant to wear. Steels contg. simultaneously Cr Mo and V, together with a high C content (about 0.4%), give the most promising results, provided they are quenched and tempered before treatment. A. P.-C.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Resistance of chromium-aluminum-molybdenum steels to bending and torsion. I. P. Kontorovich and J. I. Aronovich. *Kachestvennaya* [illegible] 1939, No. [illegible] 44. *Chem. Zentr.*, **1940**, I, 150.—The relation between results obtained by testing bending and torsion resistance by the usual endurance tests and by a new shorter method was investigated by use of two steels, one containing 0.30% C, 0.04% Mn, 0.58% Si and 0.95% Cr, and the other 0.31% C, 0.45% Mn, 0.25% Si, 1.6% Cr, 0.47% Ni, 0.88% Al and 0.68% Mo.

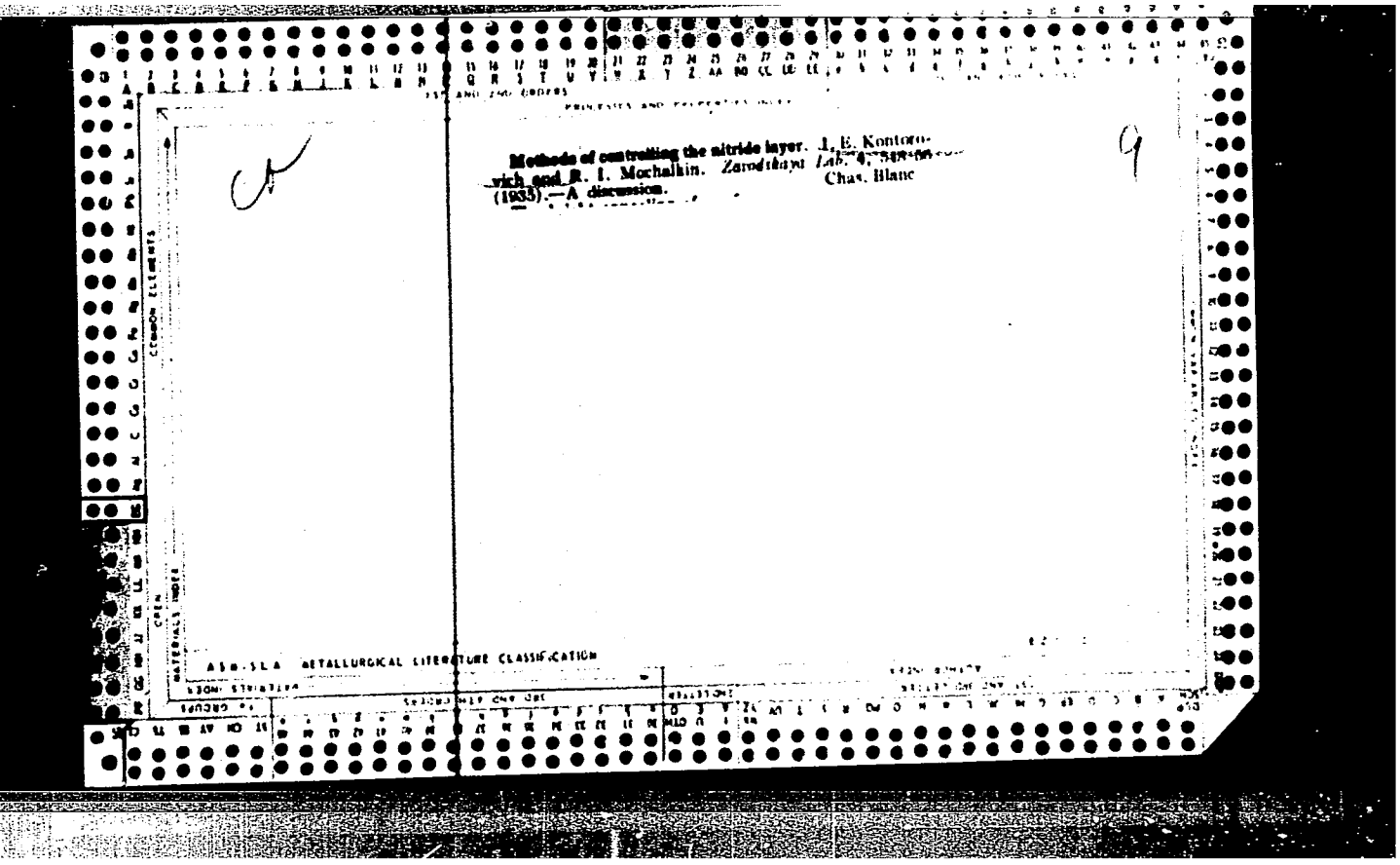
M. G. Moore

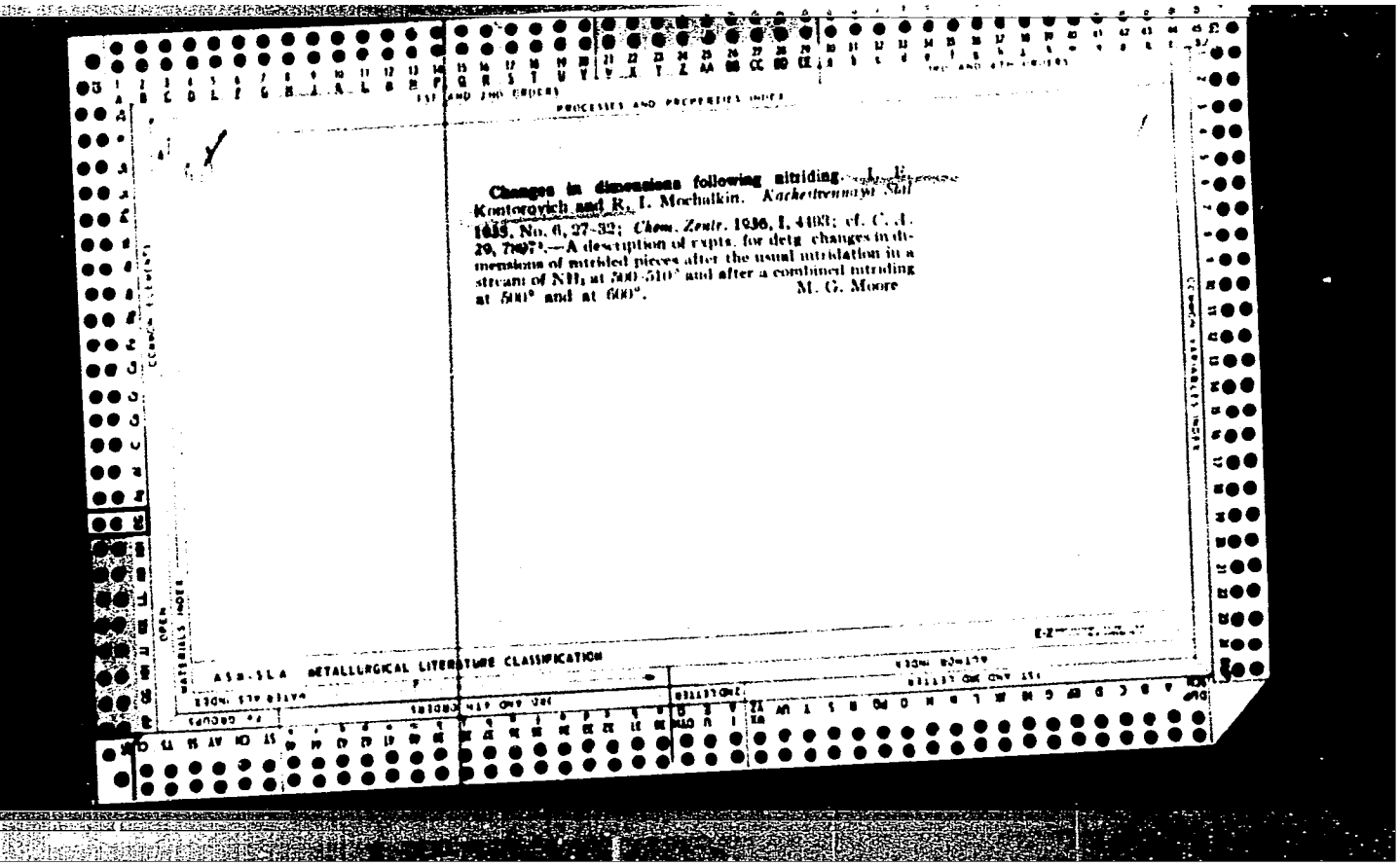
PROCESSES AND PROPERTIES INDEX

Austenite disintegration in chrome manganese molybdenum steels at constant temperature. L. I. Kontorovich. *Kachestvennaya Stal* **1935**, No. 4, 16-22; *Chem. Zentr.* **1936**, I, 4356.—The behavior of a Cr-Mo-Mn steel contg. C 0.38, Mn 0.86, Cr 1.72, Mo 0.50 and Si 0.35% in the case of both isothermal and step by step treatment was investigated by means of magnetometric measurements. Studies of structure and of mech. properties are reported. The regions of greatest and least resistance to austenite formation as well as the influence of the conditions of heat treatment (heating temp., cooling velocity) upon this property were detd. The 3 regions of slight austenite resistance obtained were at 700°, at 450-350° and below 300° (martensite transition).

