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L 06193-67 EWT(m)/EWP(t)/FPI/EWI(k) IJP(c) JD/HW/...
ACC NR: AP6032200

AUTHOR: Yudovich, S. Z.; Abramov, V. V.; Sypko, A. V.; Frantsov, V. P.; Travinin, V. I.; Borisenko, I. G.

ORG: none

TITLE: Forgeability of heat-resistant DI-1 stainless steel

SOURCE: Stal', no. 10, 1966, 947

TOPIC TAGS: PHASE COMPOSITION, heat resistant steel, stainless steel, martensitic steel, chromium nickel molybdenum steel, steel forging /DI-1 stainless steel

ABSTRACT: The forgeability of heat-resistant DI-1 stainless steel is affected by the following factors: chemical composition, amount of impurities, microstructure, surface condition of the ingot and phase composition. The decisive factor, however, was found to be the alpha-phase content. The amount of α-phase at 1200C varies between 3 and 8% (depending on the holding time) and between 9—20% at 1250C. The α-phase content affects negatively the elongation and reduction of area. To improve forgeability, the heating of ingots from 900C to 1200C should be done as fast as possible, the holding time at 1200C should not be less than 3 min per cm of cross section, and the absolute reduction should not be more than 25—30 mm per pass. The best chemical

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ACC NR: AP6032200

composition was established as follows: carbon 0.19—0.21%, manganese 0.33—0.38%, silicon 0.22—0.30%, chromium 15.0—15.5%. Orig. art. has: 2 figures.

SUB CODE: 11,13/ SUBM DATE: none/ ORIG REF: 001

Card 2/2 afs

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"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

YUDOVICH, V.G.; KHLEBORODOV, A.D.; SOLONEVICH, Ye.A.; VEYTS, V.L.; PANOV, F.S.; BELYAYEV, A.N.; ALAD'IN, O.I.; OSIPOV, V.F.; VOROB'YEV, A.I.; PROKOF'YEV, Yu.V.; SOLOV'YEV, Yu.A.; KUZ'MIN, A.V.; ZHIDONIS, V.Yu.; ZOLIN, A.V.; YATSUK, Ye.P.; DOBROSLAVSKIY, V.L.; TROFIMOV, Ye.N.; DRYAGIN, Ye.R.; KOROLEV, V.F.; KERIMOV, N.B.; KRAVCHENKO, A.S.; RYVLIN, V.A.; GURCHENKO, A.P.; KRUGLIKOV, T.P.; CHERNYAKOV, F.A.; ARKHIPOV, N.K.

Authors' certificates and patents. Mashinostroenie no.1:101-103 Ja-F '65. (MIRA 18:4)

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YUDOVICH, V.I.

40-4-10/24

AUTHOR: VOROVICH, I.I., YUDOVICH, V.I. (Rostov-na-Donu)

TITLE: The Impact of a Round Disk Upon a Liquid of Finite Depth (Udar kruglogo diska o zhidkost' konechnoy glubiny).

PERIODICAL: Prikladnaya Mat.i Mekh., 1957, Vol.21, Nr 4, pp.525-532 (USSR)

ABSTRACT: With the aid of the Fourier method and under application of the contracting mappings the authors investigate the impact of a round disk of radius a upon a resting ideal liquid of depth h. From the obtained relations it follows that for vertical impact the influence of the finite depth can be neglected and it must be set $h=\infty$, if $h \geqslant 1{,}1a$. The error in the determination of the maximum pressure etc. remains below 6% in this case. If $z=0$ is the free surface, $a=1$, the density $\rho=1$, U the velocity of the disk, φ the velocity potential of the liquid particles, then it is e.g.:

$$-\varphi\Big|_{\substack{z=0\\ r\leq 1}} = \frac{2U}{\pi}\left[1 + \frac{S_3}{3\pi}\frac{1}{h^3} - \frac{S_5}{45\pi}(7+5r^2)\frac{1}{h^5} + \frac{S_3^2}{9\pi^2}\frac{1}{h^6} + \frac{S_7}{210\pi}(17+21r^2+7r^4)\frac{1}{h^7} + \dots\right]\sqrt{1-r^2}$$

CARD 1/1

SUBMITTED: November 9, 1956

AVAILABLE: Library of Congress

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"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

10(2)

AUTHORS: Vorovich, I. I., Yudovich, V. I. SOV/20-124-3-13/67

TITLE: The Steady Flow of a Viscous Fluid (Statsionarnoye techeniye vyazkoy zhidkosti)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 124, Nr 3, pp 542-545 (USSR)

ABSTRACT: The authors investigate a steady laminary flow of a viscous fluid within a certain range Ω. This problem is reduced to determining the velocity vector $\vec{v}(x)$ from the equations $\varkappa\vec{v} = \nu\Delta\vec{v} - (\vec{v},\nabla)\vec{v} + \vec{F} = (1/\rho)\nabla p$ $((\nu,\rho) = \text{const} > 0)$; $\operatorname{div}\vec{v} = 0$, $\vec{v}|_S = \vec{b}$. Here $\vec{F}$ and $\vec{b}$ are given vectors, and x is a point of the range Ω. The present paper deals with the differential properties of the solution within a closed range and with the rate of convergence of the Galerkin-method. For the given problem the authors introduce a generalized solution, prove herefore a theorem of existence, and show that there exists an arbitrary number of continuous derivatives in the closed range if the limit of the range and the right sides of the equations are sufficiently smooth. A theorem of existence is obtained especially for the classical solution, but without the use

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The Steady Flow of a Viscous Fluid SOV/20-124-3-13/67

of estimates for Green's tensor of the corresponding linear problem. There are 5 references, 4 of which are Soviet.

