TRAVNICKOVA, E.; MOUREK, J.; TROJAN, S.

The effect of repeated blood losses on resistance to nitrogen and stagnation anoxia during postnatal development of the rat. Physiol. Bohemoslov. 11 no.3:231-235 '62.

1. Institute of Physiology, Faculty of General Medicine, Charles University, Prague.

(HEMORRHAGE experimental) (NITROGEN pharmacology)
(ANOXIA experimental)

MOUREK, J.

Oxidative metabolism, its development and influence in the ontogenesis of mammals. Sborn. lek. 64 no.5:136-144 My '62.

1. Fyziologicky ustav fakulty vseobecneho lekarstvi University Karlovy v Praze, prednosta prof. dr. F. Karasek, DrSc.

(CENTRAL NERVOUS SYSTEM metabolism)
(OXYGEN metabolism) (STARVATION exper)
(AGING physiol)

MOUREK, J.

Development of oxygen requirement in ontogenesis in the dog.
Sborn. lek. 64 no.10:316-320 O '62.

1. Fyziologicky ustav fakulty vseobecneho lekarstvi University Karlovy v Praze, prednosta prof. dr. F. Karasek.
(ANIMALS NEWBORN) (TISSUE METABOLISM)

MOUREK, Jindrich

Examination of metabolic relations during the course of ontogenesis with the aid of enzymatic inhibitors. Cas. lek. cesk. 101 no.29/30: 918-922 20 Jl '62.

1. Fyziologicky ustav fakulty vseobecneho lekarstvi KU v Praze, prednosta prof. dr. F. Karasek, DrSc.

(TISSUE METABOLISM pharmacol)
(MALONATES pharmacol)

MOUREK, J.

The effect of 2,4 dinitrophenol on oxygen consumption and resistance to nitrogen anoxia during the development of the rat. Physiol. bohemoslov. 12 no.1:70-75 '63.

1. Institute of Physiology, Faculty of Medicine, Charles University, Prague.
(NITROPHENOLS) (NITROGEN) (ANOXIA) (TISSUE RESPIRATION) (GROWTH) (ANIMALS, NEWBORN)

MOUREK, J.

The effect of hypoxia on oxygen consumption of cerebral cortex, liver slices and of diaphragm in vitro during postnatal development of the rat. Physiol. Bohemoslov. 12 no.4:377-381 '63.

1. Institute of Physiology, Faculty of General Medicine, Charles University, Prague.
(ANOXIA) (CEREBRAL CORTEX) (LIVER)
(MUSCLES) (TISSUE METABOLISM) (GROWTH)
(MANOMETRY) (DIAPHRAGM)

MOUREK, J.; PELISKOVA, M.

2,4-Dinitrophenol and its action in the ontogenesis of rats. (LD50 of 2,4-dinitrophenol and its thermogenetic effect). Sborn. lek. 65 no.8/9:253-260 Ag '63.

1. Fyziologicky ustav fakulty vseobecneho lekarstvi University Karlovy v Praze, prednosta prof. dr. F. Karasek, DrSc.
(DINITROPHENOLS) (AGING)
(BODY TEMPERATURE) (DRUG TOLERANCE)
(ANIMALS, NEWBORN)

KARASEK, Frantisek; TUSTY, Vojtech; TRAVNICEK, Tomas; TRAVNICKOVA, Eliana
MOUREK, Jindrich

Lenin's reflection theory and the problem of the reflex theory.
Acta Univ. Carol. [Med.] (Praha) 10 no.8:595-605 '64

1. Fysiologicky ustav fakulty vseobecneho lekarstvi Univerzity Karlovy v Praze (prednosta prof. MUDr. F.Karasek, DrSc.) a Katedra dialektickeho a historickeho materialismu fakulty vseobecneho lekarstvi Univerzity Karlovy v Praze (vedouci prof. RSDr. J.Pranosil, CSc.)

MOUREK, J.

The effect of glucose and age on the in vitro oxygen consumption of the rat brain. Physiol. Bohem. slov. 14 no.1:79-83 '65

1. Institute of Physiology, Faculty of General Medicine, Charles University, Prague.

MOUREK,J.; PRUZKOVA, V.; SLAVICEK,J.; TROJANOVA, M.

Some problems of oxidative metabolism of the nervous system in the ontogenesis of mammals. Activ. nerv. sup. (Praha) 7 no.2:128-129 '65

1. Physiological Institute, Faculty of General Medicine, Charles University, Prague. 2. J.Mourek's address: Praha 2, Albertov 2.

DRAHOTA,Z.; HAHN, P.; MOUREK, J.; TROJANOVA, M.

The effect of acetoacetate on oxygen consumption of brain slices from infant and adult rats. Physiol. Bohemoslov. 14 no.2:134-136 '65.

1. Institute of Physiology, Czechoslovak Academy of Sciences and Institute of Physiology, Faculty of General Medicine, Charles University, Prague.

MOUREK, J.

Concerning the metabolic substrate of central nervous activity during early postnatal development of the rat. The effect of lactate on oxygen consumption in nervous tissue. Physiol. Bohemoslov. 14 no.4:378-382 '65.

1. Institute of Physiology, Faculty of General Medicine, Charles University, Prague. Submitted May 19, 1964.

L 12964-66

ACC NR: AP6005629 SOURCE CODE: CZ/0079/65/007/002/0128/0129

AUTHOR: Mourek, J.; Pruzkova, V.; Slavicek, J.; Trojanova, M. 22

ORG: Physiological Institute, Faculty of General Medicine, Charles University, Prague B

TITLE: Some aspects of oxidative metabolism of the nervous system in ontogenesis of mammals [This paper was presented at the Third Interdisciplinary Conference on Experimental and Clinical Study of Higher Nervous Functions held in Marianske Lazne from 19 to 23 October 1964.]

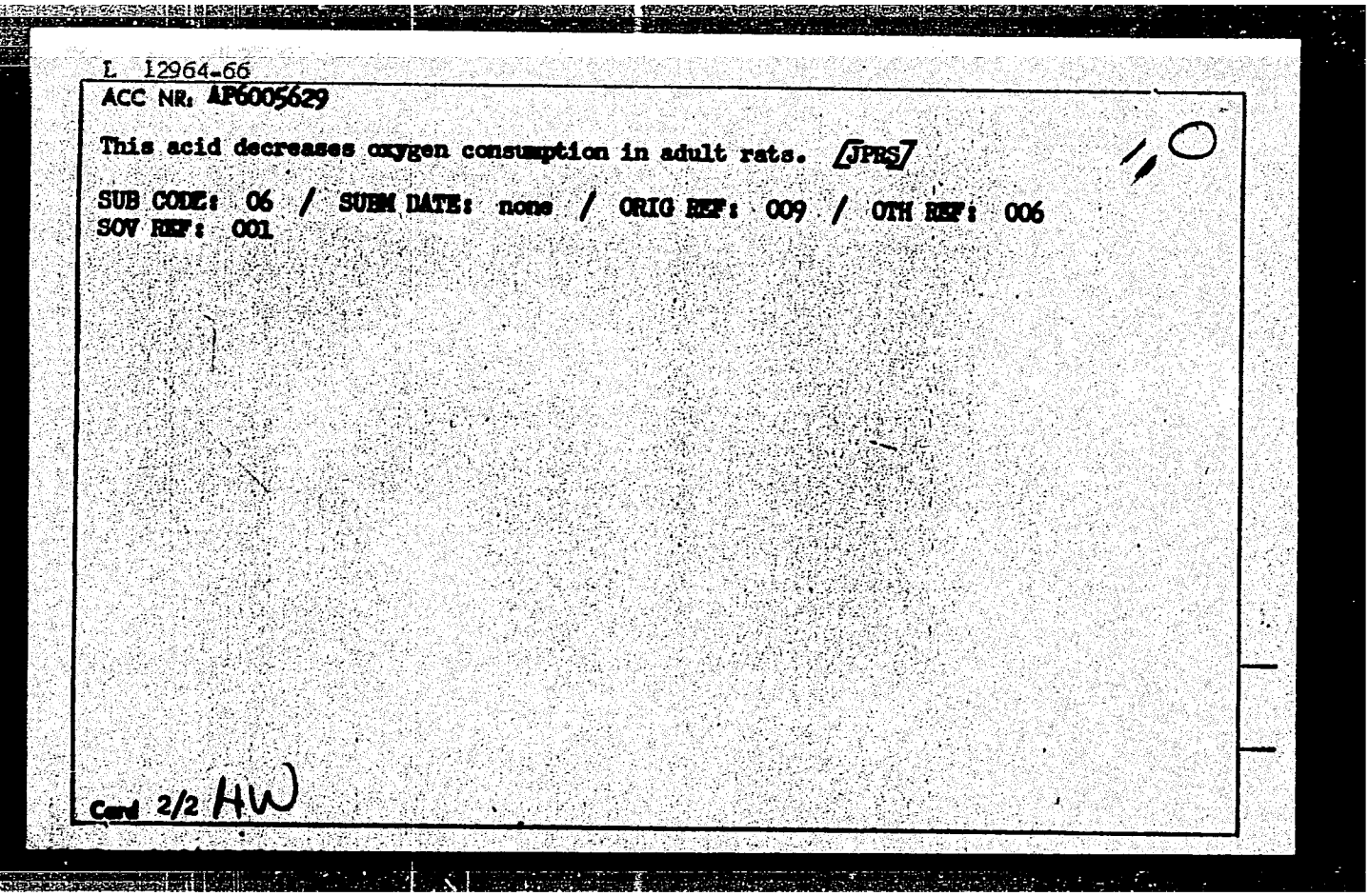
SOURCE: Activitas nervosa superior, v. 7, no. 2, 1965, 128-129

TOPIC TAGS: biologic metabolism, experiment animal, nervous system, phosphorylation, hypoxia, anoxia, biochemistry

ABSTRACT: New-born and very young animals are more resistant to all forms of oxygen deficiency than adult animals. The younger the animal, the greater the possible reduction of oxygen consumption. In young rats, a 70-80% decrease is possible. Oxidation releases biologically utilizable energy. The resistance of new-born animals to hypoxia is probably due to a high glycolytic activity of brain tissue during hypoxia or anoxia. Oxidative phosphorylation in the mammal brain depends on glucose, and administration of glucose protects adult rats from oxygen deficiency; in new-born rats this does not occur because there is already enough lactate and acetacetic acid present to provide this protection.

Card 1/2

2



L 12964-66
ACC NR: AP6005629

This acid decreases oxygen consumption in adult rats. [JPRS]

SUB CODE: 06 / SUBM DATE: none / ORIG REF: 009 / OTH REF: 006
SOV REF: 001

Card 2/2 HW

MOUREK, J.

Oxygen consumption by nerve and liver tissue in rats in relation to the age and prior hypoxia. Sborn. lek. 67 no.2:45-50 F '65.

1. Fyziologicky ustav fakulty vseobecneho lekarstvi University Karlovy v Praze (prednosta: prof. MUDr. F. Karasek, DrSc.).

SLAVICEK, J.; MATOUS-MALEOHAN, L.; MOUREK, F.

Contribution to the direct effect of insulin and adrenalin on the CNS. Ontogenic aspect. Sborn. lek. 67 no.4:116-124 Ap'65.

1. Fyziologický ústav [illegible] University Karlovy v Hradci Králové [illegible]

MOUREK, J.

Effect of 2,4-dinitrophenol and acetic acid on the oxygen requirement of the brain in rats of various ages. Sborn. lek. 67 no.12:368-272 D '65

1. Fyziologicky ustav fakulty vseobecneho lekarstvi University Karlovy v Praze (prednosta - prof. dr. F. Karasek, DrSc.)

MOUREK, J.; PRUZKOVA, V.

Oxidative metabolism in the cerebral cortex and liver tissue during rabbit development (effect of fasting). Sborn. lek. 68 no.1:1-7 Ja '66

1. Fyziologicky ustav fakulty vseobecneho lekarstvi University Karlovy v Praze (prednosta - prof. dr. F. Karasek, DrSc.).

KUBIC, K.

Problems of soundproof construction. p. 281.

Vol. 2, no.9, Sept. 1954
POZEMNI STAVBY
Praha, Czechoslovakia

Source: East European Accession List. Library of Congress
Vol. 5, No. 3, August 1956

MOURIC, A.

