NIKITIN, Konstantin Konstantinovich; GINZBURG, I.I., otv.red.; ASTROV, A.V., red.izd-va; KASHINA, P.S., tekhn.red.

[Ancient weathering surface of ultrabasic rocks in the Buryktal Massif] Drevniaia kora vyvetrivaniia Buryktal'skogo massiva ul'traosnovnykh porod. Moskva, Izd-vo Akad.nauk SSSR, 1962. 189 p. (Akademiia nauk SSSR. Institut geologii rudnykh mestorozhdenii, petrografii, mineralogii i geokhimii. Trudy, no.69).
(Ural Mountain region--Weathering)
(Ural Mountain region--Ultrabasite)

NIKITIN, K.K.

Combined funnel for separating mineral mixtures in heavy liquids. Kora vyvetr. no.5:380-382 '63. (MIRA 16:7)

1. Institut geologii rudnykh mestorozhdeniy, petrografii, mineralogii i geokhimii AN SSSR.
(Minerals) (Filters and filtration)

NIKITIN, K.K.; KOZLOVA, G.M.

Separation of feldspars and quartz from igneous rocks using flotation. Kora vyvetr. no.5:383-384 '63. (MIRA 16:7)

1. Institut geologii rudnykh mestorozhdeniy, petrografii, mineralogii i geokhimii AN SSSR.
(Feldspar) (Quartz) (Flotation)

NIKITIN, K.K.; KONOVALOV, N.A.

Separation of the monomineralic fractions of pyroxenes and nepheline from alkali rocks. Kora vyvetr. no.5:385-388 '63. (MIRA 16:7)

1. Institut geologii rudnykh mestorozhdeniy, petrografii, mineralogii i geokhimii AN SSSR.
(Mineralogical chemistry)

NIKITIN, K.K.

Principles for compiling a general distribution and forecasting map on the weathering surfaces of ultrabasic rocks and the mineral deposits associated with them. Kora vyvetr. no.6: 258-271 '63. (MIRA 17:9)

1. Institut geologii rudnykh mestorozhdeniy, petrografii, mineralogii i geokhimii AN SSSR, Moskva.

NIKITIN, K.K.

Il'ia Isaakovich Ginzburg, 1882-1965; obituary.
Geokhimiia no.7:895-896 Jl '65.
(MIRA 18:11)

NIKITIN, K.K.

Principles of plotting a map of ore potentials of a weathering surface of ultrabasic rocks. Kora vyvetr. no.9:119-128 '65. (MIRA 19:1)

BUGEL'SKIY, Yu.Yu.; VITOVSKAYA, I.V.; GODLEVSKIY, M.N.; ZVEREVA, Ye.A.; KORIN, I.Z.; NIKITIN, K.K.; NIKITINA, A.P.; PISEMSKIY, G.V.; SAPOZHNIKOV, D.G.; SOKOLOV, G.A.; CHUKHROV, F.V.; SHCHERBAKOV, D.I.; EDEL'SHTEYN, I.I.; YANITSKIY, A.A.

Il'ia Isaakovich Ginzburg, 1882?-1965; obituary. Geol.rud.mestorozh. 7 no.4:109-110 Jl-Ag '65. (MIRA 18:8)

NIKITIN, K. N.
Zhivotnyy mir Bryanskoy Oblasti (The animal world in Bryansk Oblast by) A. V. Fedosov i K. N. Nikitin. Bryansk, "Bryanskiy Rabochiy, 1951.
86 p. illus.
"Kratkiy...Literatury": p. 84-(85)
So: 127N/5
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BASHKIROV, L.I., inzh.; NIKITIN, K.N., inzh.

Thermal stresses in the walls of a cylinder. Energomashinostroenie 7 no.4:44-45 Ap '61. (MIRA 14:7)
(Heat exchangers)
(Heat—Transmission)

S/089/61/010/002/003/018
B102/B209

11.9100

AUTHORS: Maksimenko, B. I., Nikitin, K. N., Bashkirov, L. I.

TITLE: On the thermo-elastic tensions in the walls of a reactor with internal unsteady heat sources

PERIODICAL: Atomnaya energiya, v. 10, no. 2, 1961, 131-137

TEXT: In unsteady processes, thermo-elastic tensions exceeding those during steady operation may occur on places of contact and in single parts. In order to be able to guarantee operation in the case of varying thermal loads, an investigation of temperature propagation is necessary, i. e. the problem of unsteady heat conduction must be solved under the following conditions: 1) the internal heat sources are uniformly distributed in the wall material, 2) the coefficient of thermal conductivity of the material is independent of temperature, 3) the amount of the thermo-elastic tensions does not surmount the tensile strength of the material, the shape of the walls remains unchanged, 4) the temperature field is uniform. This problem is subject to the present paper, viz. for the cases of a plane and of a cylindric wall.

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Since internal heat sources chiefly give rise to tangential strains, the present calculations are restricted to the latter only. First, the equation of heat conduction $\partial t/\partial \tau = a \frac{\partial^2 t}{\partial y^2} + \frac{q_v}{c_p \gamma}$ for a plane 2δ thick wall is solved with the boundary condition $\partial t/\partial y\big|_{y=\pm\delta} = \pm h(t_T - t)$ and the initial condition $_{=0} = t_o$, where $h = \alpha/\lambda$ denotes the ratio: heat transfer to heat conduction coefficient, $t_T = t_o + c\tau$ the coolant temperature (^oC), t_o the initial temperature of the medium in contact with the wall, and c the rate of temperature change of the coolant. The coolant temperature is assumed to vary linearly with temperature and the power of the internal heat sources to be constant with respect to time (q_v = const). Thus, the steady-state solution

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$$t = t_1 + c\tau + \frac{w\delta^2}{2a}\left(1 - \frac{y^2}{\delta^2} + \frac{2}{h\delta}\right) - \\ - \frac{\delta^2}{a}\left(w - \frac{q_0}{c_p\gamma}\right)\sum_{n=1}^{\infty}\frac{2\sin\beta_n\cos\left(\beta_n\frac{y}{\delta}\right)}{\beta_n^2(\beta_n + \sin\beta_n\cos\beta_n)} \times \\ \times \exp\left(-\beta_n^2\frac{a\tau}{\delta^2}\right). \qquad (3)$$

is obtained, where $w = c - q_v/c_p\gamma$ denotes the rate of temperature variation of a point in the wall. Expressions for the thermo-elastic tangential stresses σ are derived for various initial conditions. These expressions show the following: The σ are directly proportional to w and δ^2, and inversely to the coefficient of temperature conductivity; the absolutely highest strain appears on the surface of the plates; the magnitude of the strain on the surface rises with time. After some time, $\sigma = \frac{tE}{1-\mu}\frac{w}{2a}(1/3 - y^2/\delta^2)$. Only now, the authors proceed to considering heat sources of variable power and the variation of the coolant temperature. This is performed for step-wise variation of coolant temperature and source

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capacity (cf. Fig. 2);; the linear and/or continuous conditions which were studied for introduction hold for the individual steps. In this case,

$$\sigma_m = \frac{\alpha_l E}{1-\mu}\left\{\frac{w_m \delta^2}{2a}\left(\frac{1}{3}-\frac{y^2}{\delta^2}\right)+\frac{\delta^2}{a}\times\right.$$
$$\times[w_1(\bar{\Phi}_\tau-\Phi_\tau)+(w_2-w_1)(\bar{\Phi}_{\tau-\tau_1}-\Phi_{\tau-\tau_1})+\dots$$
$$\left.\dots+(w_m-w_{m-1})(\bar{\Phi}_{\tau-\sum_{i=1}^{m-1}\tau_i}-\Phi_{\tau-\sum_{i=1}^{m-1}\tau_i})]\right\}.$$

is obtained for σ, with (14)

$$\Phi_{\tau-\tau_1}=\sum_{n=1}^{\infty}\frac{2\sin\beta_n\cos\left(\beta_n\frac{y}{\delta}\right)}{\beta_n^2(\beta_n+\sin\beta_n\cos\beta_n)}\times$$
$$\times\exp\left[-\beta_n^2\frac{a(\tau-\tau_1)}{\delta^2}\right];$$
$$\Phi_{\tau-\tau_1-\tau_2}=\sum_{n=1}^{\infty}\frac{2\sin\beta_n\cos\left(\beta_n\frac{y}{\delta}\right)}{\beta_n^2(\beta_n+\sin\beta_n\cos\beta_n)}\times$$
$$\times\exp\left[-\beta_n^2\frac{a(\tau-\tau_1-\tau_2)}{\delta^2}\right] \text{ и т. д.;}$$

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$$\overline{\Phi}_{\tau-\tau_1} = \sum_{n=1}^{\infty} \frac{2\sin^2\beta_n}{\beta_n^2(\beta_n + \sin\beta_n\cos\beta_n)} \times$$

$$\times \exp\left[-\beta_n^2 \frac{a(\tau-\tau_1)}{\delta^2}\right];$$

$$\overline{\Phi}_{\tau-\tau_1-\tau_2} = \sum_{n=1}^{\infty} \frac{2\sin^2\beta_n}{\beta_n^2(\beta_n + \sin\beta_n\cos\beta_n)} \times$$

$$\times \exp\left[-\beta_n^2 \frac{a(\tau-\tau_1-\tau_2)}{\delta^2}\right] \text{ и т. д.}$$

The mean wall temperature is given by

$$t = t_0 + c\tau - \frac{w_m\delta^2}{2a}\left(\frac{2}{3} + \frac{2}{h\delta}\right) +$$

$$+ \frac{\delta^2}{a}\left[w_1\overline{\Phi}_\tau + (w_2 - w_1)\overline{\Phi}_{\tau-\tau_1} + \dots\right.$$

$$\left. \dots + (w_m - w_{m-1})\overline{\Phi}_{\tau-\sum_{i=1}^{m-1}\tau_i}\right], \qquad 13)$$

m denotes the number of steps. After a respective time, $\sigma_m = \frac{\alpha t E}{1-\mu}\frac{\hat{W}_m\delta^2}{2a}$ $(1/3 - y^2/\delta^2)$ is attained again, where $w_m = c_m - q_{v_m}/c_p\delta$. Now, the analo-

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gous process is performed for the case of a cylindrical wall: The equation of heat conduction $\frac{\partial t}{\partial t} = a\left(\frac{\partial^2 t}{\partial r^2} + \frac{1}{r}\frac{\partial t}{\partial r}\right) + \frac{q_v}{c_p \delta}$ is solved for two different cases of heat deduction. 1) The case of internal heat deduction for linear variation in coolant temperature and isolated outer wall of the tube. With $\frac{\partial t}{\partial r}\Big|_{r=r_2} = 0$, $\frac{\partial t}{\partial r}\Big|_{r=r_1} = -h(t_T - t)$, and $t\big|_{\tau=0} = t_0$, where $t_T = t_0 + c\tau$, the expression

$$t = t_0 + c\tau - \frac{wr_1^2}{4a}\left[1 + (k^2-1)\frac{2}{hr_1} - \varrho^2 + 2k^2 \ln \varrho\right] + \frac{wr_1^2}{a}\Phi\left(\frac{a\tau}{r_1^2};\ \varrho;\ hr_1;\ k\right), \quad (17)$$

is obtained; $k = r_2/r_1$, $\varrho = r/r_1$, where r_2, r_1, and r denote the outer, the inner, and the running radius of the tube, respectively. The mean temperature is

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$$\bar{t} = t_0 + c\tau - \frac{wr^2}{4a}\left[\frac{3}{4} - \frac{5}{4}k^2 - \frac{1}{4}\varrho^2 - \frac{1}{4}\frac{k^2}{\varrho^2} + \right.$$
$$+ \frac{k^4}{k^2-1}\left(1+\frac{1}{\varrho^2}\right)\ln k + k^2\ln\varrho + (k^2-1)\times$$
$$\left.\times\frac{2}{hr_1}\right] + \frac{wr_1^2}{a}\bar{\Phi}\left(\frac{a\tau}{r_1^2};\ \varrho;\ k;\ hr_1\right). \quad (19)$$

and for the thermo-elastic tensions on the outer and on the inner wall, (22) and (23), respectively, are obtained:

$$\sigma_\beta^{\text{нар}} = \frac{\alpha_t E}{1-\mu}\frac{wr_1^2}{a}\left[\frac{1}{4}\left(\frac{1}{2}k^2 + \frac{1}{2} - \right.\right.$$
$$\left.\left. - \frac{2k^2}{k^2-1}\ln k\right) + (\bar{\Phi} - \Phi)^{\text{нар}}\right]; \quad (22)$$

$$\sigma_\beta^{\text{вн}} = \frac{\alpha_t E}{1-\mu}\frac{wr_1^2}{a}\left[\frac{1}{4}\left(\frac{3}{2}k^2 - \frac{1}{2} - \right.\right.$$
$$\left.\left. - \frac{2k^4}{k^2-1}\ln k\right) + (\bar{\Phi} - \Phi)^{\text{вн}}\right]. \quad (23)$$

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Furthermore,

$$\sigma_m = \frac{\alpha_t E}{1-\mu}\frac{w_m r_1^2}{4a}\,f(k,\varrho) + \frac{\alpha_t E}{1-\mu}\frac{r_1^2}{a}\times$$
$$\times\Big[w_1(\overline{\Phi}_\tau - \Phi_\tau) + (w_2 - w_1)(\overline{\Phi}_{\tau-\tau_1} - \Phi_{\tau-\tau_1}) + \ldots + (w_m - w_{m-1})\Big(\overline{\Phi}_{\tau-\sum_{i=1}^{m-1}\tau_i} - \Phi_{\tau-\sum_{i=1}^{m-1}\tau_i}\Big)\Big], \quad (24)$$

where m again denotes the number of steps and $f(k,\varrho) = \frac{1}{4}(1-\varrho^2)(1+k^2/\varrho^2) - \frac{k^4}{k^2-1}(1+1/\varrho^2)\ln k + k^2\ln\varrho + k^2 - \varrho^2$. After a respective time, when the difference $(\overline{\xi} - \xi)$ has become negligibly small,

$$\sigma_B^{нар} = \frac{\alpha_t E}{1-\mu}\frac{w_m r_1^2}{4a}\Big(\frac{1}{2}k^2 + \frac{1}{2} - \frac{2k^2}{k^2-1}\ln k\Big); \quad (25)$$

$$\sigma_B^{вн} = \frac{\alpha_t E}{1-\mu}\frac{w_m r_1^2}{4a}\Big(\frac{3}{2}k^2 - \frac{1}{2} - \frac{2k^4}{k^2-1}\ln k\Big). \quad (26)$$

hold for the outer and inner temperature, respectively. 2) Deduction of heat to the outside with linear temperature variation in the coolant and isolated inner surface.

$$\sigma_{\text{п}}^{\text{нар}} = \frac{\alpha_t E}{1-\mu}\frac{wr_1^2}{a}\left[\frac{3}{8} - \frac{1}{8}k^2 - \frac{1}{2}\frac{\ln k}{k^2-1} + \right.$$
$$\left. + (\bar{\Phi} - \Phi)^{\text{нар}}\right]; \qquad (27)$$

is obtained for the outer and

$$\sigma_{\text{п}}^{\text{вн}} = \frac{\alpha_t E}{1-\mu}\frac{wr_1^2}{a}\left[\frac{1}{8}(k^2+1) - \frac{k^2\ln k}{2(k^2-1)} + \right.$$
$$\left. + (\bar{\Phi} - \Phi)^{\text{вн}}\right]. \qquad (28)$$

for the inner surface of the cylinder. In investigations at the Laboratoriya nagreva Nauchno-issledovatel'skogo trubnogo instituta (Heating Laboratory of the Scientific Research Institute for Tubings) it was shown that a hollow cylinder may always be regarded as a rolled up plate. On this basis, some more formulas are given, expressing the temperature differences in terms of so-called form coefficients (m, n). It is finally shown that a hollow

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cylinder may be treated as a rolled up plate with the thickness $\delta_1 = \delta\sqrt{m/n}$. The values of m, n, and m/n are tabulated for several r_2/r_1. $m_1 \ldots m_4$, n_1 and n_2 depend on k only. There are 4 figures, 1 table, and 2 references: 2 Soviet-bloc.

