ACC NR: AP6034147 (A) SOURCE CODE: UR/0424/66/000/005/0130/0138

AUTHOR: Nemirovskiy, Yu. V. (Novosibirsk)

ORG: none

TITLE: On the limiting state of layered and structurally orthotropic cylindrical shells

SOURCE: Inzhenernyy zhurnal. Mekhanika tverdogo tela, no. 5, 1966, 130-138

TOPIC TAGS: shell theory, cylindric shell structure, orthotropic shell, sandwich structure, plastic deformation, plasticity

ABSTRACT: This article deals with some aspects of analyzing isotropic and structurally orthotropic cylindrical shells with layered models, and also with the formulation of limiting relationships between generalized stresses for these models. Relationships for two-, three-, and four-layered shells are obtained as special cases, and various models of structurally orthotropic shells are considered. The material of all elements making up the shell is assumed to be ideal stiff-plastic, giving rise to the piecewise linear conditions of plasticity which are graphically portrayed in Figures 1 and 2; the first figure represents "sheathing" elements, and the second "stiffener" elements. Limiting relationships of the form

$$m_1 + m_{12}^0 - h_1^1\alpha_1^1 (2t_1 + \Gamma_{12}^0) = (2t_0 - B_{11}^0)(h_1^2\alpha_1^2 - h_1^1\alpha_1^1)\Gamma_{12}^0 / B_{22}^0$$

$$m_2 + m_{21}^0 - h_2^1\alpha_2^1 (2t_1 + \Gamma_{21}^0) = (2t_0 - B_{22}^0)(h_1^2\alpha_1^2 - h_1^1\alpha_1^1)\Gamma_{12}^0 / B_{22}^0$$

$$m_1 - 2t_1h_1^1\alpha_1^1 = 2(t_0 - t_{22}^0)(h_1^0\alpha_1^0 - h_1^1\alpha_1^1)\Gamma_{12}^0 / B_{22}^0$$

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ACC NR: AP6034147

$$m_1 - m_{\beta 3}{}^4 - h_1{}^3\alpha_1{}^3\,(2t_1 - B_{11}{}^4) = 2\,(t_3 - t_{3\beta}{}^*)\,(h_1{}^1\alpha_1{}^1 - h_1{}^3\alpha_1{}^3)\,\Gamma_{11}{}^1 / B_{31}{}^1$$
$$m_1 + m_{\gamma 4}{}^4 - m_{\beta 1}{}^3 - h_1{}^3\alpha_1{}^3\,(2t_1 + \Gamma_{14}{}^4 - B_{11}{}^3) = (2t_3 - B_{33}{}^3)\,(h_1{}^3\alpha_1{}^3 - h_1{}^3\alpha_1{}^3)\,\Gamma_{13}{}^3/B_{33}{}^3$$

$$m_1 - m_{\beta 1}{}^1 - h_1{}^3\alpha_1{}^3\,(2t_1 - B_{11}{}^1) = 2\,(t_3 - t_{3\beta}{}^*)\,(h_1{}^4\alpha_1{}^4 - h_1{}^3\alpha_1{}^3)\,\Gamma_{14}{}^4 / B_{34}{}^4$$
$$m_1 - m_{\beta 4}{}^4 - h_1{}^3\alpha_1{}^3\,(2t_1 - B_{14}{}^4) = 2\,(t_3 - t_{3\beta}{}^*)\,(h_1{}^1\alpha_1{}^1 - h_1{}^3\alpha_1{}^3)\,\Gamma_{12}{}^1 / B_{31}{}^1$$
$$m_1 + m_{\gamma 1}{}^1 - m_{\beta 4}{}^4 - h_1{}^3\alpha_1{}^3\,(2t_1 + \Gamma_{11}{}^1 - B_{14}{}^4) = (2t_3 - B_{33}{}^4)\,(h_1{}^3\alpha_1{}^3 - h_1{}^3\alpha_1{}^3)\,\Gamma_{13}{}^3/B_{33}{}^3$$

$$m_1 - m_{\beta 1}{}^3 - h_1{}^3\alpha_1{}^3\,(2t_1 - B_{11}{}^3) = 2\,(t_3 - t_{3\beta}{}^*)\,(h_1{}^4\alpha_1{}^4 - h_1{}^3\alpha_1{}^3)\,\Gamma_{14}{}^4 / B_{34}{}^4$$
$$m_1 - 2t_1 h_1{}^4\alpha_1{}^4 = 2\,(t_3 - t_{3\beta}{}^*)\,(h_1{}^1\alpha_1{}^1 - h_1{}^4\alpha_1{}^4)\,\Gamma_{11}{}^1 / B_{31}{}^1$$
$$m_1 + m_{\gamma 1}{}^1 - h_1{}^4\alpha_1{}^4\,(2t_1 + \Gamma_{11}{}^1) = (2t_3 - B_{33}{}^4)(h_1{}^3\alpha_1{}^3 - h_1{}^4\alpha_1{}^4)\,\Gamma_{13}{}^3 / B_{33}{}^3$$
$$m_1 + m_{\gamma 1}{}^3 - h_1{}^4\alpha_1{}^4\,(2t_1 + \Gamma_{11}{}^3) = (2t_3 - B_{33}{}^4)\,(h_1{}^3\alpha_1{}^3 - h_1{}^4\alpha_1{}^4)\,\Gamma_{13}{}^3 / B_{33}{}^3$$
$$t_3 = t_{3\beta}^*, \quad (2t_{33}^* = B_{33}{}^4)$$

$$2(t_3 - \beta_\gamma t_1) - \sum_{j=1}^{4} \delta_j = 0 \qquad \left(\beta_\gamma = \frac{\beta_\gamma{}^j}{\gamma_1{}^j} = \text{const}\right)$$

are stated for the set of limiting conditions satisfying the assumptions of the problem, where

$$t_i = \frac{T_i}{2\alpha_0 H}, \quad m_1 = \frac{M_1}{\alpha_0 H^2}, \quad s_i{}^j = \frac{\sigma_i{}^j}{\alpha_0}, \quad \delta_i{}^j = \frac{\delta_{0i}{}^j}{H}, \quad h_i{}^j = \frac{h_{0i}{}^j}{H}.$$

$$S_{ii}{}^m = \sum_{j=1}^{m} s_i{}^j\delta_i{}^j\omega_i{}^j, \qquad B_{ii}{}^m = \sum_{j=1}^{m} \beta_i{}^j\delta_i{}^j\omega_i{}^j, \qquad \Gamma_{ii}{}^m = \sum_{j=1}^{m} \gamma_i{}^j\delta_i{}^j\omega_i{}^j$$

$$m_{\sigma i}{}^m = \sum_{j=1}^{m} s_i{}^j\delta_i{}^j h_i{}^j\omega_i{}^j\alpha_i{}^j, \qquad m_{\beta i}{}^m = \sum_{j=1}^{m} \beta_i{}^j h_i{}^j\delta_i{}^j\omega_i{}^j\alpha_i{}^j$$

$$m_{\gamma i}{}^m = \sum_{j=1}^{m} \gamma_i{}^j h_i{}^j\delta_i{}^j\omega_i{}^j\alpha_i{}^j \qquad (i < m = 1, \ldots, 4;\ i = 1, 2;\ j = 1, \ldots, 4)$$

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ACC NR: AP6034147

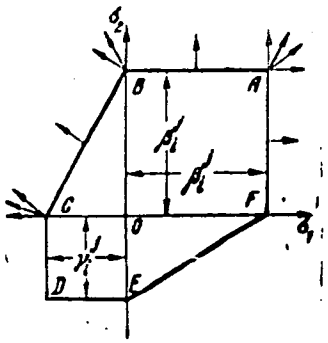

Fig. 1.

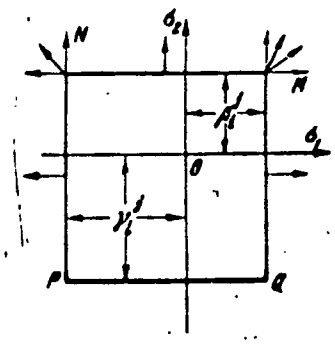

Fig. 2.

For some special cases there are other "boundary" conditions which occur simultaneously with the given limiting conditions. Separate discussions are devoted to the four-, three-, two-, and general multi-layered shell. For example, limiting conditions for a nonsymmetrical two-layered shell might be

$$m_1 + 2h_1t_1 = 2h\,(t_2 \mp t_2^*), \qquad m_1 - 2h_2t_1 + 2h\,(t_2 \mp t_2^*) = 0$$
$$t_2 = \pm\, t_2^*, \qquad t_2 - t_1 = \pm\, t_2^*$$
$$m_2 + 2h_1t_1 = \pm\,\beta_2\delta_2 h, \qquad m_1 - 2h_2t_1 = \pm\,\beta_1\delta_1 h$$
$$h = h_1 + h_2, \quad t_2^* = (\beta_1\delta_1 + \beta_2\delta_2)/2\,,$$

where $\omega_i^1 = \omega_i^4 = \delta_i^1 = \delta_i^4 = h_i^1 = h_i^4 = 0, \quad \omega_i^2 = \omega_i^3 = 1, \quad \alpha_i^2 = -1, \quad \alpha_i^3 = 1 \quad (i = 1, 2)$.

The model is also extended to cases involving stiffeners, reinforcement, and other conditions of plasticity. Orig. art. has: 49 equations and 8 figures.

Card 3/3 SUB CODE: 13,20 SUBM DATE: 04Jul66/ ORIG REF: 005/ OTH REF: 003

ACC NR: AP6034777 SOURCE CODE: UR/0424/66/000/004/0097/0103

AUTHOR: Nemirovskiy, Yu. V. (Novosibirsk)

ORG: none

TITLE: On the stability beyond the elasticity limit of layered shells of nonsymmetrical construction

SOURCE: Inzhenernyy zhurnal. Mekhanika tverdogo tela, no. 4, 1966, 97-103

TOPIC TAGS: shell, shell structure, sandwich structure, elasticity, elastic limit

ABSTRACT: An analysis is made of the stability of three-layered sloping shells of nonsymmetrical construction. Of particular interest is the behavior of such a shell beyond the elastic limit. The shell (see Fig. 1) consists of two bearing layers of

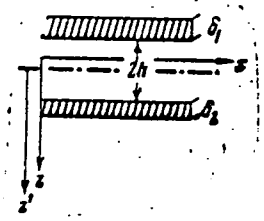

Fig. 1.

thicknesses δ_1 and δ_2, Young's modulus E_1 and E_2 and flow limits σ_{01}, σ_{02}, and a

Card 1/2

ACC NR: AP6034777

light filler of thickness 2h and shear modulus G_3. The Kirchoff-Lyav hypothesis applies to the structure, and it is assumed that Poisson's coefficient is the same for the bearing layers and that

$$\frac{E_2}{E_1} = \frac{\sigma_{02}}{\sigma_{01}} = \frac{E_{k2}}{E_{k1}} = \frac{E_{c2}}{E_{c1}} = \alpha,$$

where E_{ki} and E_{ci} are the tangential and secant moduli, respectively. Analysis is made of loading conditions which initiate plastic deformations. Formulae are derived for computing the variations of forces and moments in each layer. A system of equations is found for defining the critical loadings for the loss of stability of the shells. The symmetrical case ($\delta_1 = \delta_2$, $\alpha = 1$) is first analyzed, and some generalizations are discussed for a sloping bimetal shell. The special case wherein the materials of the bearing layers are not the same is analyzed, and the limits of elasticity are found for $E_2 > E_1$. The author notes that certain approximations for computing the bearing capacity of the structure deserve additional study. Orig. art. has: 21 equations and 2 figures.