Materials and products for sound insulation. p. 235. (OZEMNI STAVBY. (Ministerstvo stavebnictvi) Praha. Vol. 3, no. 6, June 1955.

SOURCE: East European Accessions List (EEAL), Library of Congress, Vol. 4, No. 12, December 1955.

MOURIC, K.

Measurements of soundproofing properties.

p. 317 (Silikaty) Vol. 1, no. 3, 1957, Praha, Czechoslovakia

SC: MONTHLY INDEX OF EAST EUROPEAN ACCESSIONS (EEAI) LC, VOL. 7, NO. 1, JAN. 1958

MOURIC, K.

Sound insulating properties of ceilings. p. 299.

(Pozemni Stavby. Vol. 5, no. 6, June 1957. Praha, Czechoslovakia)

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 6, no. 10, October 1957. Uncl.

MOURIC, K.

Contribution to the theory of impact sound insulation in floor constructions. p. 127

Ceskoslovenska vedecka technika spolecnost pro zdavotni techniku a vzduchotechniku, Praha, Czechoslovakia, Vol. 4, 1959.

Monthly List of East European Accessions, (EEAI) LC, Vol. 8, No. 7, July 1959. Uncl.

MOURIC, Karel, RNDr.

Results of measurement of sound insulation parameters in experimental buildings. Stav vyzkum no.3:20-26 Je '62.

1. Vyzkumny ustav stavebni vyroby, Praha.

S/058/63/000/002/070/070
A160/A101

AUTHOR: Mouric, Karel

TITLE: The problem of the sound insulation of ceilings

PERIODICAL: Referativnyy zhurnal, Fizika, no. 2, 1963, 66, abstract 2Zh417 ("Sb. Českosl. věd. techn. společn. zdravotní techn. a vzduchotechn. ČSAV", no. 4, 1962, 127 - 138, Czech; summaries in Russian, English, French and German)

TEXT: The ceiling should be considered as an oscillating system with a resonance frequency depending on its mass and on the rigidity of the backing. The measurements carried out with ceilings with different backings confirm the theoretical assumptions and lead to a conclusion that an optimum damping of the noise of steps may be expected from conventional ceilings provided that their resonance oscillation is below 100 cps. The fulfilment of this requirement depends, in the first place, on the dynamic rigidity of the backing whose necessary magnitudes in relation to the ceiling weight can be determined from the diagram.

[Abstracter's note: Complete translation]

Card 1/1

MOURIC, Karel, RNDr.

Sound insulating properties of porous concrete partitions. Poz stavby 12 no.9:372-374 '64.

1. Research Institute of Building Construction, Prague.

MOUSSONG-KOVACS, Erzsebet, dr. aspirans.

Thoughts on the ideology of psychiatry. Ideg. szemle 9 no.5: 144-151 Oct 56.

1. A Budapesti Orvostudomany-Egyetem Elme-Ideg Klinikajanak koslemenye (Igazgato: Dr. Nyiro Gyula prof., az orvostudomanyok kandidatusa).

(PSYCHIATRY
philosophical problems & marxist concepts of psychiatry (Hun))

MOUSSONG-KOVACS, Erzsebet, dr.; MIKE, Terezia, dr.

Electroencephalographic examination in internal medicine. Orv. hetil. 101 no.32:1133-1135 7 Ag '60.

1. Budapesti Orvostudomanyi Egyetem, Psychiatriai Klinika es Kozponti Allami Korhaz, Balesztdly.
(ELECTROENCEPHALOGRAPHY)

MOUSSONG-KOVACS, Erzsebet, dr.

Effect of marsilid in psychiatric disorders. Orv.hetil. 101 no.33:1180-1182 14 Ag. '60.

1. Budapesti Orvostudomanyi Egyetem, Psychiatriai Klinika.
(IPRONIAZID ther.)
(MENTAL DISORDERS ther.)

MOUSSONG-KOVACS, Erzsebet, dr.

Principal causes of error in psychological tests in brain lesions. Ideggyogy. szemle 15 no.6:161-166 Je '62.

1. A Budapesti Orvostudomanyi Egyetem Psychiatriai klinikajanak (Igazgato: Nyiro Gyula dr. egyetemi tanar) kozlemenye.
(BRAIN dis) (PSYCHOLOGICAL TESTS)

MOUSSONG-KOVACS, dr.; TOKACS, Laszlo, dr.

Impramine in the treatment of narcolepsy. (Preliminary communication). Orv. hetil. 103 no.33:1559-1561 19 Ag '62.

1. Budapesti Orvostudomanyi Egyetem, Psychiatriai Klinika.
(SLEEP DISORDERS ther) (IMIPRAMINE ther)

MOUSSONG-KOVACS, E., dr.; TAKACS, L., dr.

Treatment of narcolepsy with imipramin. Ther. hung. 11 no.1:32-34 '63.

1. Department of Psychiatrics (Director: Prof. Gy Nyiro), Medical University, Budapest.
(SLEEP DISORDERS) (IMIPRAMINE) (ELECTROENCEPHALOGRAPHY)

POLICZER, M.; MOLNAR-KOVACS, Erzsebet; BAZSO, Erna; MARTON, M.

Electroencephalographic and neuropsychiatric studies in hyperthyroidism. Acta med. acad. sci. Hung. 19 no.3:257-270 '63

1. Innere Abteilung (Chefarzt: Dr. M. Policzer) des Dalassa Krankenhauses und Psychiatrische Klinik (Direktor: Prof. Dr. J. Kyllo) der Medizinischen Universitat, Budapest.

MOUSSONG-KOVACS, Erzsebet, dr., kandidatus, egyetemi tanarseged

Experiences obtained in Soviet laboratories for neuroelectrophysiology and pathological psychology. Magy pszichol szemle 20 no.3:454-459 '63.

1. Budapesti Orvostudomanyi Egyetem Pszichiatriai Klinika, Budapest, XIV., Chazar Andras utca 19.

POLICZER, Miklos, dr.; MOUSSONG-KOVACS, Erzsebet, dr.; BAZSO, Emma, dr.; MARTON, Mihaly, dr.

EEG and the neuropsychiatric examination of patients with hyperthyroidism. Orv. hetil. 104 no.48:2261-2266 1 D '63.

1. Fovarosi VIII ker. Tanacs V. B. Balassa Janos Korhaz, II Belosztaly es Budapesti Orvostudomanyi Egyetem, Psychiatriai Klinika.

(HYPERTHYROIDISM) (GOITER, EXOPHTHALMIC)
(NEUROLOGIC MANIFESTATIONS) (THYROID FUNCTION TESTS)
(ELECTROENCEPHALOGRAPHY) (BASAL METABOLISM)
(PSYCHIATRY)

DANDERS, Ya.; YATSEVICHUS, I. [Jacevicius, I.]; GOL'DENBERG, A.; KHARIN, B., inzh. (Leningrad); MOVA, N., inzh.; VINNIKOV, F. (Gomel'); MAMYKIN, I. (Gomel'); BENDERSKIY, A., starshiy inzh. (pos. Igra, Udmurtskoy ASSR); CHERTETSOV, V.; OSIPOV, I.; SIROTININ, M.I.

Exchange of news and experience. Izobr.i rats. no.4:25-26 Ap '62. (MIRA 15:4)

1. Sekretar' Respublikanskogo soveta Vsesoyuznogo obshchestva izobretateley i ratsionalizatorv, g. Riga (for Danders). 2. Glavnyy inzh. mezhdugorodnoy telefonnoy stantsii, g. Vil'nyus (for Yatsevichus). 3. Predsedatel' oblastnogo soveta Vsesoyuznogo obshchestva izobretateley i ratsionalizatorov g. Ufa (for Gol'denberg). 4. Krayevoy sovet Vsesoyuznogo obshchestva izobretateley i ratsionalizatorov, g. Krasnodar (for Mova). 5. Igrinskiy lespromkhoz kombinata "Udmurtles", (for Benderskiy). 6. Predsedatel' Krasnoyarskogo krayevogo soveta Vsesoyuznogo obshchestva izobretateley i ratsionalizatorov (for Sirotinin).
(Technological innovations)

MOVALIMI, R.

Modern concrete bridges. p. 314.

(GRAD I MOSTOVI. Vol. 5, No. 8, Aug. 1957, Zagreb, Yugoslavia)

SO: Monthly List of East European Accessiosn (EEAL) Lc. Vol. 6, No. 10, October 1957. Incl.

MOVAK, M.

5th Congress of Dietitians in Carlsbad.

p.167 (VYZIVA LIDU) Vol. 12, no.11, Nov. 1957, Praha, Czechoslovakia

SO: Monthly Index of East European Accessions (EEAI) LC, Vol. 7, No. 3, March 1958

LACKOVA, E.; MOVAKOVA, M.; KOKORNA,M.; SVEJCAR. J.

Our experience with the measurement of children by means of Lelong's method. Cesk.pediat. 15 no.8:669-677 Ag '60.

1. I detska klinika v Praze, prednosta prof. MUDr. J.Svejcar
(ANTHROPOMETRY)
(GROWTH)

MOVAVEK, Z.

Personality tests in theory and practice. Voj. zdrav. listy 19 no.7-8:172-178 July-Aug. 1950. (CIML 20:1)

MOVCAN, B.A.; RAIKIN, D.M.; GUREVIC, S.M.; ZAGREBENJUK; ENBULAJEV, N. [translator]

Technological peculiarities in welding by electron beam in vacuum. Zavarivac 5 no.4:12-13 '60.

MOVCHA, V.A.; KOROTKEVICH, G.G.

Steppe ponds of the Ukrainian S.S.R. and their utilization in fish culture. Trudy Inst.gidrobiol. AN URSR no.32:100-124 '55.(MLRA 9:9)
(Ukraine--Fish culture)

MOVCHAN, A.

Zaporozh'ye Coke-Chemical Plant. Koks i khim. no.4:54 '62.
(MIRA 16:8)

(Zaporozh'ye--Coke industry)