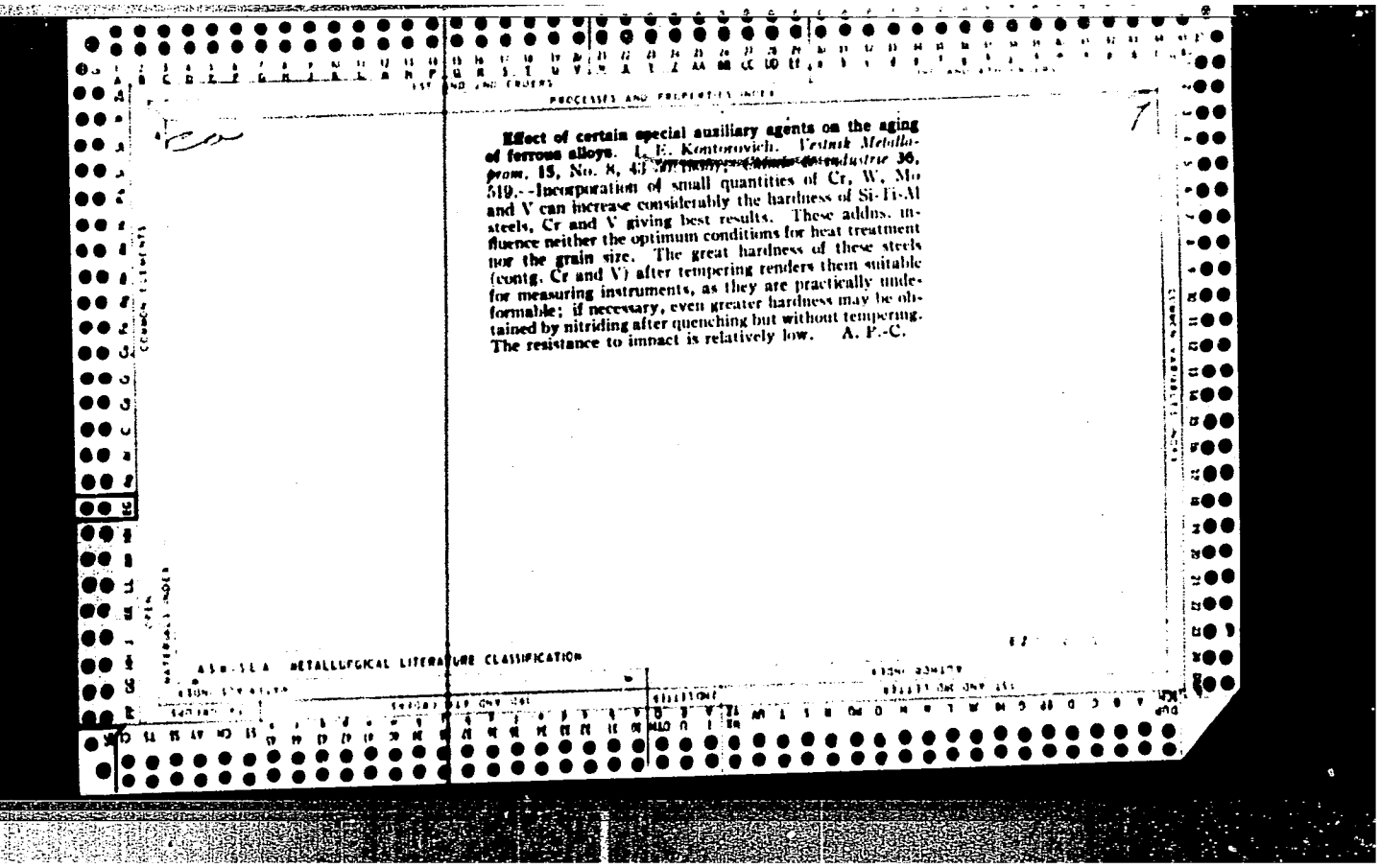
M. G. M.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

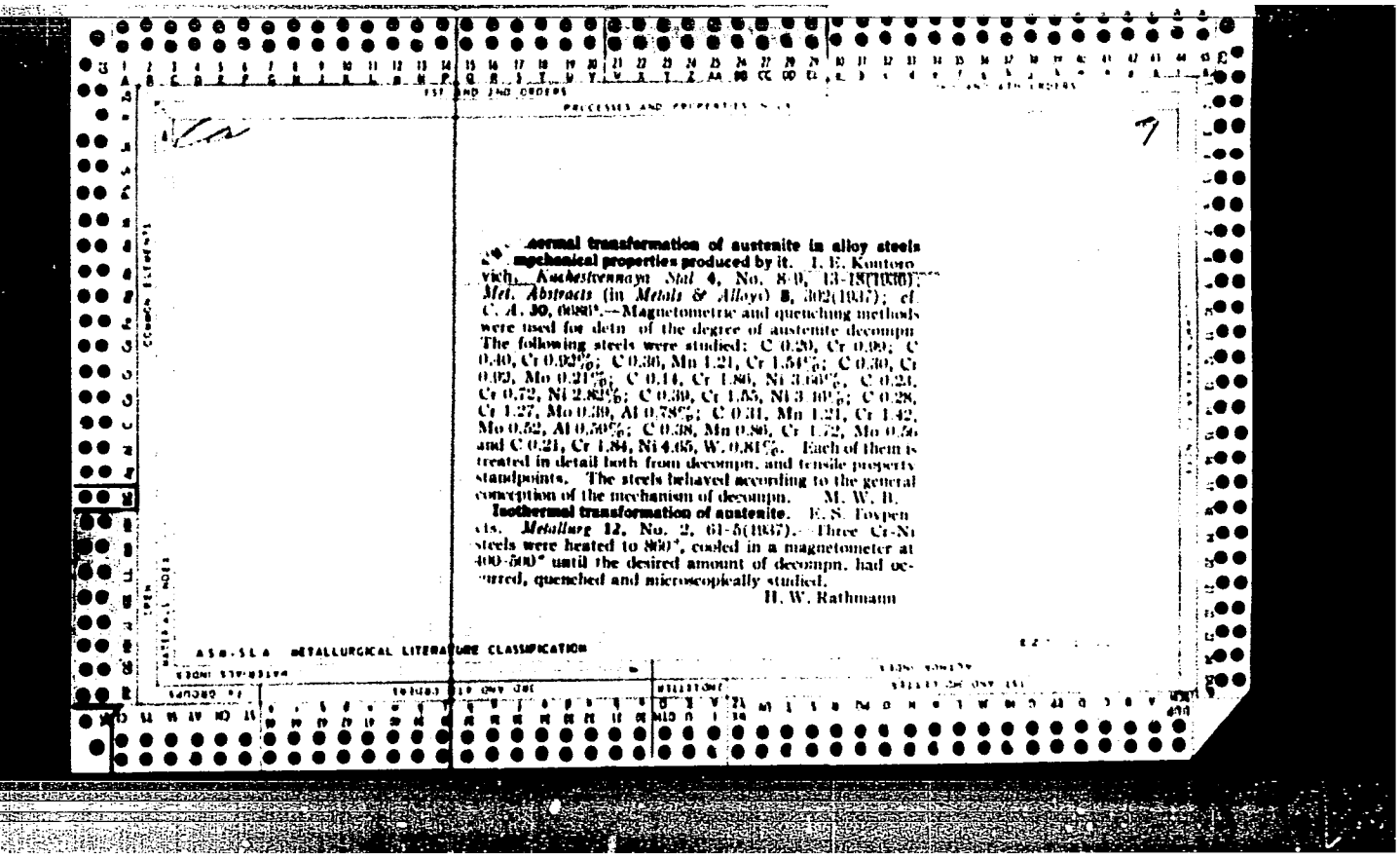




Changes in dimensions following nitriding. L. E. Kontorovich and R. I. Mochalkin. *Kachestvennaya Stal* 1935, No. 6, 27-32; *Chem. Zentr.* 1936, I, 4403; cf. C. A. 29, 7997⁹.—A description of expts. for detg changes in dimensions of nitrided pieces after the usual nitridation in a stream of NH_3 at 500-510° and after a combined nitriding at 500° and at 600°. M. G. Moore