SUB CODE: 20, 13/ SUBM DATE: 05Jul66/ ORIG REF: 007/ OTH REF: 001

Card 2/2

ACC NR: AP7006924 SOURCE CODE: UR/0198/67/003/001/0018/0023

AUTHOR: Vokhmyanin, I. T. (Novosibirsk); Nemirovskiy, Yu. V. (Novosibirsk)

ORG: Novosibirsk State University (Novosibirskiy gosudarstvennyy universitet)

TITLE: Load capacity of plain and stiffened cylindrical shells

SOURCE: Prikladnaya mekhanika, v. 3, no. 1, 1967, 18-23

TOPIC TAGS: cylindrical shell ~~, plain cylindrical shell, stiffened cylindrical shell, shell~~ load capacity structures Static load test, Stress load, shell structure stability

ABSTRACT: The static load-carrying capacity of nonstiffened and ring-stiffened cylindrical shells clamped along their face edges and subjected to inner uniform constant pressure is investigated. An exact solution of this problem is obtained for a shell made of a rigid, perfectly plastic material obeying the Tresca plasticity condition and associated law of flow. Equilibrium equations of a plain cylindrical shell, expressions for the law of plastic flow, and boundary conditions of continuity of deformation and of symmetry are used in deriving expressions for determining the exact

 UDC: none

ACC NR: AP7006924

value of the limit pressure P_p for a plain shell as a function of a geometric parameter of the shell, the statically allowable field of stresses, and the associated, kinematically possible field of the rates of strain. A simplified approximate expression for determining P_p (about only 2% lower than the exact value) is also given. An expression for the limit pressure P_s of a cylindrical shell stiffened by closely spaced rings and clamped along the face edges is derived from the expression for P_p by means of an affine transformation. The procedures to be used calculating the limit pressure in a case when the stiffening rings are not close enough, as well as in determining the optimum number (spacing) of rings are outlined. Orig. art. has: 2 figures and 11 formulas. [VK]

SUB CODE: 20/ SUBM DATE: none/ ATD PRESS: 5117

Card 2/2

[illegible]VSKIY, Z.N.

SHLYAKOV, E.M., inzhener; ARISOV [illegible]VSKIY, Z.N.

[illegible]proving the design and [illegible] st. roller chain produc[illegible]n.
Vest.mash. 37 no.[illegible] (MIRA 10:9)

L 51439-65 EWT(l)/EWT(m)/EWG(m)/EWP(t)/EWP(b) IJP(c) RDW/JD

ACCESSION NR: AP5011074 UR/0135/65/010/004/0461/0464

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B

AUTHOR: Budzlak, Ya. S.; Nemish, I. Yu.

TITLE: Electric and thermoelectric properties of strongly doped PbSe

SOURCE: Ukrayins'kyy fizychnyy zhurnal, v. 10, no. 4, 1965, 461-464

TOPIC TAGS: lead selenide, doping, thermal emf, carrier mobility, Hall constant

ABSTRACT: The authors investigated single crystals of n-type PbSe strongly doped with Sb (samples 1 and 2) and Bi (samples 3 and 4). The carrier mobility μ and the differential thermal emf α were measured. In all samples the thermal emf increased monotonically with temperature, while the mobility variation can be represented approximately by the formula $\mu \sim T^{-(1.10-1.30)}$, which differs greatly from the universally used formula $\mu \sim T^{-(2.5-2.8)}$ for single-crystal PbSe with carrier density $n \sim 10^{18}$ cm^{-3}. The Hall-effect coefficient R in this temperature interval was constant and equal to 0.11, 0.082, 0.095, and 0.053 cm^{3}Coul.$^{-1}$ for samples 1, 2, 3, and 4 respectively. The theoretical analysis of the results based on earlier papers by one of the authors (with K. D. Tovstyuk, Izv. AN SSSR ser. fiz. v. 28,

Card 1/2

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ACCESSION NR: AP5011074

1319, 1964; Ukr. fizychn. zh. v. 9, 1209, 1964) showed good agreement with the experimental results; the few exceptions are briefly explained. Orig. art. has: 3 figures and 11 formulas.

ASSOCIATION: Chernivets'kyy derzhuniversytet [Chernovitskiy gosuniversitet] (Chernovtsy State University)

SUBMITTED: 01Jul64 ENCL: 00 SUB CODE: SS

NR REF SOV: 001 OTHER: 007

Card 2/2

L 08131-67 EWT(1) IJP(c) AT

ACC NR: AP6033523 SOURCE CODE: UR/0185/66/011/010/1078/1088

AUTHOR: Hudzhak, Ya. S.; Tovstyuk, K. D.; Nemish, I. Yu.

ORG: Chernev State University (Chernivets'kyy derzhuniversytet)

TITLE: Effect of nonparabolicity of energy bands on the kinetic properties of semiconductors

SOURCE: Ukrayins'kyy fizychnyy zhurnal, v. 11, no. 10, 1966, 1078-1088

TOPIC TAGS: Fermi gas, current carrier, relaxation process, integral equation, energy band, kinetic property, nonparabolicity, semiconductor

ABSTRACT: The concentration of current carriers of some kinetic coefficients are calculated for the cases of undegenerated and greatly degenerated Fermi gases with nonparabolic isotropic laws of dispersion. The scattering processes are described by the relaxation time $\tau = \tau_0(T)\,\rho^{2r-2}\left(\frac{d\varepsilon}{d\rho}\right)$, where r depends on the scattering mechanism only. All kinetic integrals are integrated in general form for any r and expressed through known special tabulated functions. An analysis is given for the equations obtained for cases of weak and strong spectrum nonparabolicity. Orig. art. has: 5 figures and 42 formulas. [Based on authors' abstract]

SUB CODE: 20/ SUBM DATE: 24Dec65/ ORIG REF: 007/ OTH REF: 008/

Card 1/1 nst

ACC NR: AP6021612 SOURCE CODE: UR/0021/66/000/006/0748/0753

AUTHOR: Nemish, Yu. M.

ORG: Institute of mechanics AN URSR (Instytut mekhaniky AN URSR)

TITLE: Plane problem in the moment theory of elasticity for a region with a round hole assuming given boundary translations 16

SOURCE: AN UkrRSR. Dopovidi, no. 6, 1966, 748-753

TOPIC TAGS: elasticity theory, vector, boundary value problem, elastic plate

ABSTRACT: The author studies a plane problem in the linear theory of elasticity which considers stress moments in an isotropic elastic material. In setting up this problem, formulas are given for the stress moments and translation in terms of complex potentials and the solution of the Helmholz equation. Expressions are given for the principal vector and the principal moment, and also for boundary conditions in fundamental problems of this type. These formulas are derived on the basis of representations for the components of the stressed state in terms of the stress function using the Muskhelishvili method. The stressed state of an infinite plate with an absolutely rigid washer sealed in a circular hole is calculated. The entire system is assumed to be uniaxially stretched to infinity. The plate is located in a pure bending field located in the plane of the plate. The article was presented for publication by H. M. Savin. Orig. art. has: 2 figures, 12 formulas.

SUB CODE: 20/ SUBM DATE: 20Jun65/ ORIG REF: 003/ OTH REF: 001

13/

Card 1/1

L 548[illegible]-65 EWT(d)/EWT(m)/EWP(w)/EWA(d)/EPR/T-2/EWP(k)/EWA(h) Pf-4/Peb EM

ACCESSION NR: AP5011825 UR/0198/65/001/005/00[illegible]/005[illegible]

AUTHOR: Nemish, Yu. N. (Kiev)

TITLE: Plane problem in momentum theory of elasticity at a region with a circular hole

SOURCE: [illegible] v. 1, no. 5, 1965, [illegible]

TOPIC TAGS: [illegible] theory, [illegible], complex variable, deformation rate, continuum mechanics

ABSTRACT: The plane problem in the linear theory of elasticity was analyzed for an isotropic elastic material including the stress moments. The governing equations are given by

$$\Delta\Delta U = 0$$

$$\text{[illegible]}$$

where [illegible] is the Laplacian in polar coordinates. The stresses and the stress moments are expressed by

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$$\sigma_r = \frac{1}{r}\frac{\partial U}{\partial r} + \frac{1}{r^2}\frac{\partial^2 U}{\partial \theta^2} - \frac{1}{r}\frac{\partial^2 F}{\partial r \partial \theta} + \frac{1}{r^2}\frac{\partial F}{\partial \theta};$$

$$\sigma_\theta = \frac{\partial^2 U}{\partial r^2} + \frac{1}{r}\frac{\partial^2 F}{\partial r \partial \theta} - \frac{1}{r^2}\frac{\partial F}{\partial \theta};$$

$$\tau_{r\theta} = -\frac{1}{r}\frac{\partial^2 U}{\partial r \partial \theta} + \frac{1}{r^2}\frac{\partial U}{\partial \theta} - \frac{1}{r}\frac{\partial F}{\partial r} - \frac{1}{r^2}\frac{\partial^2 F}{\partial \theta^2};$$

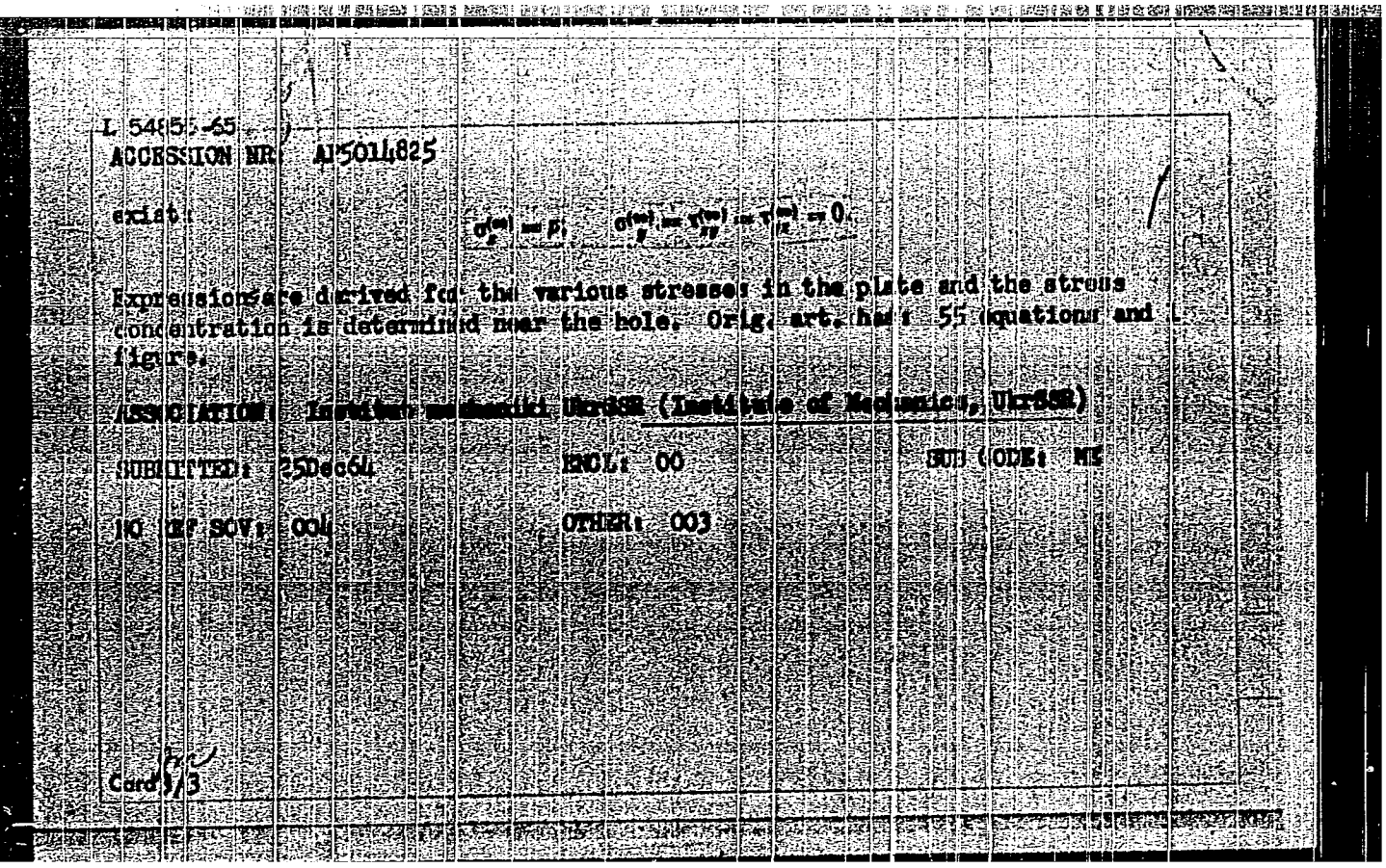
$$\tau_{\theta r} = -\frac{1}{r}\frac{\partial^2 U}{\partial r \partial \theta} + \frac{1}{r^2}\frac{\partial U}{\partial \theta} + \frac{\partial^2 F}{\partial r^2}; \quad P_r = \frac{\partial F}{\partial r}; \quad P_\theta = \frac{1}{r}\frac{\partial F}{\partial \theta}.$$

These are given in complex notation, and the following boundary conditions are obtained in the complex plane

$$\Phi(z) + \overline{\Phi(z)} + \frac{i}{2l^2}\Omega - e^{2i\theta}\left[\bar{z}\Phi'(z) + 8(1-\nu)l^2\Phi''(z) + \Psi(z) + 2i\frac{\partial^2 \Omega}{\partial z^2}\right] = N - iT;$$

$$\mathrm{Re}\left\{2e^{i\theta}\left[-4i(1-\nu)l^2\Phi'(z) + \frac{\partial \Omega}{\partial z}\right]\right\} = M.$$

Generalized solutions are obtained to determine the elastic equilibrium in the infinite region S of a plate with a circular hole of radius R. Specifically, the plate is assumed to be in pure flexure, and at infinity the following conditions



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ACCESSION NR: AP5014825

exist: $\sigma_{\rho}^{(m)} = p_i$; $\sigma_{\rho}^{(m)} = \tau_{\rho\theta}^{(m)} = \tau_{\rho z}^{(m)} = 0$.