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

16

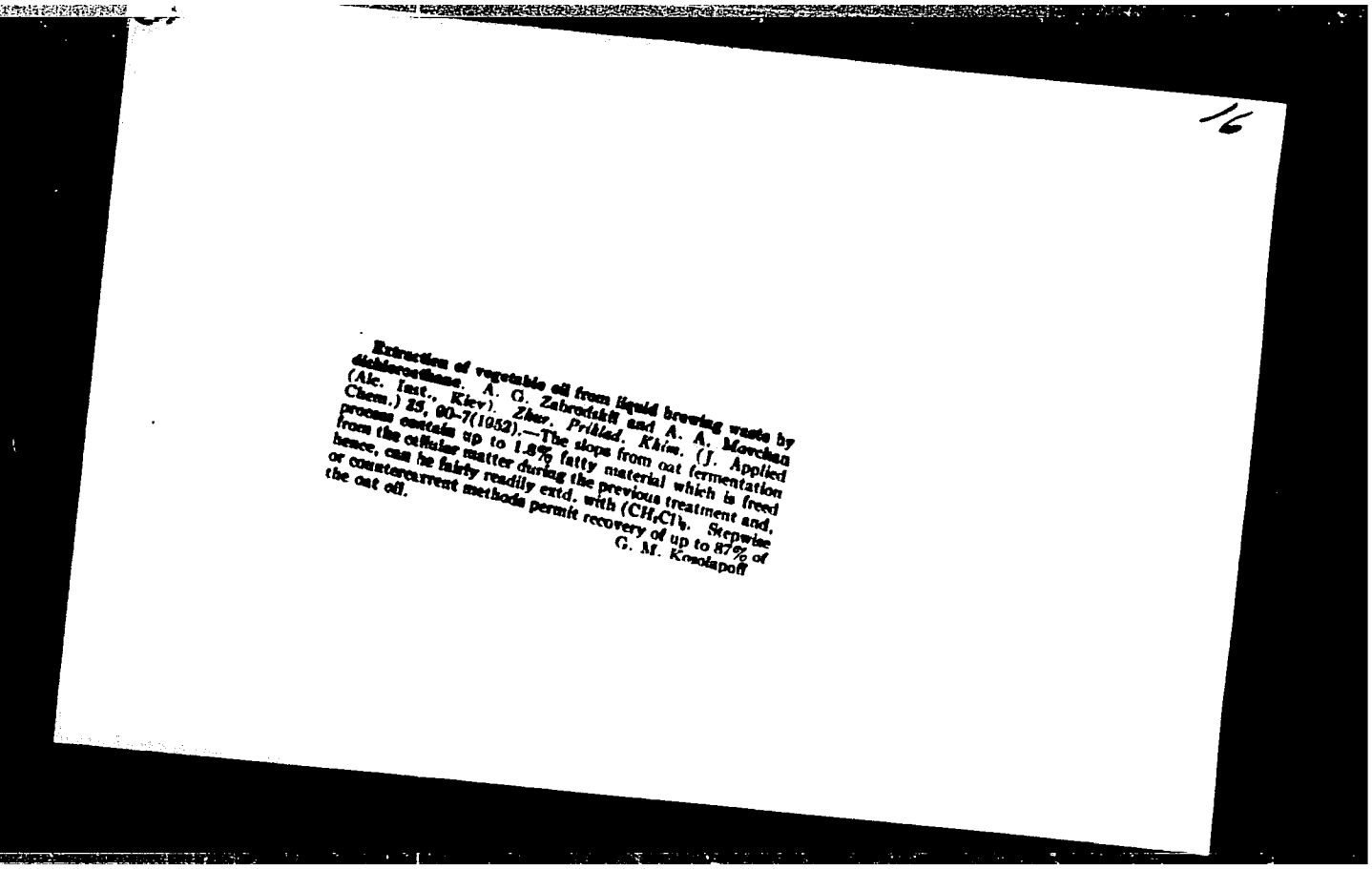
CA

Fermentation of clear filtered grain and potato worts.
A. Zahrodskii and A. Movchan. *Spirto-Vodochnaya Prom.* 15, No. 9, 12-18(1938); *Chimie & industrie* 42, 553.—Clear filtered worts do not ferment as easily as unfiltered worts, irrespective of the nature of the raw material, degree of saccharification, acidity, concn., filtration temp. and duration of fermentation. The alc. yield is 0.5-1.5% lower with the filtered worts, fermentation takes place more slowly, and multiplication of the yeast is poor. It is the filtered corn and barley worts that ferment with greatest difficulty. A. Papineau-Couture

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1. ZABRODSKIY, A. G.: MOVCHAN, A. A.
2. USSR (600)
4. Fermentation
7. Effect of adsorbents on alcoholic fermentation. Biokhimiia 17 no 5, 1952.

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



16

Extraction of vegetable oil from liquid brewing waste by dichloroethane. A. G. Zabrodskii and A. A. Morchan (Alc. Inst., Kiev). *Zhur. Prikład. Khim.* (*J. Applied Chem.*) **25**, 90-7(1952).—The slops from oat fermentation process contain up to 1.8% fatty material which is freed from the cellular matter during the previous treatment and, hence, can be fairly readily extd. with $(CH_2Cl)_2$. Stepwise or countercurrent methods permit recovery of up to 87% of the oat oil.

G. M. Kosolapoff

Effect of stirring in alcohol fermentation. A. G. Zabrodskii and A. A. Movchan. *Trudy Kiev. Filiala Vsesoyus. Nauch. Issledovatel. Inst. Spirt. Prom.* 1953, No. 1, 131-40; *Referat. Zhur., Khim.* 1955, No. 3086.—Under similar conditions fermentation was more intense and deeper in unfiltered wort than in filtered. Filtered wort fermented faster in an open container than in a closed one. Shaking and stirring had no effect on the intensity and degree of fermentation of unfiltered wort and only slightly intensified the fermentation of filtered wort in open containers. However, it affected favorably the fermentation of filtered wort in closed containers. Stirring and the way fillers were added had a similar effect on the fermentation of filtered wort. This difference of behavior of filtered and unfiltered wort was explained by the difference in the availability of air and removal of CO_2 in the 2 kinds of wort. Filtered wort contained 1.5 times as much CO_2 as unfiltered wort and, therefore, all the means contributing to the removal of CO_2 enhanced fermentation.

M. Hoseh

L 3678-66 EWT(1)/EWP(m)/EWA(d)/FCS(k)/EWA(1)

ACCESSION NR: AP5021310 UR/0040/65/029/004/0760/0762

AUTHOR: Movchan, A. A. (Moscow)

TITLE: On one problem of pipe stability with fluid flow

SOURCE: Prikladnaya matematika i mekhanika, v. 29, no. 4, 1965, 760-762

TOPIC TAGS: flow through pipe, flow stability, pipe flow, fluid motion stability, fluid flow

ABSTRACT: Certain aspects of pipe stability under fluid flow are studied as a sequel to the findings of V. I. Feodos'yev (O kolebaniyakh i ustoychivosti truby pri protekanii cheres neye zhidkosti. Insh. sb., Izd-vo AN SSSR, 1951, t. 10). It is shown that Feodos'yev's value for critical velocity is exact, and that at nonzero subcritical flow velocities the vibrations in the pipe correspond to longitudinal values passing along the pipe. The equations of work for a pipe flexure w(x,t) are set forth using dimensionless parameters in the form

$$\frac{\partial^4 w}{\partial x^4} + \varkappa^2 \rho^2 \frac{\partial^2 w}{\partial x^2} + 2\varkappa\rho v \frac{\partial^2 w}{\partial x \partial t} + \frac{\partial^2 w}{\partial t^2} = 0$$

$$w(x,t)\Big|_{x=0} = \frac{\partial^2 w(x,t)}{\partial x^2}\Big|_{x=0} = w(x,t)\Big|_{x=1} = \frac{\partial^2 w(x,t)}{\partial x^2}\Big|_{x=1} = 0,$$

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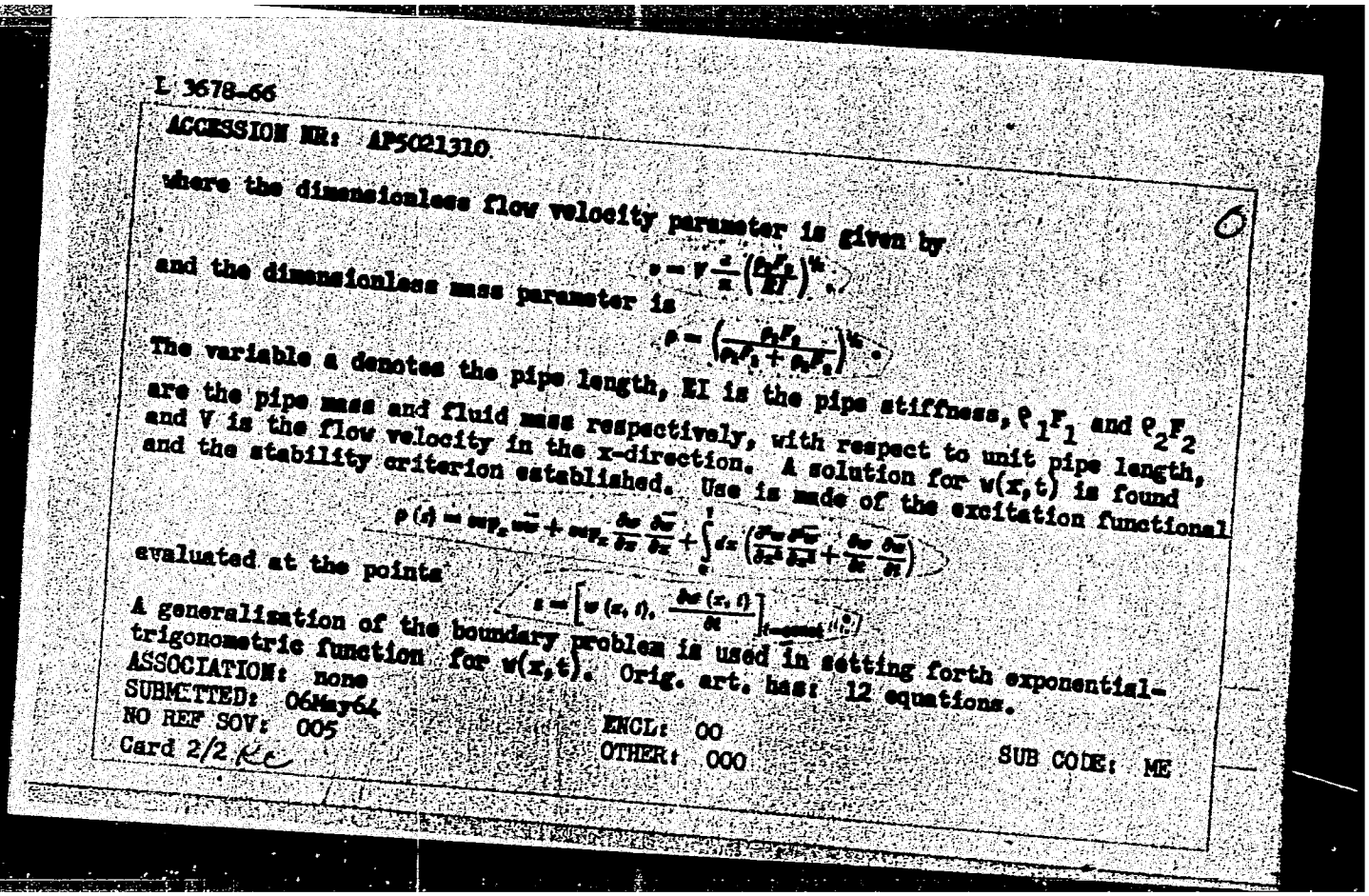

L 3678-66

ACCESSION NR: AP5021310

where the dimensionless flow velocity parameter is given by

$$v = V\frac{a}{\pi}\left(\frac{\rho_2 F_2}{EI}\right)^{1/2}$$

and the dimensionless mass parameter is

$$\beta = \left(\frac{\rho_2 F_2}{\rho_1 F_1 + \rho_2 F_2}\right)^{1/2}$$

The variable a denotes the pipe length, EI is the pipe stiffness, $\rho_1 F_1$ and $\rho_2 F_2$ are the pipe mass and fluid mass respectively, with respect to unit pipe length, and V is the flow velocity in the x-direction. A solution for w(x,t) is found and the stability criterion established. Use is made of the excitation functional

$$P(t) = \sup_{\bar{w}} \bar{w} + \sup_{\bar{w}} \frac{\delta w}{\delta x}\frac{\delta \bar{w}}{\delta x} + \int_0^1 dx \left(\frac{\partial^2 w}{\partial x^2}\frac{\partial^2 \bar{w}}{\partial x^2} + \frac{\delta w}{\delta t}\frac{\delta \bar{w}}{\delta t}\right)$$

evaluated at the points

$$z = \left[w(x,t), \frac{\delta w(x,t)}{\delta t}\right]_{t=\text{const}}$$

A generalization of the boundary problem is used in setting forth exponential-trigonometric function for w(x,t). Orig. art. has: 12 equations.