ASSOCIATION: Rostov-na-Donu gosudarstvennyy universitet (Rostov-na-Donu State University)

PRESENTED: September 20, 1958, by G. I. Petrov, Academician

SUBMITTED: September 20, 1958

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APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

YUDOVICH V. I. (Rostov-On-Don)

"The Bubnov-Galerkin's Method in Dynamics of a viscous incompressible fluid.

Report presented at the First All-Union Congress on Theoretical and Applied Mechanics, Moscow, 27-Jan - 3 Feb 60.

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67881

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S/020/60/130/06/010/059

AUTHOR: Yudovich, V.I.

TITLE: Periodic Motions of a Viscous Incompressible Fluid

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol 130, Nr 6, pp [illegible]

ABSTRACT: In the separable Hilbert space H the author considers the ordinary differential equation of first order

$$\frac{dx}{dt} + Ax + Kx = f ,$$

where $f(t + T) \equiv f(t)$, A is a symmetric positively definite operator not depending on the time, K is a non-linear operator not depending on the time. Under certain assumptions the [illegible] proves the existence of at least one generalized periodic solution with the period T. The result is used for the investigation of periodic motions of a viscous incompressible fluid. For the construction of the proved periodic solution (motion) the author proposes a modification of the method of Galerkin.

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Periodic Motions of a Viscous Incompressible Fluid S/020/60/130/06/010/050

The author mentions O.A.Ladyzhenskaya.
The paper was written under the leading of I.I Vorovich seminar on nonlinear problems of mechanics at the Rostov-na-Donu University.
There are 9 references, 7 of which are Soviet, 1 French, and 1 German.

ASSOCIATION: Rostovskiy-na-Donu gosudarstvennyy universitet (Rostov-na-Donu State University)

PRESENTED: November 5, 1959, by S.L.Sobolev, Academician

SUBMITTED: November 4, 1959

Card 2/2

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89725

S/020/60/136/003/008/027
B019/B056

16.7600

AUTHOR: ~~Yudovich, V. I.~~

TITLE: The Plane Unsteady Motion of an Ideal Incompressible Liquid

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 136, No. 3, pp. 564 - 567

TEXT: The author studied the existence of unique solutions of the Cauchy problem and of related problems, which hold for the entire time $t > 0$. He makes no assumptions concerning the smallness of the functions and parameters taking part in the problem. The solution of this problem results in determining the velocity vector $\vec{v}(x,t)$, and the pressure $p(x,t)$ from the system of equations

$$\vec{v}_t + (\vec{v},\nabla)\vec{v} = -\nabla p + \vec{F}(x,t) \qquad (1)$$

$$\operatorname{div}\vec{v} = 0 \qquad (2)$$

$$v_n|_S = \vec{v}\cdot\vec{n}|_S = 0 \qquad (3)$$

$$\vec{v}|_{t=0} = \vec{a}(x) \qquad (4)$$

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The Plane Unsteady Motion of an Ideal Incompressible Liquid

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The perturbation function $\psi(x,t)$ is determined with the relations $v_1 = \psi_{x_2}$ and $v_2 = -\psi_{x_1}$ (5) from the system

$$\Delta\psi_t + \psi_{x_2}\Delta\psi_{x_1} - \psi_{x_1}\Delta\psi_{x_2} = f(x,t); \psi|_S = 0; \text{ and}$$

$\psi|_{t=0} = \psi(x)$ (6). The existence and the uniqueness of ψ, which was determined from the above system, is proven by means of five lemmas, which are given and proven here. Thus, the author is able to show that the pressure $p(x,t)$ determined from (1), (5) and (6), is a finite function. The pair $\vec{v}(x,t) = (\psi_{x_2}, -\psi_{x_1})$ and $p(x,t)$ are called the generalized solution of the problem (1) - (4). Finally, a multiply connected definition range is taken into account, and the condition for the uniqueness of $p(x,t)$ is formulated. The solution of this condition is then obtained in an analogous manner. This paper was read at the All-Union Conference on Theoretical and Applied Mechanics in January 1960 at Moscow. There ar

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89725

The Plane Unsteady Motion of an Ideal Incompressible Liquid

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B019/B056

6 references: 3 Soviet, 1 German, and 1 French.

ASSOCIATION: Rostovskiy-na-Donu gosudarstvennyy universitet (Rostov-na-Donu State University)

SUBMITTED: April 23, 1960

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APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

YUDOVICH, V. I., Cand. Phys-Math. Sci. (diss) "Inv[illegible]
of Equations of Dinetric Flow of Ideal Non-Compressed Li[illegible]"
Moscow, 1961, 8 pp. (Moscow State Univ.) (KL Supp 1[illegible]-61, [illegible]

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22855

10 2010 Class 1109, 1121

S/039/61/053/004/001/002
C111/C222

AUTHORS: Vorovich, I.I., and Yudovich, V.I. (Rostov-na-Donu)