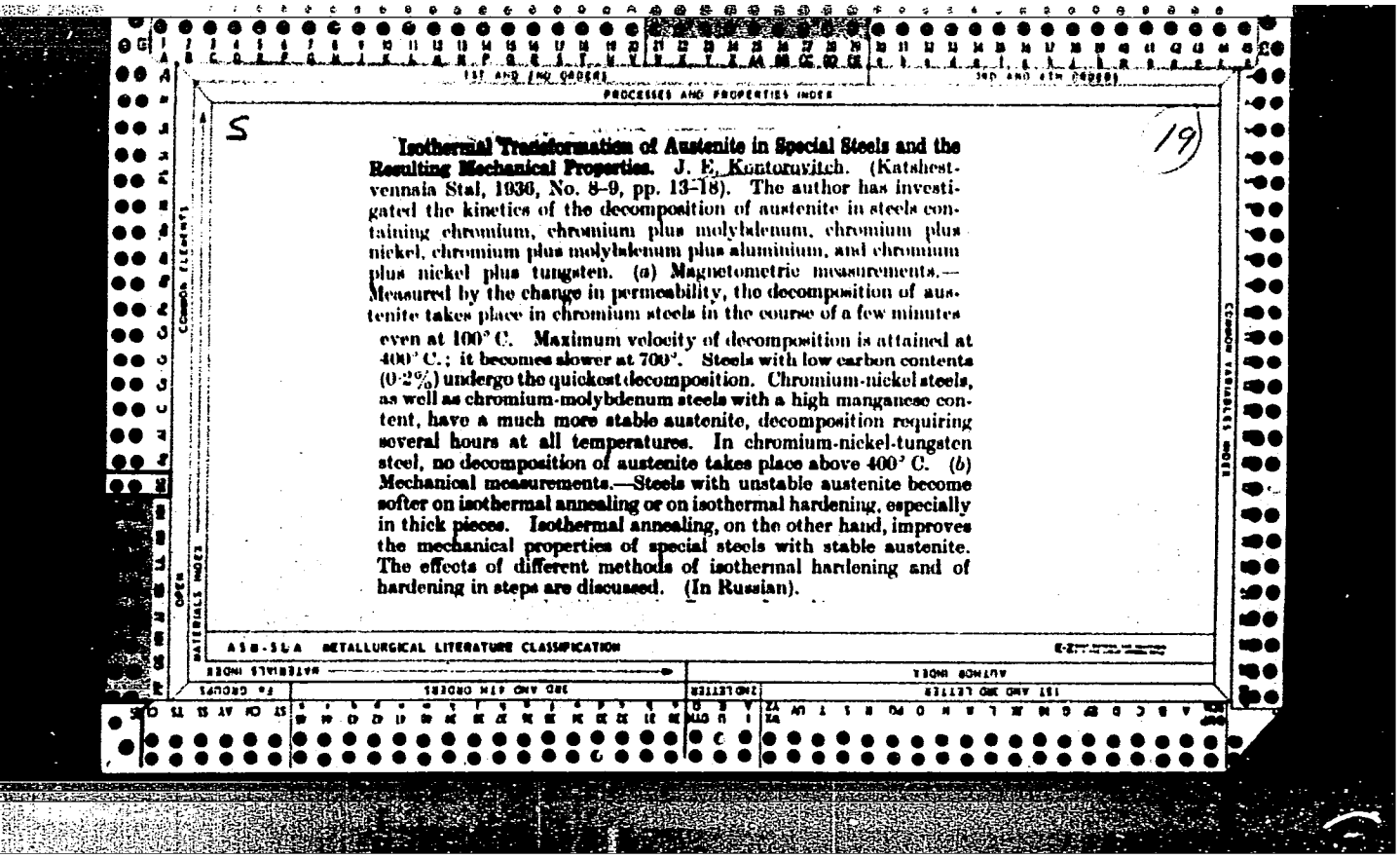
Effect of certain special auxiliary agents on the aging of ferrous alloys. L. E. Kontorovich. *Vestnik Metallopromyshlennosti* **36**, 519.--Incorporation of small quantities of Cr, W, Mo and V can increase considerably the hardness of Si-Ti-Al steels, Cr and V giving best results. These addns. influence neither the optimum conditions for heat treatment nor the grain size. The great hardness of these steels (contg. Cr and V) after tempering renders them suitable for measuring instruments, as they are practically undeformable; if necessary, even greater hardness may be obtained by nitriding after quenching but without tempering. The resistance to impact is relatively low. A. P.-C.



Normal transformation of austenite in alloy steels mechanical properties produced by it. I. E. Kontorovich. *Kachestvennaya Stal* **4**, No. 8-9, 13-18(1936); *Met. Abstracts* (in *Metals & Alloys*) **8**, 302(1937); cf. *C. A.* **30**, 8088⁹.—Magnetometric and quenching methods were used for detn. of the degree of austenite decompn. The following steels were studied: C 0.20, Cr 0.99; C 0.40, Cr 0.93%; C 0.36, Mn 1.21, Cr 1.54%; C 0.30, Cr 0.93, Mo 0.21%; C 0.14, Cr 1.80, Ni 3.10%; C 0.21, Cr 0.72, Ni 2.82%; C 0.30, Cr 1.55, Ni 3.10%; C 0.28, Cr 1.27, Mo 0.30, Al 0.78%; C 0.31, Mn 1.21, Cr 1.42, Mo 0.52, Al 0.50%; C 0.38, Mn 0.80, Cr 1.72, Mo 0.5; and C 0.21, Cr 1.84, Ni 4.05, W, 0.81%. Each of them is treated in detail both from decompn. and tensile property standpoints. The steels behaved according to the general conception of the mechanism of decompn. M. W. R.

Isothermal transformation of austenite. E. S. Toypen eis. *Metallurg* **12**, No. 2, 61-5(1937).—Three Cr-Ni steels were heated to 800°, cooled in a magnetometer at 400-500° until the desired amount of decompn. had occurred, quenched and microscopically studied.