ASSOCIATION: none

SUBMITTED: 06May64 ENCL: 00 SUB CODE: ME

NO REF SOV: 005 OTHER: 000

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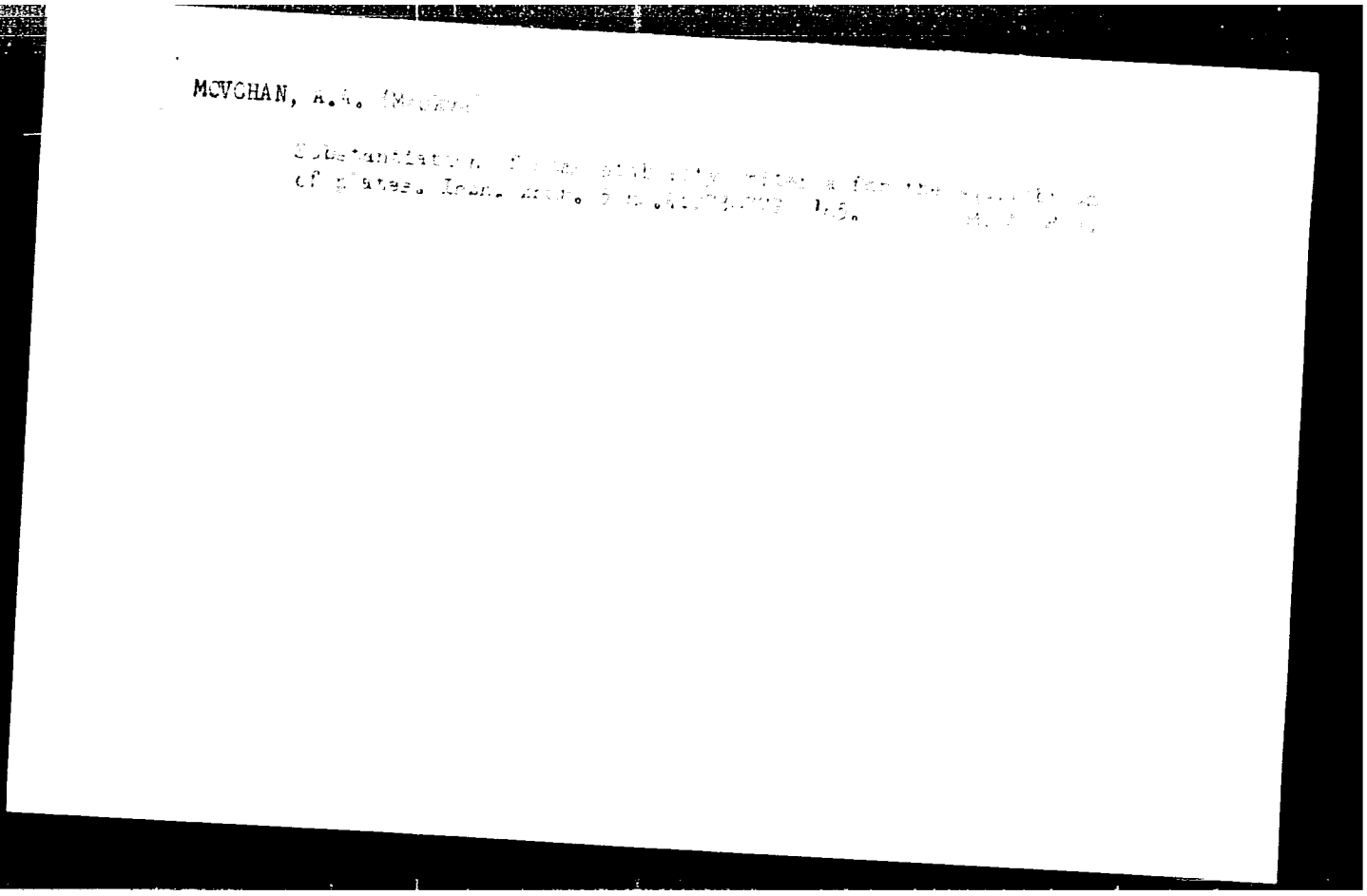

MCVCHAN, A.A.

MOVCHAN, A. A.

124-11-12549

Translation from: Referativnyy Zhurnal, Mekhanika, 1957, Nr 11, p 35 (USSR)

AUTHOR: Movchan, A. A.

TITLE: The linear oscillation of a foil immersed in a high-speed gas flow. (Lineynyye kolebaniya plastinki, dvizhushcheyssya s bol'shey skorostyu)

PERIODICAL: Tr. 3-go Vses. matem. s"yezda, T. I. Moscow, A N SSSR, 1956, p 206

ABSTRACT: Analysis of the linear oscillation of a flat plate moving through a gas. The pressure forces are evaluated by means of an approximate formula. The task is reduced to an investigation of the spectrum of real values of a non-autoconjugate boundary problem for a quartic equation. The results obtained by replacing the changes in the real quantities with changes in the velocity of motion of the foil yield a number of conclusions on the stability of the oscillation.

Author's abstract

Card 1/1

MOVCHAN, A.A. (Moskva)

Vibrations of a plate moving in a gas. Prikl.mat.i mekh. 20 no.2:211-222 Mr-Ap '56. (MLRA 9:7)

1.Institut mekhaniki AN SSSR.
(Elastic plates and shells) (Aerodynamics)

МОУСНАН, АА

AUTHOR: Moychan, A.A. (Moscow)

TITLE: On the Stability of a Panel Which Moves in a Gas (Ob ustoychivosti paneli, dvizhushcheysya v gaze)

40-21-2-11/22

PERIODICAL: Prikladnaya Matematika i Mekhanika, 1957, Vol 21, Nr 2, pp. 231-243 (USSR)

ABSTRACT: In connection with the linear theory the author considers the flutter of a panel which is submitted to constant claims in its plane and which moves in a gas with supersonic velocity. Let the panel be rectangular (sides: $x = 0$, $x = 1$, $y = 0$, $y = 1$), plane in the state of rest and let it move in its plane in the direction of the x-axis. For describing small deflections $w(x,y,t)$ of the panel at the appearance of interferences the author uses the equation for the bending of an isotropic, thin plate. Considering that the transversal loading is the difference of the changes of pressure at the underside and upper side of the panel, then under the above assumptions one obtains the differential equation

(1)

$$\frac{\partial^4 w}{\partial x^4} + 2\frac{\partial^4 w}{\partial x^2 \partial y^2} + \frac{\partial^4 w}{\partial y^4} - \frac{N_1}{D}\frac{\partial^2 w}{\partial x^2} - \frac{N_2}{D}\frac{\partial^2 w}{\partial y^2} - \frac{p_o - c}{DC_o}\frac{\partial w}{\partial x} +$$

Card 1/4

$$+\frac{1}{D}\left[\mu\frac{\partial^2 w}{\partial t^2}+\left(\frac{p_0 x}{C_0}+k_2\right)\frac{\partial w}{\partial t}+k_1 w\right]=0$$

with the boundary conditions

$$w(0,y,t)=\frac{\partial^2 w(0,y,t)}{\partial x^2}=w(1,y,t)=\frac{\partial^2 w(1,y,t)}{\partial x^2}=0$$

$$w(x,0,t)=\frac{\partial^2 w(x,0,t)}{\partial y^2}=w(x,1,t)=\frac{\partial^2 w(x,1,t)}{\partial y^2}=0\ .$$

Here we have: $D=\frac{Eh^3}{12(1-\nu^2)}$, h - density of the panel, E - Young's modulus, ν - Poisson's coefficient, μ -mass of the unit area of the panel, N_1 and N_2 - claims in virtue of the influence of heat or similar influences, p_0 and C_0 - pressure and velocity of sound in the resting gas, k_1 and k_2 - constants,

$\varkappa$ - polytropic exponent. For the establishment of sufficient marks of stability the author seeks the solutions of the form

$$(2) \quad w(x,y,t) = X(x) \sin n\pi y \, e^{\omega t} \qquad n = 1,2,\ldots$$

(2) is a solution of (1) then and only then if X(x) is an eigenfunction of the boundary value problem

$$X^{IV} - 2k^2 X^{II} + k^2 (k^2 X - AX^I) = (\lambda + d)X$$

$$X(0) = X^{II}(0) = X(1) = X^{II}(1) = 0 \ ,$$

where $k = n^2 + \frac{1}{2}\frac{N_1}{\pi^2 D}$, $A = \frac{p_0 \varkappa c}{g_0}$, $\lambda = -\frac{1}{D}(\mu\omega^2 + B\omega)$, $B = \frac{p_0 \varkappa}{g_0} + k_2$

and $d = \pi^4 \left[\frac{1}{4} \cdot \frac{N_1^2}{\pi^4 D^2} + n^2 \cdot \frac{N_1 - N_2}{\pi^2 D}\right] - \frac{k_1}{D}$. There exist two complex frequencies (one frequency with an always negative

On the Stability of a Panel Which Moves in a Gas 40-21-2-11/22

real part, while the real part of the other frequency can be negative, zero or positive - according to the magnitude of λ). The author finds the existence of fluttering motions for claimed and not claimed panels. Further: The instable state of a panel compressed by supercritical claims can be changed into a stable state for the same claims if the panel moves very quickly. The author gives approximate formulas and estimations for critical fluttering velocities. There are 6 references, 2 of which are Soviet, and 4 English.

SUBMITTED: July 12, 1956

AVAILABLE: Library of Congress

1. Plates—Stability—Theory 2. Supersonic flow—Applications 3. Gas—Applications

Card 4/4

MOVCHAN, A.A

AUTHOR: MOVCHAN, A.A. (Moscow) 40-5-13/20

TITLE: The Stability of Blades Moving in a Gas Flow (Ustoychivost' lopatki, dvizhushcheysya v gaze)

PERIODICAL: Prikladnaya Mat. i Mekh.,1957,Vol.21,Nr 5,pp.700-706 (USSR)

ABSTRACT: In order to calculate the blade oscillations the author carries out an approximate calculation by replacing the shovel by a rectangular plate which is fixed on two opposite sides, while the other two sides are free. This plate is flown on with high supersonic velocities, namely in the direction of the fixed plate sides. As for totally fixed plates also in this case a flutter is possible, and the problem essentially consists in finding the critical velocities of the gas for which the flutter begins. The critical velocity essentially depends on the Poisson coefficient. Resonance phenomena are possible, and a mutual influence of the different forms of natural oscillations during the bending of the plate can have essential influence on the stability behavior of the system. The computation work necessary for the calculation of the characteristic frequency is of course very extensive. However, the author shows that for the determination of the speed range where no flutter occurs,

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The Stability of Blades Moving in a Gas Flow 40-5-13/20

former methods for the plate fixed on the whole boundary can be applied.
There are 3 figures, 1 table, and 3 references, 2 of which are Slavic.

SUBMITTED: August 17, 1957

AVAILABLE: Library of Congress

Card 2/2

MOVCHAN, A.A. (Moskva)

Liapunov's direct method used in stability problems of elastic systems. Prikl. mat. i mekh. 23 no.3:483-493 My-Je '59.
(MIRA 12:5)
(Elastic plates and shells)

69302

10.6000

S/179/60/000/01/027/034
E031/E535

AUTHOR: Movchan, A.A. (Moscow)

TITLE: On the Influence of Aerodynamic Damping on Supersonic Panel Flutter

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Mekhanika i mashinostroyeniye, 1960, Nr 1, pp 175-177 (USSR)

ABSTRACT: In some examples of the calculation of panel flutter in a supersonic airstream using an expression for the pressure difference from piston theory the aerodynamic damping term has had a weak influence on the critical flutter velocity. This has provided a reason for ignoring aerodynamic damping in quasi-stationary theory, but if this is done, the effect of the elastic base and the forces acting in the plane of the panel on the critical velocity cannot be determined. In this paper the problem is discussed of axisymmetrical flutter of a circular cylindrical shell for which even in the absence of an elastic base and tangential forces the neglect of

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S/179/60/000/01/027/034
E031/E535

On the Influence of Aerodynamic Damping on Supersonic Panel Flutter

aerodynamic damping can be the cause of false results. The x-axis is taken along the axis of the cylinder which is moving in that direction. The fourth order partial differential equation for the normalised non-dimensional displacement of points of the shell is written down and assuming the solution to be the product of a function of x and a time function, a fourth order ordinary differential equation is obtained. The similarity between this equation and that for a plane panel of infinite dimensions is discussed and the error resulting from the neglect of the aerodynamic damping is indicated. The remarks are illustrated by an example using the numerical solution of the ordinary differential equation. There are 1 figure and 6 references, 5 of which are Soviet and 1 English.

SUBMITTED: May 27, 1959

Card 2/2

Movchan, A.A.

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

201. [illegible] (Moscow): An experimental study of the load carrying capacity of thin-walled nickel tubes subjected to various combinations of tension, torsion, and internal pressure.

202. S. G. Mikhlin (Leningrad): Variational methods in the theory of elasticity.

203. A. A. Movchan (Moscow): The stability of motions of solids — Lagrange's theorem for solids and its inversion.

204. A. A. Movchan (Moscow): Axisymmetric supersonic flutter of a circular cylindrical shell.

205. N. F. Morozov (Leningrad): On the uniqueness of the solution of the problem of large deflections of a circular plate under rotationally symmetric loading.

206. [illegible] (Tbilisi): The determination of the deformation of trusses without diagonals.

207. Kh. M. Mushtari, I. G. Teregulov (Kazan): A theory of moderately thick plates and shells.

208. A. G. Nazarov (Erevan): Some problems in the theory of mixture stability.

209. U. K. Nigul (Tallin): Vibrations of an elastic circular cylindrical shell under concentrated impact loading.

210. U. K. Nigul (Tallin): More accurate equations of motion for circular cylindrical shells.

211. V. A. Nikitin (Leningrad): Approximate treatment of cylindrical shells under concentrated loads.

212. S. N. Nikiforov (Moscow): Redistribution of reactions at the edge of a simply supported rectangular plate under gradually increasing loading.

213. W. Nowacki (Warsaw): Some dynamical problems of thermoelasticity.

214. [illegible] (Moscow): Investigation of the viscous behavior of elastic, visco-plastic materials in vibrations.