TITLE: Stationary flow of a tenacious incompressible fluid

PERIODICAL: Matematicheskiy sbornik, v.53, no.4, 1961, 393-428

TEXT: The main results of the paper are published in (Ref.14: I.I.Vorovich, and V.I.Yudovich, Statsionarnoye techeniya vyazkoy zhidkosti [Stationary flow of a tenacious fluid] DAN SSSR, v.126, no.3 (1959), 542-545).
The authors consider the stationary motion of a tenacious fluid in a bounded container. They investigate the dependence of the differential properties of the solutions on the smoothness of the initial data; furthermore the error is estimated which arises for the solution of the problem according to the method of Babnov-Galerkin. The existence of a generalized solution is proved under weaker assumptions than in (Ref.1: J.Leray, Étude de diverses équations intégrales non linéaires et de quelques problèmes que pose l'Hydrodynamique, Journ.Math.pures et appl., 9, no.12 (1933), 1-82).
The flow of an incompressible tenacious fluid in a region is described by

$$\nu\Delta\bar{v} = (\bar{v},\nabla)\bar{v} + \frac{1}{\rho}\nabla P + \bar{F}, \qquad (1.1)$$

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$$\operatorname{div} \bar{v} = 0, \tag{1.2}$$

where $\bar{v}$ -- velocity; P -- pressure; ν, ϱ -- positive constants, $\bar{F}$ -- non-potential part of the forces due to inertia. On the boundary S of the region Ω let

$$\bar{v}|_S = \bar{\alpha}, \tag{1.3}$$

where $\bar{\alpha}$ is a given vector.
Problem: Determine $\bar{v}$,P so that they satisfy (1.1)-(1.3).
Let the following assuptions be satisfied:
a) Ω -- bounded region of the 2- or 3-dimensional space; S consists of m closed surfaces $S_1, S_2, \ldots, S_m$ with a continuous curvature.
b) In Ω there exists a continuously differentiable solenoidal vector $\bar{a}$, where $\bar{a}$ is identical with $\bar{\alpha}$ on S.
c) On all S_k $(k=1,2,\ldots,m)$ it holds

$$\int_{S_k} \alpha_n dS = 0. \tag{1.4}$$

Functional spaces:
1) Hilbert space H_1 -- closure of the set of vectors being smooth and

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solenoidal in Ω which vanish in the neighborhood of S; the norm is generated by

$$(\bar{u}_1 \cdot \bar{u}_2)_{H_1} = \int_{\Omega} (\mathrm{rot}\ \bar{u}_1 \cdot \mathrm{rot}\ \bar{u}_2)\, d\Omega . \tag{1.7}$$

2) Space L_p of the vector functions $\bar{u}$ with the norm

$$\|\bar{u}\|_{L_p} = \left(\int_{\Omega} |\bar{u}|^p\, d\Omega\right)^{\frac{1}{p}}. \tag{1.8}$$

Let

d) $\bar{F} \in L_p$ ($p \geq \frac{6}{5}$ in the 3-dimensional case and $p > 1$ in the two-dimensional case).

Definition 1.1: A vector $\bar{v} = \bar{a} + \bar{u}$, where $\bar{u} \in H_1$ and

$$-\nu (\bar{u} \cdot \bar{\ })_{H_1} =$$

$$= \int_{\Omega} [(\bar{u}, \nabla)\bar{u} \cdot \bar{\Phi} + (\bar{u}, \nabla)\bar{a} \cdot \bar{\Phi} + (\bar{a}, \nabla)\bar{u} \cdot \bar{\Phi} + (\bar{a}, \nabla)\bar{a} \cdot \bar{\Phi} + \nu\, \mathrm{rot}\, \bar{a} \cdot \mathrm{rot}\, \bar{\Phi} + \bar{F} \cdot \bar{\Phi}]\, d\Omega \tag{1.10}$$

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is satisfied for an arbitrary $\bar{\Phi} \in H_1$ is called a generalized solution of (1.1)-(1.3).

Theorem 1: Under the assumptions a),b),c),d) the problem (1.1)-(1.3) has at least one generalized solution in the sense of the definition 1.1.

Let $\bar{a} \in W^{(2)}_{3/2}$, $\bar{F} \in L_{3/2}$. Then the vector $\bar{u}$ determined from (1.3) can be understood as a generalized solution of the linear boundary value problem

$$\nu \Delta \bar{u} = \frac{1}{\rho} \nabla P + T, \tag{2.1}$$

$$\operatorname{div} \bar{u} = 0, \tag{2.2}$$

$$\bar{u}|_S = 0, \tag{2.3}$$

where $\bar{T} = \bar{F} + (\bar{u}+\bar{a}, \nabla)(\bar{u}+\bar{a}) - \nu \Delta \bar{a} \in L_{3/2}$. The vector $\bar{u}$ satisfies

$$\nu \int_\Omega \operatorname{rot} \bar{u} \cdot \operatorname{rot} \bar{\Phi}\, dx = -\int_\Omega \bar{T} \cdot \bar{\Phi}\, dx \tag{2.4}$$

for every $\Phi \in H_1$.

Let the surface S be describable in the neighborhood of an arbitrary one

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of its points in the local coordinates by

$$x_3 = \varphi(x_1, x_2), \tag{2.6}$$

where φ shall have continuous k-th derivatives with respect to x_1, x_2. Then let S belong to the class $C^{(k)}$.