H. W. Rathmann



PROCESSES AND PROPERTIES INDEX

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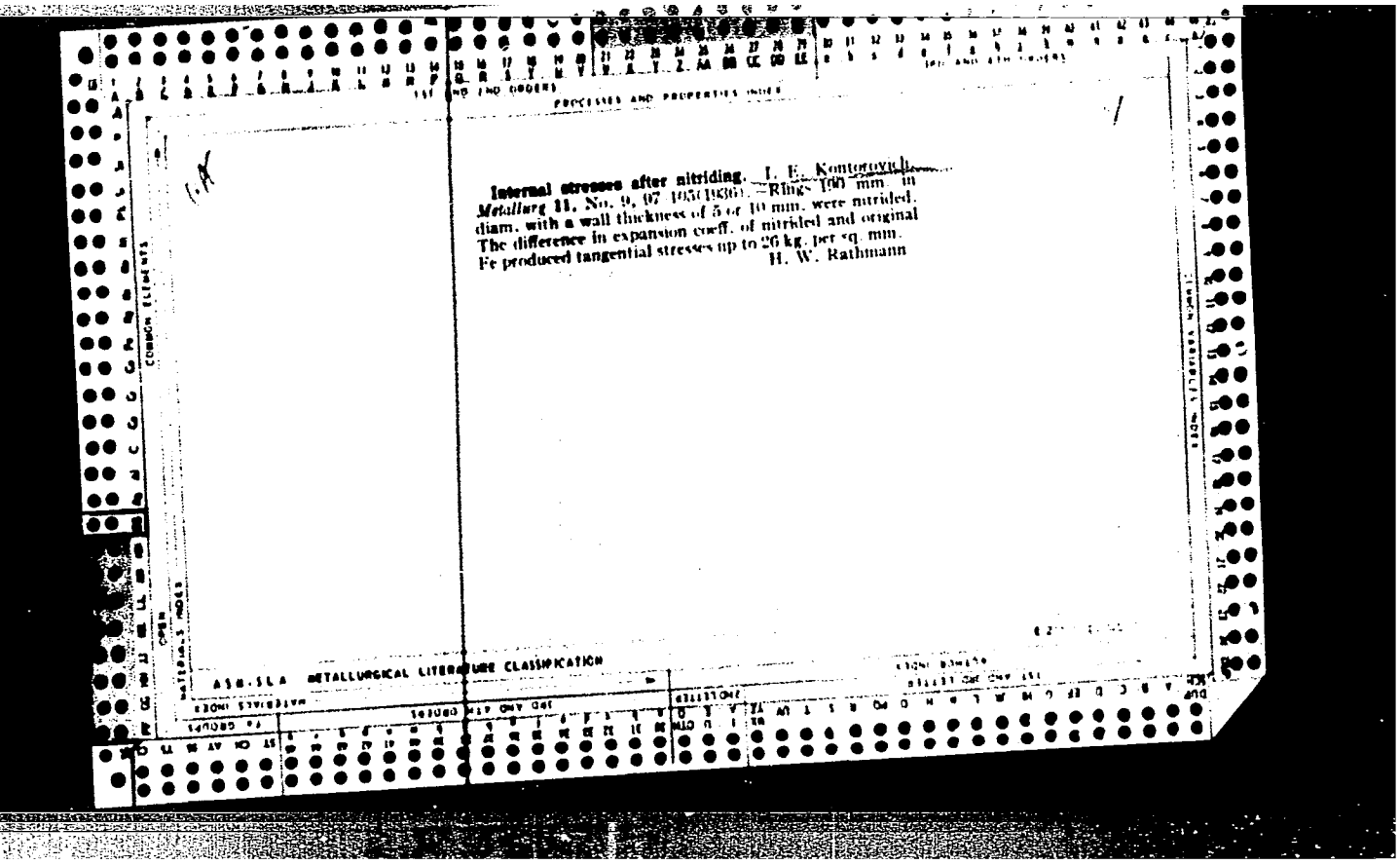
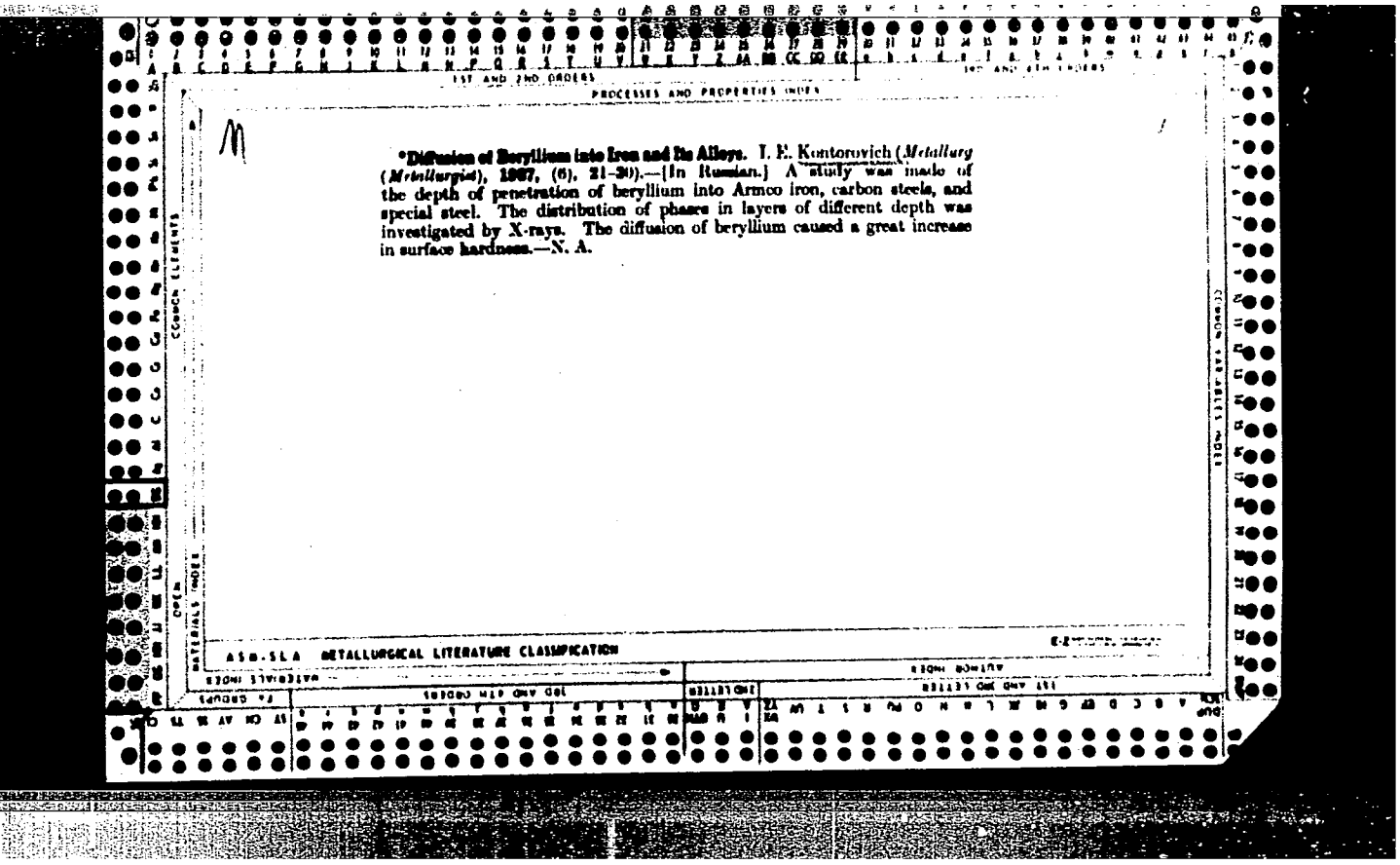
19)

Isothermal Transformation of Austenite in Special Steels and the Resulting Mechanical Properties. J. E. Kontorovitch. (Katshestvennaia Stal, 1936, No. 8–9, pp. 13–18). The author has investigated the kinetics of the decomposition of austenite in steels containing chromium, chromium plus molybdenum, chromium plus nickel, chromium plus molybdenum plus aluminium, and chromium plus nickel plus tungsten. (*a*) Magnetometric measurements.—Measured by the change in permeability, the decomposition of austenite takes place in chromium steels in the course of a few minutes even at 100° C. Maximum velocity of decomposition is attained at 400° C.; it becomes slower at 700°. Steels with low carbon contents (0·2%) undergo the quickest decomposition. Chromium-nickel steels, as well as chromium-molybdenum steels with a high manganese content, have a much more stable austenite, decomposition requiring several hours at all temperatures. In chromium-nickel-tungsten steel, no decomposition of austenite takes place above 400° C. (*b*) Mechanical measurements.—Steels with unstable austenite become softer on isothermal annealing or on isothermal hardening, especially in thick pieces. Isothermal annealing, on the other hand, improves the mechanical properties of special steels with stable austenite. The effects of different methods of isothermal hardening and of hardening in steps are discussed. (In Russian).

A35-B5A METALLURGICAL LITERATURE CLASSIFICATION



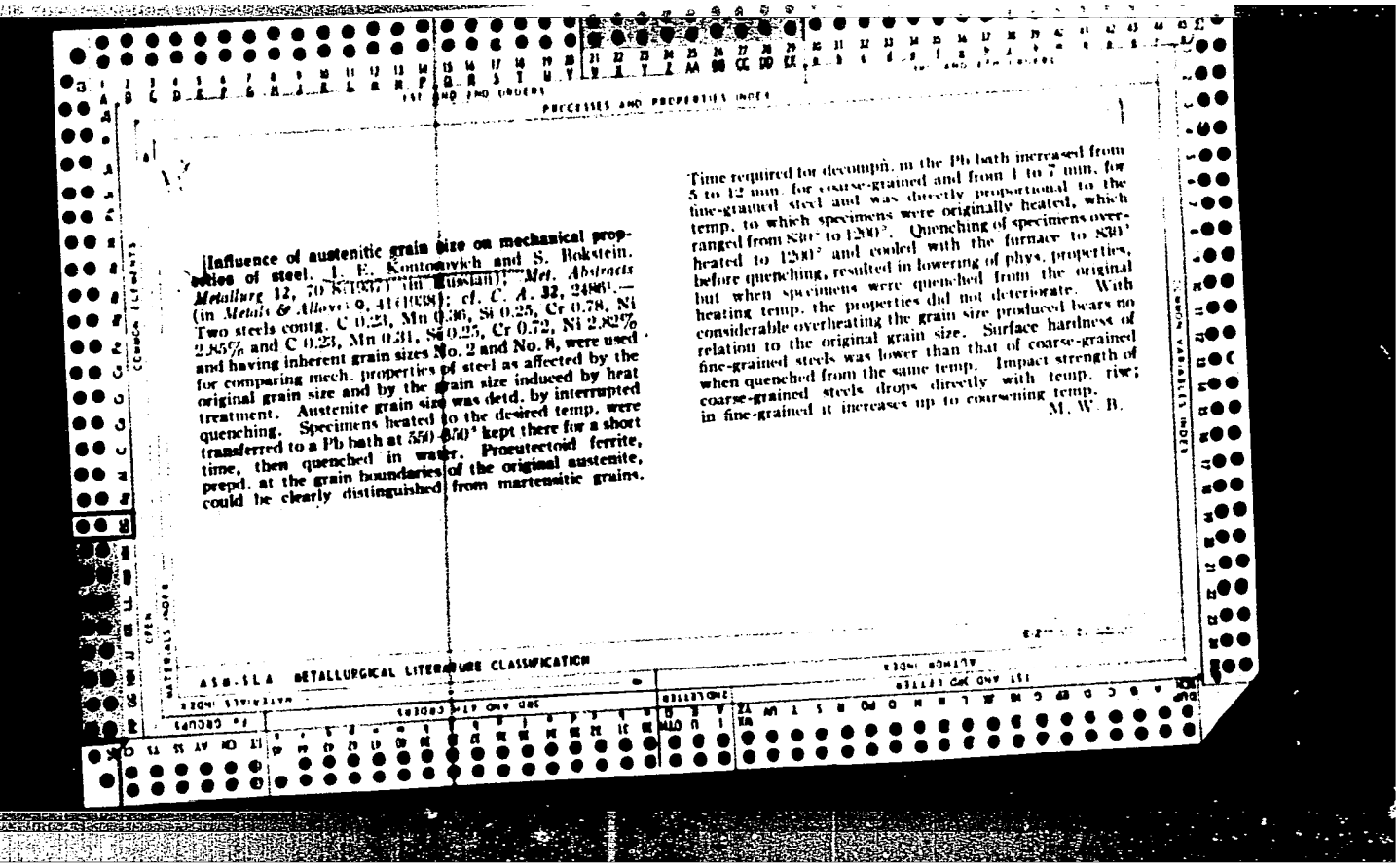
Internal stresses after nitriding. L. E. Kontorovich. *Metallurg* **11**, No. 9, 97–105(1936).—Rings 100 mm. in diam. with a wall thickness of 5 or 10 mm. were nitrided. The difference in expansion coeff. of nitrided and original Fe produced tangential stresses up to 26 kg. per sq. mm.
H. W. Rathmann