215. [illegible] (Odessa): Problems of the non-linear theory of elasticity.

216. I. F. Obraztsov (Moscow): [illegible] variational method to the design of [illegible] structures.

217. [illegible] (Leningrad): Complete computation of a wave field in homogeneous elastic media with parallel plane boundaries.

218. [illegible]: The method of electroplating and its applications.

219. W. Olszak (Warsaw): Two-dimensional problems in the theory of plasticity of non-homogeneous and anisotropic media.

220. [illegible] (Moscow): The state of stress in a deformed curved bar.

221. V. Ia. [illegible] (Leningrad): A membrane theory for a toroidal shell.

222. V. P. Pavlov (Moscow): Creep, elastic properties and anisotropy of plastic lubricants.

223. O. V. [illegible] (Kharkov): A practical method of designing reinforced concrete structures with reference to creep.

224. Ia. G. Panovko (Riga): The problem of structural damping.

225. P. I. Perlin (Moscow): An approximate method for solving elastic-plastic problems.

226. P. I. Perlin, L. A. Shofman (Moscow): Application of the theory of rigid, plastic solids to problems of metal forming.

227. [illegible] (Kiev): On the axisymmetric problem of the theory of elasticity.

228. D. S. [illegible] (Moscow): A method for studying the plane field of relative volume strains in soils.

229. G. Ia. Popov (Novosibirsk): The application of some new methods of the theory of integral equations to the solution of contact problems of the theory of elasticity.

230. V. A. Postnov (Leningrad): Free and forced vibrations of frames taking into account shear deformations and energy dissipation.

231. [illegible] (Dnepropetrovsk): Investigation and calculation of internal friction in elastic members of vibrating machines.

232. W. Prager (Providence): An elementary discussion of definitions of stress rate.

233. N. I. Prigorovskii (Moscow): Photoelastic investigation of stresses in three-dimensional layered models.

MOVCHAN, A.A. (Moskva)

Behavior of complex eigenvalues in the problem of the panel flatter. Insh.sbor. 27:70-76 '60. (MIRA 13:6)
(Flutter (Aerodynamics))

MOYCHAN, A.A. (Moskva)

Stability of the motion of solid bodies; Lagrange's theorem and its inversion. Izh.sbor. 29:3-20 '60. (MIRA 13:10)
(Motion)

88749
S/040/60/024/006/003/024
C 111/ C 333

16.5400
AUTHOR: Movchan, A. A. (Moscow)

TITLE: Stability of Processes With Respect to two Metrics

PERIODICAL: Prikladnaya matematika i mekhanika, 1960, Vol. 24, No. 6 pp. 988-1001

TEXT: The paper gives an axiomatic representation of the stability theory of abstract processes, where the author starts from the original general definition of stability by Lyapunov and generalizes this definition to processes depending on an infinite number of variables.

In the set Z of arbitrary points z assume that $z(z_o, t_o, t)$ is a curve beginning in z_o in the moment t_o. In the set of all possible curves the processes are characterized by the following axioms: 1.1 If a process is defined on $(t_o, t_{oo}) \subset T$, then it is also a process on $(t_1, t_{11}) \subset (t_o, t_{oo})$. 1.2 If two processes have a common point at the time $t_1 \in T$, then the curve consisting of the first process for $t < t_1 (t \in T)$ and of the second process for $t > t_1$ $(t \in T)$, is a process toc. 1.3 There exists a process $z = z^o(t)$ defined on the total interval T and which is denoted as undisturbed process.

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C 111/ C 333

Stability of Processes With Respect to two Metrics

If z belongs to a process in the moment t, then it is said that the pair (z,t) belongs to the process.

To every pair (z,t) there are defined two metrics (distances) $\rho_0(z,t)$, $\rho(z,t)$ with the properties:

2.1 $\rho_0(z,t)$ is real nonnegative, where $\rho_0(z^0(t),t) \equiv 0$, $t \in T$.

2.2 $\rho(z,t)$ is real nonnegative, where $\rho(z^0(t), t) \equiv 0$, $t \in T$.

2.3 The distance $\rho(z,t)$ is continuous with respect to the metric $\rho_0(z,t)$ [uniformly] on $T_0 \subseteq T$, i. e. to every $\varepsilon > 0$ and $t_0 \in T_0$ there exists a $\delta(\varepsilon, t_0) > 0$ $[\delta(\varepsilon) > 0]$ so that $\rho(z,t_0) < \varepsilon$ is satisfied for all (z,t_0) for which $\rho_0(z,t_0) < \delta$.

2.4 For every process $z(z_0, t_0, t)$ defined on (t_0, t_{00}), $\rho(z(z_0, t_0, t), t)$ is continuous in t (here $\rho(z(z_0, t_0, t),t)$ is the distance from the undisturbed process up to the point z of the process $z(z_0, t_0, t)$ in the moment t.

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S/040/60/024/006/003/024
C 111/ C 333

Stability of Processes With Respect to two Metrics

Theorem 5.1: In order that the undisturbed process $z^0(t)$ on T be stable with respect to the metrics ρ_0, ρ, where the initial moment t_0 belongs to $T_0 \subseteq T$, it is necessary and sufficient that there is an $R > 0$ so that on RZT there exists a functional $f(z,t)$ positive-definite in the metric ρ and non-increasing which is continuous on T_0 in the metric ρ_0.

Theorem 5.2 is an analogous statement for uniformly stable processes.

Theorem 6.1 is a generalization of the theorem of instability of Chetayev (Ref.2) to the case of two metrics.

There are 14 references: 13 Soviet and 1 Japanese.

SUBMITTED: July 14, 1960

Card 4/4

MOVCHAN, A. A., Doc Phys-Math Sci, "Problems of Stability of the Deformation ~~Processes~~ of Solids." Moscow, 1961. (Moscow Order of Lenin and Order of Labor Red Banner State University imeni M. V. Lomonosov). (KL-DV, 11-61, 207).

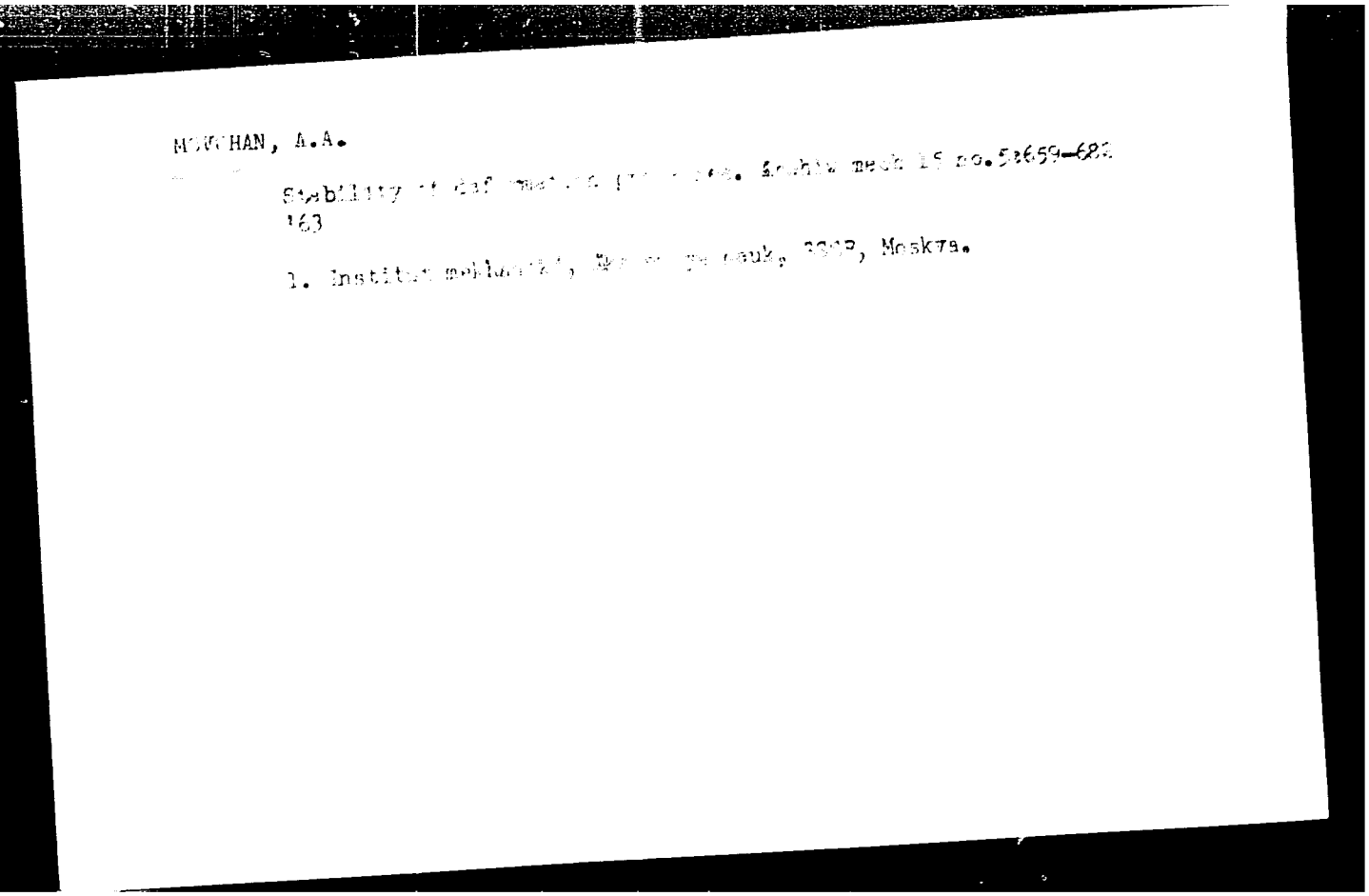
MOVCHAN, A. A.

"Running Waves in the Problem of Hypersonic Flutter of Panels of Finite Length."
Paper presented at the Third International Congress in the Aeronautical Sciences, Stockholm, 27-31 August 1962

MOVCHAN, A.A. (Moscow)

"The analogue of Kelvin theorem on the conservation of stability with the addition of dissipative and gyroscipic forces for the case of arbitrary displacements and deformations of solids".

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



MOVCHAN, A.A.

Stability of [illegible]. Archiv mekh 15 no.5:659-683
'63

1. Institut mekhaniki [illegible] SSSR, Moskva.

ACCESSION NR: AT4039439 S/2879/64/000/000/0695/0701

AUTHOR: Movchan, A. I. (Moscow); Movchan, A. A. (Moscow)

TITLE: Vibration forms in the problem of supersonic panel flutter

SOURCE: Vsesoyuznaya konferentsiya po teorii obolochek i plastin. 4th, Yerevan, 1962. Teoriya obolochek i plastin (Theory of plates and films); trudy* konferentsii, 1964, 695-701

TOPIC TAG: panel, panel flutter, wave propagation, supersonic flutter, panel vibration, gas flow, supersonic gas flow, flexure, damping, boundary problem

ABSTRACT: Noting that the use of high-speed digital computers makes it possible to discover the characteristic peculiarities of the eigenforms of the vibrations of panels within a supersonic gas flow, the authors present several such peculiarities which are common to panels of different configurations in a plane. For simplicity of exposition, the discussion is based on the simple equation

$$D\frac{\partial^4 w}{\partial x^4}+\mu\frac{\partial^2 w}{\partial t^2}=\frac{p_0 x}{c_0}\left(c\frac{\partial w}{\partial x}+\frac{\partial w}{\partial t}\right). \quad (1)$$

where $w(x, t)$ is the flexure of the panel, occupying a region in the form of a band $0 \leq x \leq \alpha$;