Expressions are derived for the various stresses in the plate and the stress concentration is determined near the hole. Orig. art. has: 55 equations and 1 figure.

ASSOCIATION: Inzhenerno-mekhanicheskiy institut (Institute of Mechanics, UkrSSR)

SUBMITTED: 25Dec64 ENCL: 00 SUB CODE: MS

NO REF SOV: 004 OTHER: 003

Card 3/3

L 29803-66 EWT(m)/EWP(w) IJP(c) EM

ACC NR: AP6011219 (N) SOURCE CODE: UR/0198/66/002/004/0085/0096

37
B

AUTHOR: Nemish, Yu. N. (Kiev)

ORG: Institute of Mechanics, AN UkrSSR (Institut mekhaniki AN UkrSSR)

TITLE: Stress concentration around curvilinear holes in the asymmetric theory of elasticity 24

SOURCE: Prikladnaya mekhanika, v. 2, no. 4, 1966, 85-96

TOPIC TAGS: elasticity theory, stress concentration, [redacted], approximation method, complex function

ABSTRACT: The plane problem for an isotropic medium in elasticity theory is considered. An approximate perturbation technique is used to calculate the stress concentration around curvilinear holes in the plane, which is assumed to be infinite in extent. The term curvilinear is used in the sense that the function $z = \omega(\zeta)$ can be mapped on the ζ plane as

$$\omega(\zeta) = R(\zeta + \varepsilon\zeta^{-1}).$$

Here, ε takes on the values

Card 1/3

$$\varepsilon = \frac{a-b}{a+b};\ k=1,\ R=\frac{a+b}{2}$$

$$\varepsilon = \pm\frac{1}{4};\ k=2;$$

$$\varepsilon = \pm\frac{1}{9};\ k=3$$

for an ellipse, a triangle, and a square, respectively. In the absence of volumetric forces, the governing equation for the static problem is given by

$$\nabla^2\nabla^2 U = 0;\quad \nabla^2\left(\nabla^2 - \frac{R^2}{l^2}\right)F = 0.$$

The stress functions are calculated from the series

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$$U_1(r,\alpha) = \sum_{n=1}^{\infty} (Rr)^{-n+1} \begin{matrix} a_n^{(1)'} \cos \\ a_n^{(1)'} \sin \end{matrix} (n+1)\alpha + b_1^{(1)'} \ln (Rr) -$$

$$- \sum_{n=2}^{\infty} \frac{(Rr)^{-n+1}}{n-1} \begin{matrix} b_n^{(1)'} \cos \\ b_n^{(1)'} \sin \end{matrix} (n-1)\alpha;$$

$$F_1(r,\alpha) = \pm 8(1-\nu) i^n \sum_{n=1}^{\infty} n (Rr)^{-n-1} \begin{matrix} a_n^{(1)'} \sin \\ a_n^{(1)'} \cos \end{matrix} (n+1)\alpha +$$

$$+ \sum_{n=0}^{\infty} K_n \left(\frac{R}{T} r\right) \begin{matrix} c_n^{(1)'} \sin \\ c_n^{(1)'} \cos \end{matrix} n\alpha.$$

Several numerical examples are given for stress concentration around elliptic, triangular, and square holes under conditions of uniform tension. Orig. art. has: 27 equations and 4 figures.

SUB CODE: 20/ SUBM DATE: 04Feb66/ ORIG REF: 005

Card 3/3

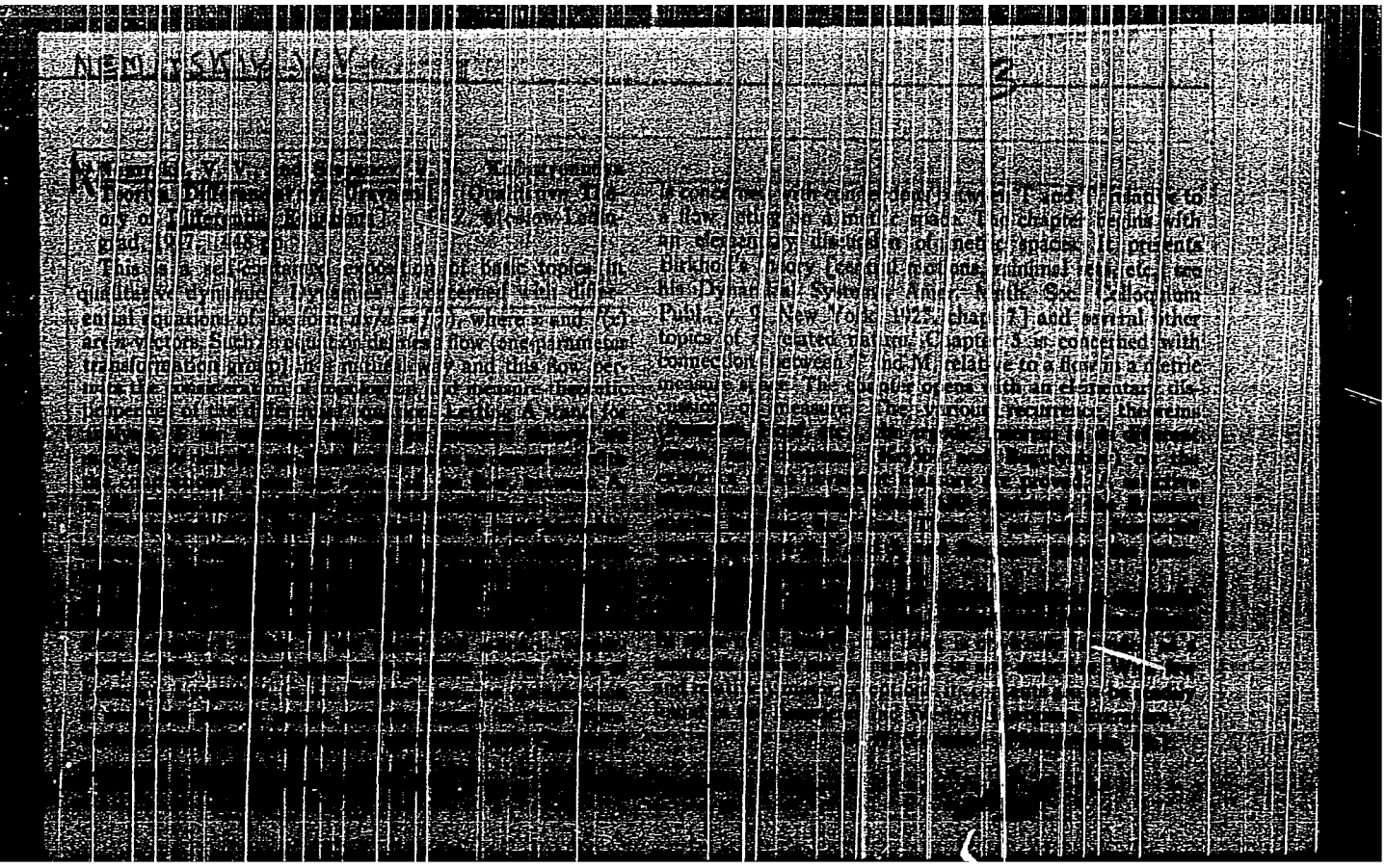
NEMISOVA, V. V.,(Engr.)

NEMISOVA, V. V.,(Engr.) -- "Particle Structure of Sols of Vanadium Pentoxide and Their Properties." Sub 22 Apr 52, Military Academy of Chemical Defense imeni K. Ye. Voroshilov. (Dissertation for the Degree of Candidate in Chemical Sciences).

SO: Vechernaya Moskva January-December 1952

[redacted], M.

"Civilian nuclear power: economic issues and policy formation" by Philip Mullenbach. Reviewed by M. Nemiteanu. Probleme econ [illegible] No.5:150-156 My '64.



NEMITSKIY, V V

SUBJECT USSR/MATHEMATICS/Differential equations CARD 1/14 PG - 110
AUTHOR NEMYZKIJ V.V.
TITLE Some problems of the qualitative theory of differential equations (Survey on the modern literature).
PERIODICAL Uspechi mat. Nauk 9, 3, 39-56 (1954)
reviewed 6/1956

The author remarks that the qualitative theory of differential equations in the last years has become one of the most popular methematic domains of investigation, and that its fundamental notions and the theory of method are transferred to modern physics and technics. At the same time it must be remarked that the mathematical progress was insufficient for these purposes, because the mathematics was mainly employed with the solution of the problems of local character, while for the application mainly the behavior of the integral curves is of great interest.

The problem of the qualitative theory in the plane.

The system $\frac{dx}{dt} = P(x,y)$, $\frac{dy}{dt} = Q(x,y)$ is considered. Local investigations - which were made till 1940 - fall back, and the mathematicians investigate in the large. Poincaré and Bendixson described the possibily behavior of the integral curves in regions with a finite number of singular points. Their results are essentially enlarged by the papers of Solnzev (Izvestija Akad. Nauk 9, 3 (1945)) and Vinograd (Učenije Zapiski MGU 135, mathematics Vol.V, (1952)). Therewith the

problem of the classification of the integral curves which can exist in the plane is entirely solved.
The theorem of Bendixson on the existence of a closed integral curve in a ring domain is joined by the investigations of Filippov (Mat.Sbornik 30, 1 (1952)), Dragilev (Priklad.Mat.Mech. 16, 1 (1952)) and de Castro (Boll.Unione mat.ital. Ser. 3, 8, 1 (1953)) who successfully investigate the equation $\ddot{x}+f(x,\dot{x})\cdot\dot{x}+g(x)=0$. The method of proof of Filippov and Dragilev permits an estimation of the situation of the limit cycles. In the investigations of Gomory and Richmond (Quart.appl.Math. 9, 2 (1951)) the comparison method is successfully applied which joins the well known Caplygin's lemma and which firstly was formulated by Dragilev: Let be given two systems

$$\begin{cases} \dot{v} = -f(x,v)\cdot v + g(x) \\ \dot{x} = v \end{cases} \qquad \text{and} \qquad \begin{cases} \dot{v} = f^*(x,v)\cdot v + g(x) \\ \dot{x} = v \end{cases}$$

If 1) $f(x,v)$ and $f^*(x,v)$ are continuous and satisfy the Lipschitz condition in every bounded region outside of the x-axis, 2) $f(x,v)<0$ in the neighborhood of the zero point, 3) $xg(x)>0$ for $|x|>0$, 4) $f(x,v)\geqslant f^*(x,v)$, then from the existence of a periodic solution of (B), there follows the existence of a periodic solution of (A), which lies inside of the region which is bounded by the periodic solution of (B).
Duff, Levinson, Eckweiler and Diliberto investigate the conditions which must be satisfied by $f(x,v)$ and $g(x)$ in order that there appears a prescribed number of limit cycles.
In the applications, beside of the system with plane phase space also systems with cylindric space act a great part. These systems may have periodic solutions

without singulary points. In connection with these questions the author mentions the investigations of Americ (Ann.di senola normale super. di Pisa, Ser 3, (1950)) and the papers of Cartwright (Princeton 1950) and Reneter (Journ. London Math.Soc. 27, 1. No. 105 (1952)).
To the problem of stability in the large there belong two classical questions: 1) The question for the center - conditions for the existence of a neighborhood are sought, inside of which all solutions are periodic; 2) the question of the estimation of the region of attraction of a singulary point. The first question was treated less, but the second question was treated intensively in Russia. Barbašin and Krassovski (Doklady Akad. Nauk 86, (1952) No.3) improved Liapunov's stability criterion and remarked: If additionally to the Liapunov conditions for every A a number N can be determined such that from $\sum x_i^2 > N$ there follows $v(x_1, x_2, \ldots) > A$ (v = Liapunov function), then the zero point of the system is stable in the large. This theorem and some conclusions admit to establish several stability criteria in the large in concrete cases. Most difficult is the establishment of the corresponding Liapunov function. Erugin, Malkin and Eršov (Priklad.Mat.Mech 14, 15, 16, 17, (1950-1953)) investigated in detail the system

$$\frac{dx}{dt} = f_1(x) + \varphi_1(y) \qquad \frac{dy}{dt} = f_2(x) + \varphi_2(y) ,$$

appearing in the theory of automatic control. Stepakov (Doklady Akad.Nauk 82,

(1952) No.5) gave a method for the construction of two broken lines; between them there is an integral curve which passes through a given point. The dependence of the integral curves on the parameters which are contained in the right parts of the equation was investigated by De Bagg's (Dynamical systems with stable structure II, (1952)). With a similar method Bautin (Mat. Sbornik, n. Ser. 30, (1952) No.) has investigated the question ofthe existence of limit cycles near the zero point if $P(x,y)$ and $Q(x,y)$ are polynomials of second degree. It is proved that the number of limit cycles is ≤ 3 and an example with exactly three limit cycles is given. Leontovič (Doklady Akad. Nauk 78, (1951) No.4) investigated the splitting of the limit cycles from the separatrix. Duff (Ann.Math. 57, (1953) No.) considered the special system

$$\begin{cases} \dot{x} = P(x,y,\alpha) \\ \dot{y} = Q(x,y,\alpha) \end{cases} \qquad \alpha \text{ parameter (real)}$$

P and Q are periodic in α with the period 2π, where

$$P(x,y,\alpha+\pi) = -P(x,y,\alpha); \qquad Q(x,y,\alpha+\pi) = -Q(x,y,\alpha)$$

and the system possesses only isolated singulary points. Then Duff investigated the changing of the limit cycles in dependence of α and the vanishing and appearence of limit cycles from the singulary points.