PROCESSES AND PROPERTIES INDEX

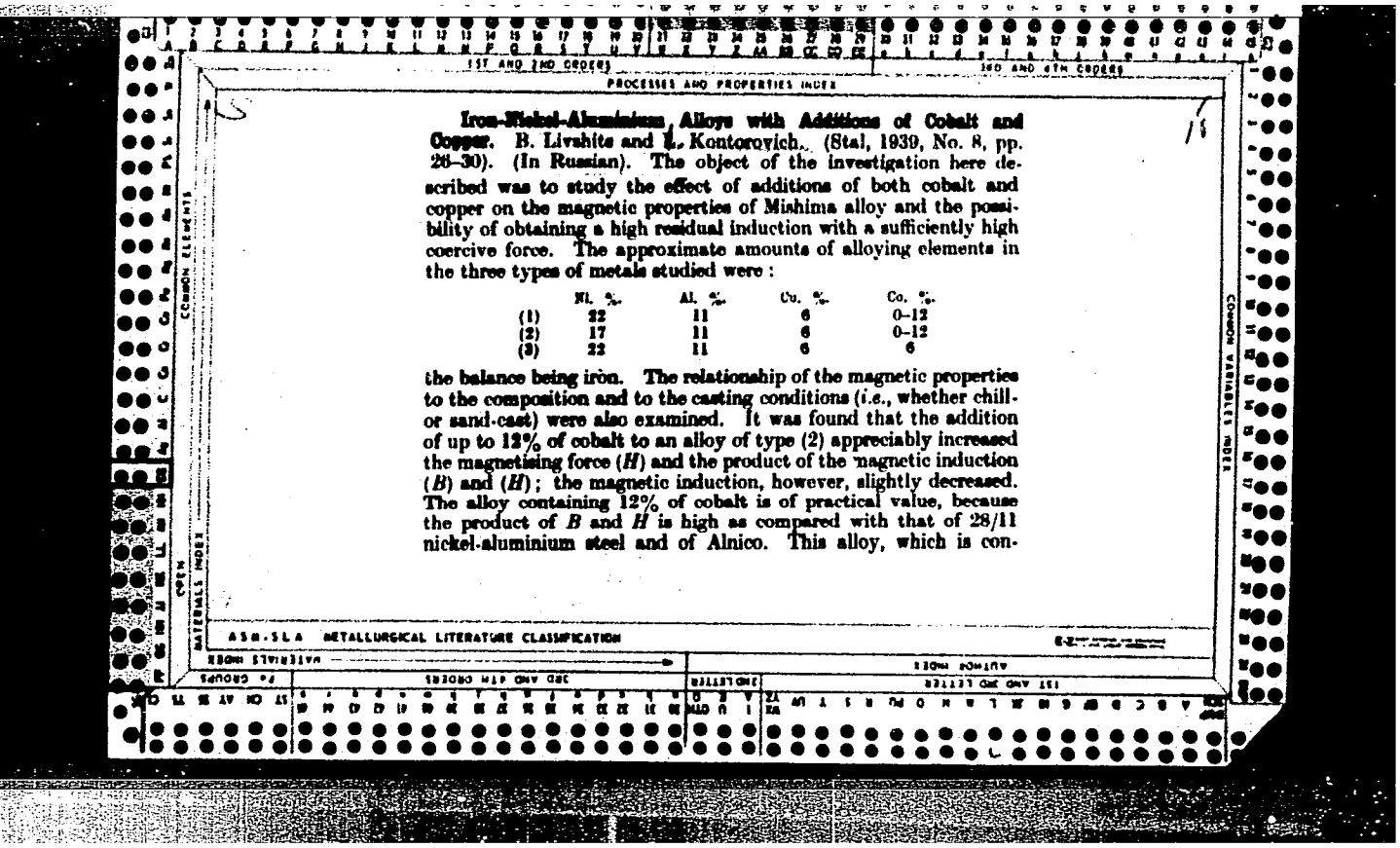
***Diffusion of Beryllium into Iron and Its Alloys.** I. E. Kontorovich (*Metallurg* (*Metallurgist*), **1937**, (6), 21–30).—[In Russian.] A study was made of the depth of penetration of beryllium into Armco iron, carbon steels, and special steel. The distribution of phases in layers of different depth was investigated by X-rays. The diffusion of beryllium caused a great increase in surface hardness.—N. A.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Influence of austenitic grain size on mechanical properties of steel. I. E. Kontorovich and S. Bokstein. *Metallurg* 12, 70-81(1937) (in Russian). *Met. Abstracts* (in *Metals & Alloys* 9, 41(1938)); cf. *C. A.* 32, 2486⁸.—Two steels contg. C 0.23, Mn 0.36, Si 0.25, Cr 0.78, Ni 2.85% and C 0.23, Mn 0.31, Si 0.25, Cr 0.72, Ni 2.82% and having inherent grain sizes No. 2 and No. 8, were used for comparing mech. properties of steel as affected by the original grain size and by the grain size induced by heat treatment. Austenite grain size was detd. by interrupted quenching. Specimens heated to the desired temp. were transferred to a Pb bath at 550-650° kept there for a short time, then quenched in water. Proeutectoid ferrite, prepd. at the grain boundaries of the original austenite, could be clearly distinguished from martensitic grains. Time required for decompn. in the Pb bath increased from 5 to 12 min. for coarse-grained and from 1 to 7 min. for fine-grained steel and was directly proportional to the temp. to which specimens were originally heated, which ranged from 830° to 1290°. Quenching of specimens overheated to 1290° and cooled with the furnace to 830° before quenching, resulted in lowering of phys. properties, but when specimens were quenched from the original heating temp. the properties did not deteriorate. With considerable overheating the grain size produced bears no relation to the original grain size. Surface hardness of fine-grained steels was lower than that of coarse-grained when quenched from the same temp. Impact strength of coarse-grained steels drops directly with temp. rise; in fine-grained it increases up to coarsening temp.