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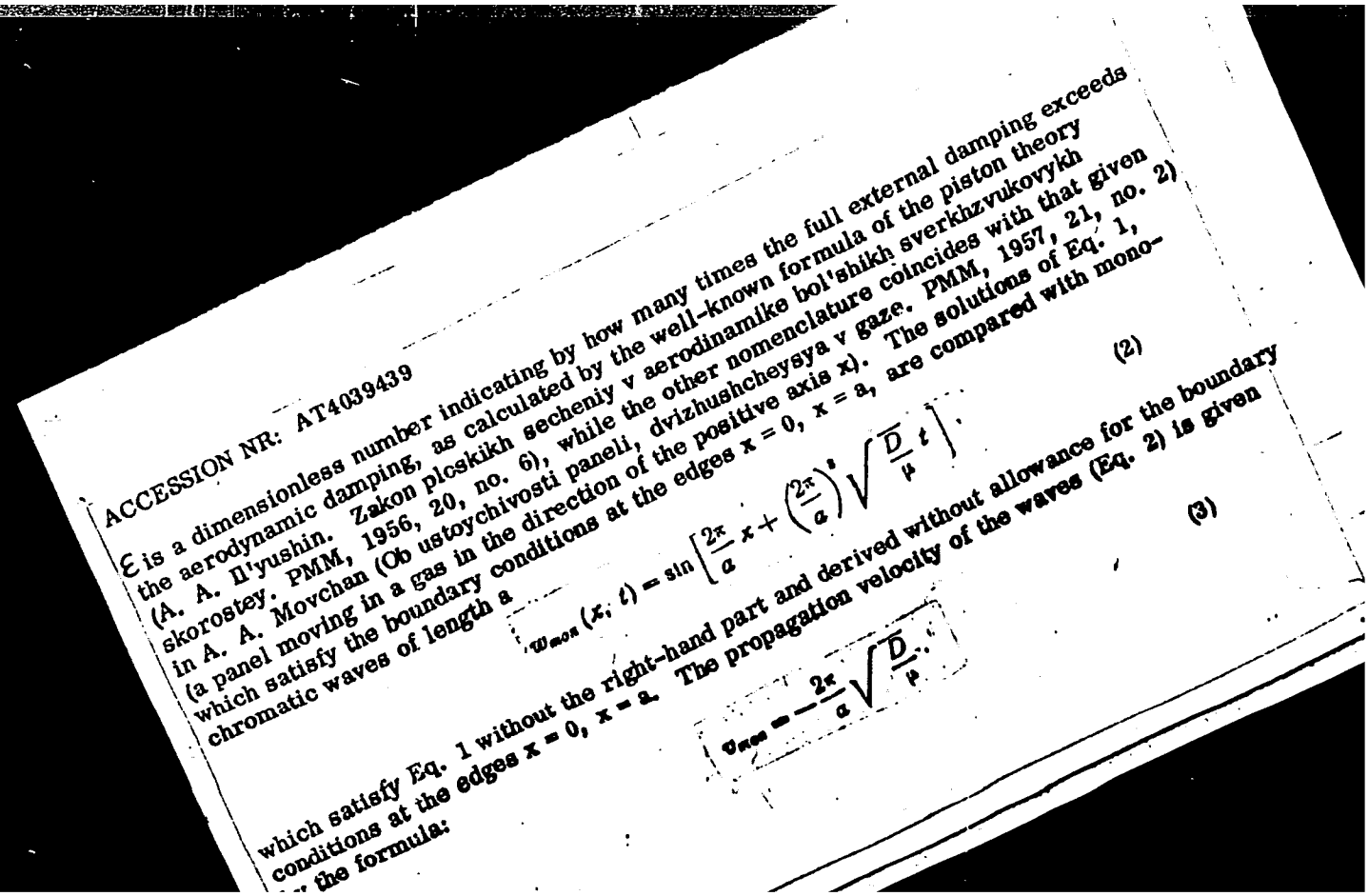

ACCESSION NR: AT4039439

ε is a dimensionless number indicating by how many times the full external damping exceeds the aerodynamic damping, as calculated by the well-known formula of the piston theory (A. A. Il'yushin. Zakon ploskikh secheniy v aerodinamike bol'shikh sverkhzvukovykh skorostey. PMM, 1956, 20, no. 6), while the other nomenclature coincides with that given in A. A. Movchan (Ob ustoychivosti paneli, dvizhushcheysya v gaze. PMM, 1957, 21, no. 2) (a panel moving in a gas in the direction of the positive axis x). The solutions of Eq. 1, which satisfy the boundary conditions at the edges $x = 0$, $x = a$, are compared with monochromatic waves of length a

$$w_{mon}(x, t) = \sin\left[\frac{2\pi}{a}x + \left(\frac{2\pi}{a}\right)^3\sqrt{\frac{D}{\mu}}t\right], \quad (2)$$

which satisfy Eq. 1 without the right-hand part and derived without allowance for the boundary conditions at the edges $x = 0$, $x = a$. The propagation velocity of the waves (Eq. 2) is given by the formula:

$$v_{mon} = -\frac{2\pi}{a}\sqrt{\frac{D}{\mu}}. \quad (3)$$

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The dimensionless values

$$\frac{x}{a}, \frac{w}{h}, t\sqrt{\frac{\mu a^4}{D}}, \tag{4}$$

are introduced in the solution of Eq. 1. Perturbed movements of a panel yield the form

$$w(x, t) = X(x)\, e^{\omega t}. \tag{5}$$

Function X (x), appearing in Eq. 5, is the eigenfunction (non-trivial solution) of the boundary problem

$$\frac{d^4X}{dx^4} - A\frac{dX}{dx} = \lambda X, \tag{6}$$

$$L_i(X) = 0, \quad i = 1, 2, 3, 4.$$

where $L_i(X)$ indicate linear homogeneous boundary conditions at the edges x = 0, x = 1. For

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the determination of the eigenfunctions there is derived the following equation

$$F(A, \lambda) \equiv \begin{vmatrix} L_1(\lambda^1) & L_1(X^2) & L_1(X^3) & L_1(X^4) \\ L_2(X^1) & L_2(X^2) & L_2(X^3) & L_2(X^4) \\ L_3(X^1) & L_3(X^2) & L_3(X^3) & L_3(X^4) \\ L_4(X^1) & L_4(X^2) & L_4(X^3) & L_4(X^4) \end{vmatrix} = 0. \qquad (7)$$

the left-hand part of which is the whole analytical function of parameters A, λ. To each root λ of this equation there corresponds, at least, one solution C_j of system 11 and eigenfunction 10. If the eigenvalue λ is a simple root, one (with accuracy to constant factor) eigenfactor X(x) corresponds to it. If the eigenvalue λ is a double root and the rank of matrix 12 equals two, two linearly independent eigenfunctions correspond to it; if the matrix rank equals three, only one eigenfunction X(x) corresponds to eigenvalue λ. Any eigenfunction X(x) of the boundary problem can be presented in the form

$$X(x) = X_1(x) + i X_2(x). \qquad (8)$$

ACCESSION NR: AT4039439

where $X_1(x)$, $X_2(x)$ are real functions. It is found that the natural vibrations are described by the formulas

$$w(x, t) = |X(x)| \cos [\psi(x) + qt] e^{\alpha t},$$
$$w(x, t) = |X(x)| \sin [\psi(x) + qt] e^{\alpha t}. \quad (9)$$

For a real eigenfunction X(x) in continuity intervals $\psi(x)$ condition $\psi(x) \neq$ constant is fulfilled, thus providing a basis for calling the natural vibrations in this case standing waves. It is shown that natural vibrations in the form of traveling waves (for a complex eigenfunction X(x) in continuity intervals $\psi(x)$ with fulfillment of condition $\psi(x) \neq$ const by analogy with equation (2)) are a typical phenomenon in the case of panel flutter. A theoretical qualitative investigation of the character of the traveling waves in flutter, formerly involving extremely cumbersome computations, has been facilitated through the use of high-speed computers. The process of finding the eigenfunctions X(x) consists primarily in the solution of rather complex transcendental equations with respect to the parameters α, β (which are complex numbers for complex λ) and in subsequent computation. In the final section of the article, the computation results, achieved on a "Strela" computer, for the vibrations of an edge-jammed panel ($x = 0$, $x = 1$) are given and discussed. Orig. art. has: 4 figures and 21 formulas.

Card 5/6

ACCESSION NR: AT4039439

ASSOCIATION: none

SUBMITTED: 00	DATE ACQ: 14May64	ENCL: 00
SUB CODE: AS	NO REF SOV: 006	OTHER: 001

Card 6/6

ACCESSION NR: AT4039439 S/2879/64/000/000/0695/0701

AUTHOR: Movchan, A. I. (Moscow); Movchan, A. A. (Moscow)

TITLE: Vibration forms in the problem of supersonic panel flutter

SOURCE: Vsesoyuznaya konferentsiya po teorii obolochek i plastin. 4th, Yerevan, 1962. Teoriya obolochek i plastin (Theory of plates and films); trudy* konferentsii, 1964, 695-701

TOPIC TAG: panel, panel flutter, wave propagation, supersonic flutter, panel vibration, gas flow, supersonic gas flow, flexure, damping, boundary problem

ABSTRACT: Noting that the use of high-speed digital computers makes it possible to discover the characteristic peculiarities of the eigenforms of the vibrations of panels within a supersonic gas flow, the authors present several such peculiarities which are common to panels of different configurations in a plane. For simplicity of exposition, the discussion is based on the simple equation

$$D\frac{\partial^4 w}{\partial x^4}+\mu\frac{\partial^2 w}{\partial t^2}=\frac{p_0 x}{c_0}\left(c\frac{\partial w}{\partial x}+\varepsilon\frac{\partial w}{\partial t}\right). \qquad (1)$$

where $w(x, t)$ is the flexure of the panel, occupying a region in the form of a band $0 \leq x \leq \alpha$;

Card 1/6

ε is a dimensionless number indicating by how many times the full external damping exceeds the aerodynamic damping, as calculated by the well-known formula of the piston theory (A. A. Il'yushin. Zakon ploskikh secheniy v aerodinamike bol'shikh sverkhzvukovykh skorostey. PMM, 1956, 20, no. 6), while the other nomenclature coincides with that given in A. A. Movchan (Ob ustoychivosti paneli, dvizhushcheysya v gaze. PMM, 1957, 21, no. 2) (a panel moving in a gas in the direction of the positive axis x). The solutions of Eq. 1, which satisfy the boundary conditions at the edges x = 0, x = a, are compared with monochromatic waves of length a

$$w_{mon}(x, t) = \sin\left[\frac{2\pi}{a}x + \left(\frac{2\pi}{a}\right)^2\sqrt{\frac{D}{\mu}}\,t\right], \qquad (2)$$

which satisfy Eq. 1 without the right-hand part and derived without allowance for the boundary conditions at the edges x = 0, x = a. The propagation velocity of the waves (Eq. 2) is given by the formula:

$$v_{mon} = -\frac{2\pi}{a}\sqrt{\frac{D}{\mu}}. \qquad (3)$$

The dimensionless values

$$\frac{x}{a}, \frac{w}{h}, t\sqrt{\frac{\mu a^4}{D}}, \tag{4}$$

are introduced in the solution of Eq. 1. Perturbed movements of a panel yield the form

$$w(x, t) = X(x)\, e^{\omega t}. \tag{5}$$

Function X (x), appearing in Eq. 5, is the eigenfunction (non-trivial solution) of the boundary problem

$$\frac{d^4X}{dx^4} - A\frac{dX}{dx} = \lambda X, \qquad L_i(X) = 0, \quad i = 1, 2, 3, 4. \tag{6}$$

where $L_i(X)$ indicate linear homogeneous boundary conditions at the edges x = 0, x = 1. For

the determination of the eigenfunctions there is derived the following equation

$$F(A, \lambda) = \begin{vmatrix} L_1(X^1) & L_1(X^2) & L_1(X^3) & L_1(X^4) \\ L_2(X^1) & L_2(X^2) & L_2(X^3) & L_2(X^4) \\ L_3(X^1) & L_3(X^2) & L_3(X^3) & L_3(X^4) \\ L_4(X^1) & L_4(X^2) & L_4(X^3) & L_4(X^4) \end{vmatrix} = 0. \quad (7)$$

the left-hand part of which is the whole analytical function of parameters A, λ. To each root λ of this equation there corresponds, at least, one solution C_j of system 11 and eigenfunction 10. If the eigenvalue λ is a simple root, one (with accuracy to constant factor) eigenfactor X(x) corresponds to it. If the eigenvalue λ is a double root and the rank of matrix 12 equals two, two linearly independent eigenfunctions correspond to it; if the matrix rank equals three, only one eigenfunction X(x) corresponds to eigenvalue λ. Any eigenfunction X(x) of the boundary problem can be presented in the form

$$X(x) = X_1(x) + iX_2(x). \quad (8)$$

ACCESSION NR: AT4039439

where $X_1(x)$, $X_2(x)$ are real functions. It is found that the natural vibrations are described by the formulas

$$w(x, t) = |X(x)| \cos [\psi(x) + qt]\, e^{\alpha t},$$
$$w(x, t) = |X(x)| \sin [\psi(x) + qt]\, e^{\alpha t}. \qquad (9)$$

For a real eigenfunction X(x) in continuity intervals $\psi(x)$ condition $\psi'(x) \neq$ constant is fulfilled, thus providing a basis for calling the natural vibrations in this case standing waves. It is shown that natural vibrations in the form of traveling waves (for a complex eigenfunction X(x) in continuity intervals $\psi(x)$ with fulfillment of condition $\psi'(x) \neq$ const by analogy with equation (2)) are a typical phenomenon in the case of panel flutter. A theoretical qualitative investigation of the character of the traveling waves in flutter, formerly involving extremely cumbersome computations, has been facilitated through the use of high-speed computers. The process of finding the eigenfunctions X(x) consists primarily in the solution of rather complex transcendental equations with respect to the parameters α, β (which are complex numbers for complex λ) and in subsequent computation. In the final section of the article, the computation results, achieved on a "Strela" computer, for the vibrations of an edge-jammed panel ($x = 0$, $x = 1$) are given and discussed. Orig. art. has: 4 figures and 21 formulas.