Three-dimensional problems in the qualitative theory.

The question on the behavior of the integral curves near a singulary point is not yet entirely solved. Apart from the "critical"case where an arbitrarily

small change of the coefficients involves a discontinuous change of the topological image of the integral curves, the results of Grobmann (Mat. Sbornik, n. Ser. 30, (1952) No.1; Doklady Akad. Nauk 86, (1953) No.1) must be mentioned:
1) If among the roots of the characteristic equation there exist at least two roots, the real parts of which have different signs, then all solutions (except such which fill up a manifold of lower dimension) leave a sufficiently small neighborhood of the zero point for $t \longrightarrow \infty$ as well as for $t \longrightarrow -\infty$.
2) If all real parts are different from zero and have the same sign, then for $t \longrightarrow \pm \infty$ all integral curves pass zero.
3) The totality of the integral curves decomposes into a finite number of classes according to its asymptotic behavior.
Warzevski (Ann.Soc.Pol.Math. 21, Vol.II (1949)) remarked that if the real parts of the roots of the characteristic equation satisfy the condition

$$\alpha_1 \leq \alpha_2 \leq \ldots \leq \alpha_{k-1} \leq \alpha_k < \alpha_{k+1} < \alpha_{k+2} \ldots \leq \alpha_{k+p} < \alpha_{k+p+1} \leq \ldots \leq \alpha_n,$$

then the set of integral curves which tangent the coordinate plane $(x_k \ldots x_{k+p})$, have the dimension k+p.
A complete description of the behavior of the integral curves in the neighborhood of a singulary point is possible only with additional assumptions on the inhomogeneous terms $\varphi_i(t, x_1 \ldots x_n)$. Grobmann (Doklady Akad. Nauk 86, (1953) 1)

considered the systems

$\frac{dx}{dt} = Ax + \varphi$ and $\frac{d\bar{x}}{dt} = A\bar{x}$, where $x = (x_1 \ldots x_n)$ $\varphi = (\varphi_1 \ldots \varphi_n)$

and found the additional conditions for $\varphi_i(t, x_1 \ldots x_n)$ which are necessary in order that the form of the integral curves of both systems is asymptotically equivalent. These conditions consist in the fact that for the function $g(x)$, where

$$|\varphi(t,x) - \varphi(t,\bar{x})| \leq g(t) \cdot |x - \bar{x}| ,$$

a certain asymptotic behavior is demanded. If the system has negative characteristic exponents, then the integral curves are asymptotically equivalent if

$$|\varphi(t,x) - \varphi(t,\bar{x})| \leq \beta(r) \cdot |x - \bar{x}| , \quad \beta(r) \frac{k}{|\ln r|^{2m+1+\epsilon}} ,$$

where k and ϵ are certain positive numbers and m+1 is the maximal order of such submatrices which correspond to the roots with negative real parts, $r = \max \{|x|, |\bar{x}|\}$.

If the characteristic equation has roots being equal zero, then the behavior of the solutions is scarcely known. There remain to be mentioned the papers of J.Haag (Bull.Sci.Math. 40, (1946) No.1) and analogous results of Cestakov (Doklady Akad.Nauk 62, (1948) No.2; ibid. 62, (1948) No.5); Desisting from a complete qualitative investigation of the neigborhood of a singulary point

and only putting the question of stability, then the classical direct method of investigation is proved to be the best for the applications, e.g. Lurje and Eisermann, on the automatic control (Gostechizdat 1951 and 1952). From the theoretical standpoint the results of Massera (Ann. of Math. (1949)No.1) and Barbašin (Mat.Sbornik, n. Ser. 29, (1951) No.2) are interesting, who independent from another formulated the inversion of Liapunov's theorem on the asymptotic stability. Barbašin remarks: If a compact, connecting, invariant set F devides its sufficiently small niegborhood into not more than a finite number of parts and if at the same time it is an asymptotic set, then in a certain neighborhood of F there exists a continuous function v having a continuous derivative relative to the time in the region U, which satisfies the conditions $v > 0$ and $v'_t < 0$ and vanishes on F. The same conditions for v are sufficient for the stability. The qualitative investigations of the more-dimensional systems in the large are still in the initial state. Barbašin and Krasovskij (Doklady Akad. Nauk 86, (1952) No.3) give sufficient conditions for the stability in the large. The conditions are expressed by Liapunov functions. For special systems these functions are really constructed (Barbašin, Priklad. Mat.Mech. 16, (1952) No.5; Krasovskij, Priklad. Mat.Mech. 7, (1953) No.3).
In the question on the existence of periodic solutions the author refers to the book of Malkin "The methods of Liapuniv and Poincaré in the theory of non-linear oscillations" (Gostechizdat).

Uspechi mat. Nauk 9, 3, 39-56 (1954) CARD 8/14 PG - 110

Linear systems with variable coefficients.

For the treatment of linear systems with variable coefficients the comparison with other suitable systems is the most popular method. The best results in this domain are obtained by comparison with constant coefficients. A very good asymptotic formula is given by Grobmann (Doklady Akad. Nauk 86, (1953) 19-22). Let be

(1) $\frac{dx_i}{dt} = \sum_{j=1}^{n} a_{ij}(t)x_j$ $(i=1,2,\ldots,n)$ the given system

(2) $\frac{d\bar{x}_i}{dt} = \sum_{j=1}^{n} b_{ij}\bar{x}_j$ $(i=1,2,\ldots,n)$ the comparison system,

m_k+1 be th order of the greatest submatrix of the matrix $\{b_{ij}\}$ in Jordan's form and this order shall correspond to the eigenvalue of the matrix with the real part ω_k. Then from the condition

$$\int_{t_o}^{\infty} t^{2m_k} g(t)dt < \infty, \text{ where } g(t) = \|a_{ij}(t) - b_{ij}\|$$

there follows that the solutions of (2) which correspond to the roots of the characteristic equation with the real part ω_k, and the solutions of (1) which have the characteristic exponent ω_k, can be adjoined uniquely and continuous

one to another, where for corresponding solutions $|x-y| = O(e^{\omega_k t})$, i.e.: the solutions x have the asymptotic representation $x = y + O(e^{\omega_k t})$.
From this there follows the less exact asymptotic formula $x = y + O(|x|)$ for which according to Levi (Att.Acad.Lincei 8, (1950)No.9) the assumption holds $\int_{t_0}^{\infty} t^{\mu-1} g(t)dt < \infty$, where μ characterizes the magnitude of the maximal sub-matrix of the Jordan matrix.
An other asymptotic formula was found by Levinson (Duke Math.Journ. 15, (1948) 111-126) for the system $\frac{dx}{dt} = (A + \Phi + R)x$, where A is a constant matrix with different characteristic numbers, $\Phi = \Phi(t)$, where $\Phi_{ij} \to 0$ for $t \to \infty$ and $\int_{t_0}^{\infty} \left|\frac{d\Phi_{ij}}{dt}\right| dt < \infty$, where Φ_{ij} denote elements of Φ and the elements r_{ij} of $R = R(t)$ satisfy the condition $\int_{t_0}^{\infty} |r_{ij}(t)|\, dt < \infty$. If now the differences of the real parts satisfy certain limit conditions, then for large t there exist

n independent vectors $x^{(k)}(t)$ which are solutions of the given and of similar systems, if for $t \longrightarrow \infty$ $\int_{t_0}^{t} \lambda_k(t)\,dt$

$$x^k(t) \sim e^k e \qquad (k=1,2,\ldots n),$$

where λ_i are the roots of $|A - \Phi \quad \lambda E| = 0$ and the e^k are the eigenvectors of the matrix.

If the real parts of the roots of the characteristic equation $|A - \lambda E| = 0$ is equal zero, then the question of stability of the solutions of the system is unknown up to now. Remarkable is the paper of Demidovič (Doklady Akad.Nauk 81, (1950) No.6; Mat.Sbornik 28, (1951) No.3). He considers the system

$$\frac{ix}{dt} = Ax + \Phi(t)x$$

and for the vanishing root he seeks a "linear approximation" of the form

$$\varsigma_n^0(t) = \frac{1}{\sum_{i=1}^{n} A_{ij}} \sum_{i=1}^{n} \sum_{j=1}^{n} A_{ij} \varphi_{ij}(t),$$

where A_{ij} are the minors of the determinant of A and $\varphi_{ij}(t)$ are elements of the matrix $\Phi(t)$. Then under the assumption of a certain asymptotic behavior of the function $\varsigma_n^0(t)$, the author gives criteria of stability. A very strong

criterion of stability is established without proof by Gavrilov (Doklady Akad. Nauk 84, (1952) No.2). Let be given the system

$$\frac{dx_i}{dt} = \sum_k a_{ik}x_k + \sum_k \omega_{ik}(t)x_k ,$$

where a_{ik} are constants, $\omega_{ik}(t)$ continuous for $t \geq t_0$. If $i \geq k$, then $\omega_{ik}(t)$ are either absolutely integrable on $[t_0, \infty]$ or $\omega_k(t) \to 0$ for $t \to \infty$. If $i < k$, then $\omega_{ik}(t)$ are continuous and bounded for $t \geq t_0$. The matrix A is assumed in the Jordan's form. The trivial solution is stable in the Liapunov sense if:

either 1) λ_s is a multiple root of the characteristic equation, the order of the elementary divisor $l_s > 0$ and $\mathrm{Re}\,\lambda_s < 0$,

or 2) λ_s is a simple or multiple root, but $l_s = 1$ and $\mathrm{Re}\,\lambda_s \leq 0$, where in the case $\mathrm{Re}\,\lambda_s = 0$ additionally is assumed

a) $\int_{t_0}^{t} |\omega_{sk}(\tau)|\, d\tau < \infty$, where $k \neq s$

b) There exists a $N > 0$ such that $\int_{t_0}^{t} \omega_{ss}(\tau)d\tau < N$ for $t \geq t_0$.

If the matrix of the comparison system is variable, then the question of the stability is scarcely investigated. Also the question of the continuous change of the characteristic exponents for a continuous change of the coefficients of the system is not cleared. Vinograd (Doklady Akad. Nauk 91, (1953) No.5) has given an example that the characteristic exponents of a regulary system (even consisting of two equations) behave not continuously for a little change of the free terms.
All papers mentioned till now are using the comparison method. Another method is that of the coefficient criteria, i.e. in virtue of the nature of the coefficients of a linear system one judges on the qualitative properties of the solutions. In this range the last years have brought several new results and new methods. The author desists from the consideration of the systems with periodic coefficients and bounded solutions, because this would require a special treatise, but considers only the general methods of solution.
The papers of Gorbunov (Vestnik.Moskovsk. Univ. No.10 (1950), No.6 (1951), No.12 (1952)) are a further development of the second Liapunov method. Let be

1) $\frac{dx}{dt} = E(t)\cdot x$, where $x = \begin{pmatrix} x_1 \\ x_2 \\ \vdots \\ x_n \end{pmatrix}$, $E(t)$ a continuous quadratic matrix,

2) $G(t,x) = \sum_{i,k=1}^{n} a_{ik}(t)x_i x_k$, $a_{ik} = a_{ki}$ a given quadratic form

3) $g(t,x) = \frac{dG(t,x)}{dt}$, $M_g(t) = \max_{g(t,x)=1} g(t,x)$,

4) $A_n = \|a_{ij}\|$ the determinant of the coefficients of G

5) A_{n-1}^{s} the determinant which arises from A_n by striking out the s-th row and the s-th column.