SUBMITTED: February 18, 1960

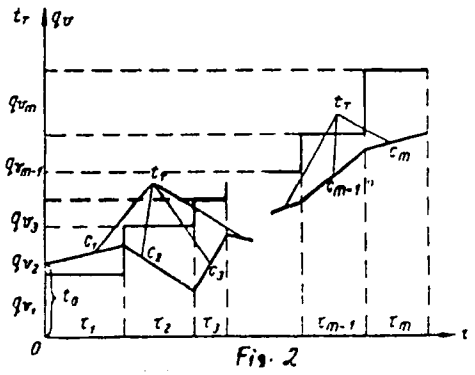

Fig. 2

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L 40012-65 EPA(s)-2/EWT(m)/EPF(c)/EPF(n)-2/EWA(d)/EWP(j)/EWP(t)/EWP(z)/EWP(b)
Pc-4/Pr-4/Pu-4 IJP(c) RM/MJW/JD/JG/WB/GS

ACCESSION NR: AT5007907 S/0000/64/C00/000/0164/0181

67
59
BTI

AUTHOR: Nevzorova, A. A.; Nikitin, K. N.; Pogodina, N. A.

TITLE: Compatibility of some structural materials with organic heat-transfer agents

SOURCE: Moscow. Institut atomnoy energii. Issledovaniya po primeneniyu organicheskikh teplonositeley-zamedliteley v energeticheskikh reaktorakh (Research on the use of organic heat-transfer agents and moderators in power reactors). Moscow, Atomizdat, 1964, 164-181

TOPIC TAGS: organic reactor coolant, thermal reactor, nuclear power plant, power reactor, heat transfer agent, reactor corrosion, gas oil, isopropylbiphenyl terphenyl, aluminum alloy, stainless steel, hydrocarbon pyrolysis

ABSTRACT: Corrosion tests were carried out for a number of structural materials (Mg and its alloys, Al and its alloys, Zr and its alloys, Ti, Nb, Ta, Fe, carbon steels 3, 20, 45, O, 8G, low-alloy steels Kh5M and 48TS-2, and stainless steel 01Kh18N9T) in gas oil, monoisopropylbiphenyl, and hydrogenated terphenyl at 330 - 400C. It was established that the initial phase of corrosion in organic heat-transfer agents is oxidation of the metals by admixtures of water and oxygen. The

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ACCESSION NR: AT5007907

rate of the initial phase of corrosion and the properties of corrosion films on the surface of the metals are the same as those in moist air or superheated steam at the same temperatures. It was also found that, in addition to admixtures of water and oxygen, the products of the pyrolysis of hydrocarbons are also aggressive agents. The corrosion behavior of these metals enabled the authors to classify them as follows: materials on the corrosion resistance of which pyrolysis products have little effect (Al and its alloys and stainless steel 1Kh18N9T); materials which absorb pyrolytic hydrogen (Zr and its alloys, Nb, and Ta); materials which corrode in hydrocarbons with a loss of weight (Mg and its alloys and Fe). The best materials for reactors with organic heat-transfer agents were found to be aluminum alloys, AZhN alloy (Ni, Fe, Si and Al) and stainless steel, and addition of Mg to Al alloys was found to promote intercrystalline corrosion. Orig. art. has: 2 tables and 3 figures.

ASSOCIATION: None

SUBMITTED: 01Aug64 ENCL: 00 SUB CODE: MM

NO REF SOV: 000 OTHER: 008

Card 2/2

NIKITIN, K.P., inzhener

Accounting of the actual cost of construction work of each building unit. Stroi.prom.33 no.6:29 Je'55. (MLRA 8:10)
(Construction industry--Costs)

NIKITIN, Lev Ivanovich; LISICHKIN, F.I., inzhener, retsenzent; MOZHUL' V.G., redaktor; YEPISHKINA, A.V., redaktor izdatel'stva; KARASIK, N.P., tekhnicheskiy redaktor

[Fundamentals of safety engineering in the wood industry] Osnovy tekhniki bezopasnosti v lesnoi promyshlennosti i lesnom khoziaistve. Moskva, Goslesbumizdat, 1956. 320 p. (MIRA 9:11)
(Lumbering--Safety measures)
(Wood working industries--Safety measures)

NIKITIN, Lev Ivanovich; SUKKOV, V.I., nauchn. red.; STAROSVETOVA, V.G., red.

[Safety measures at woodworking enterprises] Tekhnika bezopasnosti na derevoobrabatyvaiushchikh predpriiatiiakh. Moskva, Vysshaia shkola, 1964. 265 p. (MIRA 18:4)

NIKITIN, Lev Ivanovich; PROKOF'YEV, Petr Sergeyevich; VINOGRADOV, Yevgeniy Grigor'yevich; GORBACHEV, I.N., inzh.-polkovnik, retsenzent; PITERMAN, Ye.P., red. izd-va; PARAKHINA, N.L., tekhn. red.

[Fundamentals of fire prevention] Osnovy protivopozharnoi tekhniki. Moskva, Goslesbumizdat, 1960. 310 p. (MIRA 14:6)
(Fire prevention)

VOLOBUYEV, G.P.; [illegible], L.I., [illegible]. Prof.

[The ASK-. semiautomatic sorting conveyer of [illegible] Scientific Research Institute for Mechanization [illegible] of Power in Lumbering] Poluavtomaticheskii sor[illegible] ryi konveier ASK-1 TsNIIME. Moskva, Gosgortekhizdat, [illegible] lesn. in-t informatsii i tekhniko-ekon. issl. [illegible] tsellyulozno-bumazhnoi, derevoobrabatyvaiushchei [illegible] i lesnomu khoziaistvu, 1963. 61 p.

DOBRUNOV, Grigoriy Mikhaylovich; NIKITIN, L.I., red.

[Safety measures at a sawmill] Tekhnika bezopasnosti na lesopil'nom zavode. Moskva, Izd-vo "Lesnaia promyshlennost'," 1964. 156 p. (MIRA 17:5)

NIKITIN, L.I.; KHAR'KOV, V.I., nauchn. red.; GRIGOR'YEVA, Ye.I., tekhn. red.

[Safety measures in working with electrical equipment] Meropriiatiia po obespecheniiu bezopasnosti pri rabote s elektrooborudovaniem. Moskva, TSentr. nauchno-issled. in-t informatsii i tekhniko-ekon. issledovanii po lesnoi, tsellulozno-bumazhnoi, derevoobrabatyvaiushchei promyshl.i lesnomu khoziaistvu, 1963. 55 p. (MIRA 17:4)

NIKITIN, Lev Ivanovich; GALEYEV, Valentin Sergeyevich; PENTEL'KOV, Grigoriy Ivanovich; NEMTSEV, P.F., red.

[Labor protection in the woodworking industries; manual for foremen] Okhrana truda v derevoobrabatyvaiushchei promyshlennosti; posobie dlia masterov. Moskva, Izd-vo "Lesnaia promyshlennost'," 1964. 155 p. (MIRA 17:6)

SOV-3-58-9-5/36

AUTHOR: Nikitin, L.N., Candidate of Historical Sciences

TITLE: The Lenin Komsomol - An Active Builder of Socialism (Leninskiy Komsomol - aktivnyy stroitel' sotsializma)

PERIODICAL: Vestnik vysshey shkoly, 1958, Nr 9, pp 20-27 (USSR)

ABSTRACT: The author gives a review of the Komsomol's activity in peace and war time on the occasion of the 40th anniversary of the VLKSM foundation.
There are 7 Soviet references.

Card 1/1

21(8)

AUTHORS: Kogan, A. V., Kul'kov, V. D., Nikitin, L. I., Reynov, N. M., Sokolov, I. A., Stel'makh, M. F.

TITLE: Measurement of the β-γ-Correlation of Orientated Nuclei (Izmereniye β-γ-korrelyatsii oriyentirovannykh yader

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958, Vol 35, Nr 5, pp 1295-1296 (USSR)

ABSTRACT: Reference is first made to some earlier papers dealing with this subject. When investigating correlation, the authors constructed a device for the orientation of nuclei and took several measures for the purpose of extending the duration of measurements and improving their statistical accuracy. The main source of heat supply is thermal radiation, which passes through a light pipe, which is used for transmitting the flashes of light produced in a plastic scintillator during the recording of β particles. The β-radiation asymmetry of Co^{60}-nuclei was measured. These cobalt nuclei were introduced into a thin superficial layer of a cesium-magnesium-nitrate crystal. The authors carried out their measurements

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Measurement of the β-γ-Correlation of Orientated Nuclei

of the β-γ-angular correlation on orientated Co^{60}-nuclei. The provisional data obtained by these measurements are not in contradiction to theoretical calculations which were carried out on the basis of the conservation of combined parity. Further the investigation of β-γ-angular correlation for Mn^{52} and V^{48} is planned. The authors thank A. I. Alikhanov, Academician, and Professor S. Ya. Nikitin for placing the Co^{58} at their disposal (this element is, by the way, less well suited for measurements of the here described kind); they further express their gratitude to A. Z. Dolginov for many useful discussions and to G. V. Larionov for the chemical separation of Co^{58}. There are 2 figures and 4 references 1 of which is Soviet.

ASSOCIATION: Leningradskiy fiziko-tekhnicheskiy institut Akademii nauk SSSR (Leningrad Physico-Technical Institute of the Academy of Sciences, USSR)

SUBMITTED: July 7, 1958

Card 2/2

Nikitin, L. P.

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AUTHORS: Kogan, A. V., Kul'kov, V. D., Nikitin, L. P., Reynov, N. M., Sokolov, I. A., Stel'makh, M. F.

TITLE: The Polarization of Sc^{46} Nuclei in Iron

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 39, No. 1 (7), pp. 47-52

TEXT: B. N. Samoylov, V. V. Sklyarevskiy and Ye. P. Stepanov (Refs. 8-10) succeeded in polarizing the nuclei of a number of weakly magnetic elements alloyed with ferromagnetics. They discovered the possibility of orienting the nuclei of many elements including scandium. In the present paper, the first results found by the authors on the orientation of Sc^{46} introduced into iron are published. Fig. 1 shows a schematic cross section of the apparatus employed for the purpose. Its description is given in the introduction. To check the working of the apparatus, experiments were first made on the orientation of Co^{60} in iron ($\leq$ 0.02% Co) which are described in detail. Fig. 2 shows the asymmetry of the gamma

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B006/B070

radiation of Co^{60} as a function of temperature. The asymmetry is characterized by $\varepsilon = [I(\pi/2)-I(0)]/I(\pi/2)$. Next, the experiments carried out on scandium are described. The neutron irradiated scandium was introduced as a metal into pure iron (Sc concentration $\leq 0.5\%$). A large number of asymmetry measurements of the gamma radiation from Sc^{46} were made in the temperature range of from 0.03 to 0.015°K. At the lowest temperatures $\varepsilon = 2.5\%$. The sign of the asymmetry agreed with the known dipole character of the cascade gamma transitions in Ti^{46}. Fig. 3 shows the asymmetry of gamma radiation for temperatures of the cooling salt between 0.025-0.03°K. ε was also measured for other temperatures. At 0.04-0.05°K, ε was 1%, at ~ 1.2°K, however, it was 1.8%, showing that the temperature dependence of the asymmetry of gamma radiation for small values of 1/T cannot be determined with sufficient accuracy. The magnetic moment of Sc^{46} was not measured. Still, it can be estimated with sufficient accuracy to be 3.5 nuclear magnetons, from which the effective magnetic field on Sc^{46} nucleus in iron for $1/T = 25$ is found to be $H_{eff} \approx 10^5$ oersteds. The

The Polarization of Sc^{46} Nuclei in Iron

S/056/60/039/01/06/029
B006/B070

possible errors in this determination are then discussed. They are related to the errors in the determination of nuclear magnetic moments, ϵ, and T, and the error resulting from imperfect domain orientation. Taking these into account H_{eff} lies within the limits $3.0 \cdot 10^5 \leq H_{eff} \leq 4.0 \cdot 10^5$ oe for Co^{60} and $0.70 \cdot 10^5 \leq H_{eff} \leq 1.30 \cdot 10^5$ oe for Sc^{46}. Finally, the possible investigations of $\beta\gamma$-correlation for oriented Sc^{46} nuclei are very briefly discussed. The authors thank Professor N. P. Sazhin for making available metallic scandium, and Professor A. Z. Dolginov for the derivation of the asymmetry formula. G. R. Khutsishvili and L. M. Shestopalov of Fiziko-tekhnicheskiy institut AN SSSR (Physicotechnical Institute of the AS USSR) are mentioned. There are 3 figures and 21 references: 7 Soviet, 8 American, 1 Canadian, 3 Dutch, and 2 British.

ASSOCIATION: Leningradskiy fiziko-tekhnicheskiy institut Akademii nauk SSSR (Leningrad Physicotechnical Institute of the Academy of Sciences of the USSR)

SUBMITTED: February 20, 1960

Card 3/3

KOGAN, A.V.; KUL'KOV, V.D.; NIKITIN, L.P.; REYNOV, N.M.; SOKOLOV, I.A.
STEL'MAKH, M.F.

Polarization of some radioactive isotopes in alloys containing iron. Zhur. eksp. i teor. fiz. 40 no.1:109-113 Ja '61. (MIRA 14:6)

(Iron alloys) (Magnetic fields)

S/056/62/043/003/015/063
B102/B104

AUTHORS: Kogan, A. V., Kul'kov, V. D., Nikitin, L. P., Reynov, N. M., Stel'makh, M. F., Shott, M.

TITLE: Asymmetry in β-radiation from some nuclei polarized in an iron-containing alloy

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43, no. 3(9), 1962, 828-830

TEXT: The authors measured the β-emission asymmetry of Re^{186}, Ir^{192} and In^{114} nuclei polarized at 0.1-0.03°K in an iron alloy, using an apparatus described in ZhTF, 29, 1039, 1959 or ZhETF, 35, 295, 1958. The values of $\mu_n H_{eff}$ (μ_n-nuclear magnetic moment, H_{eff}- effective field acting on the nucleus) were determined from the asymmetry given as

$$\varepsilon_\beta(T) = [W(0^\circ) - W(\pi)]/[W(0^\circ) + W(\pi)] = A(v/c)f_1,$$

when, for allowed β-transitions, $W(\vartheta) = 1 + A(v/c)f_1\cos\vartheta$. $W(0^\circ)$ is the β-radiation recording probability if the magnetic field is applied in the

Card 1/3

...search of ...oslovak SSR (M. Shott)

Asymmetry in β-radiation from some...

S/056/62/043/003/015/063
B102/B104

SUBMITTED: April 13, 1962

Card 3/3

L 15530-63 EWP(q)/EWT(m)/BDS AFFTC/ASD JD

ACCESSION NR: AP3005233 S/0056/63/045/002/0001/0007 64 59

AUTHOR: Kogan, A.V.; Kul'kov, V. D.; Nikitin, L. P.; Reynov, N. M.; Stel'makh, M. F.

TITLE: Measurement of the nuclear specific heats of iridium 19 and rhenium 77 in iron alloys

SOURCE: Zhur. eksper. i teor. fiz. v. 45, no. 2, 1963, 1-7.

TOPIC TAGS: Nuclear specific heat, iridium, rhenium, magnetic moment, effective magnetic field, Re, Ir

ABSTRACT: A method for measuring very small nuclear specific heats and for estimating nuclear relaxation times in alloys is described. Such measurements are of interest because they can be used to determine the effective magnetic field and the magnetic moment of radioactive isotopes. The specific heats of the alloys were measured by comparison with the specific heat of a cooling mixture consisting of 50% saturated aqueous solution of criummagnetsium nitrate and 50% glycerin by volume, which in turn was determined in control experiments by comparison with the known specific heats of metallic cobalt and Fe-Co alloys with different concen-

Card 1/2

L 15530-63
ACCESSION NR: AP3005233

5

trations. The nuclear specific heats of Re-Fe and Ir-Fe alloys of various concentrations were measured. The effective magnetic fields acting on the nuclei of the alloying metals were found to be $(6.7 \pm 0.7) \times 10^7$ Oe for Re and $(1.35 \pm 0.3) \times 10^6$ for Ir. The magnetic moment of Ir-192 was found to be $(1.8^{+0.6}_{-0.5})$ nuclear magnetons. magnetons. The possible errors of the procedure are estimated. "The authors wish to thank Yu. M. Burdukov, A. A. Fogel, T. A. Sidorova, and Z. A. Guts for assistance in preparing the samples. Orig. art. has: 3 figures, 4 formulas, and 2 tables.

ASSOCIATION: Fizicheako-tekhnicheskiy institut im. A. F. Ioffe Akademii nauk SSSR (Physicotechnical Inst. Academy of Sciences SSSR)

SUBMITTED: 13Dec62 DATE ACQ: 06Sep63 ENCL: 02

SUB CODE: PH NO REF SOV: 005 OTHER: 006

Card 2/2

L 31963-65 EWT(m)/EWP(w)/EWA(d)/EWP(t)/T/EWP(b) DIAAP/IJP(c) JD/JG 43
ACCESSION NR: AP5004383 S/0056/65/048/001/0122/0124 41 B

AUTHOR: Kal'kov, V. D.; Kogan, A. Y.; Nikitin, L. P.; Seyia, E. P.; Stel'makh, M. F.