M. W. B.



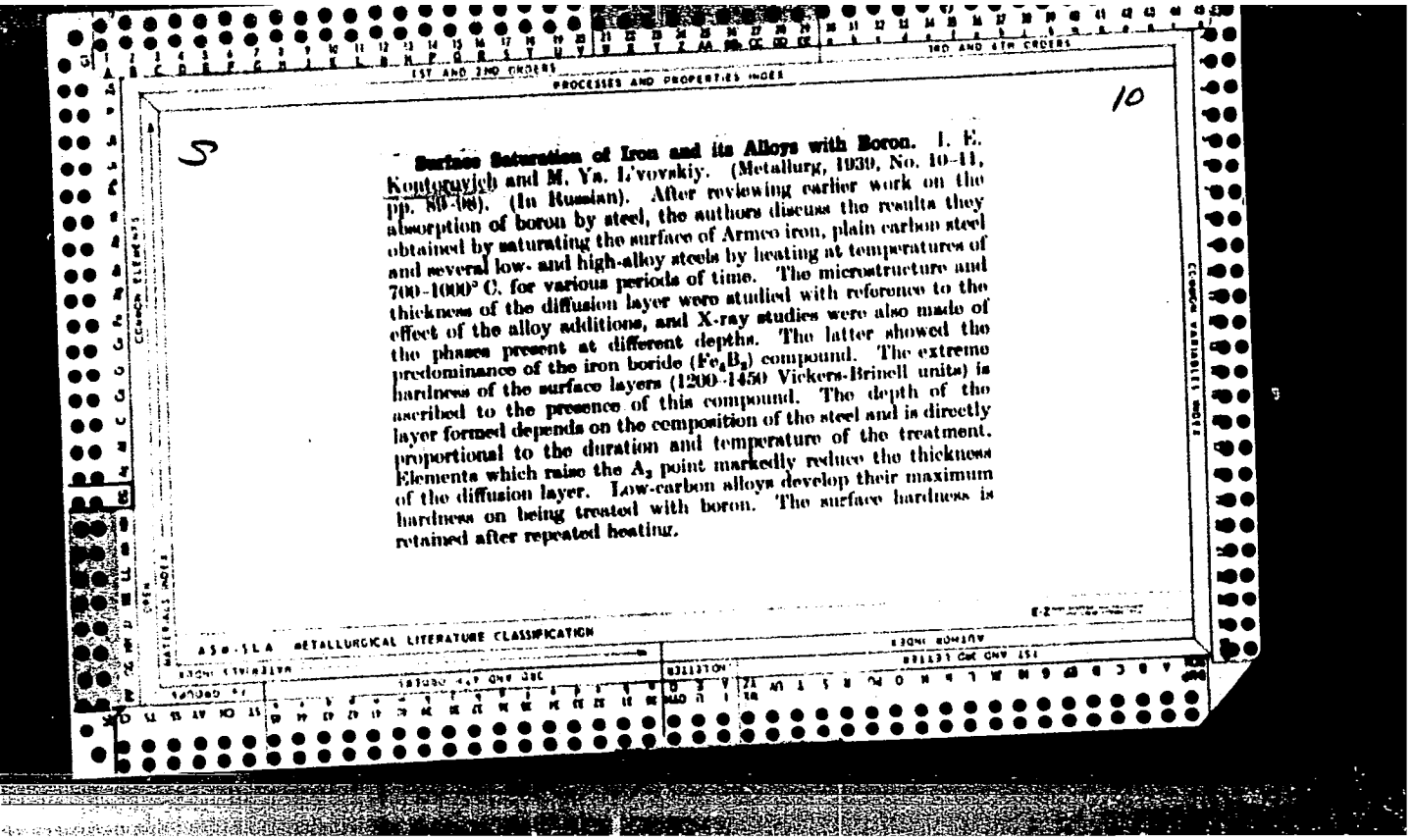
PROCESSES AND PROPERTIES INDEX

Iron-Nickel-Aluminium Alloys with Additions of Cobalt and Copper. B. Livshits and L. Kontorovich. (Stal, 1939, No. 8, pp. 26–30). (In Russian). The object of the investigation here described was to study the effect of additions of both cobalt and copper on the magnetic properties of Mishima alloy and the possibility of obtaining a high residual induction with a sufficiently high coercive force. The approximate amounts of alloying elements in the three types of metals studied were :

	Ni. %.	Al. %.	Cu. %.	Co. %.
(1)	22	11	6	0–12
(2)	17	11	6	0–12
(3)	22	11	6	6

the balance being iron. The relationship of the magnetic properties to the composition and to the casting conditions (*i.e.*, whether chill- or sand-cast) were also examined. It was found that the addition of up to 12% of cobalt to an alloy of type (2) appreciably increased the magnetising force (*H*) and the product of the magnetic induction (*B*) and (*H*); the magnetic induction, however, slightly decreased. The alloy containing 12% of cobalt is of practical value, because the product of *B* and *H* is high as compared with that of 28/11 nickel-aluminium steel and of Alnico. This alloy, which is con-

sidered to be the best among those studied, has a coercive force of 590–740, a remanence of 5420–6200, and $B \times H$ of 360–400 depending on the casting conditions. In alloys of type (1) the addition of up to 12% of cobalt increases the magnetising force and the product $B \times H$; the maximum magnetic induction is obtained with 6% of cobalt for small sections. An increase in the nickel content from 17% to 22% in an alloy of small section containing cobalt 12%, aluminium 11% and copper 6%, increases H and lowers B, the product $B \times H$ remaining constant. A similar increase of the nickel content in an alloy containing cobalt 6%, aluminium 11% and copper 6% increases H and the product $B \times H$, and slightly reduces B. Chill-cast Alnico in sections of 12 × 12 mm. and 20 × 20 mm. is superior to the 28/11 nickel-aluminium steel, whereas sand-cast Alnico in sections of 30 × 30 mm. is inferior to the 28/11 steel. The addition of copper to Alnico has no beneficial results.



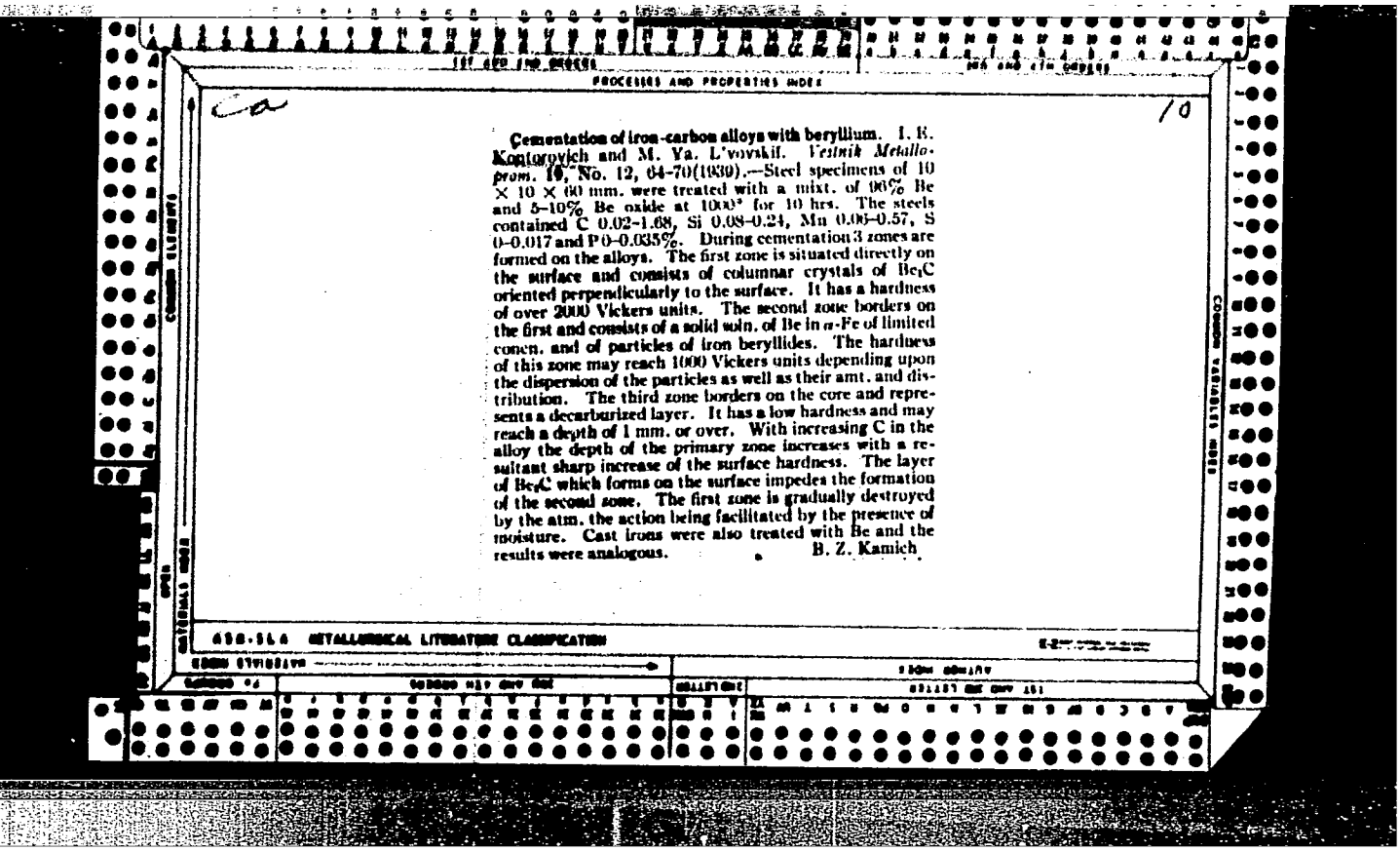
PROCESSES AND PROPERTIES INDEX

10

5

Surface Saturation of Iron and its Alloys with Boron. I. E. Kontorovich and M. Ya. L'vovskiy. (Metallurg, 1939, No. 10–11, pp. 89–98). (In Russian). After reviewing earlier work on the absorption of boron by steel, the authors discuss the results they obtained by saturating the surface of Armco iron, plain carbon steel and several low- and high-alloy steels by heating at temperatures of 700–1000° C. for various periods of time. The microstructure and thickness of the diffusion layer were studied with reference to the effect of the alloy additions, and X-ray studies were also made of the phases present at different depths. The latter showed the predominance of the iron boride (Fe_2B_3) compound. The extreme hardness of the surface layers (1200–1450 Vickers-Brinell units) is ascribed to the presence of this compound. The depth of the layer formed depends on the composition of the steel and is directly proportional to the duration and temperature of the treatment. Elements which raise the A_3 point markedly reduce the thickness of the diffusion layer. Low-carbon alloys develop their maximum hardness on being treated with boron. The surface hardness is retained after repeated heating.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



PROCESSES AND PROPERTIES INDEX

Ca

10

Cementation of iron-carbon alloys with beryllium. I. E. Kontorovich and M. Ya. L'vovskii. *Vestnik Metalloprom.* 19, No. 12, 64-70(1939).—Steel specimens of 10 × 10 × 60 mm. were treated with a mixt. of 90% Be and 5-10% Be oxide at 1000° for 10 hrs. The steels contained C 0.02-1.68, Si 0.08-0.24, Mn 0.06-0.57, S 0-0.017 and P 0-0.035%. During cementation 3 zones are formed on the alloys. The first zone is situated directly on the surface and consists of columnar crystals of Be_2C oriented perpendicularly to the surface. It has a hardness of over 2000 Vickers units. The second zone borders on the first and consists of a solid soln. of Be in α-Fe of limited concn. and of particles of iron beryllides. The hardness of this zone may reach 1000 Vickers units depending upon the dispersion of the particles as well as their amt. and distribution. The third zone borders on the core and represents a decarburized layer. It has a low hardness and may reach a depth of 1 mm. or over. With increasing C in the alloy the depth of the primary zone increases with a resultant sharp increase of the surface hardness. The layer of Be_2C which forms on the surface impedes the formation of the second zone. The first zone is gradually destroyed by the atm. the action being facilitated by the presence of moisture. Cast irons were also treated with Be and the results were analogous.