Then the estimation

$$|x_s| \leq \left[G(t_o,x_o) \frac{A_{n-1}^{s}(t)}{A_n(t)} e^{\int_{t_o}^{t} M_g(\tau)d\tau} \right]^{\frac{1}{2}}$$

is valid. Gorbunov shows that this estimation is the best in a certain sense. For the non-homogeneous system $\frac{dy}{dx} = L(t)y+f(t)$ beside of the quadratic form $g(t,y) = y' \left[\frac{dA}{dt} + L'A+AL \right] y$ still the form $h(t,y)=f'Ay+y'Af=2 \sum_{jk=1}^{n} a_{jk}(t)y_i f_k$ is introduced. If then

NEMKEVICH, A.S., assistent

Analysing the construction of the typing mechanism of typewriters. Izv.vys.ucheb.zav.; mashinostr. no.1:24-29 '60. (MIRA 14:5)

1. Moskovskoye vysshoye tekhnicheskoye uchilishche imeni Baumana.
(Typewriters)

NEMKOVICH, A.S., assistant

Determining the law of motion of typewriter mechanisms.
Izv.vys.ucheb.zav.; mashinostr. no.5:26-30 '60.
(MIRA 13:7)

1. Moskovskoye vysshoye tekhnicheskoye uchilishche im. Baumana.
(Typewriters)

[redacted], M.N., podpolkovnik med. sluzhby; NOVIKOV, V.A., kapitan administrativnoy sluzhby.

Dark chamber for roentgenographic apparatus for daylight operation. Voen.-med.zhur. no.11:67-68 N '57. (MIRA 11:4)
(ROENTGENOGRAPHY, apparatus and instruments, dark chamber for daylight (Rus)

17(1) SOV/177-58-1-9/25

AUTHORS: Nemkin, M.N., Lieutenant-Colonel of the Medical Corps
Zdorovyak, B.I., Major of the Medical Corps

TITLE: The Problem of Periostites of the Tibia, Caused by Marching, in Soldiers (K voprosy o marshevykh periostitakh bol'shebertsovoy kosti u voyennosluzhashchikh)

PERIODICAL: Voyenno-meditsinskiy zhurnal, 1958, Nr 1, pp 35 - 39 (USSR)

ABSTRACT: The authors report on their observations of soldiers suffering from pathological changes of the tibia tela ossea, caused by load. They conclude, that "march" periostitis of the tibia is a variety of functional pathology of the sustentacular-kinetic apparatus and is to be found among young first year soldiers, usually after carrying heavy loads for a long time. Serious cases require hospitalization. X-ray investigations are the best way to control the pathologic development. Careful medical control during military and physical training may prevent

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The Problem of Periostites of the Tibia, Caused by Marching, in Soldiers

this kind of periostitis. There are 2 photographs.

NEMKIN, M.M., podpolkovnik meditsinskoy sluzhby

Apparatus for the production of soapsuds. Voen.-med.zhur. no.7:70-72 Jl '59. (MIRA 12:11)
(SOAPS)

SOV/133-59-2-4/28

AUTHORS: Gerasimov, G.I., Korablin, F.A., Nemkin, V.M. and Lednov, V.A.

TITLE: Operation of Iron Ladle Cars in the Blast Furnace Department of the Magnitogorsk Metallurgical Combine (Ekspluatatsiya chugunovoznykh kovshey v domennom tsekhe MMK)

PERIODICAL: Stal', 1959, Nr 2, pp 110-111 (USSR)

ABSTRACT: A comparison of the operation of two types of iron ladles: UZTM and Kling types with a spherical bottom and Bamag type with a flat bottom is compared. Main characteristics of the ladles are given in the table and fig.1. Service life of the flat ladle lining is on average 60 days during which 60,000 tons of iron is transported. Hot repairs of Bamag ladles present no difficulties. The lining wears out uniformly along the height of the ladle. The removal of worn lining can be done in 2 hours by one man using a crane (fig.2). Relining requires 6 man shifts. The service life of UZTM and Kling ladles is 40-45 days during which they transport 25-30,000 tons of iron. The lining

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Operation of Iron Ladle Cars in the Blast Furnace Department of the Magnitogorsk Metallurgical Combine

of these ladles errodes non-uniformly (with the train movement) due to the spherical bottom. The removal of the old lining requires 8 man shifts and the relining 24 man shifts. It is concluded that the Bamag type ladles are considerably more economical and easy in operation. The manufacture of flat bottom ladles with a conical top of a round cross-section is recommended. There is 1 table and 2 figures.

ASSOCIATION: Magnitogorskiy Metallurgicheskiy Kombinat (Magnitogorsk Metallurgical Institute)

NEMKOV, A.V.

SKRIPNIK, Ye.I.; NEMKOV, A.V.

Removing hydrogen sulfide from diesel fuels produced from sulfur-bearing oils. Khim i tekh. topl. i masel 3 no.3:53-56 Mr '58. (MIRA 11:3)

1.Kuybyshevskiy industrial'nyy institut.
(Diesel fuels) (Hydrogen sulfide)

L 42172-66 EWP(j)/EWT(m)/T RM/DJ

ACC NR: AR6014533 (N) SOURCE CODE: UR/0081/65/000/019/P022/P022

AUTHORS: Nemkov, A. V.; Kazanskiy, V. L.; Stepanenko, G. S.; Badyshtova, K. M. 41 8

TITLE: Preparation of a new viscosity additive

SOURCE: Ref. zh. Khimiya, Abs. 19P152

REF SOURCE: Tr. Kybyshevsk. n.-i. in-t neft. prom-sti, vyp. 25, 1964, 101-017

TOPIC TAGS: viscosity additive, lubricating oil, catalytic polymerization, industrial condition

ABSTRACT: Experiments (performed first under laboratory conditions and then in a factory—2 experimental runs) led to the development of an industrial process for polymerization of butane-butylene gaseous fraction from thermal cracking. The purpose of the work was to develop a viscosity additive of molecular weight ~ 3000 to lubricating oils. The optimal conditions for the polymerization of this fraction are: temperature -30C; pressure 0—2 atm; reaction time 7—9 hours; catalyst $AlCl_3$. Approximate characteristics of the process (based on the sum of unsaturated C_4) are: yield of the final product 70—80%, consumption of the catalyst 0.5—1.0%. A. N. [Translation of abstract]

SUB CODE: 11/

Card 1/1

NEMKOV, G.I.

The structure of the Arganaty anticlinorium as an example of intersection of Caledonian by Hercynian faults in central Kazakhstan. Biul.MOIP. Otd.geol. 28 no.2:16-31 '53. (MLRA 6:11)
(Kazakhstan--Folds (Geology)) (Folds (Geology)--Kazakhstan)

NEMKOV, G.I.

Dimorphism and the correct naming of species of large foraminifera of the family Nummulitidae. Biul.MOIP. Otd.geol. 29 no.3: 49-57 My-Je '54. (MLRA 7:8)
(Foraminifera, Fossil)

NENKOV, G. I.

USSR/Geology - Nummulites

Card 1/1 : Pub. 22 - 33/48

Author : Nenkov, G. I.

Title : Nummulites of the USSR and their stratigraphic distribution

Periodical : Dok. AN SSSR 97/5, 883-885, August 11, 1954

Abstract : Geological and stratigraphic data on the distribution of nummulite deposits found mostly in the south European part of the USSR. Table showing the types of nummulite deposits, is included. Twenty-seven references: 18-USSR; 7-Polish; 1-French and 1-German (1911-1954).

Institution : The S. Ordzhonikidze Geological-Exploration Institute, Moscow

Presented by : Academician N. S. Shatskiy, June 3, 1954

HEMKOV, G.I.

Systematics and morphology of nummulites. Biul.MOIP.Otd.geol. 30 no.1:97-98 Ja-F '55. (MLRA 8:5)
(Nummulites)

NEMKOV, G.I.; KHLOPONIN, K.L.

Age of the lower Menilite series in the Eastern Carpathians.
Dokl.AN SSSR 104 no.5:758-760 O '55. (MLRA 9:2)

1.Moskovskiy geologo-razvedochnyy institut imeni S.Ordzhonikidze.
Predstavleno akademikom N.S.Shatskim.
(Carpathian Mountains--Geology, Stratographic)

NEMKOV, G.I

15-1957-7-9024

Translation from: Referativnyy zhurnal, Geologiya, 1957, Nr 7, p 28 (USSR)

AUTHOR: Nemkov, G. I.

TITLE: The Morphological Peculiarities of Nummulites Shell Structure and Their Significance in Classification (Morfologicheskiye osobennosti stroyeniya rakoviny nummulitov i ikh znacheniye dlya sistematiki)

PERIODICAL: Tr. Mosk. geol. razved. in-ta, 1956, vol 29, pp 147-159

ABSTRACT: The external and internal structures of Nummulites shells are described in detail. Transverse sections of a shell are studied in order to determine genera. The genus Nummulites is characterized by involute walls and chambers, Assilina by evolute or partly evolute walls and involute chambers, and Operculina by evolute walls and chambers. In order to determine the species, it is necessary to study the peculiari-

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The Morphological Peculiarities of Nummulites Shell Structure and Their Significance in Classification (Cont.)

ties of the external structure on the shell surface and the internal structure in an equatorial section. The principal features of external structure studied for specific determination in Nummulites are the disposition of pillars--whether irregularly distributed on the shell surface or spirally arranged; covering the entire surface or concentrated in the central part; found on the septal filaments adjacent to them, or between them--and the nature and form of the septal filaments--radial, meandrine, or reticulate. Specific features to be observed in the internal structure are spiral walls--thick or thin, of uniform thickness everywhere, or thickening from the center toward the periphery--and the relations between the thickness of the spiral walls and the height of the spiral canal; the spirals themselves (straight or not, compressed or weak, uncoiled regularly or irregularly); the septa (their form, inclination, and thickness); the shape of the chamber (square, rectangular, rhombic, or crescent shaped);

15-1957-7-9024

The Morphological Peculiarities of Nummulites Shell Structure and Their Significance in Classification (Cont.)

and the size and form of the central and subsequent chambers (in the megaspheric generation).

Card 3/3

G. I. Nemkov

NEMKOV, G.I., kandidat geologo-mineralogicheskikh nauk.

Discovery of giant nummulites in Armenia. Priroda 45 no.8:108-109 Ag '56. (MLRA 9:9)

1.Moskovskiy geologo-razvedochnyy institut imeni S.Ordzhonikidze.
(Armenia--Nummulites)

GARETSKIY, R.G.; NEMKOV, G.I.

New outcrop of nummulitic beds at the northern coast of the Aral Sea. Dokl. AN SSSR 108 no.6:1141-1143 Je '56. (MLRA 9:10)

1. Institut geologicheskikh nauk Akademii nauk SSSR, Moskovskiy geologo-razvedochnyy institut imeni S.Ordzhonikidze. Predstavleno akademikom N.S. Shatskim.
(Aral Sea region--Nummulites)

NEMKOV, G.I.

Nummulites of the Pre-Paleogene. Biul.MOIP.Otd.geol. 32 no.1: 3-20 Ja-F '57. (MLRA 10:5)
(Nummulites)

AUTHORS: Nemkov, G. I., Khloponin, K. L. 20-114-6-45/54

TITLE: A Find of Paleocene Nummulites in the East Carpathians (Nakhodka paleotsenovykh nummulitov v Vostochnykh Karpatakh).

PERIODICAL: Doklady AN SSSR 1957, Vol. 114, Nr 6, pp. 1300-1301 (USSR)

ABSTRACT: The authors give a survey of the nummulites found in this region since 1884. In the year 1955 three nummulites of the species Nummulites solitarius de la Harpe were found in the village of Yaremche on the Prut river. A good exposure of the deposits of the Stryy-series exists there. It is represented by a thick flysh-mass; there are rhythmically alternating, dark-grey sandstones and argillites, laid in carinated folds. 40 m thick table-layers of sandstone and argillite are here deposited above the Stryy-series. Beside them several intermediate layers of sandstone whose lower part represents gravelite are deposited at the basis of the table layers. Beside numerous undefinable splinters of fossil fauna the above-mentioned three nummulites were found here. The stratigraphic position of the find is completely without doubt. Massive light-grey Paleocene sandstones of the Yamnenskaya-suite are deposited above the table-layers. This find of nummulites permits a conclusion a posteriori to the

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A Find of Paleocene Nummulites in the East Carpathians. 20-114-6-45/54

Paleocene age of the table layers. This species was described from the Yegipet Paleocene (of Egypt) (reference 6) and then again described (reference 7) from the Upper-Paleocene and the lower part of the Lower-Eocene of the Shweytsarskiye Al'py (Swiss Alps). The Yarenche-pieces are identical with the megaspherical form (reference 7). Thus the boundary between the Upper Cretaceous and the Paleogenic runs below the table layers. N. solitarius is the first Paleocene nummulite found in the East Carpathians in the region of the USSR. Finds from other regions are cited. Finally the authors give a diagnosis of the species under review together with figure 1. There are 1 figure and 11 references, 2 of which are Slavic.