Theorem 2: If $\bar{T} \in L_p$ $(p \geqslant \frac{6}{5})$ and $S \in C^{(3)}$ then the vector $\bar{u}$ -- the generalized solution of (2.1)-(2.3) in the sense of (2.4), in the region Ω belongs to the class $W_p^{(2)}$ and it holds

$$\|\bar{u}\|_{W_p^{(2)}(\Omega)} \leqslant m \|\bar{T}\|_{L_p(\Omega)} \tag{2.7}$$

(m denotes a constant depending only on Ω and ν).

A function $p(x)$ given in the region ω belongs to the class $H(k,m,\lambda)$ if in $\bar{\omega}$ it has all derivatives of k-th order which here satisfy the Hölder condition with the exponent λ and the constant m. Let $B^{k,\lambda}$ be the space of functions of $H(k,m,\lambda)$ with the norm

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$$\|p\|_{B^{k,\lambda}} = \sum_{l=0}^{k} \sum_{n_1+n_2+n_3=l} \max \left| \frac{\partial^l p}{\partial x_1^{n_1} \partial x_2^{n_2} \partial x_3^{n_3}} \right| +$$

$$+ \sum_{n_1+n_2+n_3=\lambda} \sup \frac{\left| \frac{\partial^\lambda p(x)}{\partial x_1^{n_1} \partial x_2^{n_2} \partial x_3^{n_3}} - \frac{\partial^\lambda p(y)}{\partial y_1^{n_1} \partial y_2^{n_2} \partial y_3^{n_3}} \right|}{r_{xy}^\lambda} \qquad (3.1)$$

$$(x, y \in \bar{\omega}).$$

Let $S \in \Lambda_k(m, \lambda)$ if $\varphi(x_1, x_2)$ of (2.6) belongs to $H(k, m, \lambda)$, where k, m, λ are the same for all points of S.

Theorem 3: Let $\bar{F} \in B^{k,\lambda}$, $S \in \Lambda_{k+3}(m, \lambda)$, $k \geqslant 0$, $\bar{a} \in B^{k+2,\lambda}$. Then the generalized solution $\bar{v} = \bar{u} + \bar{a}$ of (1.1)-(1.3) belongs to $B^{k+2,\lambda}$ if $0 < \lambda < 1$ and it belongs to $B^{k+2,1-0}$ if $\lambda = 1$.

Let the operator K be defined by

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$$-\nu(K\bar{u}, \bar{\Phi})_{H_1} =$$

$$= \int_\Omega \left[(\bar{u}, \nabla)\bar{u}\cdot\bar{\Phi} + (\bar{u}, \nabla)\bar{a}\cdot\bar{\Phi} + (\bar{a}, \nabla)\bar{u}\cdot\bar{\Phi} + (\bar{a}, \nabla)\bar{a}\cdot\bar{\Phi} + \nu \operatorname{rot}\bar{a}\cdot\operatorname{rot}\bar{\Phi} + \bar{F}\cdot\bar{\Phi}\right] d\Omega. \quad (1.11)$$

Theorem 4: Let all assumptions of theorem 1 be satisfied; $\bar{\varphi}_k \in W_2^{(2)}$ form a base in H_1. The approximate solution of (1.1)-(1.3) is sought with the arrangement

$$\bar{v}_n = \bar{a} + \bar{u}_n, \quad \bar{u}_n = \sum_{k=1}^{n} \lambda_{kn}\bar{\varphi}_k(x), \quad (4.1)$$

where λ_{kn} are calculated from

$$\int_\Omega L\,\bar{v}_n\cdot\bar{\varphi}_k(x)dx = \int_\Omega \bar{F}\cdot\bar{\varphi}_k dx \qquad (k=1,2,\ldots,n). \quad (4.2)$$

Then it holds: 1) For every n the system (4.2) has at least one real solution. 2) The set $\{\bar{u}_n\}$ lies in a sphere and is strongly compact, where every weakly converging sequence of $\{\bar{u}_n\}$ converges strongly. 3) If $\bar{u}_o$ is an accumulation point of $\{\bar{u}_n\}$ in H then $\bar{v} = \bar{a}+\bar{u}_o$ is a generalized solution of (1.1)-(1.3). 4) Every isolated solution $\bar{u}_o$ of

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Stationary flow... S/039/61/053/004/001/002
C111/C222

$$\bar{u} = K\bar{u} \qquad (1.13)$$

the index of which is different from zero is an accumulation point of $\{\bar{u}_n\}$ in H_1. Here for every $\varepsilon > 0$ an N can be given so that for all $n \geq N$ there exist approximate solutions of (4.1) lying in the ε-neighborhood of the point $\bar{u}_0$ of the space H_1.

Theorem 5 contains an estimation of the velocity of convergence of the Galerkin-method under additional assumptions.
The proofs of the theorems are based on 26 lemmas.
The authors mention M.A.Krasnosel'skiy, O.A.Ladyzhenskaya, V.Solonnikov, E.Bykhovskiy, A.I.Koshelev, L.N.Slobodetskiy and I.Yu.Kharrik. There are 15 Soviet-bloc and 2 non-Soviet-bloc references.

SUBMITTED: February 10, 1959

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"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

YUDOVICH, V.I.

Unsteady two-dimensional motions of an ideal incompressible fluid. Dokl. AN SSSR 136 no.3:564-567 Ja '61. (MIRA 14:2)

1. Rostovskiy-na-Donu gosudarstvennyy universitet. Predstavleno akademikom S.L.Sobolevym.
(Fluid dynamics)

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"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

S/020/61/138/004/005/023
C111/C333

AUTHOR: Yudovich, V.I.