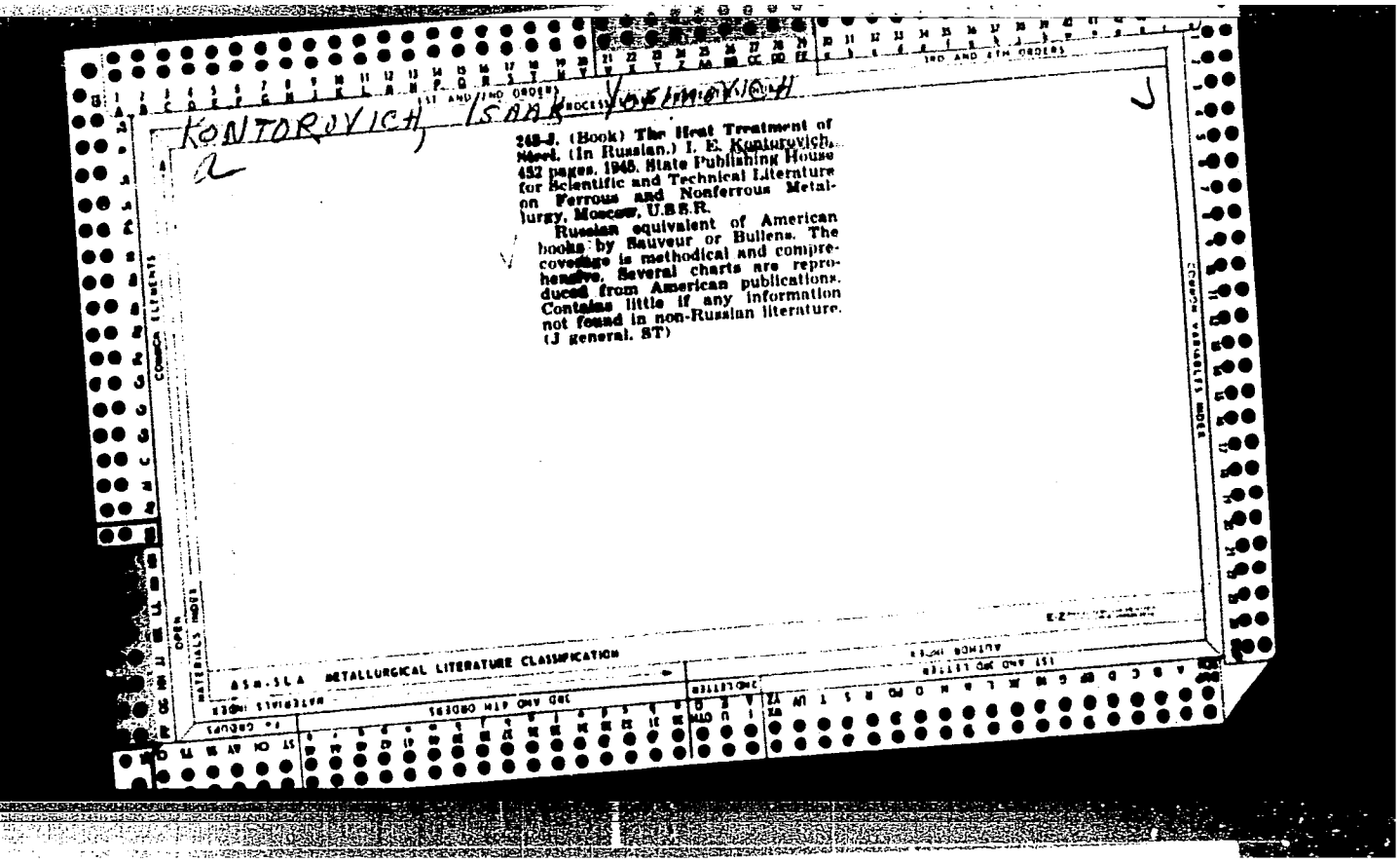
B. Z. Kamich

669.5.6 METALLURGICAL LITERATURE CLASSIFICATION

KONTOROVICH, Isaak Efimovich

Kontorovich, Isaak Efimovich The properties and treatment of steel for motor construction Moskva, Gos. izd-vo obor. promyshl., 1944.

118 p. (49-31042) TA478.K6



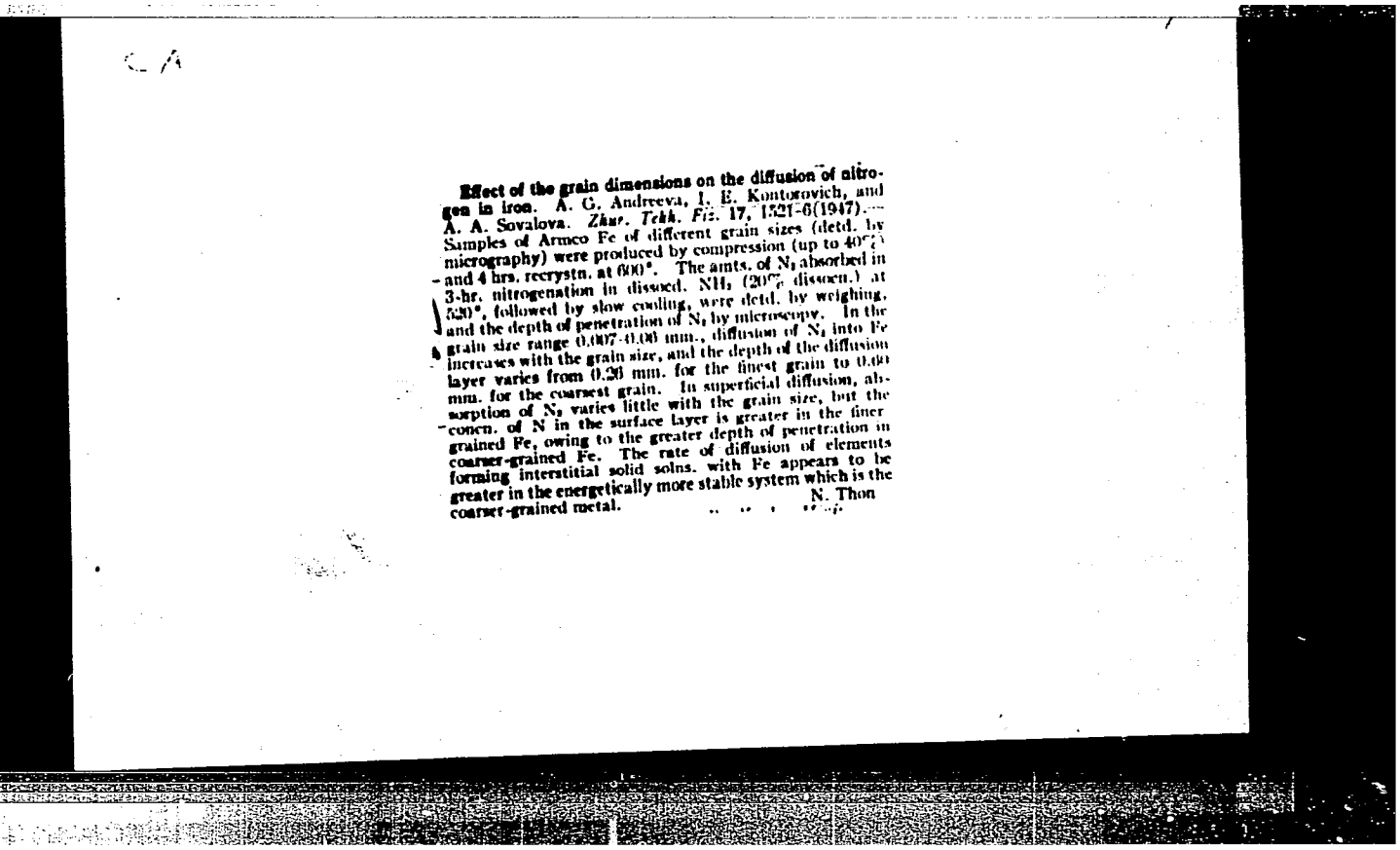
KONTOROVICH, ISAAK VOLFOVICH

2

2

248-J. (Book) The Heat Treatment of Steel. (In Russian.) I. E. Konturovich. 432 pages. 1945. State Publishing House for Scientific and Technical Literature on Ferrous and Nonferrous Metallurgy, Moscow, U.S.S.R.