ASSOCIATION: Moscow Geological-Exploring Institute imeni S. Ordzhonikidze, and Ukrainian Department of the Allunion Scientific Geological Research Institute for Petroleum (Moskovskiy geologo-razvedochnyy institut imeni S. Ordzhonikidze i Ukrainskoye otdeleniye Vsesoyuznogo nauchno-issledovatel'skogo geologicheskogo neftyanogo instituta).

PRESENTED: January 25, 1957, by N.S. Shatskiy, Member of the Academy.
SUBMITTED: January 12, 1957

Card 2/2

NEMKOV, G.I.; BARKHATOVA, N.N.

Study of nummulitic fauna in the U.S.S.R. [with summary in English].
Vest.LGU 13 no.12:49-56 '58. (MIRA 11:12)
(Nummulites)

NEMKOV, G.I.

Systematics of the family Nummulitidae. Trudy MGRI 33:79-88 '58.
(MIRA 12:12)
(Nummulites)

AUTHOR: Nemkov, G. I. SOV/2o-12o-5-47/67

TITLE: Unknown Genera of Big Foraminifera, Discovered in Paleogenic Deposits in the South of the USSR and Their Importance for Stratigraphy (O nakhodkakh v paleogenovykh otlozheniyakh yuga SSSR raneye ne izvestnykh rodov krupnykh foraminifer i ikh znachenii dlya stratigrafii)

PERIODICAL: Doklady Akademii nauk SSSR, Vol. 12o, Nr 5, pp. 1o99 - 11o2 (USSR), 1958

ABSTRACT: The representatives of the family of Nummulitidae are used for stratigraphic purposes since a long time. The finding of representatives of the genera of Grzybowskia, Operculinoides, Operculinella and Spiroclypeus considerably changed the hitherto suggested areas of distribution of the mentioned genera. This opens new possibilities for extensive stratigraphic correlations. A historical survey of the descriptions of the mentioned genera and their distribution is given (Refs 1-9, Fig 1). Grzybowskia and Spiroclypeus were found by the author in Southern Armenia (Armeniya), Operculinoides and Operculinella in Crimea (Krym). Some shells similar to the latter were found also in the Eocene of the northern part of the Caucasus (Kavkaz). It can be concluded from it that at present all known genera of Nummulitids

Card 1/3

Unknown Genera of Big Foraminifera, Discovered in Paleogenic Deposits in the South of the USSR and Their Importance for Stratigraphy

SOV/2o-12o-5-47/67

are found in the Paleogene of the USSR. Findings of the family of Lepidocyclininae are still more interesting. They were found by the author for the first time in the southern Donets (Donbass) basin. In conclusion the distribution of other genera of Foraminifera: Lepidocyclina, Pellatispira and Nummulites which are already known in the USSR is discussed. There are 1 figure and 11 references, 5 of which are Soviet.

ASSOCIATION: Moskovskiy geologo-razvedochnyy institut im. S.Ordzhonikidze (Moscow Institute of Geological Prospecting im. S.Ordzhonikidze)

PRESENTED: March 7, 1958, by N.S.Shatskiy, Member, Academy of Sciences, USSR

SUBMITTED: March 4, 1958

Card 2/3

Unknown Genera of Big Foraminifera, Discovered in Paleogenic Deposits in the South of the USSR and Their Importance for Stratigraphy SOV/20-120-5-47/67

1. Foraminifera--USSR 2. Geological time--Determination 3. Paleoecology

Card 3/3

NEMKOV, G.I.

Dimorphism of nummulites. Vop.mikropaleont. no.3:50-66 '60.
(MIRA 13:9)

1. Moskovskiy geologo-razvedochnyy institut im. S. Ordzhonikidze.

(Nummulites) (Dimorphism (Animals))

NEMKOV, G.I.; BARKHATOVA, N.N.

Nummulites, Assilina, and Operculina of the Crimea and their significance for zonal correlation of Eocene sediments. Izv. vys. ucheb. zav.; geol. i razv. 3 no.5:29-43 My '60. (MIRA 13:11)

1. Moskovskiy geologorazvedochnyy institut imeni S.Ordzhonikidze.
(Crimea--Foraminifera, Fossil)

NEMKOV, G.I.

Modern representatives of Nummulitidae and their way of life. Biul.MOIP.Otd.geol. 35 no.1:79-86 Ja-F '60. (MIRA 13:7)

(Nummulites)

NEMKOV, Georgiy Ivanovich; BARKHATOVA, Nina Nikolayevna; KUZNETSOV, S.S., prof., doktor geol.-miner.nauk, otv.red.; IONINA, I.N., red.izd-va; SOROKINA, V.A., tekhn.red.

[Nummulites, Assilina, and Operculina of the Crimea] Nummulity, assiliny i operkuliny Kryma. Moskva, Izd-vo Akad.nauk SSSR, 1961. 124 p. (Akademiia nauk SSSR. Geologicheskii muzei. Trudy, no.5) (MIRA 14:4)

(Crimea--Foraminifera, Fossil)

CHERNOVA, Ye.S.; NEMKOV, G.I.

First find of [illegible] in Eocene sediments of the Tajik Depression.
Izv.vys.ucheb.zav.;geol.i razv. 4 no.9:122-125 S '61. (MIRA 14:9)

1. Moskovskiy geologorazvedochnyy institut imeni S. Ordzhonikidze.
(Tajik Depression--Nummulites)

BONDAREVA, T.P.; NEMKOV, G.I.; SAMODUROV, V.I.

Age of the Tas-Aran series in the northern part of the Aral Sea region. Dokl. AN SSSR 140 no.4:892-894 O '61. (MIRA 14:9)

1. Geologicheskiy institut AN SSSR i Moskovskiy geologorazvedochnyy institut im. S.Ordzhonikidze. Predstavleno akademikom A.L. Yanshinym.

(Aral'sk region--Geology, Stratigraphic)

SOKOLOV-KOCHEGAROV, A.S.; KHASINA, G.I.; NEMKOV, G.I.

First find of Upper Senonian orbitoids in the Tajic Depression and its statigraphic importance. Izv.vys.ucheb.zav.; geol.i razv. 5 no.9:138-140 S '62. (MIRA 16:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut neftyanykh i gazovykh mestorozhdeniy i Moskovskiy geologorazvedochnyy institut im. S.Ordzhonikidze.
(Tajic Depression--Foraminifera, Fossil)

NEMKOV, G.I.

A few notes on the paleoecology of nummulites.
Vop. mikropaleont. no.6:64-72 '62. (MIRA 15:11)

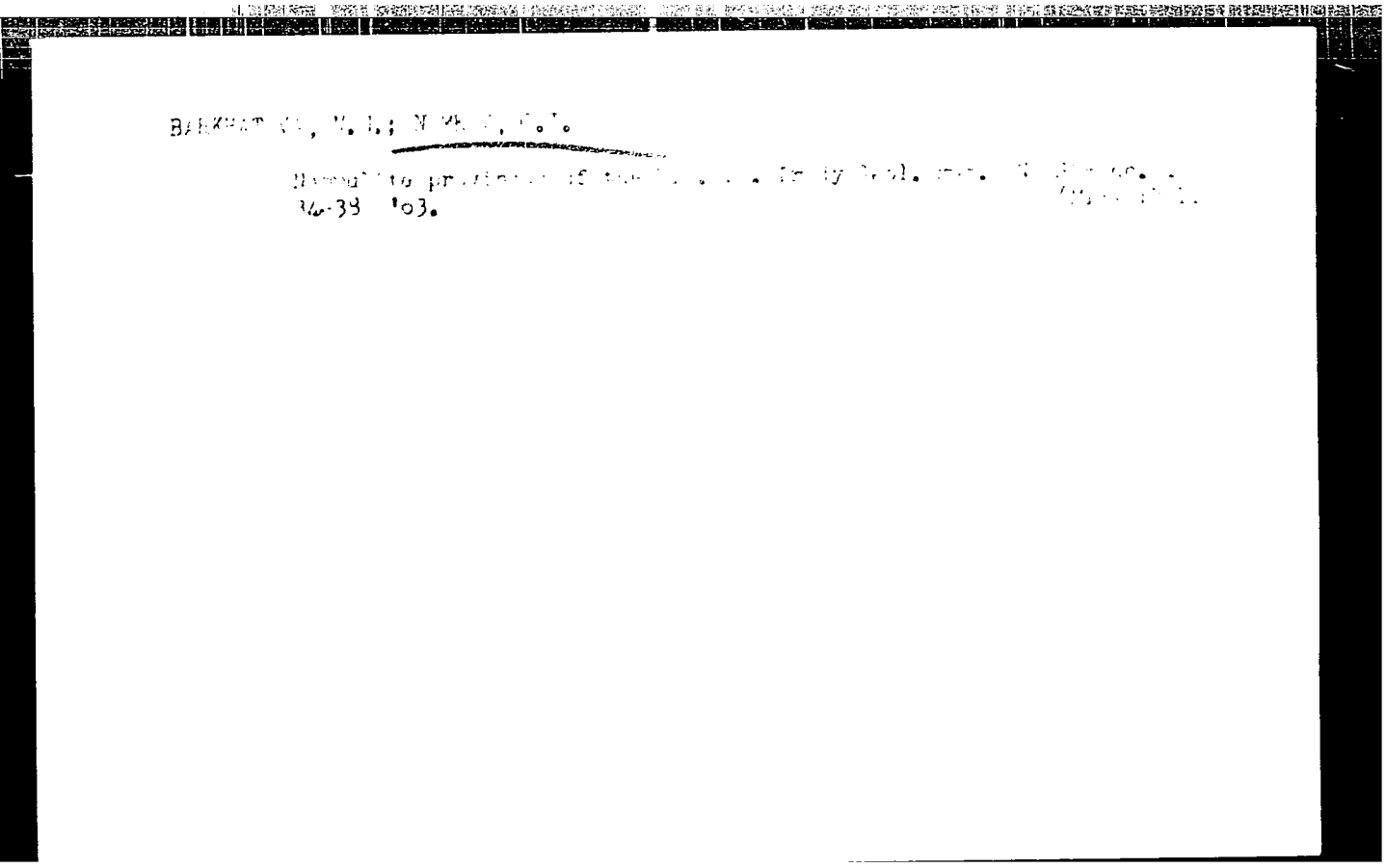
1. Moskovskiy geologorazvedochnyy institut imeni S. Ordzhonikidze.
(Nummulites) (Paleoecology)

NEMKOV G. I.

Dissertation defended in the Geological Institute for the academic degree of Doctor of Geologo-Mineralogical Sciences:

"Nummulites of the Soviet Union and Their Biostratigraphic Significance."

Vestnik Akad Nauk, No. 4, 1963, pp. 119-145



BARKHATOVA, N.N.; NEMKOV, G.I.

Paleocene nummulites of the Mangyshlak Peninsula. Izv. vys. ucheb. zav.; geol. i razv. 7 no.4:48-50 Ap '64. (MIRA 18:3)

1. Moskovskiy geologorazvedochnyy institut im. S.Ordzhonikidze i Geologicheskiy muzey AN SSSR im. A.P. Karpinskogo.

BARKHATOVA, N.N.; NEMKOV, G.I.

Zones of larger foraminifers in the Eocene sediments of the Mangyshlak Peninsula. Dokl. AN SSSR 155 no. 3:549-551 Mr '64. (MIRA 17:5)

1. Laboratoriya geologii dokembriya AN SSSR. Predstavleno akademikom D.V.Nalivkinym.

BARKHATOVA, Nina Nikolayevna; NEMKOV, Georgiy Ivanovich; KUZNETSOV, S.S., doktor geol.-miner.nauk, prof., otv.red.