TITLE: Some estimates connected with integral operators and with solutions of elliptic equations

PERIODICAL: Akademiya nauk SSSR. Doklady, v.138, no. 4,1961, 805-808

TEXT: The author considers the first boundary value problem for an elliptic equation of second order in a bounded domain Ω with the boundary S :

$$\sum_{i,k=1}^{n} a_{ik}(x) \frac{\partial^2 u}{\partial x_i \partial x_k} + \sum_{i=1}^{n} b_i(x) \frac{\partial u}{\partial x_i} + c(x)u = f(x) \qquad (3)$$

$$u|_S = 0 \quad . \qquad (4)$$

Theorem 1 : Let $S \in C^{r+2}$; $b_i(x)$, $c(x)$ have bounded generalized derivatives of order r ; $a_{ik}(x) \in B^{r,\mu}$ $(0 < \mu < 1)$. For the generalized solution of the class: $W_p^{(r+2)}$ $(r \geqslant 0)$ of the problem (3), (4) then it holds

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the estimation $(p \geq p_0 > 1)$

$$\|u\|_{W_p^{(r+2)}} \leq c(p\|f\|_{W_p^{(r)}} + p^{\frac{1-\alpha}{p}}\|u\|_{B^{r-1,\alpha}}) \quad (5)$$

where $0 < \alpha \leq 1$ is arbitrary, c does not depend on p.
The second term of the right handside of (3) can often be majorized by $c\|f\|_{L_{p_0}}$ $(p_0 \geq n/\alpha)$; then (5) attains the form

$$\|u\|_{W_p^{(r+2)}} \leq Cp\|f\|_{W_p^{(r)}} \quad (8)$$

Corollary 1 : If $f \in W_\infty^{(r)}$ and if (8) holds, then there exists a constant γ such that

$$\int_\Omega e^{\beta|D^{r+2}u|}dx < \infty \quad (9)$$

holds, if $\beta\|f\|_{W_\infty^{(r)}} > \gamma$.

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Corollary 2 : If the assumptions of theorem 1 and corollary 1 are satisfied and if moreover

$$S \in \Lambda_{r+2,\lambda} \quad (0 < \lambda \leqslant 1), \quad f \in C^{(r)} \text{ , then (9)}$$

is satisfied for all $\beta > 0$.

Theorem 2: Let $a_{ik}(x)$, $b_i(x)$, $c(x) \in B^{r,1}$; $S \in \Lambda_{r+2,1}$. For λ which differ little from 1 then it holds the estimation

$$\|u\|_{B^{r+2,\lambda}} \leqslant \frac{c}{1-\lambda} \left(\|f\|_{B^{r,\lambda}} + \|u\|_{B^{1,1}} \right) . \qquad (12)$$

The theorems 1 and 2 can be generalized to equations of higher order and to systems.

Theorem 3 : Let

$$u(x) = \int_{\Omega} \frac{f(y)}{|x-y|^{\alpha}} dy \quad ; \qquad (17)$$

Ω - - bounded domain of the E_n ; $f \in L_{\frac{n}{n-\alpha}}$. Then it holds

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$$\|u\|_{L_{q^*}(\Omega_s)} \leq c(q^*)(q^*)^{\alpha/n}\|f\|_{L_{\frac{n}{n-\alpha}}} ; \tag{18}$$

$$\int_{\Omega_s} e^{\gamma|u(x)|^{n/\alpha}} dx < \infty , \tag{19}$$

where Ω_s is the section of Ω with the s-dimensional hyperplane; $0 < \alpha < n$; $\gamma > 0$ arbitrary ; $c(q^*)$ bounded for $q^* \to \infty$.

Theorem 4 : If in (17) it is $0 < \alpha \leq n - 1$, then for $\lambda \to 1$ it holds

$$|u(x^1) - u(x^2)| \leq c(1-\lambda)^{-\frac{\alpha+\lambda}{n}} \|f\|_{L_{\frac{n}{n-\alpha-\lambda}}} r^{\lambda} ; \tag{20}$$

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$$|u(x^1) - u(x^2)| \leqslant c_1 r(1 + |\ln r|^{\frac{\alpha+1}{n}}) , \qquad (21)$$

where $r = |x^1 - x^2|$.
The results are applied to the proof of the uniqueness theorems and to the investigation of the differential properties of solutions of non-linear problems.
($B^{k,\lambda}$ is the space of the functions defined in Ω which possess all derivatives of k-th order, where these satisfy the Hölder condition with the exponent λ ; the norm in $B^{k,\lambda}$ is equal to the sum of the maxima of all derivatives of the orders $0,1,\ldots,k$ and of their Hölder constants ; because of other notations the author refers to C. Miranda, Partial differential equations of elliptic type.)
The author thanks I.B. Simonenko and Yu.P. Krasovskiy for discussion.

The paper was written in the seminary on problems of nonlinear mechanics at the Rostov-na-Donu University.

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

Some estimates connected with ... S/020/61/138/004/005/023
C111/C333

There are 6 Soviet-bloc and 2 non-Soviet-bloc references. The reference to English-language publication reads as follows : A.P. Calderon, A. Zygmund, Acta Math., 88, 1-2 (1952).

PRESENTED: January 28, 1961, by S.L. Sobolev, Academician

SUBMITTED: January 23, 1961

Card 6/6

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

25779 S/020/61/139/002/009/017
B104/B205

24.4200

AUTHORS: Srubshchik, L. S., and Yudovich, V. I.