TITLE: Internal magnetic field in W and Ru atoms dissolved in iron

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 48, no. 1, 1965, 122-124

TOPIC TAGS: tungsten, ruthenium, anisotropy, Gamma emission, internal magnetic field, low temperature research, ferromagnetism

ABSTRACT: The experimental set-up used to measure the internal field acting on the nuclei embedded in the iron was described earlier (ZhTF, v. 29, 1419, 1959). The field was determined from the anisotropy of the gamma radiation emitted by the radioactive nuclei W^{187} and Ru^{103}, oriented at very low temperatures. A value of 1.1×10^6 Oe was obtained for W^{187}. In the case of Ru^{103} the sign of the asymmetry of the gamma radiation could be established and the decay scheme made more precise, but owing to the excessive error the value of the internal field could not be determined. "The authors thank Professor O. Ye. Zvyagintsev for supplying the

Card 1/2

L 31963-65
ACCESSION NR: AP5004383

spectrally pure ruthenium." Orig. art. has: 3 figures, 3 formulas, and 1 table.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe Akademii Nauk SSSR (Physicotechnical Institute, Academy of Sciences SSSR)

SUBMITTED: 23Jul64 ENCL: 00 SUB CODE: EM, SS

NR REF. SOV: 002 OTHER: 003

Card 2/2

NIKITIN, L.P.; KOGAN, A.V.; KUL'KOV, V.P.; CHERYAZOV, I.P.

Nuclear heat capacity of FeV alloys. Zhur.eksper. i teor.fiz.
49 no.4:1028-1030 O '65. (MIRA 18:11

1. Fiziko-tekhnicheskiy institut imeni A.F.Ioffe AN SSSR.

L 11963-66 EWT(m)/T/EWP(t)/EWP(b) LJP(c) JD/JG
ACC NR: AP5026589 SOURCE CODE: UR/0056/65/049/004/1028/1030

AUTHORS: Nikitin, L. P.; Kogan, A. V.; Kul'kov, V. D.; Shiryapov, I. P.

ORG: Physicotechnical Institute im. A. F. Ioffe, Academy of Sciences SSSR (Fiziko-tekhnicheskiy institut im. A. F. Ioffe Akademii nauk SSSR)

TITLE: Nuclear specific heat of FeV alloys

SOURCE: Zhurnal eksperimental'noy teoreticheskoy fiziki, v. 49, no. 4, 1965, 1028-1030

TOPIC TAGS: iron alloy, vanadium, specific heat, magnetic moment

ABSTRACT: To determine the hyperfine interaction field acting on the nuclei of vanadium in an iron matrix, the authors measured the nuclear specific heat of iron-vanadium alloys having vanadium concentrations 4.4 and 13.8 atomic per cent. The samples were prepared by melting in an electromagnetic crucible. The specific heat of the alloy was measured in the temperature range 0.03 -- 0.15K by comparison with the specific heat of the cooling salt, the latter being determined experimentally using a control alloy sample of known specific heat. The experimental technique was described by the authors earlier (ZhETF v. 45, 1, 1963), but the apparatus used to measure the nuclear specific heat

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L 11963-66

ACC NR: AP5026589

was somewhat modified by using pulsed heating instead of audio-frequency heating. The value obtained for the effective field acting on the vanadium nucleus in the alloy with the 4.4 and 13.8 per cent vanadium was 78 ± 7 and 58 ± 4 kOe, respectively. The observed strong dependence of the field on the composition of the alloy is accounted for by means of a simple model, in which the free vanadium atom has three electrons in the unfilled 3d shell and two electrons in the 4s shell. Replacement of a single iron atom by a vanadium atom in the alloy reduces the magnetic moment by 3.2 Bohr magnetons. The localized moment of the vanadium atom in the alloy is estimated to be -0.4 Bohr magnetons. Authors thank Z. V. Guts and L. M. Bugayeva for the preparation and heat treatment of alloys. Orig. art. has: 1 figure and 1 formula.

SUB CODE: 20/ SUBM DATE: 15Apr65/ NR REF SOV: 003/ OTH REF: 008

Card 2/2

ACC NR: AP7005841 SOURCE CODE: UR/0181/66/008/012/3555/3558

AUTHOR: Kogan, A. V.; Kul'kov, V. D.; Nikitin, L. P.

ORG: Physicotechnical Institute im. A. F. Ioffe, AN SSSR, Leningrad (Fiziko-tekhnicheskiy institut AN SSSR)

TITLE: Fields of hyperfine interaction for heavy elements dissolved in iron

SOURCE: Fizika tverdogo tela, v. 8, no. 12, 1966, 3555-3558

TOPIC TAGS: heavy nucleus, lutecium, iron, ferromagnetic material, beta radiation, gamma radiation, specific heat

ABSTRACT: This is a continuation of earlier work by the authors (ZhETF v. 48, 122, 1965 and earlier) devoted to the mechanism producing the internal field acting on culei of weakly magnetic elements alloyed with ferromagnets, where the measured the fields of hyperfine interaction fro a number of heavy alements alloyed with iron. In the present work they investigated the effective fields for elements with closely-lying atomic numbers, having analogous internal electronic shells but greatly differing external chells. The experiments were made on nuclei of Lu^{177} alloyed with iron, and consisted of measurements of the nuclear component of the specific heat as well as an investigation of the spatial anisotropy of the β and γ radiation of the polarized nuclei. The preparation of the alloy is briefly described. The results show that the internal effective field, determined from the γ-radiation anisotropy, does not exceed 70 kOe. The results are compared with experimental data on the series of

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ACC NR: AP7005841

elements from Lu to Au (Pa, W, Rh, Os, Ir, Pt) in an iron matrix, with an aim at finding an empirical relation for the effective magnetic field as a function of the atomic number. This analysis fails to establish any relation between the effective field and the atomic number on the basis of any presently known theoretical considerations. The authors thank Z. A. Guts for preparing the samples of the Fe-Lu alloys. Orig. art. has: 1 figure, 3 formulas, and 1 table.

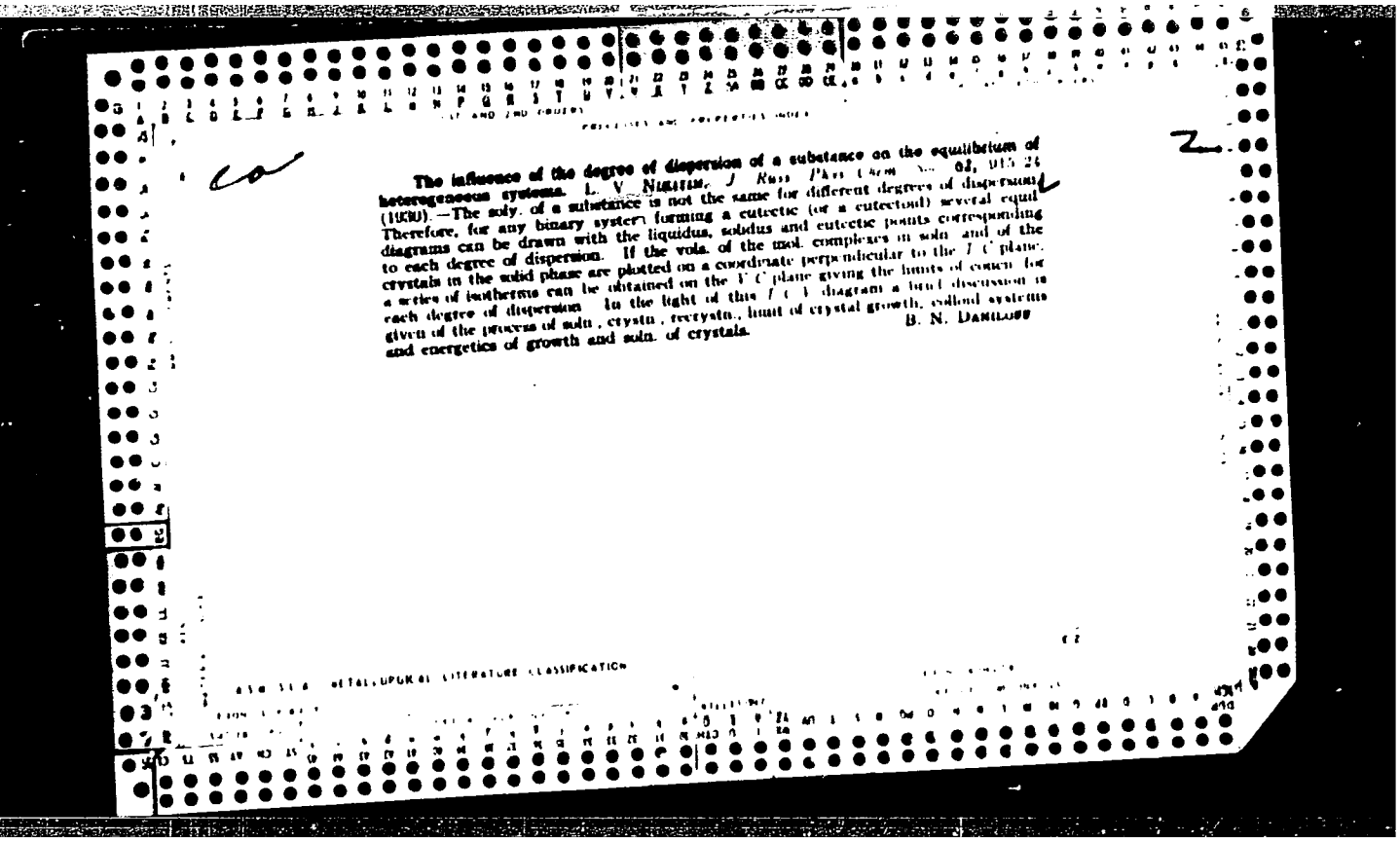
SUB CODE: 20/ SUBM DATE: 04May66/ ORIG REF: 006/ OTH REF: 010

Card 2/2

NIKITIN, L.V.; KHAYUTIN, V.M.

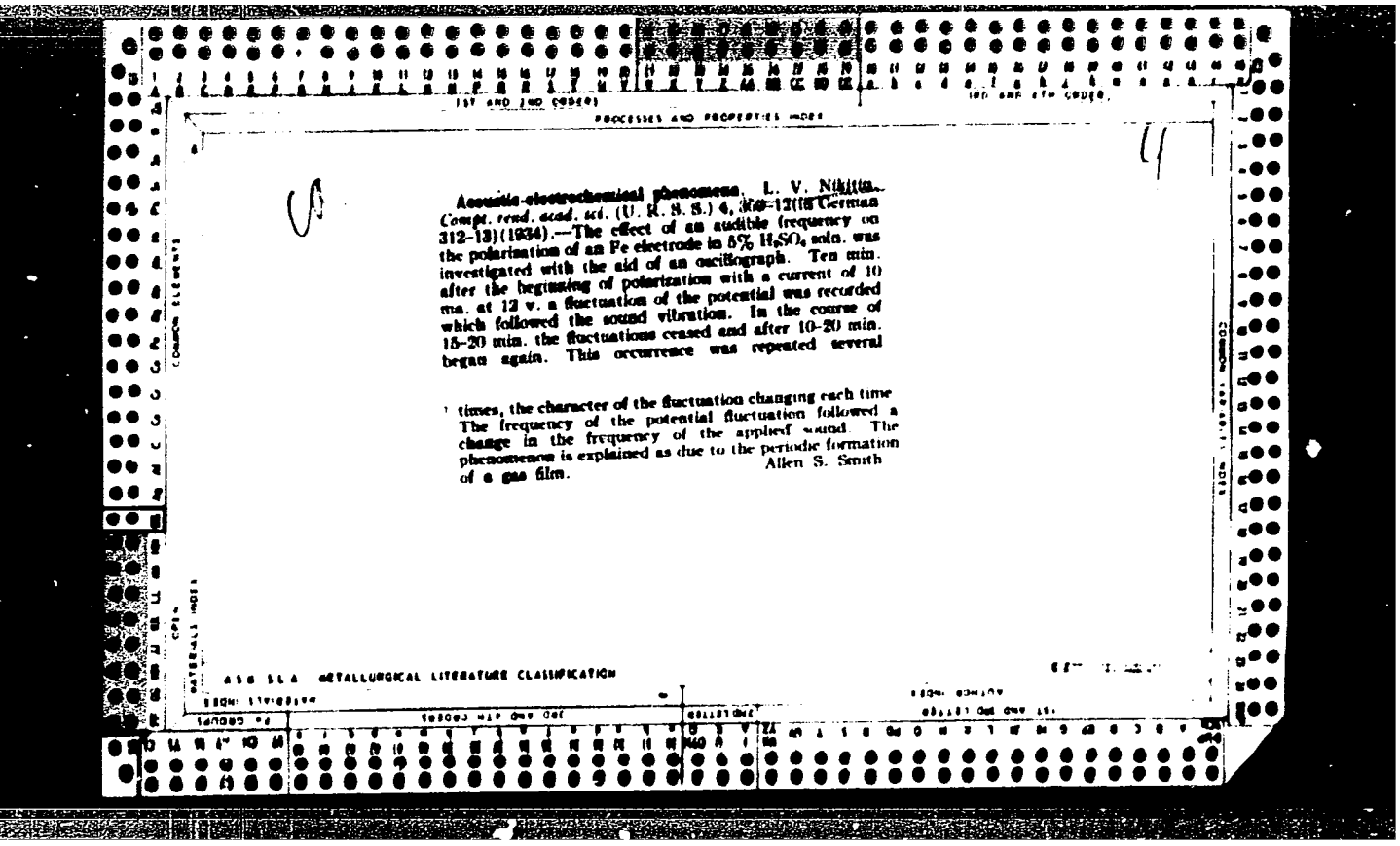
Theory of measurement of the hydraulic resistance of the vessels under the action of regulatin signals. Fizio. zhur. 48 no.8:967-975 Ag'62. (MIR[illegible])

1.From the Institute of Mechanics, U.S.S.R. Academy of Sciences and Institute of Normal and Pathologic Physiology, U.S.S.R. Academy on Medical Sciences, Moscow.
(BLOOD VESSELS)



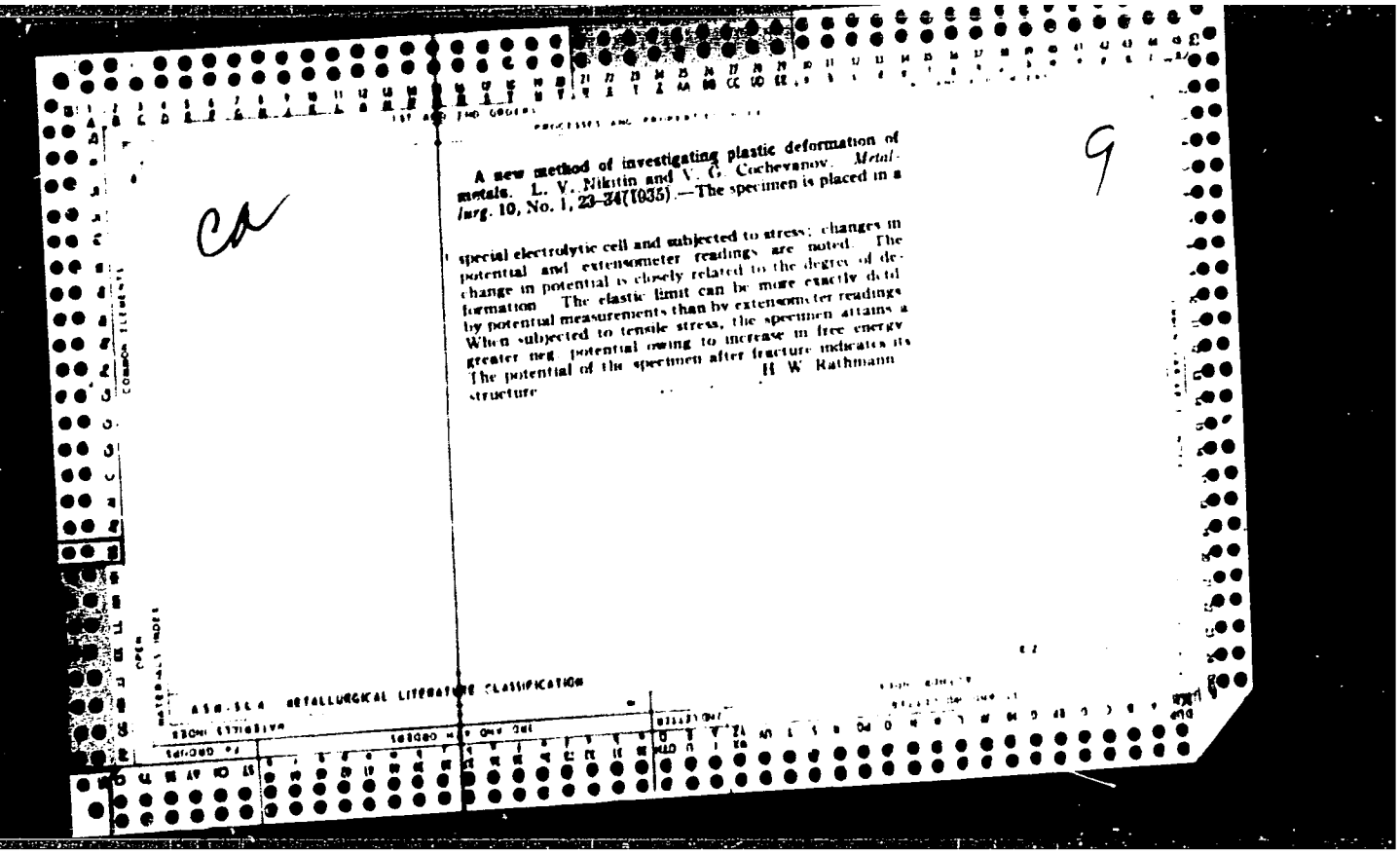
The influence of the degree of dispersion of a substance on the equilibrium of heterogeneous systems. L. V. Nikitin. *J. Russ. Phys. Chem. Soc.* 62, 915-24 (1930).—The soly. of a substance is not the same for different degrees of dispersion. Therefore, for any binary system forming a eutectic (or a eutectoid) several equil. diagrams can be drawn with the liquidus, solidus and eutectic points corresponding to each degree of dispersion. If the vols. of the mol. complexes in soln. and of the crystals in the solid phase are plotted on a coördinate perpendicular to the T–C plane, a series of isotherms can be obtained on the T–C plane giving the limits of concn. for each degree of dispersion. In the light of this T–C–D diagram a brief discussion is given of the powers of soln., crystn., recrystn., limit of crystal growth, colloid systems and energetics of growth and soln. of crystals.