[Large Foraminifera of the Mangyshlak Peninsula and the northern part of the Aral Sea region and their stratigraphic significance] Krupnye foraminifery Mangyshlaka i Severnogo Priaral'ia i ikh stratigraficheskoe znachenie. Leningrad, Nauka, 1965. 95 p. (MIRA 18:4)

PODSHIVALENKO, P.D.; BALIKHIN, M.I.; BASHINSKIY, S.V.; IVANOV, N.A.; KACHALOV, N.N.; MEMKOV, G.P.; CHUFRIYEV, I.A.; PERESLEGIN, V.I.; RUMYANTSEV, A.F.; RUSAKOV, A.N.; SEMENOV, I.Ya.; STOMAKHIN, I.B.; FILIPPOV, V.F. Prinimal uchastiye VINOGRADOV, K.K. PODGOENOVA, V., red.; TROYANOVSKAYA, N., tekhn.red.

[Construction economics; textbook] Ekonomika stroitel'stva; uchebnoe posobie. Moskva, Gos.izd-vo polit.lit-ry, 1960. 534 p. (MIRA 14:1)

1. Kommunisticheskaya partiya Sovetskogo Soyuza. Vysshaya partiynaya shkola. 2. Chlen kollegii TSentral'nogo statisticheskogo upravleniya SSSR (for Vinogradov).
(Construction industry)

PODSHIVALENKO, P.D.; BALIKHIN, M.I.; BASHINSKIY, S.V.[deceased]; IVANOV, N.A.; KACHALOV, N.N.; NEMKOV, G.P.; ONUFRIYEV, I.S.; PERESLEGIN, V.I.; RUMYANTSEV, A.F.; RUSAKOV, A.N.; SEMENOV, I.Ya.; STOMAKHIN, I.B.; FILIPPOV, V.F.; PODGORNOVA, V., red.; TROYANOVSKAYA, N., tekhn. red.

[Economics of construction]Ekonomika stroitel'stva; uchebnik. Moskva, Gospolitizdat, 1962. 542 p. (MIRA 15:11)

1. Kommunisticheskaya partiya Sovetskogo Soyuza. Vysshaya partiynaya shkola.

(Construction industry)

PODSHIVALENKO, P.D.; BALIKHIN, M.I.; BASHINSKIY, S.V.[deceased]; IVANOV, N.A.; KACHALOV, N.N.; NEMKOV, G.P.; ONUFRIYEV, I.A.; PERESLEGIN, V.I.; RUMYANTSEV, A.F.; RUSAKOV, A.N.; SEMENOV, I.Ya.; STOMAKHIN, I.B.; FILIPPOV, V.F.;

[Economics of construction; a textbook] Ekonomika stroitel'stva; uchebnik. Moskva, Politizdat, 1964. 542 p. (MIRA 18:8)

1. Kommunisticheskaya Partiya Sovetskogo Soyuza. Vysshaya Partiynaya shkola.

NEMKOV, L. S.

AUTHOR: Nemkov, L.S., Engr Lt

86-12-23/29

TITLE: Elimination of Errors in Direction Finding (Ustraneniye oshibok v pelengovanii)

PERIODICAL: Vestnik Vozdushnogo Flota, 1957, Nr 12, pp. 77-78 (USSR)

ABSTRACT: The author in this article describes briefly why a 180° error is possible when taking bearings on a homing or broadcasting stations with the aid of the radio compass, and how to prevent such an error.

AVAILABLE: Library of Congress

Card 1/1

NEMKOV, P.

The productivity of meat combines is increasing. Mias.ind.SSSR 26 no.4:22 '55. (MLRA 8:10)

1. Glavnyy inzhener Kuybyshevskogo myasokombinata
(Kuybyshev--Packing houses)

NEMKOV, P.

We are increasing the output of our meat combine. Mias.ind.SSSR 27 no.3:37 '56. (MLRA 9:9)

1.Glavnyy inzhener Kuybyshevskogo myasokombinata.
(Kuybyshev--Packing houses)

LEMKOV, P.

Stepping up the increase of the productive capacity of enterprises.
Mias.ind.SSSR 33 no.2:24-25 '62. (MIRA 15:5)

1. Kuybyshevskiy Sovet narodnogo khozyaystva.
(Kuybyshev Province--Meat industry)

NEMKOV, P.P., inzhener.

Applying the method of isothermal annealing of cast iron in ship repairs. Trudy TSNIIMF no.28:60-72 '54. (MLRA 9:1)

(Ships--Maintenance and repair) (Cast iron--Heat treatment)

NEMKOV, P. P.

Nemkov, P. P. -- "Investigation of Certain Questions of the Isothermic Treatment of Cast Iron Parts of Ship Mechanisms." Min River Fleet USSR, Leningrad Inst of Engineers of Water Transport, Leningrad, 1955 (Dissertation for the Degree of Candidate in Technical Sciences)

SO: Knizhnaya Letopis', No. 23, Moscow, Jun 55, pp 87-104

NEMKOV, P.P., starshiy nauchnyy sotrudnik.

Isothermal tempering of cast iron parts for ship repairs.
Rech. transp. 15 no.2:19-21 F '56. (MLRA 9:6)

1. Tsentral'nyy nauchno-issledovatel'skiy institut rechnogo flota.
(Ships--Maintenance and repair)(Cast iron--Heat treatment)

— MELKOV

PHASE I BOOK EXPLOITATION SOV/5053

Vsesoyuznaya konferentsiya po treniyu i iznosu v mashinakh. 3d, 1958.

Iznos i iznosostoykost'. Antifrikstionnyye materialy (Wear and Wear Resistance. Antifriction Materials) Moscow, Izd-vo AN SSSR, 1960. 273 p. Errata slip inserted. 3,500 copies printed. (Series: Its: Trudy, v. 1)

Sponsoring Agency: Akademiya nauk SSSR. Institut mashinovedeniya.
Resp. Ed.: M. M. Khrushchov, Professor; Eds. of Publishing House: M. Ya. Yelkanov, and S. L. Orpik; Tech. Ed.: T. V. Polyakova.

PURPOSE: This collection of articles is intended for practicing engineers and research scientists.

COVERAGE: The collection, published by the Institut mashinovedeniya, AN SSSR (Institute of Science of Machines, Academy of Sciences USSR) contains papers presented at the III Vsesoyuznaya Konferentsiya po treniyu i iznosu v mashinakh (Third All-Union Conference on Friction and Wear in Machines) which was held April 9-15, 1958. Problems discussed were in 5 main areas: 1) Hydrodynamic Theory of Lubrication and Friction Bearings (Chairman: Ye. R. Out'yar, Doctor of Technical Sciences, and A. K. D'yachkov, Doctor of Technical Sciences); 2) Lubrication and Lubricant Materials (Chairman: G. V. Vinogradov, Doctor of Chemical Sciences); 3) Dry and Boundary Friction (Chairman: B. V. Deryagin, Corresponding Member of the Academy of Sciences USSR, and I. V. Kragel'skiy, Doctor of Technical Sciences); 4) Wear and Wear Resistance (Chairman: M. M. Khrushchov, Doctor of Technical Sciences); and 5) Friction and Antifriction Materials (Chairmen: I. V. Kragel'skiy, Doctor of Technical Sciences, and M. M. Khrushchov, Doctor of Technical Sciences). Chairman of the general assembly (on the first and last day of the conference) was Academician A. A. Blagonravov. L. Ts. Pushanskiy, Candidate of Technical Sciences, was scientific secretary. The transactions of the conference were published in 3 volumes, of which the present volume is the first. This volume contains articles concerning the wear and wear resistance of antifriction materials. Among the topics covered are: modern developments in the theory and experimental science of wear resistance of materials, specific data on the wear resistance of various combinations of materials, methods for increasing the wear resistance of certain materials, the effects of friction and wear on the structure of materials, the mechanics of the mixing of metals, the effect of various types of lubricating materials on mixing, abrasive wear of a wide variety of materials and components under many different conditions, modern developments in antifriction materials, and the effects of finish machining on wear resistance. Many personalities are mentioned in the text. References accompany most of the articles.

TABLE OF CONTENTS:

Bykov, P. P. Increasing the Wear Resistance of Cast-Iron Machine Components by Means of Isothermal Tempering 12

Polotnik, L. S., I. M. Lyubarskiy, and A. P. Krubchenko. Some Problems in the Physics of Metal Wear 46

Kaye, G. A. Investigation of the Wear Resistance of Steels, Bronze, and Highly Durable Cast Iron 53

Tronikov, A. S. Fundamental Problems in the Calculation and Design of Long-Life Machines 63

Savitskiy, K. V. On the Laws of Plastic Deformation in the Case of Friction of Metals 70

Sukharina, N. N. Investigation of the Magnitude and Sign of Residual Stresses for Various Conditions of Friction 80

Zhuchuk, V. A. Investigation of the Effect of Residual Stresses of the First Kind on the Wear Resistance of 45 Steel 85

Card 5/13

NEMKOV, P.P., kand.tekhn.nauk; BELYAKOV, Ye.S., inzh.

Gas tempering of parts in ship repair. Trudy LIVT no.6: 49-53 '60. (MIRA 15:3)
(Tempering) (Ships--Maintenance and repair)

S 263 62 000 014 011 016
1007-1207

AUTHOR: Nemkov, P. P.

TITLE: The influence of the internal structure of cast iron, on the wear resistance of cylinder linears

PERIODICAL: Referativnyy zhurnal, otdel'nyy vypusk. 42. Silovyye ustanovki, no. 14, 1962, 50, abstract 42.14.298 (Tr. Leningr. in-ta vodn. transp., no. 22, 1961, 39-43)

TEXT: Basic factors of cylinder-liner wear in marine internal-combustion engines are discussed, technological methods for increasing wear resistance of cylinder liners are outlined, chemical composition of cast iron grades for cylinder liners of some i.c. engines is described, and the results of laboratory research at the Leningradskiy institut vodnogo transporta (Leningrad Institute of River Transportation) on improvement of wear resistance of cylinder liner cast iron are reported. The influence of alloying elements on the internal structure of cast iron and its wear resistance was studied. Wear resistant cast-iron for cylinder liners should have an alloyed and heat-treated metallic base, and a medium and large lamellar structure of the graphite component. There are 2 tables and 4 figures.

[Abstracter's note: Complete translation.]

Card 1/1

L 39967-66 EWT(d)/EWT(m)/EWP(c)/EWP(k)/T/EWP(w)/EWP(v)/EWP(t)/EWP(l)/ETI IJP(c)
ACC NR: AP6017072 (N) SOURCE CODE: UR/0310/65/000/012/0024/0026
RH/JD/DJ
AUTHOR: Nemkov, P. (Candidate of technical sciences)

ORG: None

TITLE: Increasing the endurance and reliability of repaired diesel engines

SOURCE: Rechnoy transport, no. 12, 1965, 24-26

TOPIC TAGS: engine reliability, diesel engine, marine engineering / NFD-36 diesel engine

ABSTRACT: The performance of marine diesel engines subjected to major overhauls is discussed on the basis of operational experience and investigations conducted on diesels of NFD-36 type. The effects of wear on the most affected parts (pistons, bushings, piston rings, pins, bolts, bearings, etc.) are examined. A careful treatment of these parts including surface grinding, polishing, nitriding, etc. is recommended in connection with improvements of lubricating system. The use of high-quality metals for piston rings, pistons and bushings is also recommended. In order to increase the resistance to friction and corrosion of cast-iron bushings, the addition of chromium, phosphorus, copper, titanium or molybdenum is suggested. Some tests conducted on river ships of Leningrad Irtysh, Volga, North-West and other river-ship agencies are mentioned. The discussion is illustrated by two graphs and two tables comparing the performance data before and after application of new improvements and ameliorations to diesel engines of the NFD-36 type. The maintenance and repair costs are also compared for different engine parts. Orig. art. has: 2 graphs and 2 tables.

SUB CODE: 13, 21/ SUBM DATE: None

UDC: 621.436.004.67

Card 1/1

L 21645-66 EWT(m)/EWP(j) RM (A) SOURCE CODE: UR/0191/65/000/011/0019/0021

ACC NR: AP6006540

AUTHOR: Nemkov, V. S.

ORG: none

TITLE: Manufacturing articles of polystyrene foam with high-frequency heating

SOURCE: Plasticheskiye massy, no. 11, 1965, 19-21

TOPIC TAGS: polystyrene, foam plastic, [illegible], dielectric loss

ABSTRACT: Methods for increasing the tangent of the dielectric loss angle in polystyrene foam are examined. The work was done to reduce the energy loss in reprocessing polystyrene with high-frequency heating. In the first method, pre-foamed granules are moistened with water. An electric field evaporates the water, and all granules are heated uniformly. The second method was developed by the American firm Dynaspan. In this method, additives that increase tan δ are introduced into the material of the granules during or after polymerization. The designs of molds are considered. The methods and equipment of various American, British, and German firms are discussed. Orig. art. has: 3 photographs.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 002/ OTH REF: 013

Card 1/1 UDC: 678.746.22.-496:678.027.77:621.365.52.029.45

KAMARDINKIN, N.P.; SHUVAYEV, A.S.; PALKIN, V.I.; NEMKOVA, A.S.; TARABAN'KO, P.I.; KHOLMSKIY, R.V.; GNIPP, L.V.; DOBASHIN, G.S.; FLEROVA, L.I.; MAKSIMOV, N.M.; RAFIYENKO, I.I.; PAL'MOV, I.I.; UVAROV, I.M.; DUBROVIN, P.Ye.; LIKHACHEVA, O.A.; UVAROVA, I.I.