TITLE: The asymptotic behavior of equations for a large deflection of an axisymmetric, loaded plate

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 139, no. 2, 1961, 341 - 344

TEXT: A study has been made of the system

$$Av - \frac{u^2}{2} = 0, \quad \varepsilon^2 Au + uv + \varphi(\rho) = 0, \quad A(\,) \equiv -\rho \frac{d}{d\rho} \frac{1}{\rho} \frac{d}{d\rho} \rho(\,) \qquad (1)$$

of non-linear differential equations with one of the boundary conditions

$$v|_{\rho=1} = T > 0, \quad u|_{\rho=1} = 0; \qquad (2a)$$

$$\frac{dv}{d\rho} - \frac{\sigma}{\rho} v \Big|_{\rho=1} = 0, \quad u|_{\rho=1} = 0; \qquad (2b)$$

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$$\frac{dv}{d\rho} - \frac{\sigma}{\rho} v \Big|_{\rho=1} = 0, \quad \frac{du}{d\rho} + \frac{\sigma}{\rho} u \Big|_{\rho=1} = 0; \tag{2c}$$

$$v|_{\rho=1} = 0, \quad u|_{\rho=1} = 0; \tag{2d}$$

$$\frac{v}{\rho}\Big|_{\rho=0} < \infty, \quad \frac{u}{\rho}\Big|_{\rho=0} < \infty \quad \left(0 < \sigma < \frac{1}{2}\right).$$

These differential equations describe a large deflection of an axisymmetric loaded plate. Here, v is a radial force, and $u = dw/d\rho$, where w denotes the deflection of the plate. The boundary conditions (2) correspond to different modes of fixing of the plate. The quantity $\varepsilon^2 = h^2/12(1-\ ^2 r_1^2$ characterizes the relative thickness of the plate, h is its thickness, r_1 the external radius, and σ Poisson's ratio. $\varphi(\rho) = \frac{1}{Eh}\int_0^{\rho} q(t)dt$, where $q(\rho)$ stands for the intensity of normal load. In addition, the equations of a membrane

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$$A v_0 - \frac{u_0^2}{2} = 0, \quad u_0 v_0 + \varphi(\xi) = 0 \qquad (3)$$

($\varepsilon = 0$) with the proper boundary conditions

$$\begin{aligned} &v_0|_{p=1} = T; \\ &\frac{dv_0}{dp} - \frac{\sigma}{\rho} v_0\Big|_{p=1} = 0; \\ &\frac{dv_0}{dp} - \frac{\sigma}{\rho} v_0\Big|_{p=1} = 0; \\ &v_0|_{p=1} = 0; \\ &\frac{v_0}{\rho}\Big|_{p=0} < \infty. \end{aligned} \qquad (4)$$

are discussed. The boundary problem (1)-(2) is studied for $\varepsilon \longrightarrow 0$. Asymptotic representations of the solution are presented for $\varepsilon \longrightarrow 0$,

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and it is shown that for $\varepsilon \longrightarrow 0$, the solution of the problem converges, uniformly toward the solution of the problem (3)-(4) in any inner range from $[0,1]$, and that the behavior of a solution of (1)-(2) in the neighborhood of the point $\varrho = 1$ corresponds to a boundary layer. For the particular case of condition (2B), an asymptotic representation of the solution has been given for q = const (Sborn. Teoriya gibkikh i kruglykh plastinok, IL, 1957; E. Bromberg, Comm. Pure and Appl. Math., 9, no. 4, 633 (1956)). The solutions of (1) are presented in the asymptotic form

$$\eta = \sum_{s=0}^{n+3} \varepsilon^s v_s + \sum_{s=0}^{n+3} \varepsilon^s h_s + \sum_{s=0}^{n+3} \varepsilon^s \alpha_s + R_n,$$

$$u = \sum_{s=0}^{n} \varepsilon^s u_s + \sum_{s=0}^{n} \varepsilon^s g_s + \sum_{s=0}^{n} \varepsilon^s \beta_s + S_n. \qquad (5)$$

The functions $v_s(\varrho)$ and $u_s(\varrho)$ are obtained by the first iteration process,

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using the terminology introduced by M. I. Vishik et al. (DAN, 121, no. 5, 778, (1958)). g_s and h_s are determined by the system

$$\frac{d^2h_i}{dt^2}=0,\quad h_i|_{t=\infty}\quad (i=0,1); \tag{10}$$

$$\frac{d^2h_{s+2}}{dt^2}=R_1h_{s+1}+R_2h_s-\sum_{k+j+l=s}t^lu_{kl}g_j+\sum_{k+j+l+1=s}t^{l+1}u_{kl}g_j-$$
$$-\frac{1}{2}\sum_{j+l=s}g_jg_l+\frac{1}{2}\sum_{j+l+1=s}tg_jg_l,$$
$$\frac{d^2g_s}{dt^2}-v_{00}g_s=R_1g_{s-1}+R_2g_{s-2}+\sum_{k+j+l=s}t^lv_{kl}g_j-\sum_{k+j+l+1=s}t^{l+1}v_{kl}g_j+$$
$$+\sum_{j+m=s}g_jh_m-\sum_{j+m+1=s}tg_jh_m+\sum_{k+m+l=s}t^lu_{kl}h_m-\sum_{k+m+l+1=s}t^{l+1}u_{kl}h_m, \tag{11}$$