B. N. Dantlow

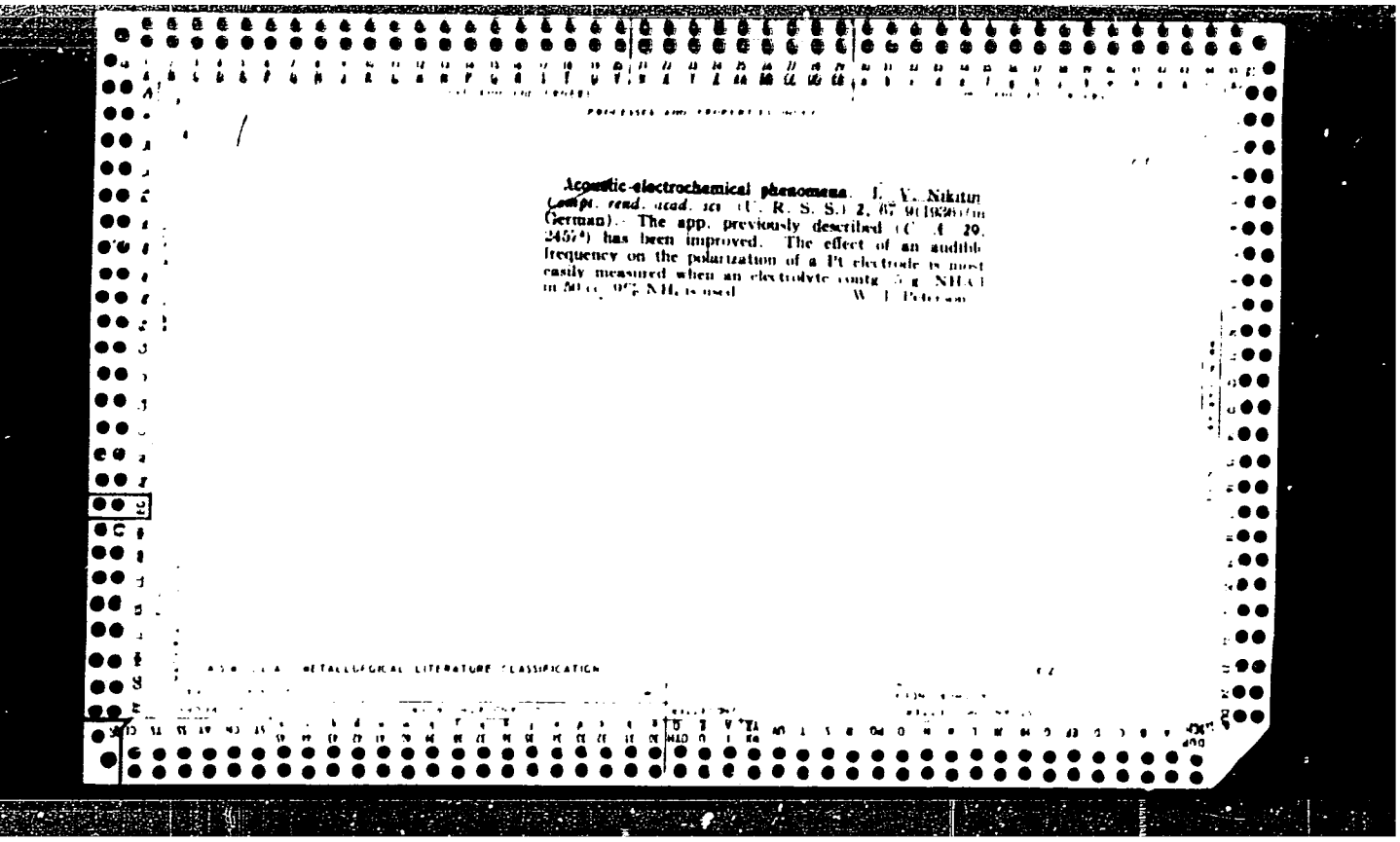


Acoustic-electrochemical phenomena. L. V. Nikitin. *Compt. rend. acad. sci.* (U. R. S. S.) 4, [illegible] German 312–13) (1934).—The effect of an audible frequency on the polarization of an Fe electrode in 5% H_2SO_4 soln. was investigated with the aid of an oscillograph. Ten min. after the beginning of polarization with a current of 10 ma. at 12 v. a fluctuation of the potential was recorded which followed the sound vibration. In the course of 15–20 min. the fluctuations ceased and after 10–20 min. began again. This occurrence was repeated several times, the character of the fluctuation changing each time. The frequency of the potential fluctuation followed a change in the frequency of the applied sound. The phenomenon is explained as due to the periodic formation of a gas film.

Allen S. Smith



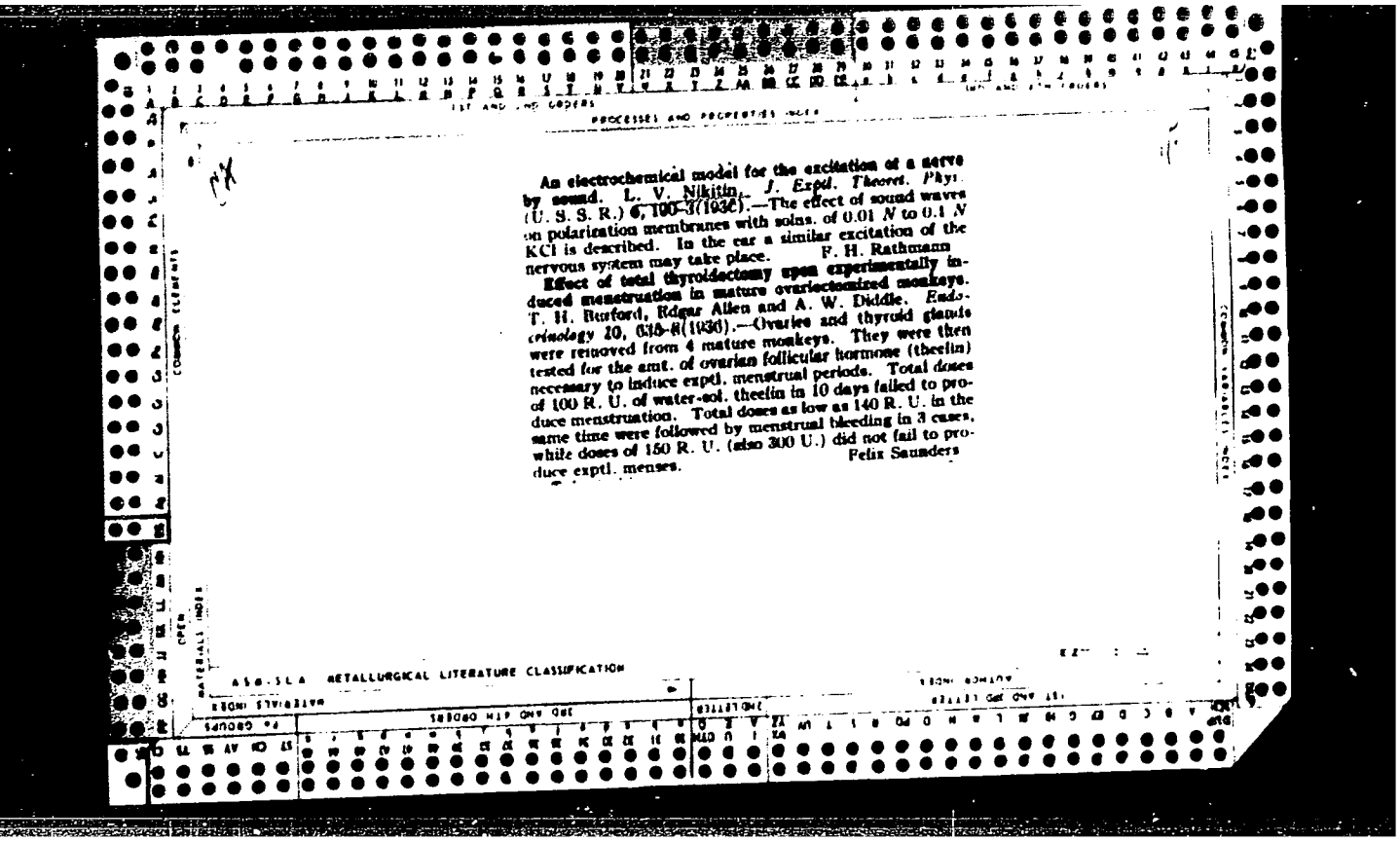
A new method of investigating plastic deformation of metals. L. V. Nikitin and V. G. Cochevanov. *Metallurg.* 10, No. 1, 23–34(1935).—The specimen is placed in a special electrolytic cell and subjected to stress; changes in potential and extensometer readings are noted. The change in potential is closely related to the degree of deformation. The elastic limit can be more exactly determined by potential measurements than by extensometer readings. When subjected to tensile stress, the specimen attains a greater neg. potential owing to increase in free energy. The potential of the specimen after fracture indicates its structure. H. W. Rathmann



Acoustic-electrochemical phenomena. L. V. Nikitin *Compt. rend. acad. sci. U. R. S. S.* 2, 67–9 (1936) (in German).—The app. previously described (*C. A.* 29, 2457[9]) has been improved. The effect of an audible frequency on the polarization of a Pt electrode is most easily measured when an electrolyte contg. 5 g. NH_4Cl in 50 cc. 0% NH_3 is used. W. J. Peterson

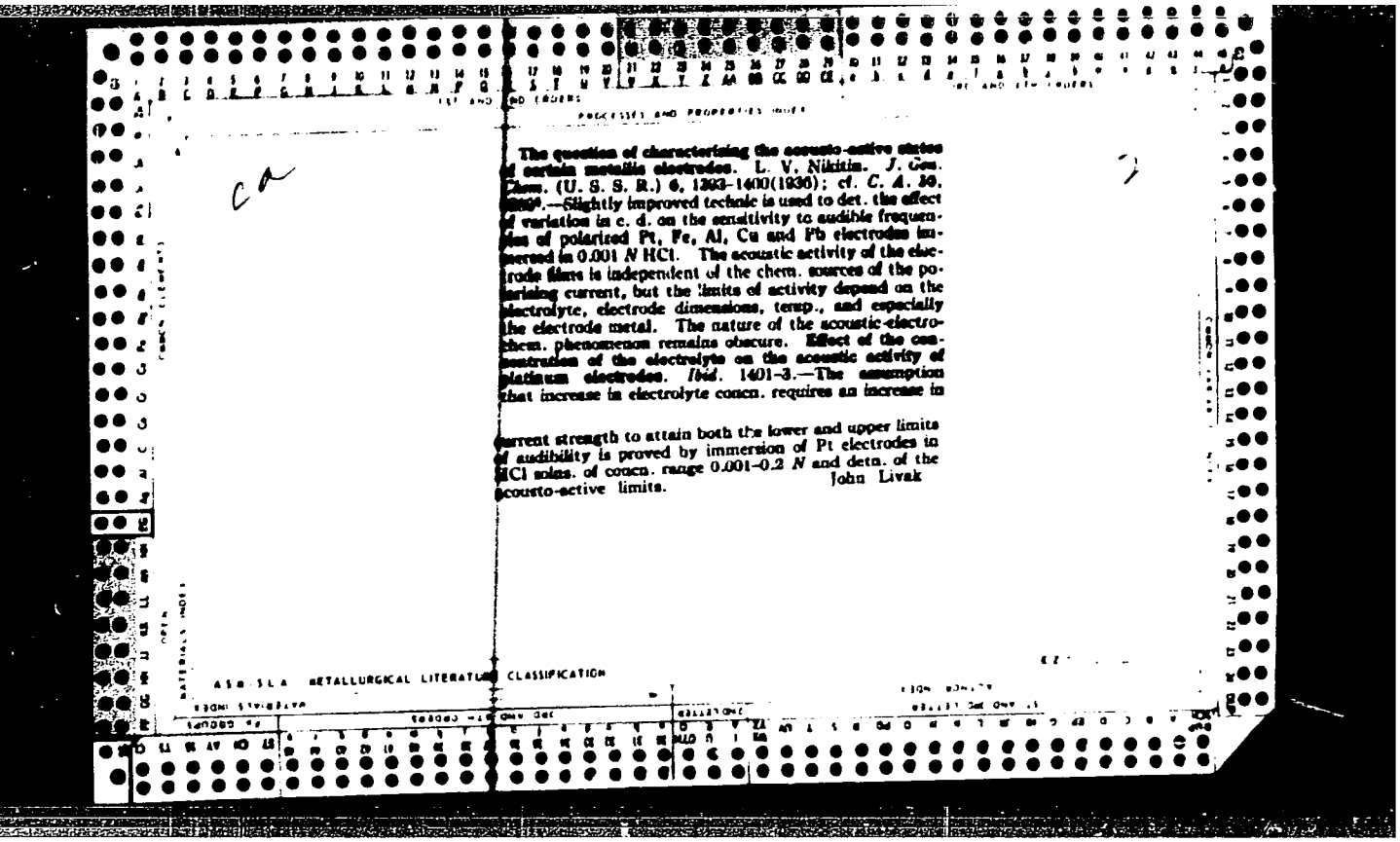
A.S.T.M. METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001137010008-0"



An electrochemical model for the excitation of a nerve by sound. L. V. Nikitin. *J. Exptl. Theoret. Phys.* (U. S. S. R.) 6, 100-3(1936).—The effect of sound waves on polarization membranes with solns. of 0.01 *N* to 0.1 *N* KCl is described. In the ear a similar excitation of the nervous system may take place. F. H. Rathmann

Effect of total thyroidectomy upon experimentally induced menstruation in mature ovariectomized monkeys. T. H. Burford, Edgar Allen and A. W. Diddle. *Endocrinology* 20, 635-8(1936).—Ovaries and thyroid glands were removed from 4 mature monkeys. They were then tested for the amt. of ovarian follicular hormone (theelin) necessary to induce exptl. menstrual periods. Total doses of 100 R. U. of water-sol. theelin in 10 days failed to produce menstruation. Total doses as low as 140 R. U. in the same time were followed by menstrual bleeding in 3 cases, while doses of 150 R. U. (also 300 U.) did not fail to produce exptl. menses. Felix Saunders



The question of characterizing the acousto-active states of certain metallic electrodes. L. V. Nikitin. *J. Gen. Chem.* (U. S. S. R.) **6**, 1393–1400(1936); cf. *C. A.* **30**, 8099.—Slightly improved technic is used to det. the effect of variation in c. d. on the sensitivity to audible frequencies of polarized Pt, Fe, Al, Cu and Pb electrodes immersed in 0.001 *N* HCl. The acoustic activity of the electrode films is independent of the chem. sources of the polarizing current, but the limits of activity depend on the electrolyte, electrode dimensions, temp., and especially the electrode metal. The nature of the acoustic-electrochem. phenomenon remains obscure. **Effect of the construction of the electrolyte on the acoustic activity of platinum electrodes.** *Ibid.* 1401–3.—The assumption that increase in electrolyte concn. requires an increase in current strength to attain both the lower and upper limits of audibility is proved by immersion of Pt electrodes in HCl solns. of concn. range 0.001–0.2 *N* and detn. of the acousto-active limits.