Conference of the Teaching Staff and Students of the Moscow Geological Prospecting Institute. Izv. vys. ucheb. zav.; geol. i razv. 6 no.12:143-148 D '63 (MIRA 18:2)

KAMARDINKIN, N.P.; SHUVAYEV, A.S.; PALKIN, V.I.; NEMKOVA, A.S.; TARABAN'KO, P.I.; KHOLMSKIY, R.V.; GNIPP, L.V.; DOBASHIN, G.S.; FLEROVA, L.I.; MAKSIMOV, N.M.; RAFIYENKO, I.I.; PAL'MOV, I.I.; UVAROV, I.M.; DUBROVIN, P.Ye.; LIKHACHEVA, O.A.; UVAROVA, I.I.

Conference of the Teaching Staff and Students of the Moscow Geological Prospecting Institute. Izv. vys.ucheb.zav.; geol. i razv. 6 no.12:143-148 D '63. (MIRA 18:2)

VATAZHIN, A.B.; NEMKOVA, N.G. (Moscow):

"Integral characteristics of the magneto-hydrodynamic generator with non-conductive baffle plates".

report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow, 29 January - 5 February 1964.

ACCESSION NR: AP4034270 S/0207/64/000/002/0040/0049

AUTHORS: Vatazhin, A. B. (Moscow); Nemkova, N. G. (Moscow)

TITLE: Two dimensional problems on the distribution of electrical current in the channel of a magnetohydrodynamic generator with nonconductive barriers

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 2, 1964, 40-49

TOPIC TAGS: electric current distribution, magnetohydrodynamic generator, nonconductive barrier, eddy current, power loss, electrolytic bath, magnetic field intensity, homogeneous magnetic field

ABSTRACT: The authors study the problem of decreasing loss of effectiveness in a generator and loss of generated power by introducing nonconductive barriers in the channel of the generator to prevent spreading out of the current outside the electrode zone. G. W. Sutton has obtained analytic solutions for certain special cases of distribution of the barriers. Simulation of the channel of a generator in an electrolytic bath has been used by others to show that the introduction of barriers is unsuitable if the magnetic field is homogeneous over the entire length of the channel. The authors of the present work show that the problem of deter-

Card 1/2

ACCESSION NR: AP4034270

mining the characteristics of a generator with nonconductive barriers for the homogeneous magnetic field case (and for the case of a field concentrated only in the electrode zone) can be reduced to the following problem: to determine the current penetrating through the channel as a result of applying the differences of potentials to the electrodes when the velocity of the medium and the magnetic field intensity are equal to zero. The problem is simulated in an electrolytic bath. The authors study conditions under which the analytic solution of this problem for a channel with barriers can be constructed with the help of simple solutions of the problem for channels without barriers. Orig. art. has: 7 figures and 36 formulas.

ASSOCIATION: none

SUBMITTED: 07Jan64 DATE ACQ: 15May64 ENCL: 00

SUB CODE: EE NO REF SOV: 008 OTHER: 002

Card 2/2

MUSTAFIN, I.S.; NEMKOVA, N.K.

Replacing uranyl nitrate by naphthol yellow in the standard determination of oxidability of commercial ethyl alcohol. Zhur. anal. khim. 16 no.2:255 Mr-Ap '61. (MIRA 14:5)

1. Saratov State University.
(Ethyl alcohol)
(Oxidation)

L 43003-65 EWT(m)/EPF(c)/T Pr-4 WE UR/0065/65/000/004/0031/0035 32
ACCESSION NR: AP5009893 31
B

AUTHOR: Medem, V. M.; Barmenkov, Ya. P.; Nazarov, I. I.; Shevtsov, D. A.; Nemkova, M. G.

TITLE: Biochemical oxidation of petroleum fractions

SOURCE: Khimiya i tekhnologiya topliv i masel, no. 4, 1965, 31-35

TOPIC TAGS: biochemistry, oxidation, bacteria, hydrocarbon, bacteriology, protein, petroleum refinery product

ABSTRACT: The biochemical oxidation of petroleum hydrocarbons with the dual result of dewaxing and producing bacterial protein has been studied in a joint effort by the Orsk Refinery and the Department of Biological and Organic Chemistry of the Orenburg Agricultural Institute. The bacterial species used (unidentified), which actively assimilate petroleum hydrocarbons, had been cultivated since 1951. The petroleum hydrocarbon feed stocks were spindle oil distillates from Emba and Shkapovo crudes, petrolatum, and diesel-fuel-type fractions. The experiments were conducted as a continuous or semicontinuous process in the apparatus shown in Fig. 1, and optimum process conditions were determined.

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L 43003-65
ACCESSION NR: AP5009898

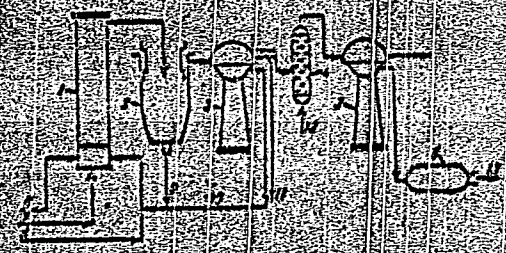


Fig. 1. Laboratory apparatus for biochemical oxidation

1 - Oxidation apparatus; 2 - settling tank; 3 - centrifuges; 4 - extraction column; 5 - dryer; 6 - petroleum feedstock; 7 - air; 8 - nutrient solution of K_2HPO_4, KH_2PO_4, KNO_3, $NaNO_3$, and NH_4Cl; 9 and 10 - nutrient solution recycle; 11 - oxidized petroleum; 12 - solvent; 13 - dry bacterial protein.

Card 2/3

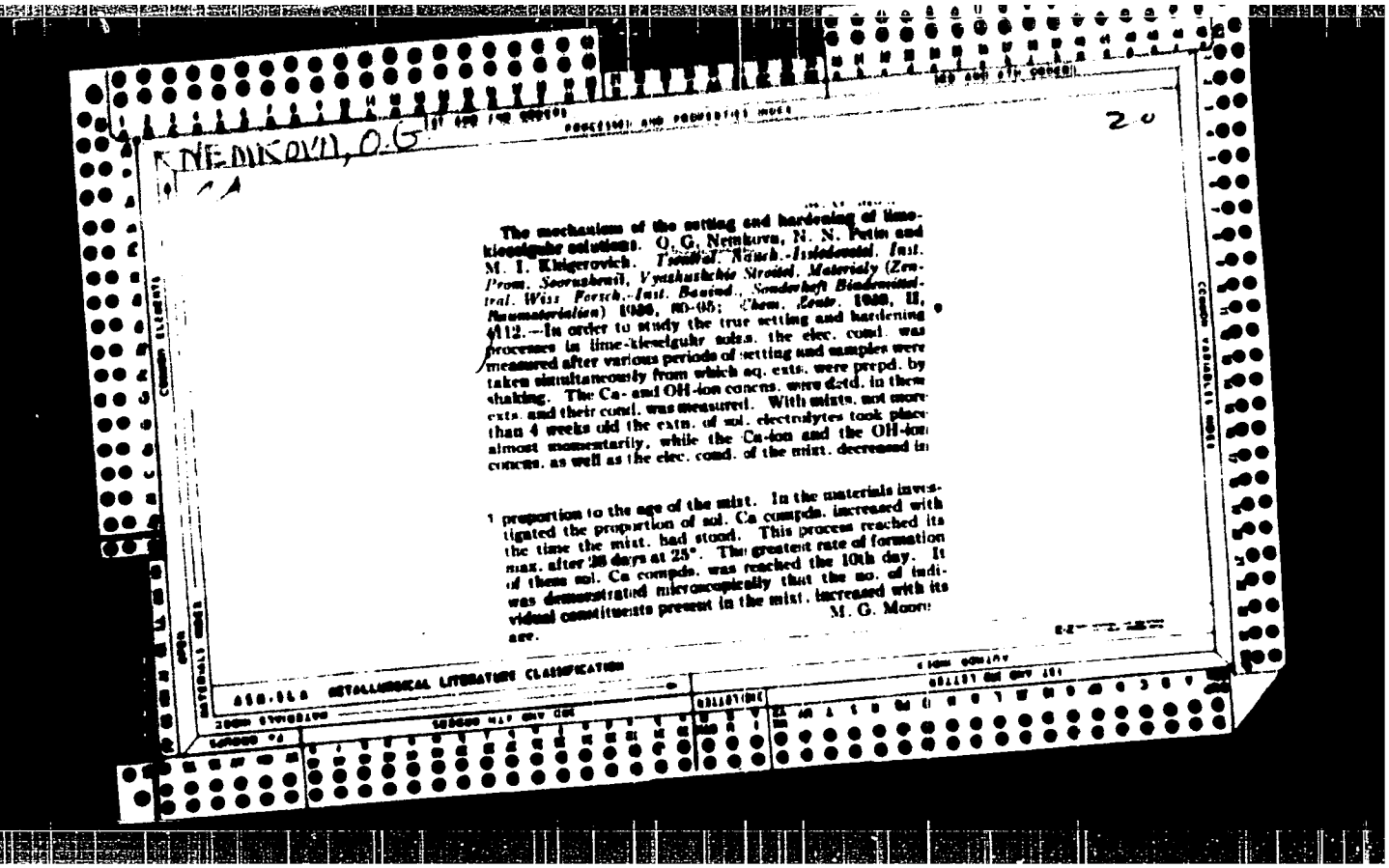
L 43003-65
ACCESSION NR: AP5009898

The criterion used for the biochemical oxidation rate was the change of the hydrocarbon pour point. The results of bacterial dewaxing are presented in tabular and graphic form. For example, the pour point of an Emba petroleum distillate dropped from +18 to -48° C and the percentage of paraffins at -40°C decreased from 12.6 to 0.8% after bacterial oxidation for 72 hr at 23°C and pH 7.1. The composition of the bacterial protein end-product was highly dependent on the species of bacteria, the feed stock, and the process conditions. Study of the composition of a number of bacterial samples revealed a 44.3—52.5% protein content. Determination by paper chromatography of the amino acid composition of the protein in the sample containing 52.5% protein showed that bacterial protein cultivated on a petroleum medium contains the same amino acids as animal or plant protein. Moreover, the bacterial protein contained more of the proteins essential to nutrition than cereal protein does (although less than animal protein). The authors conclude that biochemical oxidation of petroleum hydrocarbons has dual potential applications: 1) petroleum product dewaxing; 2) production of bacterial protein suitable as a livestock food supplement. Orig. art. has 3 figures, 1 graph, and 4 tables.

ASSOCIATION: Orskiy NPZ

SUBMITTED: 00 ENCL: 00 SUB CODE: FP, LS

NO REF SOV: 005 CARD 3/3 OTHER: 001 ATD PRESS: 3235-F



NEMIROVI, O.G

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The mechanism of the setting and hardening of lime-kieselguhr solutions. O. G. Nemkova, N. N. Petin and M. I. Khigerovich. *Tsentral. Nauch.-Issledovatel. Inst. Prom. Sooruzhenii, Vyzshushchie Stroitel. Materialy (Zentral. Wiss. Forsch.-Inst. Bauind., Sonderheft Bindemittel-Baumaterialien)* 1930, 80-95; *Chem. Zentr.* 1930, II, 4112.—In order to study the true setting and hardening processes in lime-kieselguhr solns. the elec. cond. was measured after various periods of setting and samples were taken simultaneously from which aq. exts. were prepd. by shaking. The Ca- and OH-ion concns. were detd. in these exts. and their cond. was measured. With mixts. not more than 4 weeks old the extn. of sol. electrolytes took place almost momentarily, while the Ca-ion and the OH-ion concns. as well as the elec. cond. of the mixt. decreased in proportion to the age of the mixt. In the materials investigated the proportion of sol. Ca compds. increased with the time the mixt. had stood. This process reached its max. after 28 days at 25°. The greatest rate of formation of these sol. Ca compds. was reached the 10th day. It was demonstrated microscopically that the no. of individual constituents present in the mixt. increased with its age.

M. G. Moore