where $R_1(\ )=2t\frac{d^2(\ )}{dt^2}+\frac{d(\ )}{dt},\quad R_2(\ )=-t^2\frac{d^2(\ )}{dt^2}-t\frac{d(\ )}{dt}+(\ ),$

$$g_{-2}=g_{-1}=0,\ v_{00}=T>0\ (s=0,1,\ldots)$$

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This set of linear differential equations has constant coefficients and the boundary conditions $g_s|_{t=0} = -u_{s0}$; $g_s|_{t=\infty} = 0$; $h_{s+2}|_{t=\infty} = 0$. One obtains $g_0(\xi) = -u_{00}\exp(-\sqrt{T}(1-\xi)/\varepsilon)$, i. e., g_0 is a function of a zero-order boundary layer. The convergence is proved by setting $\varphi_k = v - R_k$ and $\psi_k = u - S_k$ and using the estimate

$$\begin{aligned} A(v-\varphi_\lambda) - {}^1/_2(u^2-\psi_\lambda^2) &= O(\rho\varepsilon^{\lambda+1}), \\ \varepsilon^2 A(u-\psi_\lambda) + (uv-\varphi_\lambda\psi_\lambda) &= O(\rho\varepsilon^{\lambda+1}). \end{aligned} \qquad (12).$$

Lemma 1 by N. F. Morozov (DAN, 123, no. 3, 417 (1958)) is mentioned: $v \geqslant 0$ holds for the solution of the problem (1)-(2). Lemma 2: For sufficiently small ε $(0 < \varepsilon < \varepsilon_1)$ one obtains for all $\xi \in [0,1]$: 1) $\varphi_k \geqslant 0$; 2) $\min(\varphi_k/\xi)$ T/2. Lemma 3: The energy estimate

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$$\int_0^1 \left|\frac{dR_k}{d\rho}\right|^2 d\rho + \frac{1}{2}\int_0^1 \frac{R_k^2}{\rho^2}\, d\rho + \varepsilon^2 \int_0^1 \left|\frac{dS_k}{d\rho}\right|^2 d\rho + \frac{\varepsilon^2}{2}\int_0^1 \frac{S_k^2}{\rho^2}\, d\rho + \frac{T}{4}\int_0^1 S_k^2\, d\rho \leqslant$$
$$\leqslant C\varepsilon^{k+1}\int_0^1 (|R_k| + |S_k|)\, d\rho. \qquad (13)$$

holds for R_k and S_k. Theorem 1: For the problem (1)-(2a) there exists an asymptotic representation (5), where the estimates

$$\max_{0<\rho<1} |R_k(\rho)| \leqslant C_1\varepsilon^{k+1}, \quad \max_{0<\rho<1} |S_k(\rho)| \leqslant C_2\varepsilon^{k+1/2} \quad (k = 0, 1, 2, 3, \ldots, n); \qquad (14)$$

$$\max_{0<\rho<1} \left|\frac{dR_k}{d\rho}\right| \leqslant C_3\varepsilon^{k+1} \quad (k = 0, 1, 2, \ldots);$$
$$\max_{0<\rho<1} \left|\frac{dS_k}{d\rho}\right| \leqslant C_4\varepsilon^{k-1} \quad (k = 2, 3, \ldots); \qquad (15)$$

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and

$$\max_{0<\rho<1}\left|\frac{d^3R_k}{d\rho^3}\right| \leqslant C_3\varepsilon^{k-1/3} \quad (k=1,2,\ldots);$$

$$\max_{0<\rho<1}\left|\frac{d^3S_k}{d\rho^3}\right| \leqslant C_3\varepsilon^{k-1/3} \quad (k=3,4,\ldots). \tag{16}$$

are valid for R_k and S_k. It is further shown that representations of the form (5) are correct also for the other cases of the problems discussed here. This work was carried out at the Seminar on Non-linear Problems, Rostovskiy-na Donu universitet (Rostov-na-Dónu University). There are 10 references: 9 Soviet-bloc and 1 non-Soviet-bloc.

PRESENTED: February 24, 1961, Yu. N. Rabotnov, Academician

SUBMITTED: February 20, 1961

Card 8/8

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

YUDOVICH, V.I. (Rostov-na-Donu)

Some evaluations of solutions of elliptic equations. Mat. sbor. 59 (dop.):229-244 '62. (MIRA 16:6)
(Differential equations)

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"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

29.4200

S/040/62/026/005/009/016
D234/D308

AUTHORS: Srubshchik, L. S. and Yudovich, V. I. (Rostov-on-Don)

TITLE: Asymptotic integration of the system of equations of large sagging of symmetrically loaded shells of revolution

PERIODICAL: Prikladnaya matematika i mekhanika, v. 26, no. 5, 1962, 913-922

TEXT: The authors consider the behavior of the equations of this problem for $\varepsilon \to 0$, ε^2 being the parameter which characterizes the relative thinness of the walls. Equations

$$Av_0 - \frac{u_0^2}{2} + \theta u_0 = 0, \quad u_0 v_0 - \theta v_0 + \varphi(\rho) = 0 \qquad (1.3)$$

of the membrane problem are analyzed and it is proved that they

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have only one positive solution. The solutions of the shell equations are expanded in powers of ε and it is proved that they have only one membrane solution (using Kantorowich's theorem on the convergence of Newton's method). The asymptotic formula for the solution is

$$v = \sum_{s=0}^{n+1} \varepsilon^s v_s + \sum_{s=0}^{n+1} \varepsilon^s h_s + \sum_{s=0}^{n+1} \varepsilon^s \alpha_s + x_n$$

$$u = \sum_{s=0}^{n} \varepsilon^s u_s + \sum_{s=0}^{n} \varepsilon^s g_s + \sum_{s=0}^{n} \varepsilon^s \beta_s + z_n \qquad (3.1)$$

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v_s, u_s, h_s, g_s ($s = 1,2,\ldots$) are determined successively, starting with v_0, u_0 which constitute the positive solution of the membrane problem (1.3). The rest terms are estimated.