John Livak

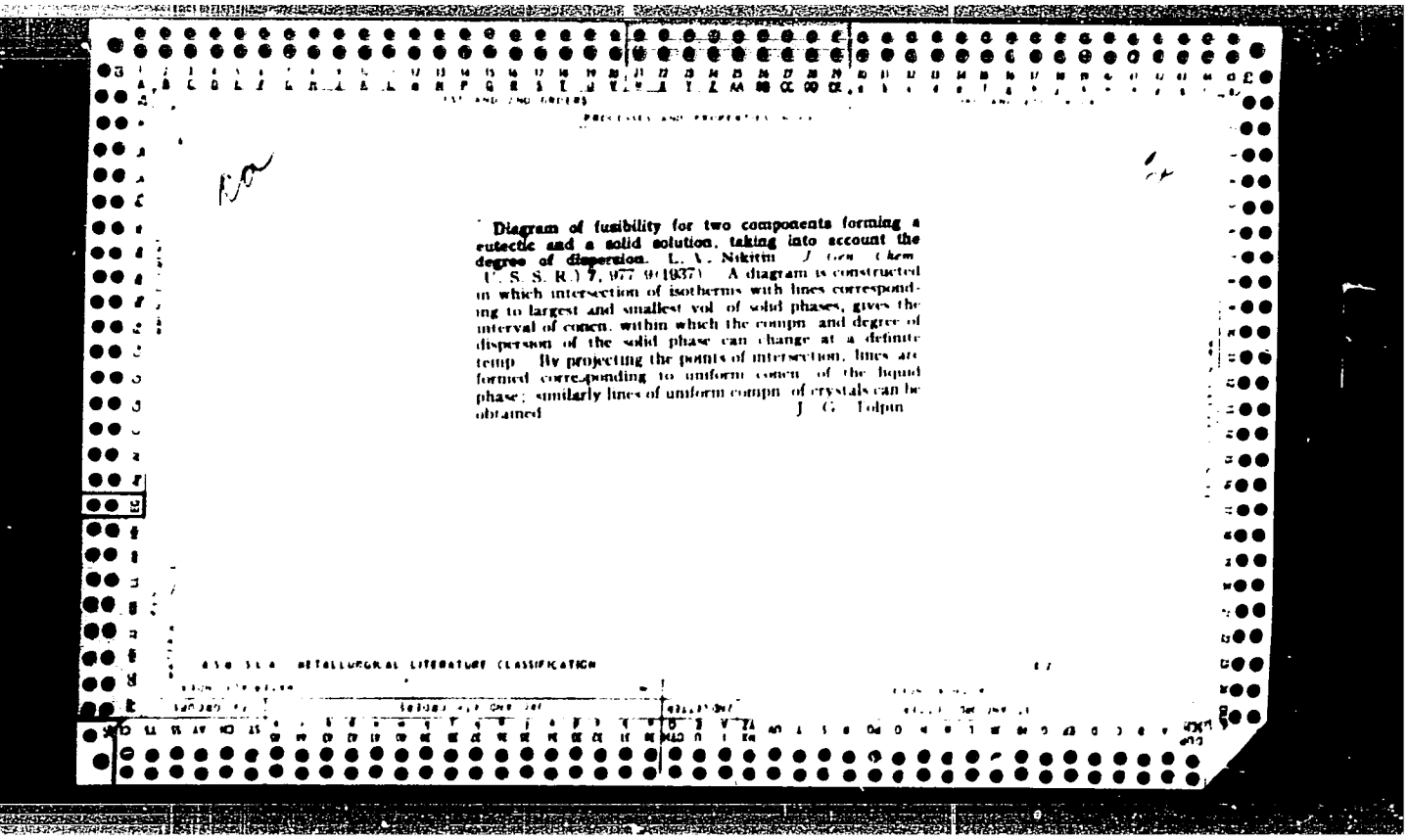
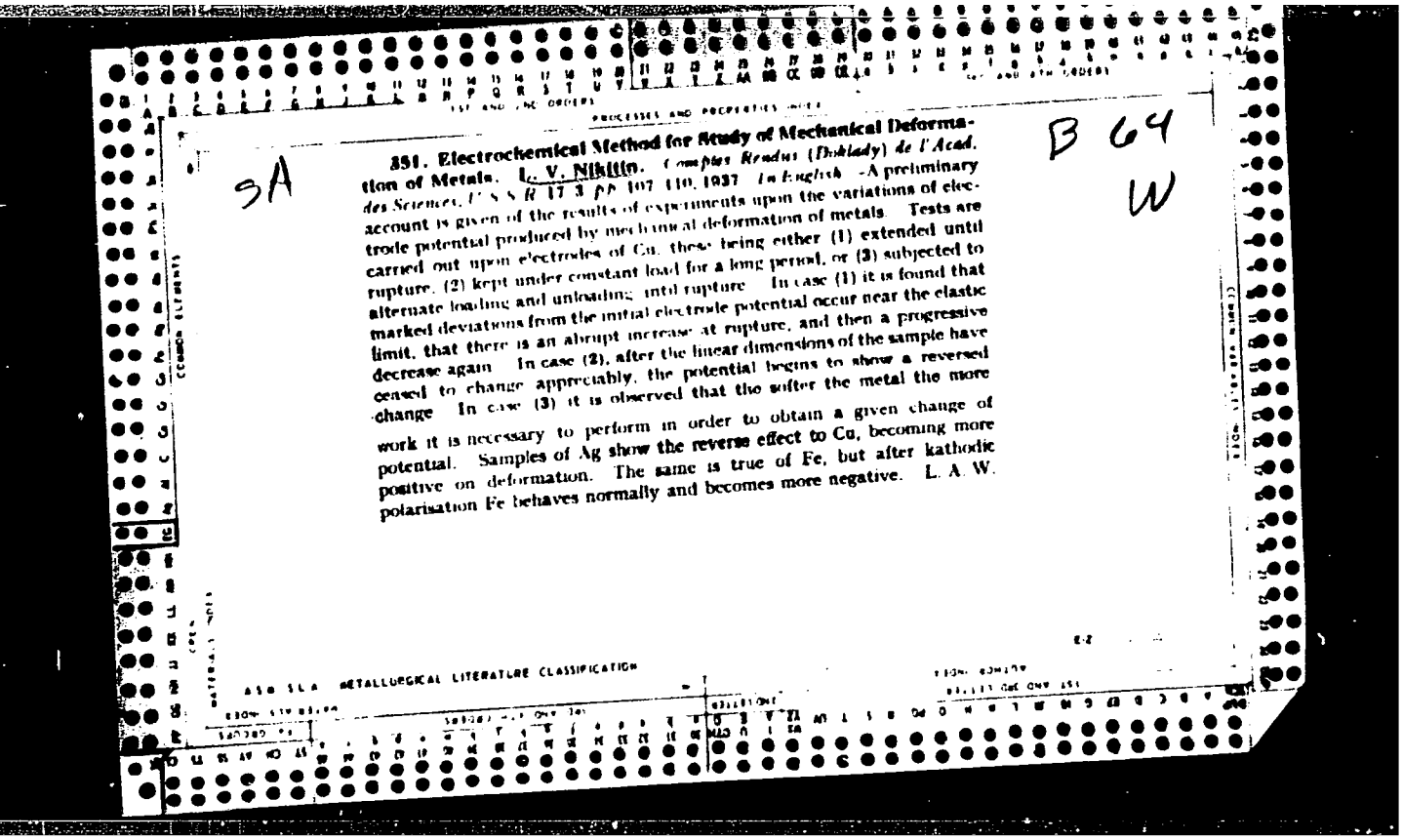


Diagram of fusibility for two components forming a eutectic and a solid solution, taking into account the degree of dispersion. L. V. Nikitin *J. Gen. Chem.* (U. S. S. R.) 7, 977-9 (1937). A diagram is constructed in which intersection of isotherms with lines corresponding to largest and smallest vol. of solid phases, gives the interval of concn. within which the compn. and degree of dispersion of the solid phase can change at a definite temp. By projecting the points of intersection, lines are formed corresponding to uniform concn. of the liquid phase; similarly lines of uniform compn. of crystals can be obtained. J. G. Tolpin



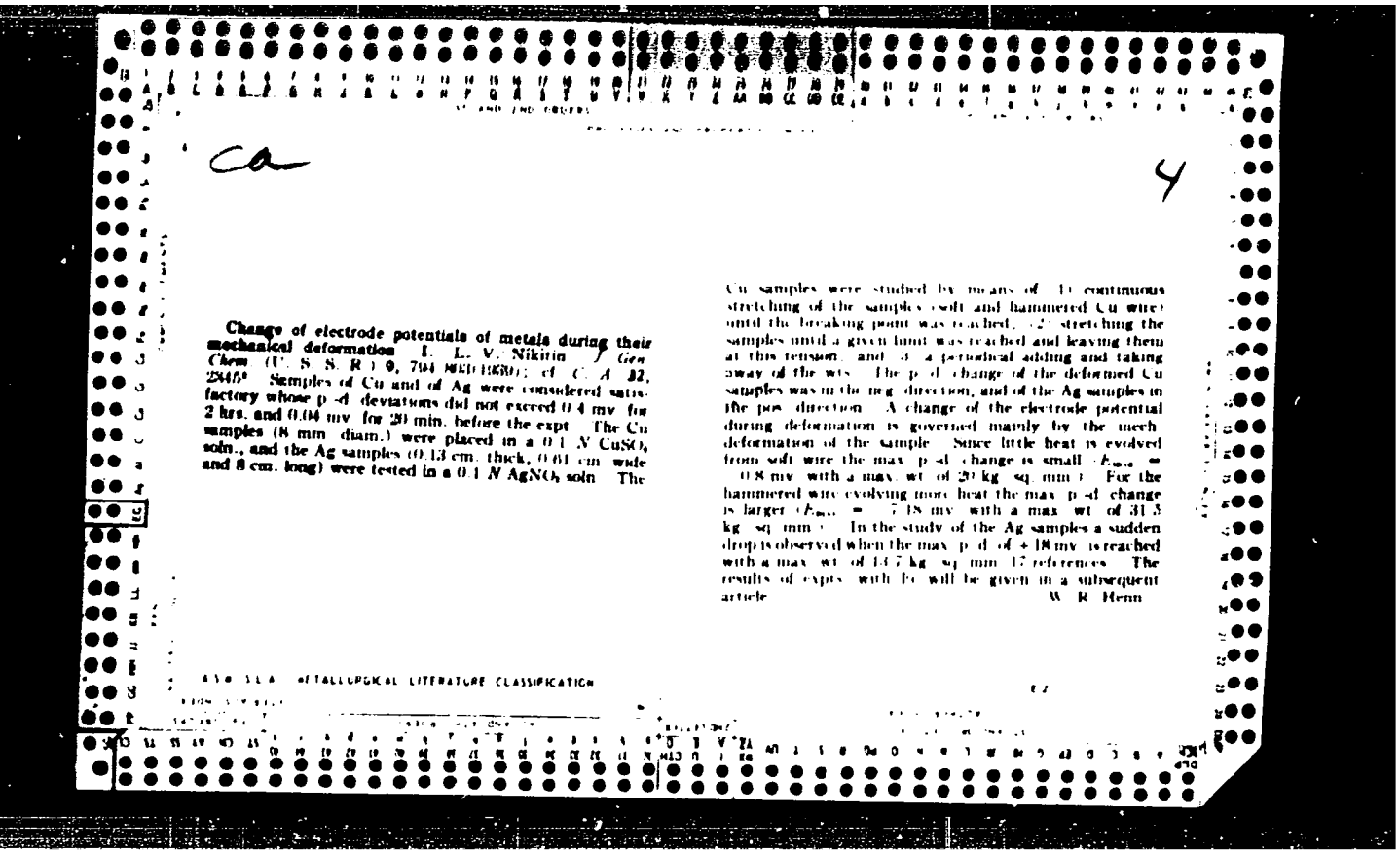
5A

B 64

W

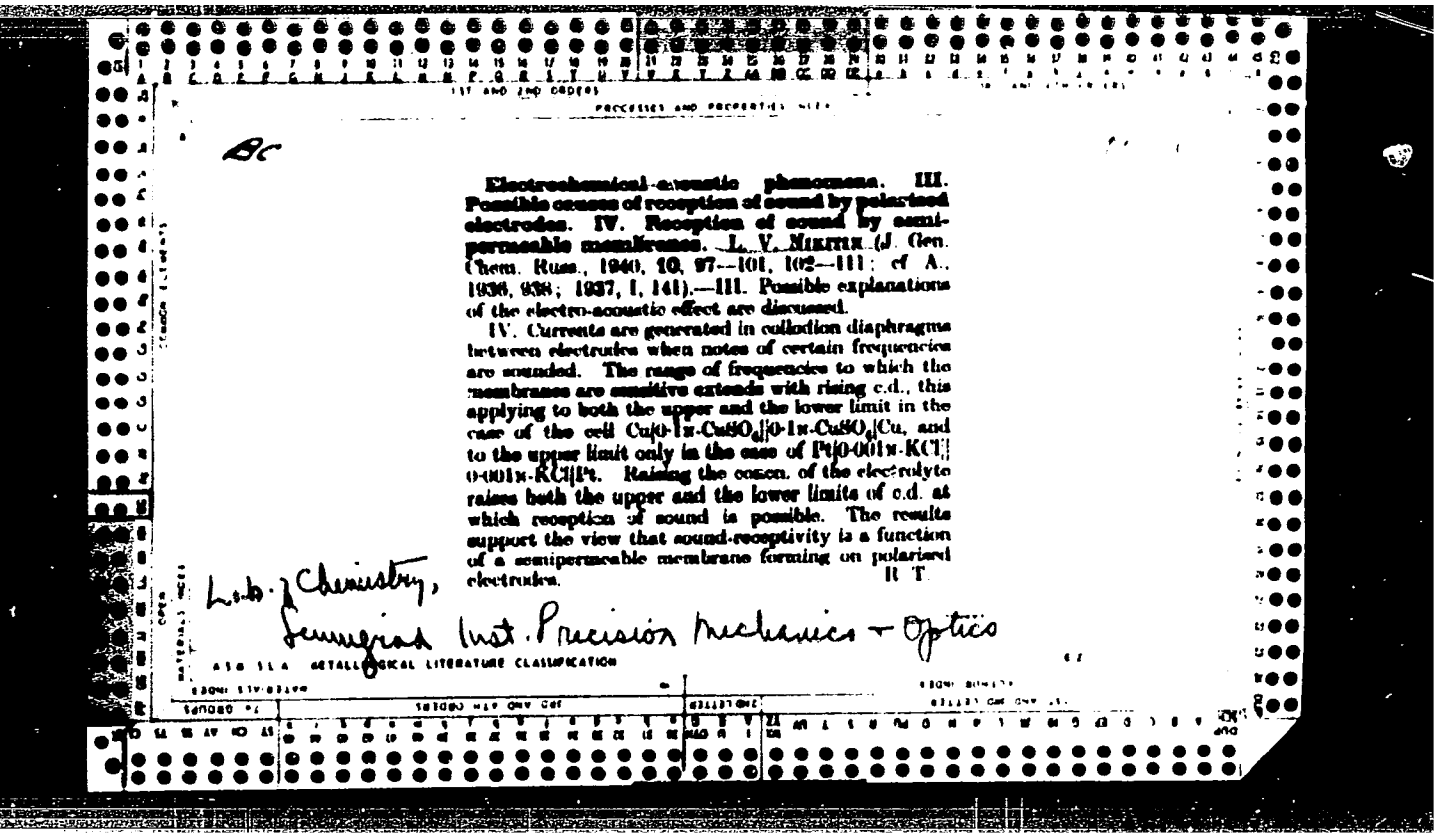
851. Electrochemical Method for Study of Mechanical Deformation of Metals. L. V. Nikitin. *Comptes Rendus (Doklady) de l'Acad. des Sciences, U.S.S.R.* 17 3 pp. 107-110. 1937. *In English.* -A preliminary account is given of the results of experiments upon the variations of electrode potential produced by mechanical deformation of metals. Tests are carried out upon electrodes of Cu, these being either (1) extended until rupture, (2) kept under constant load for a long period, or (3) subjected to alternate loading and unloading until rupture. In case (1) it is found that marked deviations from the initial electrode potential occur near the elastic limit, that there is an abrupt increase at rupture, and then a progressive decrease again. In case (2), after the linear dimensions of the sample have ceased to change appreciably, the potential begins to show a reversed change. In case (3) it is observed that the softer the metal the more work it is necessary to perform in order to obtain a given change of potential. Samples of Ag show the reverse effect to Cu, becoming more positive on deformation. The same is true of Fe, but after kathodic polarisation Fe behaves normally and becomes more negative. L. A. W.