Russian equivalent of American books by Sauveur or Bullens. The coverage is methodical and comprehensive. Several charts are reproduced from American publications. Contains little if any information not found in non-Russian literature. (J general, ST)



C A

Effect of the grain dimensions on the diffusion of nitrogen in iron. A. G. Andreeva, I. E. Kontorovich, and A. A. Sovalova. *Zhur. Tekh. Fiz.* 17, 1521-6(1947).—Samples of Armco Fe of different grain sizes (detd. by micrography) were produced by compression (up to 40%) and 4 hrs. recrystn. at 600°. The amts. of N_2 absorbed in 3-hr. nitrogenation in dissocd. NH_3 (20% dissocn.) at 520°, followed by slow cooling, were detd. by weighing, and the depth of penetration of N_2 by microscopy. In the grain size range 0.007-0.08 mm., diffusion of N_2 into Fe increases with the grain size, and the depth of the diffusion layer varies from 0.20 mm. for the finest grain to 0.60 mm. for the coarsest grain. In superficial diffusion, absorption of N_2 varies little with the grain size, but the concn. of N in the surface layer is greater in the finer grained Fe, owing to the greater depth of penetration in coarser-grained Fe. The rate of diffusion of elements forming interstitial solid solns. with Fe appears to be greater in the energetically more stable system which is the coarser-grained metal.

N. Thon

KONTOROVICH, I.Ye.

PHASE I TREASURE ISLAND BIBLIOGRAPHICAL REPORT AID 603c - I

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Transliterated Title: Fazovyye prebrashcheniya v sisteme zhelezo-azot
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PURPOSE: For scientific workers in aviation technology and materials.
TEXT DATA
Coverage: The authors are concerned with the following problems: 1. the influence of temperature on the quantity of nitrogen absorbed; 2. the influence of temperature on structure of nitrogenized layers; 3. metastable structures; 4. transformations during hardening and tempering. Conclusions from research conducted by the author are presented at the end of the article. Photos, charts.

KONTOROVICH, I.Ye.

KONTOROVICH, I. E., and A. A. SOVALOVA.

Korrozionnaia ustoichivost' azotirovannykh zheleznykh splavov. (Moscow, Moskovskii aviatsionno tekhnologicheskii institut. Trudy, 1948, v. 4, p. 32-50, tables, diagrs.)

Bibliography: p. 50.

Title tr.: Anti-corrosion stability of nitrided iron alloys.

TL 504.M63 v. 4

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress, 1955.

KONTOROVICH, I. E.

No. 37362--Povyshenie prochnosti detaley mashin termokhimicheskoy obrabotkoy. V sb: Povysh, enie prochnosti detaley mashin. M.-L., 1949, S. 84-95--Bibliogr: 7 Nazv.

So: Letopis' Zhurnel'nykk Statey, Vol. 7, 1949.

KONTOROVICH, I. YE.

FA 159T51

USSR/Metals - Metallography
Iron Alloys

Nov 49

"Structural Diagram and Phase Transformations in the Iron-Nitrogen System," I. Ye. Kontorovich, A. A. Sovalova, 10 pp

"Iz Ak Nauk SSSR, Otdel Tekh Nauk" No 11

Endeavors to establish which of two existing diagrams is more correct. Establishes that sharp change in amount of absorbed nitrogen at 650° is caused by second phase transformation which is not accompanied by dissociation of the γ-phase. X-ray and metallographic

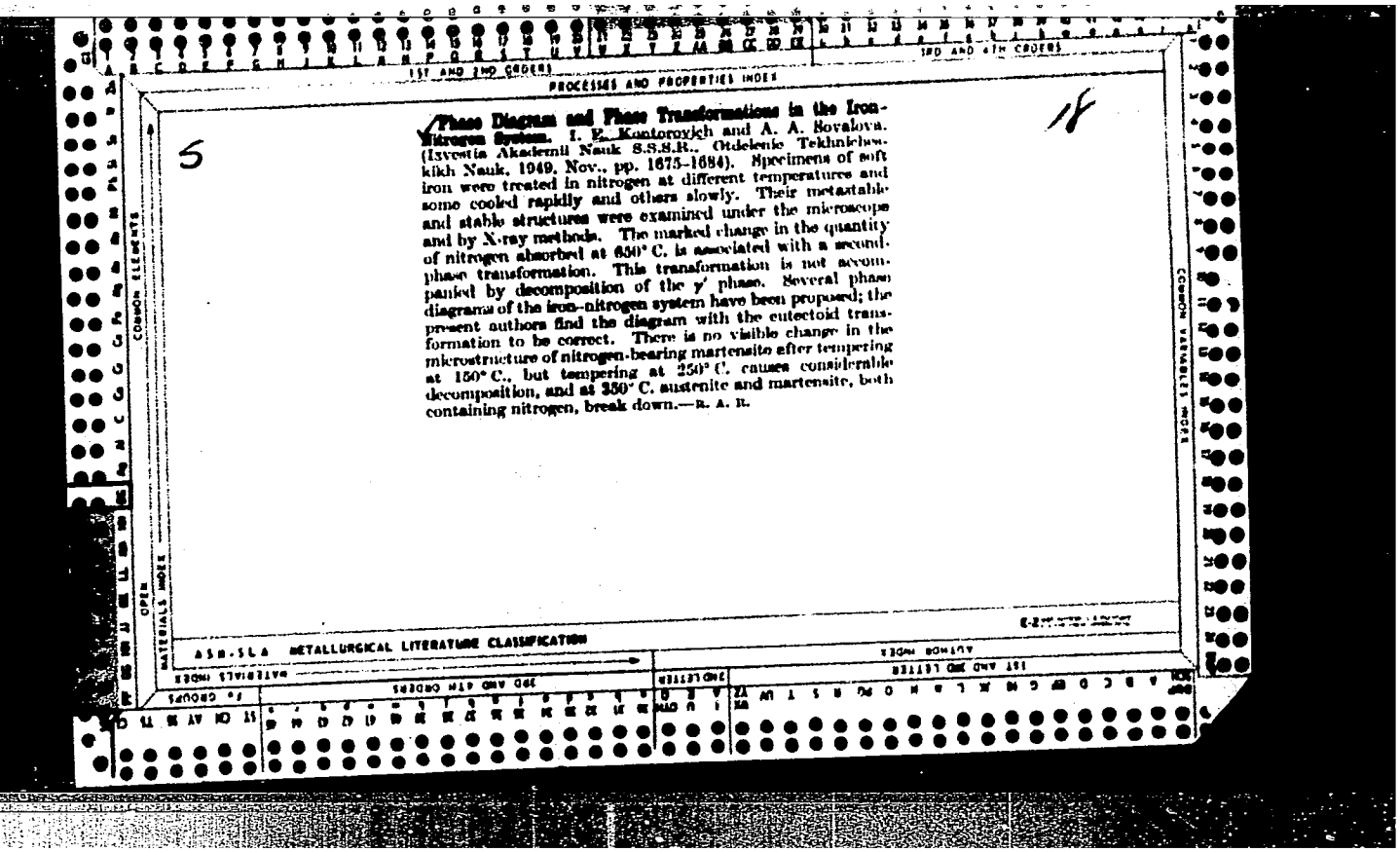
159T51

USSR/Metals - Metallography (Contd)

Nov 49

study of structures at high temperatures led to conclusion that only correct equilibrium diagram of iron-nitrogen system is diagram with eutectoid transformation. Finds microhardness of various structural components of nitrided layer. Submitted by Acad N.T. Gudtsov.

159T51



5

Phase Diagram and Phase Transformations in the Iron-Nitrogen System. I. P. Kontorovich and A. A. Kovalova. (Izvestia Akademii Nauk S.S.S.R., Otdelenie Tekhnicheskikh Nauk, 1949, Nov., pp. 1675–1684). Specimens of soft iron were treated in nitrogen at different temperatures and some cooled rapidly and others slowly. Their metastable and stable structures were examined under the microscope and by X-ray methods. The marked change in the quantity of nitrogen absorbed at 650° C. is associated with a second-phase transformation. This transformation is not accompanied by decomposition of the γ' phase. Several phase diagrams of the iron–nitrogen system have been proposed; the present authors find the diagram with the eutectoid transformation to be correct. There is no visible change in the microstructure of nitrogen-bearing martensite after tempering at 150° C., but tempering at 250° C. causes considerable decomposition, and at 350° C. austenite and martensite, both containing nitrogen, break down.—R. A. R.

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