Card 5/6

ACCESSION NR: AT4039439

ASSOCIATION: none

SUBMITTED: 00	DATE ACQ: 14May64	ENCL: 00
SUB CODE: AS	NO REF SOV: 006	OTHER: 001

Card 6/6

MOVCHAN, A.P.

Some types of polyclinical aid for the rural population. Med. sestra 20 no.7:23-27 Jl '61. (MIRA 14:10)

1. Zamestitel' glavnogo vracha Kiyevskoy oblastnoy bol'nitsy.
(PUBLIC HEALTH, RURAL)

MOVCHAN, A.P. (Kiyev)

Hospital nurse. Med. sestra 22 no.6:20-21 Je'63. (MIRA 16:9)
(NURSES AND NURSING)

AUTHORS: Peller, V. V. and Movchan, A. T. 68-58-6-6/21

TITLE: Methods of Decreasing the Ash Content in Coal Pitch Coke (Puti snizheniya zol'nosti pekovogo koksa)

PERIODICAL: Koks i Khimiya, 1958, Nr 6, pp 17-21 (USSR)

ABSTRACT: The influence of various operating factors on the ash content of tar and tar-pitch is discussed and illustrated by data on the ash content of tar, pitch and pitch coke produced on the Zaporozhsk coke oven works (Tables 1,3). The influence of the following operating factors is mentioned: 1) charging conditions of coke oven, namely the degree of fineness of the coal blend and the pressure and duration of steam injections; 2) condition of operation of tar settling tanks, intermediate and storage tanks and 3) additions of soda to tar before distillation. There are 2 tables and 1 figure.

ASSOCIATION: Zaporozhskiy Koksokhimicheskiy zavod (Zaporozhye Coal-tar Chemical Plant)

1. Ovens--Performance 2 Coke--Combustion 3. Fuels--Properties

Card 1/1

KULESHOV, P.Ya., kand.tekhn.nauk; MOVCHAN, A.T.

New system of processing the anthracene fraction. Koks i khim. no.9: 36-37 '60. (MIRA 13:9)

1. Zaporozhskiy koksokhimicheskiy zavod.
(Anthracene)

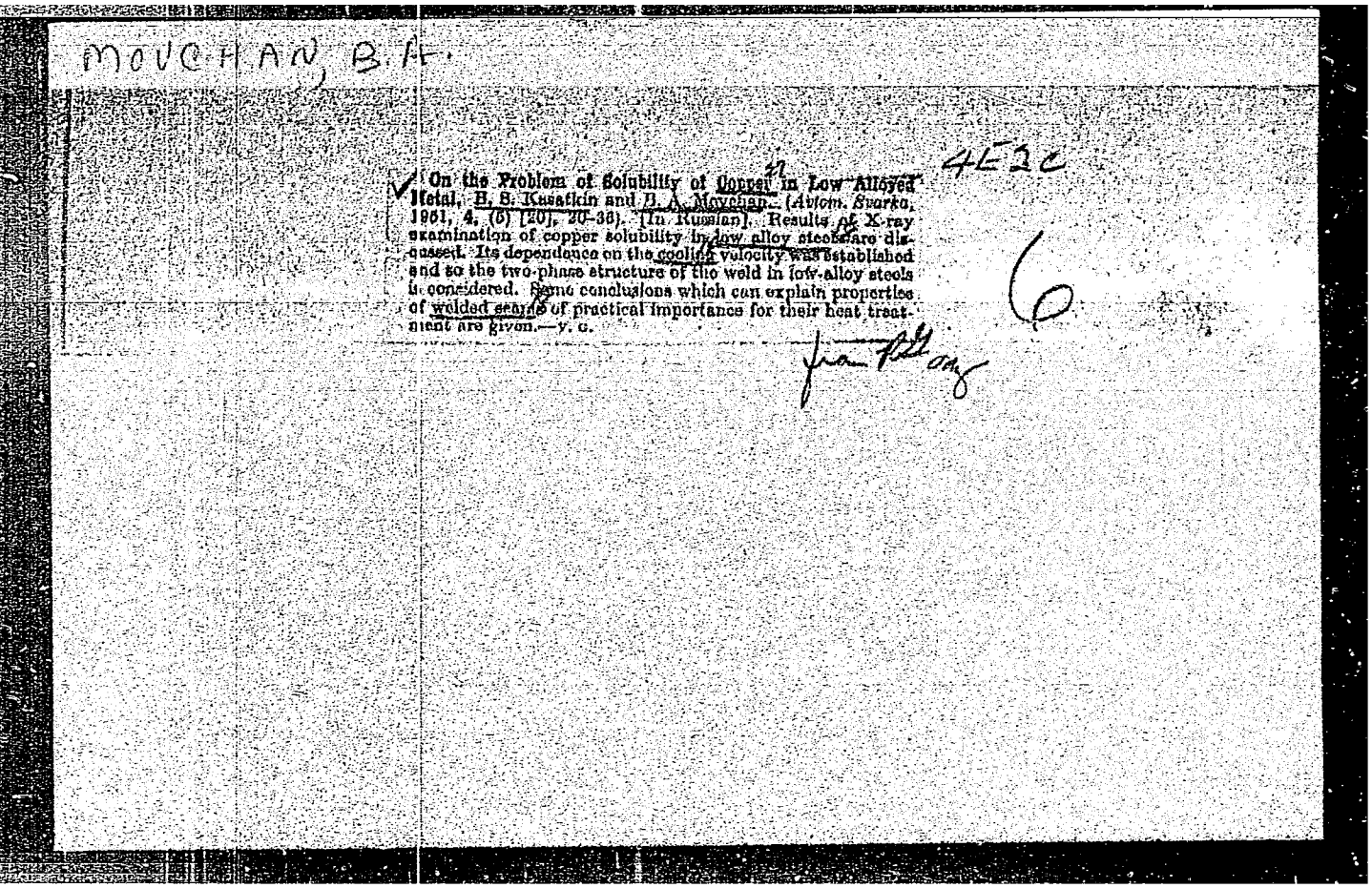
MOVCHAN, A.T.

Adoption of modern equipment and technology. Koks i khim. no.5: 5-9 '63. (MIRA 16:5)

(Zaporozh'ye--Coke industry)

MOVCHAN, A.T.; POPOV, K.P.; SOKOLOV, V.F.; LIVSHITS, B.Ya.; BUTUZOV, M.D.

Automation of sulfate recovery plants. Koks i khim. no.5:39-43 '63. (MIRA 16:5)
(Coke industry--By-products) (Automation)



MOUCHAN, B.A.

4E2c

On the Problem of Solubility of Copper in Low Alloyed Metal. B. B. Kusatkin and B. A. Movchan. (*Avtom. Svarka*, 1951, 4, (5) [20], 20-38). [In Russian]. Results of X-ray examination of copper solubility in low alloy steels are discussed. Its dependence on the cooling velocity was established and so the two-phase structure of the weld in low-alloy steels is considered. Some conclusions which can explain properties of welded seams of practical importance for their heat treatment are given.—V. G.

6

KASATKIN, B. S. , MOVCHAN, B. A.

Steel Alloys

Some data on the influence of a metastable structure on the mechanical properties of metal. Avtom. svar., 4, No. 6 (21), 1951.

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

MOVCHAN, B. A.

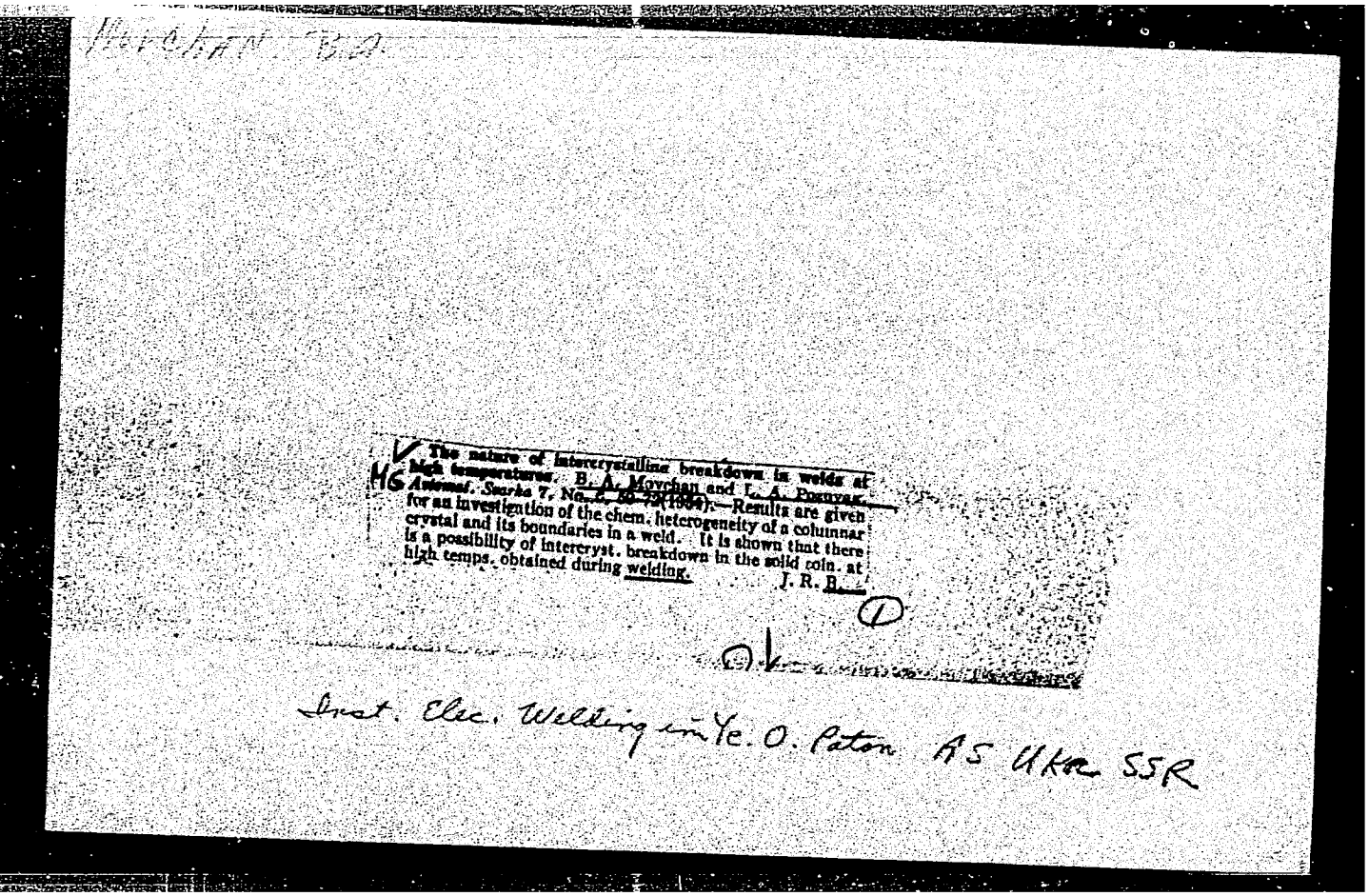
Movchan, B. A. -- "Some Properties of Primary Crystallization in Automatic Welding of Alloy Steel." CandTech Sci, Inst of Electric Welding, Acad Sci Ukrainian SSR, Kiev 1953. (Referativnyy Zhurnal--Khimiya, No 1, Jan 54)

So: SUM 168, 22 July 1954

MOVCHAN, B.A.