A56 SLA METALLURGICAL LITERATURE CLASSIFICATION



Change of electrode potentials of metals during their mechanical deformation. I. L. V. Nikitin. *J. Gen. Chem.* (U. S. S. R.) 9, 704 (1939); cf. *C. A.* **32**, 2845⁸. Samples of Cu and of Ag were considered satisfactory whose p.d. deviations did not exceed 0.4 mv. for 2 hrs. and 0.04 mv. for 20 min. before the expt. The Cu samples (8 mm. diam.) were placed in a 0.1 *N* $CuSO_4$ soln., and the Ag samples (0.13 cm. thick, 0.61 cm. wide and 8 cm. long) were tested in a 0.1 *N* $AgNO_3$ soln. The Cu samples were studied by means of 1) continuous stretching of the samples (soft and hammered Cu wire) until the breaking point was reached, 2) stretching the samples until a given limit was reached and leaving them at this tension, and 3) a periodical adding and taking away of the wt. The p.d. change of the deformed Cu samples was in the neg. direction, and of the Ag samples in the pos. direction. A change of the electrode potential during deformation is governed mainly by the mech. deformation of the sample. Since little heat is evolved from soft wire the max. p.d. change is small ($E_{max.}$ = 0.8 mv. with a max. wt. of 20 kg./sq. mm.). For the hammered wire evolving more heat the max. p.d. change is larger ($E_{max.}$ = 7.18 mv. with a max. wt. of 31.5 kg./sq. mm.). In the study of the Ag samples a sudden drop is observed when the max. p.d. of +18 mv. is reached with a max. wt. of 14.7 kg./sq. mm. 12 references. The results of expts. with Fe will be given in a subsequent article. W. R. Henn

A1a 51A METALLURGICAL LITERATURE CLASSIFICATION



Bc

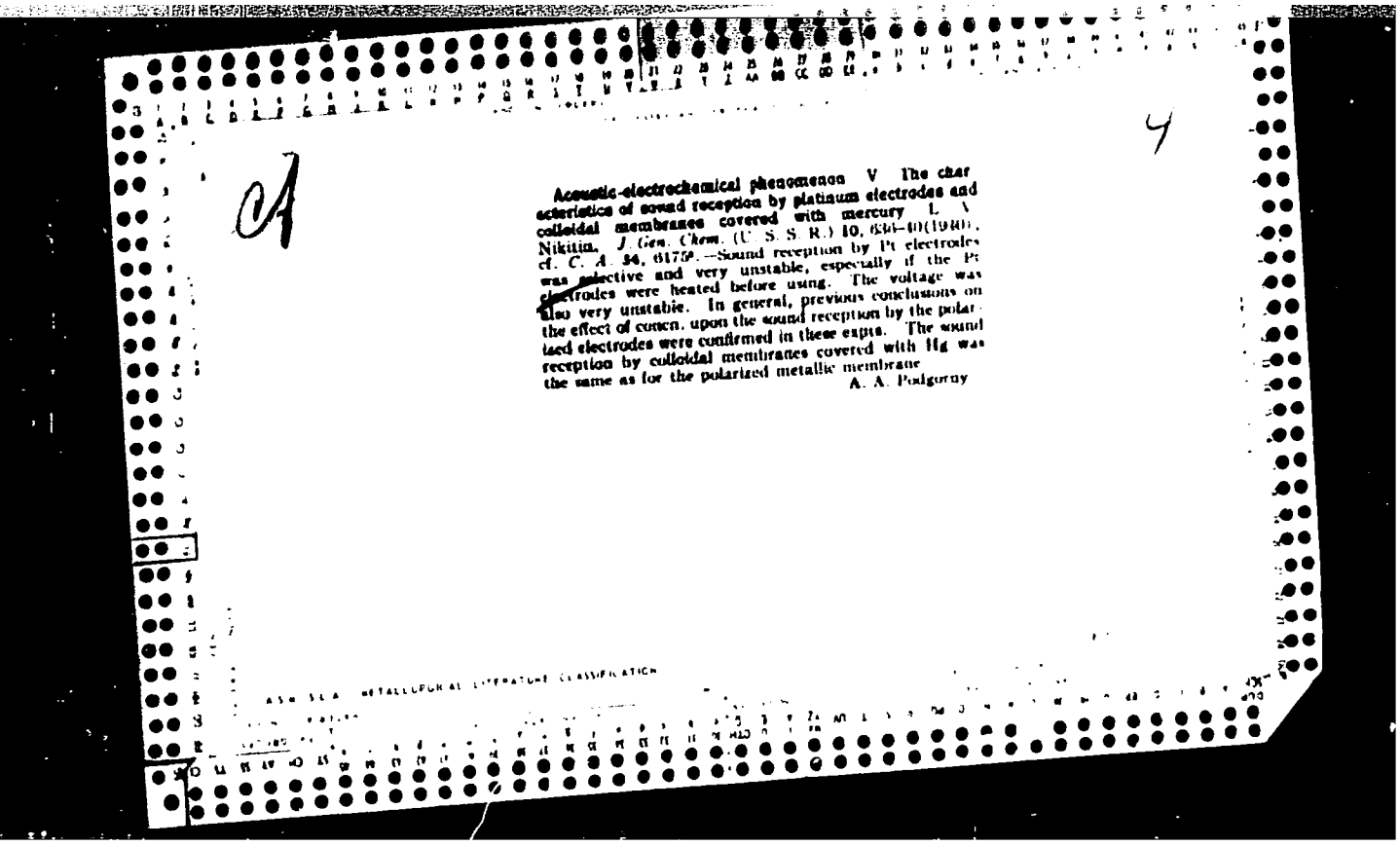
Electrochemical-acoustic phenomena. III. Possible causes of reception of sound by polarized electrodes. IV. Reception of sound by semi-permeable membranes. L. V. Mikheev (J. Gen. Chem. Russ., 1940, 10, 97—101, 102—111; cf. A., 1936, 938; 1937, I, 141).—III. Possible explanations of the electro-acoustic effect are discussed.

IV. Currents are generated in collodion diaphragms between electrodes when notes of certain frequencies are sounded. The range of frequencies to which the membranes are sensitive extends with rising c.d., this applying to both the upper and the lower limit in the case of the cell Cu|0·1*N*-$CuSO_4$||0·1*N*-$CuSO_4$|Cu, and to the upper limit only in the case of Pt|0·001*N*-KCl||0·001*N*-KCl|Pt. Raising the concn. of the electrolyte raises both the upper and the lower limits of c.d. at which reception of sound is possible. The results support the view that sound-receptivity is a function of a semipermeable membrane forming on polarized electrodes.

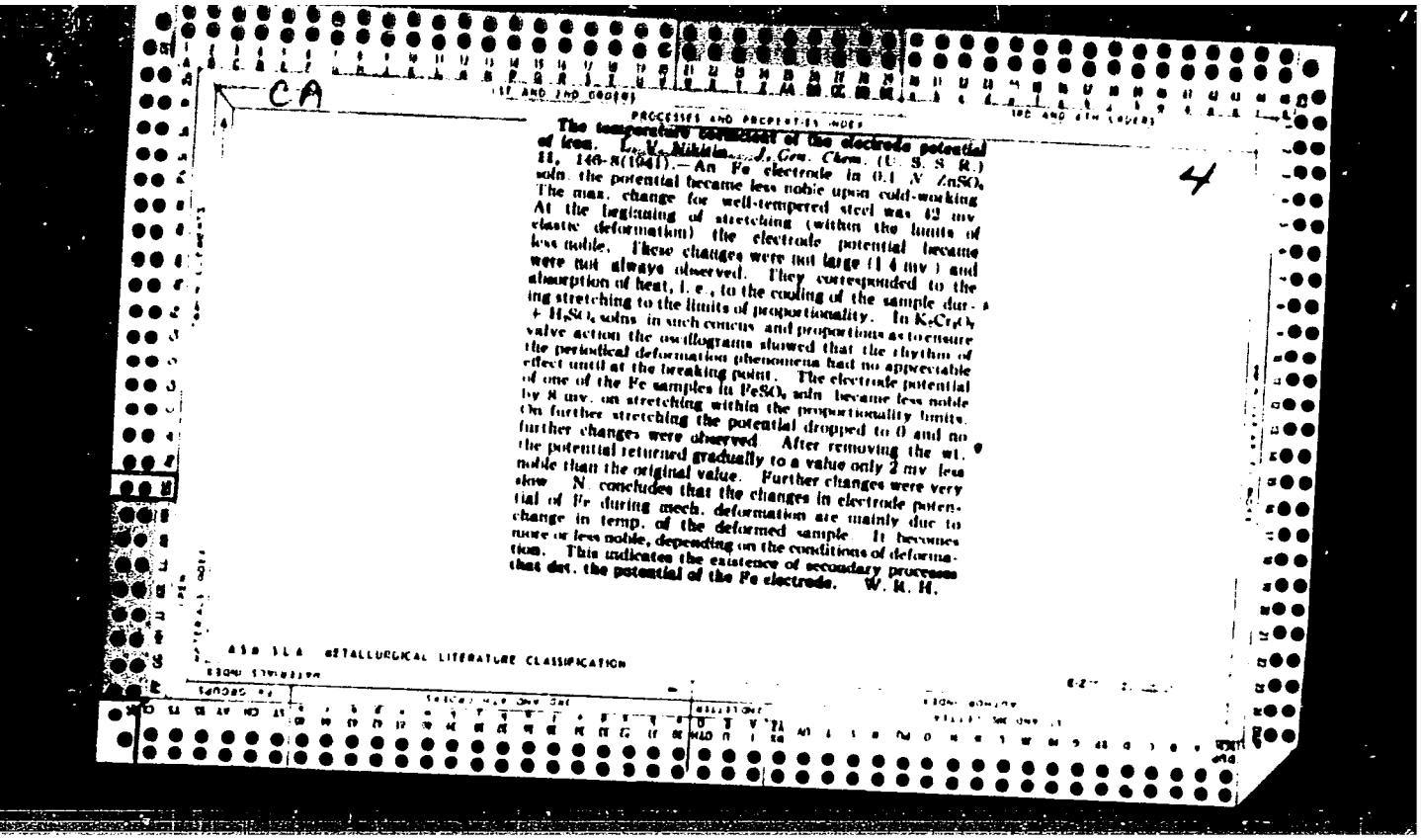
R. T.

Lab. of Chemistry, Leningrad Inst. Precision Mechanics + Optics

A 1 B 1 L A METALLURGICAL LITERATURE CLASSIFICATION



Acoustic-electrochemical phenomena V The characteristics of sound reception by platinum electrodes and colloidal membranes covered with mercury L. V. Nikitin. *J. Gen. Chem.* (U. S. S. R.) 10, 634–40(1940); cf. *C. A.* 34, 6175⁹.—Sound reception by Pt electrodes was selective and very unstable, especially if the Pt electrodes were heated before using. The voltage was also very unstable. In general, previous conclusions on the effect of concn. upon the sound reception by the polarized electrodes were confirmed in these expts. The sound reception by colloidal membranes covered with Hg was the same as for the polarized metallic membrane.
A. A. Podgorny



CA

PROCESSES AND PROPERTIES INDEX

The temperature coefficient of the electrode potential of iron. L. V. Nikitin. *J. Gen. Chem.* (U. S. S. R.) 11, 146-8(1941).—An Fe electrode in 0.1 *N* $ZnSO_4$ soln. the potential became less noble upon cold-working The max. change for well-tempered steel was 42 mv At the beginning of stretching (within the limits of elastic deformation) the electrode potential became less noble. These changes were not large (1.4 mv.) and were not always observed. They corresponded to the absorption of heat, i. e., to the cooling of the sample during stretching to the limits of proportionality. In $K_2Cr_2O_7$ + H_2SO_4 soln. in such concns. and proportions as to ensure valve action the oscillograms showed that the rhythm of the periodical deformation phenomena had no appreciable effect until at the breaking point. The electrode potential of one of the Fe samples in $FeSO_4$ soln. became less noble by 8 mv. on stretching within the proportionality limits. On further stretching the potential dropped to 0 and no further changes were observed. After removing the wt. the potential returned gradually to a value only 2 mv. less noble than the original value. Further changes were very slow. N. concludes that the changes in electrode potential of Fe during mech. deformation are mainly due to change in temp. of the deformed sample. It becomes more or less noble, depending on the conditions of deformation. This indicates the existence of secondary processes that det. the potential of the Fe electrode. W. R. H.

4

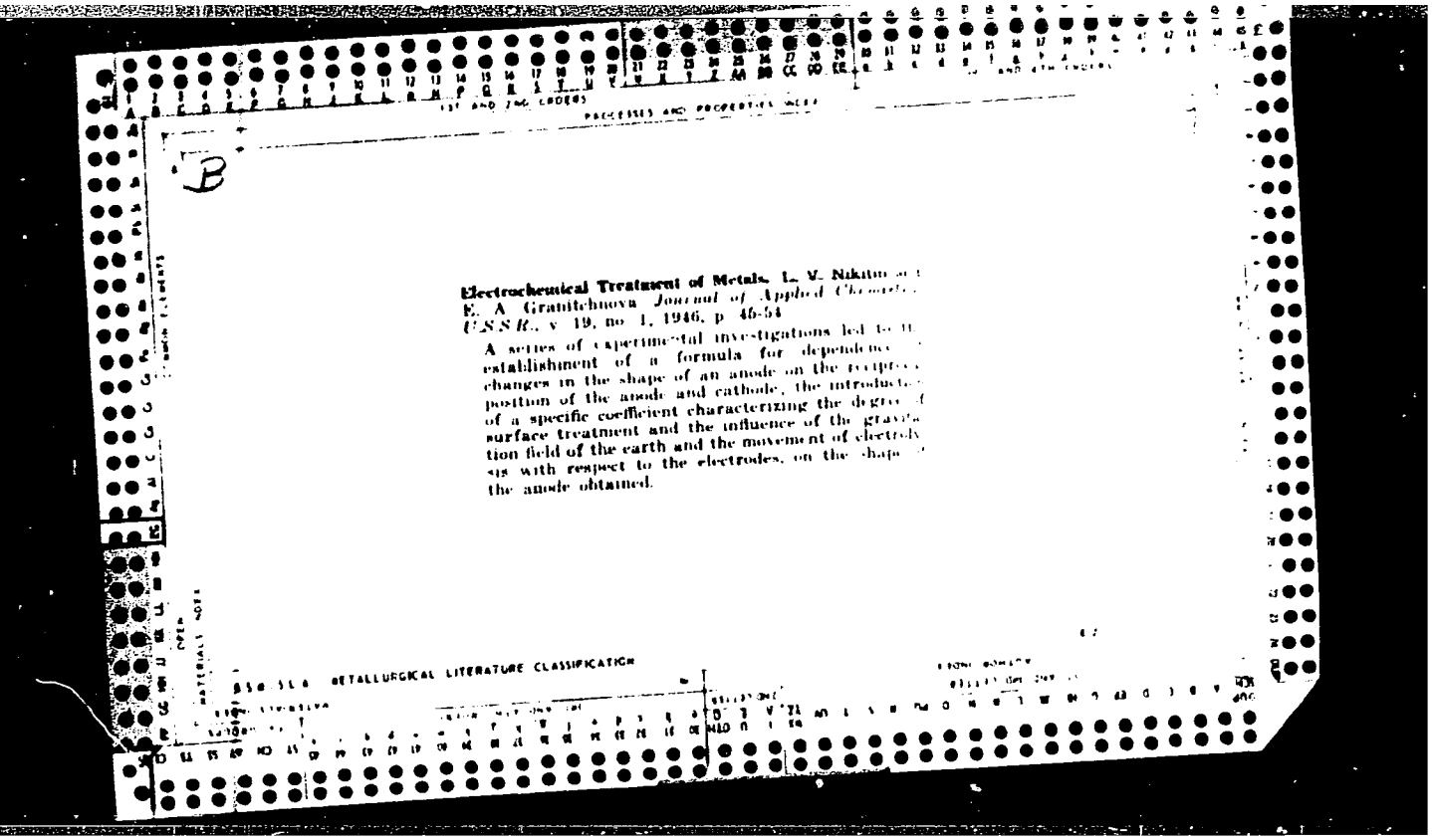
A5a 11 A METALLURGICAL LITERATURE CLASSIFICATION

NIKITIN, L. V.

Lab. Chemistry, Leningrad Inst. Exact Mechanics and Optics, (-1946-).

"Acoustical Electrochemical Phenomena. The Absorption of Sound by Polarized Electrodes and Membranes in Non-Aqueous Solutions."

Zhur. Fiz. Khim., No. 3, 1946.

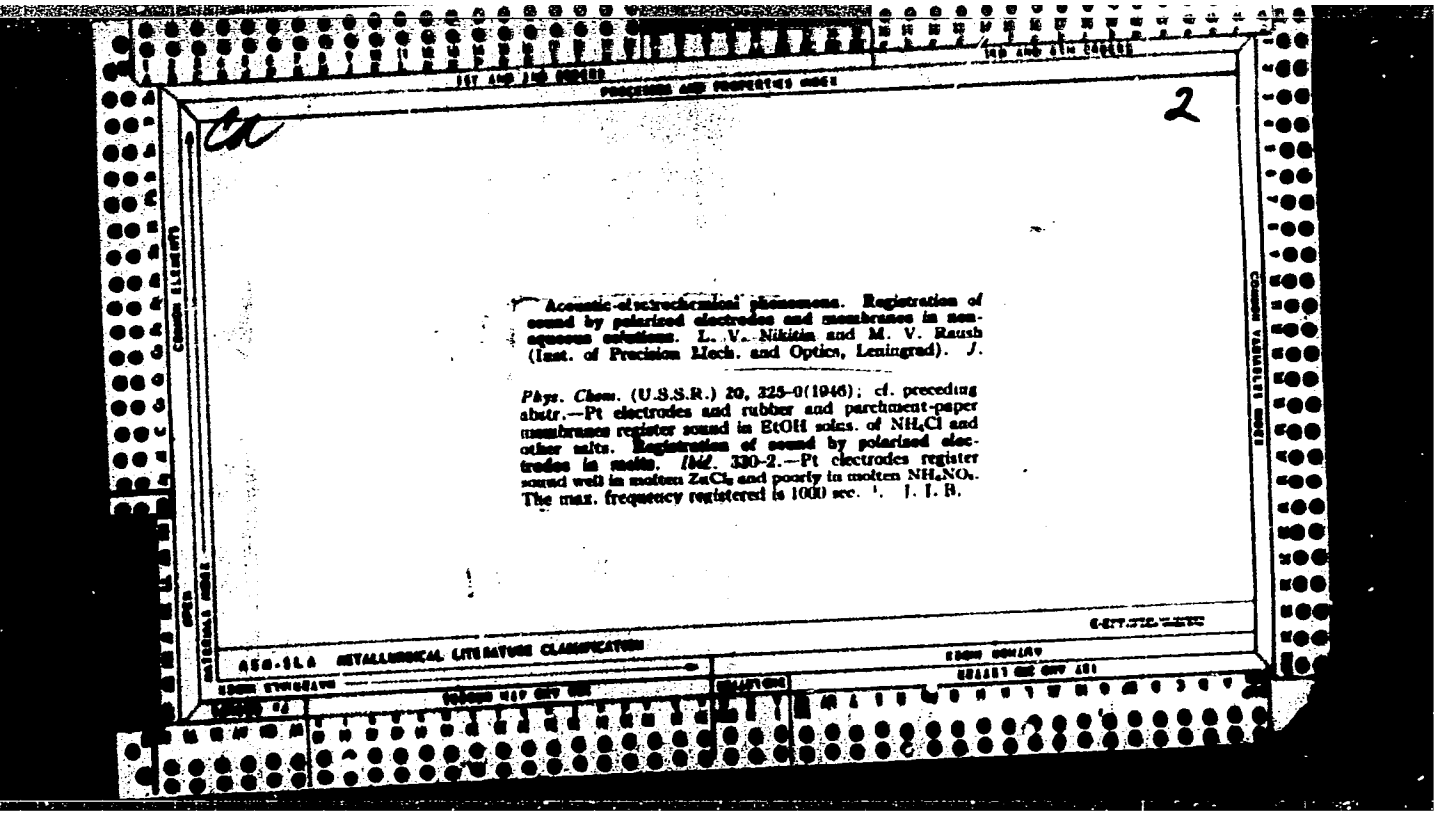


Electrochemical Treatment of Metals. L. V. Nikitin and E. A. Granitchnova. *Journal of Applied Chemistry, U.S.S.R.*, v. 19, no. 1, 1946, p. 46-54

A series of experimental investigations led to the establishment of a formula for dependence of changes in the shape of an anode on the reciprocal position of the anode and cathode, the introduction of a specific coefficient characterizing the degree of surface treatment and the influence of the gravitation field of the earth and the movement of electrolysis with respect to the electrodes, on the shape of the anode obtained.

B

METALLURGICAL LITERATURE CLASSIFICATION



Acoustic-electrochemical phenomena. Registration of sound by polarized electrodes and membranes in non-aqueous solutions. L. V. Nikitin and M. V. Raush (Inst. of Precision Mech. and Optics, Leningrad). *J. Phys. Chem.* (U.S.S.R.) 20, 325–9(1946); cf. preceding abstr.—Pt electrodes and rubber and parchment-paper membranes register sound in EtOH solns. of NH_4Cl and other salts. Registration of sound by polarized electrodes in melts. *Ibid.* 330–2.—Pt electrodes register sound well in molten $ZnCl_2$ and poorly in molten NH_4NO_3. The max. frequency registered is 1000 sec.$^{-1}$. J. J. B.

USSR/Physics
Electron Tubes
Electrochemistry

Sep 48

"Phonoelectrochemical Phenomena," L. V. Nikitin, Leningrad Inst of Micromech and Opt, Leningrad, 7 pp

"Zhur Fiz Khim" Vol XXII, No 9 - p. 1090-96

Discusses possibility of an analogy between work of the electron tube and transformation of sound by an electrolytic cell containing a polarized membrane or a polarized gas electrode. Shows importance of relaxation phenomena in interception of sound by polarized gas electrodes for relatively constant

PA 56/49T96

[redacted] 56/49T96

USSR/Physics (Contd)

Sep 48

"critical" potentials in solutions of different concentrations. Submitted 17 Dec 47.

NIKITIN, L. V. [redacted]

56/49T96

NIKITIN, L. V.

USSR/Medicine - Electrophysiology Jul/Aug 48
Chemistry - Electrochemistry

"Electrochemical Acoustic Phenomena Applied to Medicine and Physiology," L. V. Nikitin, Chem Lab, Leningrad Inst of Exact Mech and Opt, 6¼ pp

"Fiziol Zhur SSSR" Vol XXXIV, No 4

Reports experiments to study action of mechanical oscillation on potential of polarized electrodes and membranes. Discusses question of whether results can be applied in various fields of physiology and medicine.

[redacted] 16/49781

NIKITIN, L. V.

PA 53/49T84

USSR/Physics
Acoustics
Models

Oct 48

"Electrochemical Model of Hearing," L. V. Nikitin, Leningrad Inst of Fine Mech and Opt, 3 pp

"Dok Ak Nauk SSSR" Vol LXII, No 5

Conducted experiments with various substances to obtain a basis for assumptions on the importance of electrokinetics in catching sound. Investigated the catching of sound by membranes as a model to corroborate the electrochemical nature of catching sound, phenomenon of adaptation, and other problems. Model

53/49T84

USSR/Physics (Contd) Oct 48

method forms a basis for a theory of sound which may be called the relaxation-electrochemical theory of sound. Submitted by Acad L. A. Orbeli, 16 Aug 48.

53/49T84

[illegible] L.V., [illegible] (Phys [illegible] Sci [illegible]) [illegible]

of the [illegible] theory of plasticity taking into account [illegible] with the consideration of [illegible] has [illegible]

form[illegible] ." [illegible], [illegible] . [illegible] ([illegible]) [illegible],

([illegible], [illegible])

NIKITIN, L. V.,

"Elastic-Ductile-Plastic Shear Waves in a Circular Rod, Research in Physics and Radio Engineering, Moscow, Oborongiz, 1958. p 136.

The book is a collection of 13 articles written by instructors and graduate and undergraduate students of the Moscow Inst. of Physics and Technology.' The articles discuss problems in radio physics, optics and physics.

Trudy MFTI, No. 2, 1958

NIKITIN, L.V., assistent

Propagation of elastic visco-plastic waves in thick-walled pipes. Izv. vys. ucheb. zav.; mashinostr. no.3/4:14-23 '58. (MIRA 12:5)

1.Moskovskiy fiziko-tekhnicheskiy institut.
(Strains and stresses) (Pipe)

NIKITIN, L.V.

report presented at the 1st All-Union Congress of Theoretical and Applied Mechanics, Moscow, 27 Jan - 3 Feb '60.

134. A. A. Ilyushin (Moscow): Problems of the theory of plasticity under combined loading.

135. V. K. Kabulov (Tashkent): Elastic-plastic vibrations of rods of non-circular cross section.

136. V. S. Kalinin (Leningrad): The forced non-linear flexural vibrations of a homogeneous prismatic rod and a very long rectangular plate.

137. S. Kaliski (Warsaw): On a method of solving the equations of motion for an infinite anisotropic medium in the presence of a magnetic field.

138. A. S. Kan, F. A. Shikolni (Kharkov): An engineering method for the design of open prismatic shells.

139. I. I. Kandaurov (Leningrad): The distribution of vertical compressive stresses and strains in foundations in homogeneous or stratified media.

140. B. Ia. Kantor (Kharkov): Bending of cantilever plates of variable stiffness.

141. K. S. Karapetian (Erevan): The effect of aging and anisotropy on the creep of concrete.

142. L. M. Kachanov (Leningrad): On the time of rupture in creep.

143. L. M. Kachanov (Leningrad): On some variational principles and methods in the theory of plasticity.

144. K. A. Karimov (Baku): A procedure of determining an impact tension diagram for large deformations.

145. A. A. Kilchevskii (Kiev): Some generalizations of the formulation of elasto-static and elasto-dynamic contact problems and methods for their solution.

146. A. Kh. Kim (Omsk): The flow of a visco-plastic medium in a cone.

147. L. A. Kitover (Leningrad): On the elastic equilibrium of thin, infinite orthotropic plates.

148. A. V. Kovalev (Kharkov): Models of the influence surfaces for the intensity of the bending moment in thin plates and shells.

149. A. D. Kovalenko (Kiev): Shallow shells of revolution of variable thickness in a [illegible] temperature field.

150. K. Kovarov (Sofia): Dynamic stability of cylindrical and spherical shells.

151. K. Kozarov (Sofia): The influence of initial imperfections of shape on the stability of thin elastic cylindrical sandwich shells under axial compression.

152. W. T. Koiter (Delft): Elastic stability and post-buckling behavior.

153. A. A. Kondrat'ev (Kuibyshev), Yu. P. Markov (Orenburg): The effect of support elasticity on the natural vibrations of rods.

154. I. M. Kopev, I. A. Oding (Moscow): Strength and plasticity of "whiskers".

155. B. G. Korenev (Moscow): The design of flexible plates and beams on elastic foundation.

156. M. S. Kornishin (Kazan): Bending of rectangular shallow shells with elastic ribs.

157. M. S. Kornishin (Kazan): On the solution of the nonlinear algebraic equations of shell theory.

158. V. G. Korotkin, D. R. Tartakovskii (Leningrad): The one-dimensional problem of the consolidation of a sediment layer with variable specific weight and variable water permeability.

159. A. S. Kosmodamianskii (Saratov): The elastic equilibrium of anisotropic plate with a finite number of elliptical holes.

160. Yu. I. Kosterin (Yaroslavl), I. V. Kragelskii (Moscow): Rheological phenomena in dry friction.

161. Yu. V. Krotov (Stalinsk): Lateral stability of coupled arches with double curvature.

162. A. I. Kuznetsov (Leningrad): On the theory of plane plastic stress.

163. V. N. Kukudzhanov, L. V. Nikitin (Moscow): Propagation of elastic, visco-plastic waves in bars.

164. V. D. Kupradze (Tbilisi): The investigation of contact problems in the theory of elasticity by the method of singular integral equations.

165. N. V. Lazovskaia (Moscow): The investigation of the deformations of drains on models by the X-ray method.

166. A. Langenbach (Berlin): Application of the non-linear variational principle to some problems of the theory of elastic-plastic strains.

167. M. M. Levi (Moscow): The investigation of rheological properties of gelatin solutions.

11,2313

S/179/60/000/04/008/027
E081/E141

AUTHORS: Kukudzhanov, V.N., and Nikitin, L.V. (Moscow)

TITLE: Propagation of Waves in a Rod of ~~Hetero~~geneous Elasto-visco-plastic Material

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Mekhanika i mashinostroyeniye,1960,No 4,pp 53-59

TEXT: The rod is assumed semi-infinite in length and of constant cross section S. The origin of coordinates is at one end of the rod and the positive x direction is along the rod. The stress σ is positive when tensile; positive displacement u corresponds to increasing x; the density of the material is ρ. The differential equation of motion of the rod is then:

$$\frac{\partial \sigma}{\partial x} = \rho \frac{\partial^2 u}{\partial t^2} \qquad (1.1)$$

The propagation of waves arising from shock loading is considered, corresponding to rapid changes in the stress and deformation states in the rod. It is known that Young's modulus and Poisson's ratio are practically independent of deformation velocity, whereas the flow limit σ_s is appreciably affected. The flow law is written

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Propagation of Waves in a Rod of Heterogeneous Elasto-visco-plastic Material

in the form of Eq (1.2) subject to the conditions at the foot of page 53, where E is Young's modulus, k is a constant of the material ($k \approx 10^{-6}$ sec^{-1} for metals), and $\sigma = f(\varepsilon, x)$ is the static relation between stress and strain at the section x of the heterogeneous material. Changing to dimensionless parameters given by Eq (1.4), the wave equation (1.6) is obtained if the stress does not exceed the yield point $\sigma_s(x)$, whereas if $\sigma > \sigma_s(x)$ the telegraph equation (1.8) is obtained, where α and β are given by Eq (1.7). (In equation (1.5) and subsequent equations, the dimensionless parameters in Eq (1.4) are written without the bar). If an instantaneous disturbance is applied to the end $x = 0$ of the rod, application of the Laplace transform and the condition (1.12) leads to Eq (2.1) of which the solution is Eq (2.2), where $C(p)$ is an arbitrary function of the complex variable p, and T^o is the representation of the function T. Expressing T^o as the series (2.3) and inverting, T is finally obtained as (2.12). Fig 1 shows the lines of equal stress in the (x, t) plane for $v_o = 2$, $m = 0.1$ (v_o is defined after Eq (2.14) and $m = \rho cS/kM$

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S/179/60/000/04/008/027
E081/E141

Propagation of Waves in a Rod of Heterogeneous Elasto-visco-plastic Material

where c is the velocity of elastic waves in the medium and M is the mass of the body producing the impact). Finally, a brief discussion is given of the conditions existing in the rod, when the shock loading exceeds the yield point σ_s, with special reference to the determination of the boundary between the plastic and elastic regions. It is concluded that although disturbances exceeding σ_s in magnitude extend to infinity in a semi-infinite elasto-visco-plastic rod, and tend asymptotically to σ_s, this tendency is so rapid that the zone containing strains of practical importance is quite limited and is concentrated in the immediate neighbourhood of the end of the rod.

There are 2 figures and 5 references: 4 Soviet and 1 English.

SUBMITTED: April 11, 1960

Card 3/3

NIKITIN, L.V. (Moskva)

Propagation of transverse elastic visco-plastic waves in beams and plates. Inzh.sbor. 30:31-46 '60. (MIRA 13:10)
(Elastic waves)

L 10137-63 EDS

ACCESSION NR: AP3000901 S/0179/63/000/002/0193/0198

AUTHOR: Barenblatt, G. I.; Grigoryan, S. S.; Nikitin, L. V.; Salganik, R. L. 41

TITLE: On V. N. Nikolayevskiy's papers on the dynamics of fluid-saturated deformable porous media.