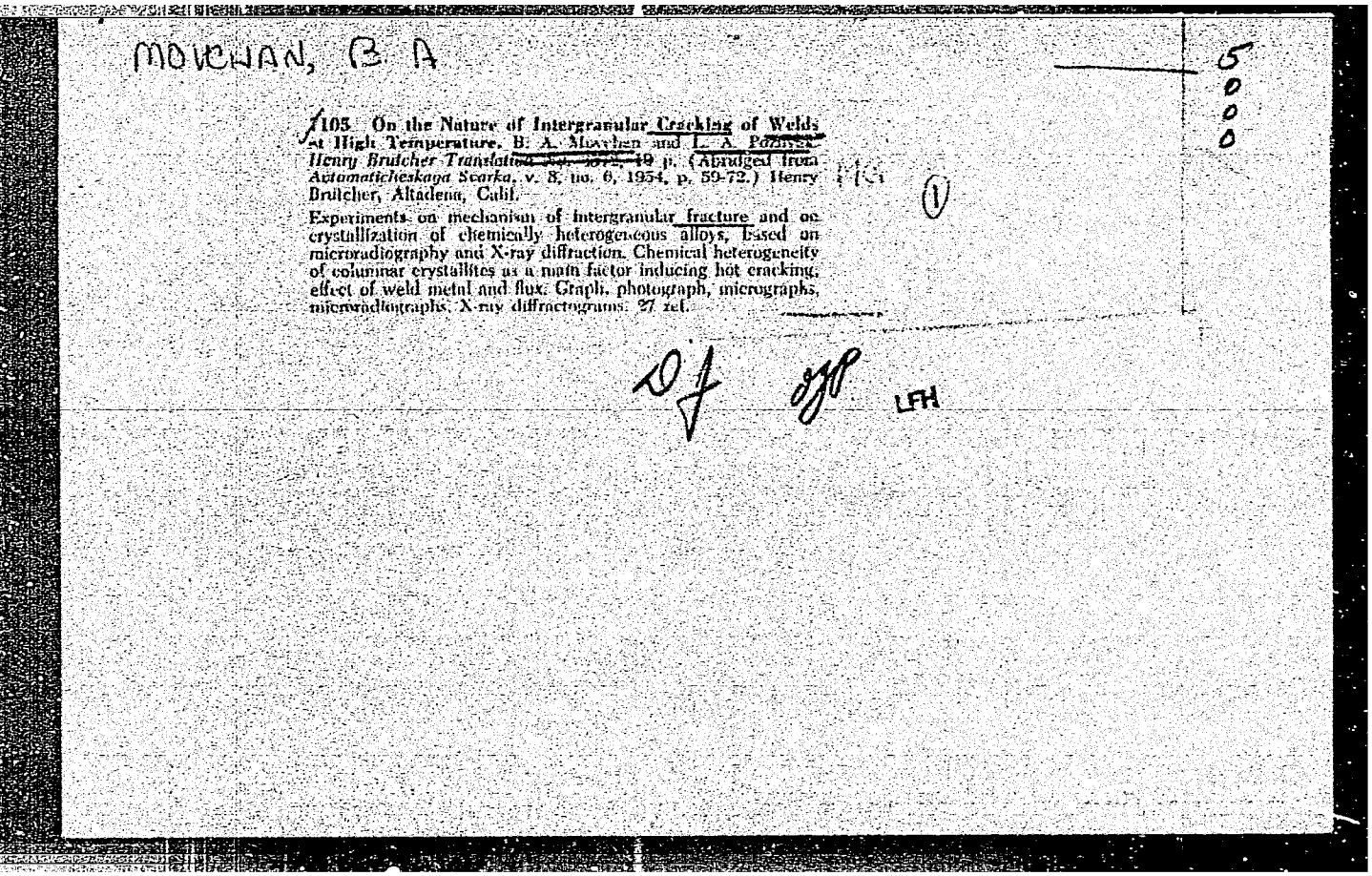
Some characteristics of the primary crystallization process of alloy steel. Avtom.svar.6 no.3:3-15 My-Je '53. (MLRA 7:5)

1. Institut elektrosvarki im. Ye.O.Patona Akademii nauk USSR.
(Steel alloys)



The nature of intercrystalline breakdown in welds at high temperatures. B. A. Movchan and L. A. Pozuvar. *Avtomat. Svarka* 7, No. 6, 69-73(1954).—Results are given for an investigation of the chem. heterogeneity of a columnar crystal and its boundaries in a weld. It is shown that there is a possibility of intercryst. breakdown in the solid coln. at high temps. obtained during welding. J. R. B.

Inst. Elec. Welding im Ye. O. Paton AS UkrSSR



MOVCHAN, B. A.

5000

105. On the Nature of Intergranular Cracking of Welds at High Temperature. B. A. Movchan and L. A. Pozniak. *Henry Brutcher Translation* [illegible] 19 p. (Abridged from *Avtomaticheskaya Svarka*, v. 8, no. 6, 1954, p. 59-72.) Henry Brutcher, Altadena, Calif.

Experiments on mechanism of intergranular fracture and on crystallization of chemically heterogeneous alloys, based on microradiography and X-ray diffraction. Chemical heterogeneity of columnar crystallites as a main factor inducing hot cracking, effect of weld metal and flux. Graph, photograph, micrographs, microradiographs, X-ray diffractograms. 27 ref.

(1)

20 ✓ ozp LFH

Movchan, B.A.

FD-1074

USSR/Physics - alloy steel grains

Card 1/1 Pub. 153 - 10/24

Author : Svechnikov, V. N., and Movchan, B. A.

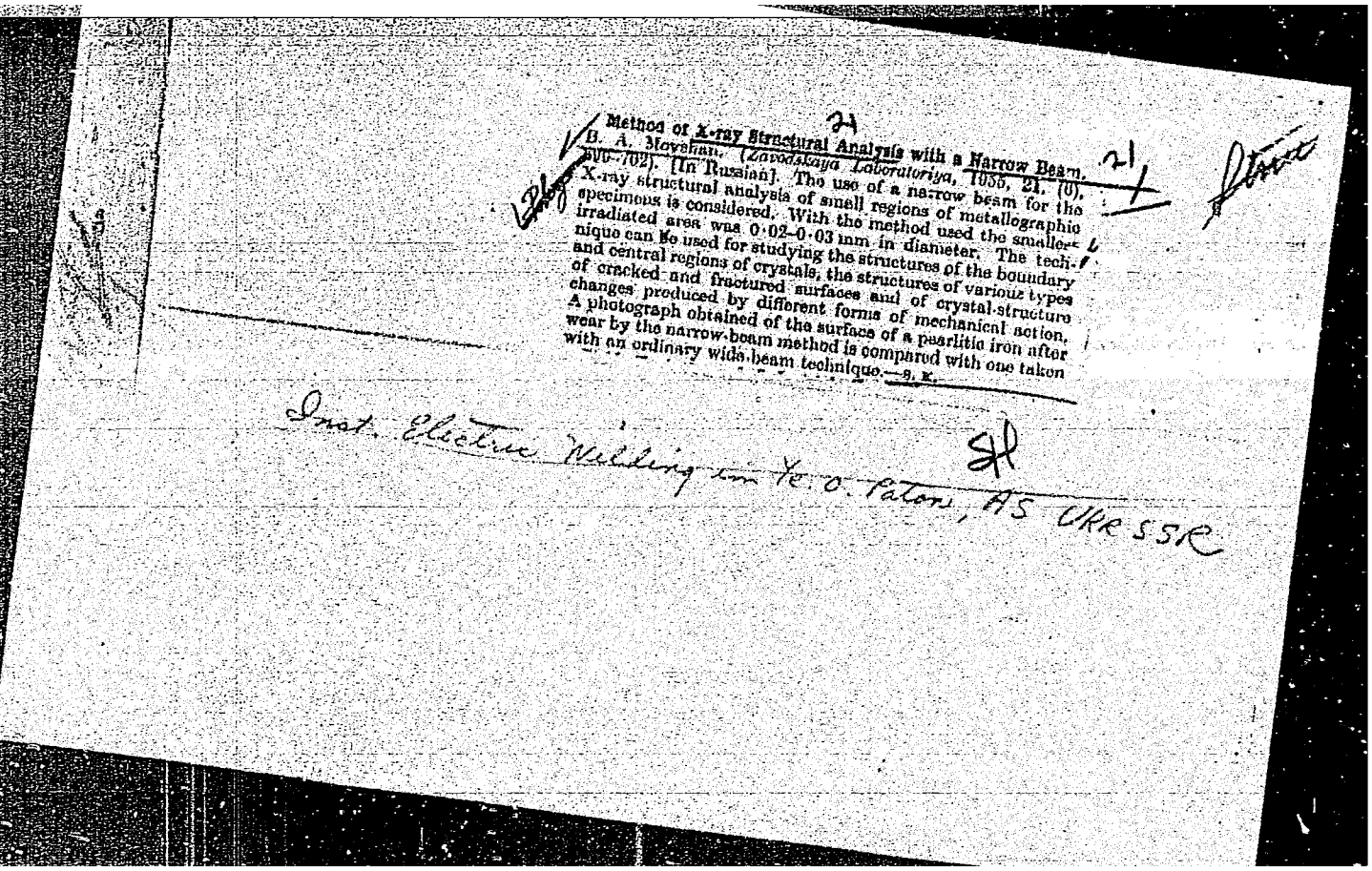
Title : Structure of the primary grains of alloy steels during heating to a high temperature (1300-1400°C)

Periodical : Zhur. tekh. fiz., 24, No 10, 1823-1829, Oct 1954

Abstract : The authors study by direct methods the structure of the grains and the boundary zones of several alloy steels (results tabulated), namely at temperatures of overheating. They find that chromium and wolfram diffuse into the boundary zones of the grains and that manganese may concentrate at internal defects because of rolling. They describe their experimental procedures and evaluate their results.

Institution : -

Submitted : January 29, 1954



21

Method of X-ray Structural Analysis with a Narrow Beam. B. A. Movchan. (*Zavodskaya Laboratoriya*, 1955, 21, (6), 700–702). [In Russian]. The use of a narrow beam for the X-ray structural analysis of small regions of metallographic specimens is considered. With the method used the smallest irradiated area was 0·02–0·03 mm in diameter. The technique can be used for studying the structures of the boundary and central regions of crystals, the structures of various types of cracked and fractured surfaces and of crystal-structure changes produced by different forms of mechanical action. A photograph obtained of the surface of a pearlitic iron after wear by the narrow-beam method is compared with one taken with an ordinary wide-beam technique.—S. K.

21

Inst. Electric Welding im. Ye. O. Paton, AS UkrSSR

MARKOVSKIY, Yevgeniy Adamovich; MOVCHAN, Boris Alekseyevich; STETSENKO, Vsevolod Ivanovich; SAL'NIKOV, G., vedushchiy redaktor; NOVIK, A., tekhnicheskiy redaktor

[Radioisotopes in metal research] Radioaktivnye izotopy pri issledovanii metallov. Kiev, Gos. izd-vo tekhn. lit-ry USSR, 1956. 87 p.
(Radioisotopes--Industrial applications) (MLRA 9:10)
(Metals)

Subject : USSR/Engineering

Card 1/1 Pub. 11 - 5/15 AID P - 5254

Authors : Gupalo, Yu. D., B. A. Movchan, and P. M. Shirokovskiy (Electrowelding Institute im. Paton)

Title : Use of radioactive isotopes to control the level of metal melt in the resistance slag welding vat.

Periodical : Avtom. svar., 4, 67-69, Ap 1956

Abstract : The authors describe the utilization of radioactive isotopes for control of level of melting metal in the vat of resistance slag welding. A special automatic regulator was designed and tested by the Electrowelding Institute im. Paton. Two drawings; 3 Russian references (1953-55).

Institution : As above

Submitted : No date

SVECHNIKOV, V.N.; MOVCHAN, B.A.

Equilibrium of chemical inhomogeneity in alloys at high temperature. Sbor. nauch. rab. Inst. metallofiz. AN USSR no.7:32-47 '56.
(Metals at high temperature) (MIRA 11:1)
(Metallography)