SOURCE: AN SSSR. Izv. Otd. tekh. nauk. Mekhanika i mashinostroyeniye, no. 2, 1963, 193-198

TOPIC TAGS: soil, porous soil, fluid-saturated porous soil, seismology, seismoelectricity, seismic petroleum exploration, Ya. I. Frenkel', M. A. Biot, acoustics, wave propagation, soil consolidation, ground water

ABSTRACT: This theoretical paper comprises a critique of articles published recently by V. N. Nikolayevskiy (Inzhenernyy zh., v. 2, no. 3, 1962; Akad. nauk SSSR, Izv., Otd. tekh. nauk., no. 5, 1962), in which Nikolayevskiy examines the fundamental problems of the dynamics of linearly deformed porous media saturated with a liquid. It is noted that in his first paper Nikolayevskiy makes no reference to Ya. I. Frenkel''s paper "On the theory of seismic and seismoelectric phenomena in a moist soil" (Akad. nauk SSSR., Izv., Ser. geogr. i geofiz., v. 8, no. 4

Card 1/3

1944) and M. A. Biot's "Theory of propagation of elastic waves in a fluid-saturated porous solid, "Parts One and Two (J. Acoust. Soc. Amer., v. 28, no. 2, 1956) which are the fundamental classical treatises on this subject. In his second paper, Nikolayevskiy refers to these works by Frenkel' and Biot, but asserts that because (a) in their studies"...no account was taken of the need to fulfill the equations of the conservation of impulse of the entire system" and, also, because (b) "...of the simplifying assumption of constant density..." his basic equations differ from the basic equations of Frenkel' and Biot. The present paper shows that difference (a) is illusory, since under the simplifying assumption (b) the fundamental equations of both of Nikolayevskiy's works constitute a linear combination of the Frenkel' equations and that their physical interpretation as shown in N.'s papers is erroneous. It is also shown that the solutions of problems on the propagation of waves as adduced in N.'s two papers coincide with the solutions of the same problems already set forth by Ya. I. Frenkel' (loc. cit.) under the same simplifying assumptions (b) wherever N.'s solutions do not contain computing errors. The paper discusses the attempt made in N.'s second paper to take into account dynamic corrections in the ordinary theory of consolidation of a soil and shows its incorrectness. It is concluded that the difference of the fundamental relationships developed in N.'s two papers and the results of antecedent investigations consists in errors of a

L 10137-63

ACCESSION NR: AP3000401

fundamental and computational character committed by Nikolayevskiy. There are 18 numbered equations.

ASSOCIATION: none

SUBMITTED: 17Dec62 DATE ACQ: 12Jun63 ENCL: 00

SUB CODE: MA,AP,EL NR REF SOV: 007 OTHER: 001

Card 3/3

S/258/63/003/001/013/022
E201/E141

AUTHOR: Nikitin, L.V. (Moscow)

TITLE: Wave propagation in an elastic bar in the presence of dry friction

PERIODICAL: Inzhenernyy zhurnal, v.3, no.1, 1963, 126-130

TEXT: An elastic bar is in contact with a rough surface. The pressure between the surfaces is p; f - friction coefficient; ℓ - parameter of contact area; Q - friction force. Assume that plane sections remain plane. The stress in the bar and its sliding velocity at x from the origin at the time t are given by:

$$\frac{\partial \sigma}{\partial x} = \rho \frac{\partial v}{\partial t} + \varkappa q, \qquad \frac{\partial \sigma}{\partial t} = E \frac{\partial v}{\partial x} \tag{1.1}$$

where: ρ - density; $q = f \ell p/S$; S - width of cross-section; $\varkappa = \sin \nu$. The acceleration at point $x = x(t)$ is:

$$\frac{\partial v}{\partial t} = \rho \left(\frac{dx}{dt}\right)^2 \frac{(d\sigma/dx) - \varkappa q}{(dx/dt)^2 - a^2} \tag{1.6}$$

where $a = \sqrt{E/\rho}$.

Card 1/2

NIKITIN, L.V. (Moscow)

"Influence of some factors on the uniaxial compression curve of soil"

Report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow 29 Jan - 5 Feb 64.

L 65009-65 EWT(m)/EPF(c)/EWP(v)/EWP(j)/T/EWP(t)/EWP(k)/EWP(b)/EWA(c)
JD/HM/PM

ACCESSION NR: AP5008094 UR/0030/65/000/002/0111/0112

AUTHOR: Nikitin, L.V. (Candidate of physico-mathematical sciences)

TITLE: Propagation of elastic-plastic waves in continuous media

SOURCE: AN SSSR. Vestnik, no.2, 1965, 111-112

TOPIC TAGS: physics conference, wave mechanics, polymer solid dynamics, elasticity, plasticity

ABSTRACT: The All-Union symposium on the propagation of elastic-plastic waves in continuous media was held 7-14 October 1964 in Bangkok the sponsorship of the Scientific Council "Scientific Fundamentals of Elasticity and Plasticity" of the Academy of Sciences USSR. More than 100 scientists and engineers participated. Altogether 42 papers were presented, including the following: Kh.A. Rakhmatulin (Moscow) and K.A. Kerimov (Baku) reviewed various body models which reflect plastic, elastic and viscous propertie of materials, and showed that the model of an elastic-plastic viscouscity is in good agreement with experimental data for numerous materials, especially polymers.

Card 1/3

V.S. Lenskiy (Moscow) presented a review of American efforts in developing methods for accelerating bodies to cosmic velocities and in solving the problem of the interaction between bodies moving at such velocities.

N.V. Zvolinskiy and G.V. Rykov (Moscow), and G.M. Lyakhov and N.I. Polyakova (Moscow) presented their solutions of the problem of the interaction between elastic-plastic waves and obstacles.

S.S. Grigoryan (Moscow) proposed a new formulation for the problem of an explosion in a solid for the purpose of destruction and crushing.

A.A. Deribas reported on results of experiments in explosive welding of thin sections conducted at the Siberian Branch of the Academy of Sciences USSR.

L 65009-65
ACCESSION NR: [illegible]

The symposium acknowledged that despite considerable efforts made in the field of the dynamics of plastic bodies, the volume of experimental work is small and the laboratories working in dynamic testing of materials are not adequately equipped with modern measuring devices. Research in such important areas as the explosive working of metals and the dynamic stressed-state of bodies with varying dimensions is insufficient.

ASSOCIATION: none

SUBMITTED: oo ENCL: 00 SUB CODE: ME

NR REF SOV: 000 OTHER: 000 ATD PRESS: 4071-F

Card 3/3 mdb

KOSTETSKIY, B.I. (Kiyev); NOSOVSKIY, I.G. (Kiyev); NIKITIN, L.V. (Kiyev)

Role of oxygen in sliding friction. Mashinovedenie no.6:96-103 '65. (MIRA 18:11)

L 14423-66 EWT(m)/EWA(d)/T/EWP(t)/EWP(z)/EWP(b) IJP(c) MJW/JD/DJ

ACC NR: AP6002115 SOURCE CODE: UR/0369/65/001/006/0675/0682

AUTHOR: Kostetskiy, B.I.; Nosovskiy, I.G.; Nikitin, L.V.

ORG: Kiev Institute of Civil Aviation Engineers (Kiyevskiy institut inzhenerov grazhdanskoy aviatsii)

TITLE: Friction and wear processes at various oxygen contents in the contact zone

SOURCE: Fiziko-khimicheskaya mekhanika materialov, v. 1, no. 6, 1965, 675-682

TOPIC TAGS: oxygen, metal friction, wear resistance, metal property, carbon steel

ABSTRACT: The object of the study was to determine the effect of oxygen content in the contact zone on the friction and wear processes, to determine the optimum oxygen content under various friction conditions, and to develop methods of controlling the degree of oxidation of the friction surfaces in order to insure a minimum wear. The experiments involved dry sliding friction on cylindrical samples of 45, 60, and U10 steels. The following conclusions were reached: (1) The extent of oxidation and the properties of the secondary structures formed depend on the amount of oxygen in the ambient air (760 mm Hg); (2) When the air pressure is lowered below 10^{-1} mm Hg, gripping takes

Card 1/2

L 11423-66

ACC NR: AP6002115

place, and as the pressure drops down to 10^{-5} mm Hg, the gripping reaches its maximum. (3) Effects of inversion in the effect of oxygen are observed when oxygen is present in the gaseous medium in amounts corresponding to air pressures from 760 to 10^{-5} mm Hg. Thus, in dry friction of carbon steels, the minimum wear rate corresponds to air pressures from 10 to 1 mm Hg; at higher or lower pressures, the wear rate increases. When there is a considerable oxygen deficiency, the chief factors determining the friction and wear processes in sliding friction are the physical and mechanical properties of the steels, chemical factors being insignificant; also great importance in these processes is the heat evolved in the friction zone. Analysis of the role of oxygen in sliding friction opens up extensive possibilities of controlling the wear resistance and antifriction properties of friction pairs by regulating the oxygen content in the friction zone, using the positive effect of heat, and considering the predominant influence of mechanical properties when the oxygen content is insufficient. Orig. art. has: 7 figures.

SUB CODE: 11 / SUBM DATE: 28Jul65 / ORIG REF: 014

FW

Card 2/2

L 25838-66 EWT(m)/EWP(w)/T/EWP(t) IJP(c) JD/WB/DJ

ACC NR: AP6008702 SOURCE CODE: UR/0380/65/000/006/0096/0103

AUTHORS: Kostetskiy, B. I. (Kiev); Kosovskiy, I. G. (Kiev); Nikitin, L. V. (Kiev)

ORG: none

TITLE: The role of oxygen in sliding friction

SOURCE: Mashinovedeniye, no. 6, 1965, 96-103

TOPIC TAGS: friction, metal hardness, metal oxidation, metal wear, oxidation, steel/45 steel, 60 steel, U10 steel

ABSTRACT: A study is made of certain aspects of oxidation of metal surfaces under sliding friction. A review of research in this field is given, including references to fifteen research articles. Three effects are dealt with in the current article: 1) the effect of the degree of rarefaction of the air (the quantity of oxygen in the friction zone) on the quantitative and qualitative characteristics (form and intensity) of wearing with air rarefaction of 10^{-5} mm Hg; 2) the effect of external mechanical influences (the rate of slip and the unit pressure) on the development mechanism of the processes of friction and wearing with air rarefaction of 10^{-5} mm Hg; 3) the effect of the mechanical properties of the friction surface (hardness) on the development mechanism of friction and wearing processes with air rarefaction of 10^{-5} mm Hg.

Card 1/2 UDC: 546.214+621.891

L 25838-66
ACC NR: AP6008702

Cylindrical specimens of external diameter 45 mm, internal diameter 36 mm, and height 6 mm were prepared from steels 45, 60, and U10 heat treated to achieve the desired hardness. Plots of test measurement data are given. The authors conclude that previous studies of the oxidation effect were not optimal in terms of isolating the development of friction and wearing processes. Rarefaction in general increases the intensity of wearing. Additional conclusions relate to the mechanical and chemical processes of wearing. The authors suggest the use of oxygen control in reducing friction wearing. Orig. art. has: 9 figures.

SUB CODE: 11/ SUBM DATE: 14Jan65/ ORIG REF: 015

Card 2/2 HW

AEROV, M.E.; KAGAN, S.Z.; VOLKOVA, T.S.; NIKITIN, L.Ya.

Coefficients of logitudinal mixing in rotating-disk extractors. Zhur. prikl. khim. 36 no.9:1994-2000 D '63.
(MIRA 17:1)

IMSHENETSKIY, A.A., akademik; YEFIMOCHKINA, Ye.F.; NIKITIN, L.Ye.; ZANIN, V.A.

Bacterial decomposition of cholesterol in the human blood serum.
Dokl. AN SSSR 161 no.3:701-703 Mr '65.

(MIRA 18:4)

1. Institut mikrobiologii AN SSSR.

NIKITIN, M.

Life of a sailor. Mor.flot 17 no.11:19-20 N '57. (MIRA 10:12)

1. Baltiyskoye parokhodstvo.
(Gavrilov, Il'ia Gavrilovich)

NIKITIN, M., inzh.

Full use of potentialities in oxygen equipment. Mor. flot 20 no. 12:31 D '60. (MIRA 13:12)

1. Nachal'nik kislorodnoy stantsii Rizhskogo sudoremontnogo zavoda.
(Oxygen--Industrial applications)
(Ships--Maintenance and repair)

NIKITIN, M.

Wage systems and work norms on state farms. Sots.trud. 7 no.6:111-117 Je '62. (MIRA 16:2)

1. Direktor sovkhoza "Zarayskiy", Moskovskoy oblasti.
(State farms—Production standards)
(Agricultural wages)

L 15406-66 FSS-2/EWT(l)/FS(s)/FS(v)-3/EEC(k)-2/FCC/EWA(h) TT/ENS/GW
ACC NR: AP6000625 SOURCE CODE: UR/0209/65/000/012/0026/0028

AUTHOR: Antipov, V.; Dobrov, N.; Nikitin, M.; Saksonov, P.

ORG: None

TITLE: The radiation barrier on the way to the moon

SOURCE: Aviatsiya i kosmonavtika, no. 12, 1965, 26-28

TOPIC TAGS: solar radiation effect, space radiation hazard, radiation biologic effect, cosmonaut

ABSTRACT: The authors discuss the possibly dangerous effects of the ionizing radiation associated with chromospheric solar bursts that may be encountered in radiation belts by manned deep-space probes. The composition of primary cosmic radiation is discussed, and it is pointed out that this radiation can be tolerated by astronauts in doses of from 125—270 mb per 24-hr period, depending on the nature of the solar activity during that period. Also considered is the radiation of the internal and external radiation belts. It is shown that this form of radiation also poses no real threat to the health of the cosmonaut under normally anticipated conditions. Of considerably greater interest from the standpoint of an Earth-Moon flight is the radiation which arises in association with chromospheric bursts

Card 1/2

L 15406-66

ACC NR: AP6000625

on the Sun. This form of radiation contains approximately 90% protons and 10% alpha-particles. The protection-to-dosage ratios for this radiation are discussed, the possible effects of specific dosages on the living organism of a cosmonaut located within such a sun-burst stream are analyzed, and an attempt is made to estimate the probability of a space vehicle's encounter with this form of radiation. The authors conclude that, with a properly selected flight trajectory, adequate protection against solar-burst-originated protons, effective dosimetric controls and reliable sun-burst prediction techniques, the radiation barrier on deep-space probes, and particularly on an Earth-Moon mission, can be successfully and safely penetrated.

SUB CODE: 06,18 / SUBM DATE: none

Card 2/2

VLADIMIRSKIY, T.A., inzhener; SHVYLKOV, A.K., inzhener; NIKITIN, M.A., inzhener.

The SGP-3R machine for gas-pressure welding of 12 to 60 mm pipes. Rats i izobr. predl. v stroi. no.72:14-16 '54. (MLRA 10:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut zheleznodorozhnogo transporta Ministerstva putey soobshcheniya.
(Pipe--Welding)

YEGOROV, B.G.; MAYORCHIK, V.Ye.; NIKITIN, M.A.

Electrocorticographic data in intracerebral tumors. Vop.neirokhir. 21 no.3:3-10 My-Je '57. (MLRA 10:10)

1. Nauchno-issledovatel'skiy ordena Trudovogo Krasnogo Znameni institut neyrokhirugii imeni akad. N.N.Burdenko Akademii meditsinskikh nauk SSSR.

(BRAIN NEOPLASMS, diag.
electrocorticography in intracerebral tumors)
(ELECTROENCEPHALOGRAPHY,
same)

YEGOROV, B.G.; KORNYANSKIY, G.P.; NIKITIN, M.A.

Indication and method for total excision of a neurinoma of the eighth cranial nerve. Vop. neirokhir. 24 no. 3:3-14 My-Je '60. (MIRA 14:1)

(ACOUSTIC NERVE—TUMORS)

NIKITIN, M.A.

Technic of recording plethysmograms and other kymographic curves.
Vrach. delo no.2:129-130 F '61. (MIRA 14:3)

1. Klinika gospital'noy terapii (zav. - prof. A.Ya.Gubergrits)
Izhevskogo meditsinskogo instituta.
(PLETHYSMOGRAPHY)

NIKITIN, M. D., Yu. M. VOLYNKIN, SAKSONOV, P. P., ANTIPOV, V. V., and DOBROV, N. N.,

"Ensuring of Radiation Safety During Flights of Soviet Cosmonauts Yu. A. Gagarin, G. S. Titov, A. G. Nikolayev, and P. R. Popovich."

report submitted for the 14th Intl. Astronatuical Federation (IAF) Congress, Bioastronautics Committee, Paris, France, 25 Sep-1 Oct 63