ASSOCIATION: Rostovskiy universitet (Rostov University)

SUBMITTED: June 2, 1962

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

41333
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B172/B186

16.1200

AUTHOR: Yudovich, V. I.

TITLE: Flow of an ideal incompressible liquid through a given region

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 146, no.3, 1962, 561-564

TEXT: The Euler equations

$$\frac{\partial v}{\partial t} + (v,\nabla)v = -\nabla P + F(x,t), \qquad (1)$$

$$\operatorname{div} v = 0 \qquad (2)$$

are known to have no unique solution in the case $\gamma \neq 0$ if no condition is formulated except the initial condition

$$v/_{t=0} = a(x) \qquad (3)$$

and the boundary condition

$$v_n/_S = \gamma(t,x) \qquad (4)$$

The following additional condition is formulated: if S_t^- is the part of the boundary S in which $\gamma(x,t) < 0$ is valid, then

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$$\operatorname{curl} v|_{S_t^-} = \vec{\pi}(x,t) \qquad (5)$$

where $\vec{\pi}(x,t)$ is a given vector, must be valid for every $t > 0$. For a two-dimensional flow, the problem (1) - (5) is proved to have a uniquely determined solution in the classical sense. Corresponding considerations for a three-dimensional flow lead only to verifying small amounts of solubility. N. Ye. Kochin (Prikl. matem. i. mekh., 20, no. 2 (1956)) was the first to set up condition (5) for a special case.

PRESENTED: April 2, 1962, by I. G. Petrovskiy, Academician

SUBMITTED: March 30, 1962

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

YUDOVICH, V.I. (Rostov-na-Donu)

Unsteady flow of an ideal incompressible fluid. Zhur. vych. mat i mat fiz. 3 no.6:1032-1067 N-D '63. (MIRA 17:1)

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

L 11176-[illegible] EWP(r)/EWT(d)/EWT(m)/[illegible]

ACCESSION NR: AP3001143 S/0199/[illegible]

AUTHOR: Sr[illegible]shchik, L. S.; Yudovich, V. I.

TITLE: The Asymptotics of the equation for a great [illegible] symmetrically-loaded plate

SOURCE: Sibirskiy matematicheskiy zhurnal, v. [illegible], no. [illegible]

TOPIC TAGS: [illegible] plate, deflection of plate, edge [illegible] equations, asymptotic solutions, precision-instrument [illegible]

ABSTRACT: This theoretical paper deals with the problem [illegible] consisting [illegible] a rapid change [illegible] stresses and strains, [illegible] plate in which the bending moments are small and [illegible] plane everywhere except in a thin layer close to the [illegible] are generally described by means of differential equations [illegible] before the higher derivatives, where the relatively [illegible] series as the small parameter. As a result, the problem [illegible] asymptotic solutions arises. The present paper examines [illegible] great deflections of a circularly-symmetrically [illegible] concepts developed in this paper can be applied in the [illegible]

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[illegible]

ACCESSION NR: AFS [illegible]

of [illegible] axis [illegible] symmetrical, loaded plates [illegible] in [illegible] precision instrument making. [illegible] asymptotics, the membrane equations [illegible] employed. The method [illegible] of great deflections [illegible] are prescribed [illegible] the inner edge [illegible] clamped [illegible]

[illegible] (University [illegible]

[illegible] DATE ACQD: [illegible] 63

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"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

YUDOVICH, V. I. (Rostov-onDon)

"Some qualitative estimations of the behaviour of fluid flow in infinite time interval"

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

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

ZAKHARYUTA, V.P.; YUDOVICH, V.I.

General form of a linear functional in H'_p. Usp.mat. nauk 19 no. 2:139-142 Mr-Ap '64. (MIRA 17:6)

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

ACCESSION NR: AT [illegible]

AUTHOR: Yudovich, V. I. (Rostov-na-Donu)

TITLE: The two dimensional nonstationary problem of flow [illegible] a [illegible] sible fluid through a given region

SOURCE: Matematicheskiy sbornik, v. 64, no. 4, 1964, 562-5[illegible]

TOPIC TAGS: fluid dynamics, ideal fluid, ideal liquid, two di[illegible] tionary problem

ABSTRACT: The author uses a special iteration process (which [illegible] obtain a numerical solution) to prove general unique solvability [illegible] sional nonstationary problem with initial data for the equations [illegible] incompressible fluid. The normal component of the fluid ve[illegible] ry of the flow region must be given; when this component is [illegible] zero, the solution will not be unique unless an additional bou[illegible] given on the boundary region where the fluid flows in. For [illegible] [illegible] an approach that was [illegible]

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given on the ... of the velocity, an approach ...
author takes the curl of the velocity ...

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ACCESSION NR: AP4044740

cal top electrode and the bottom truncated conical ... method, greater sensitivity than heretofore achieved in ... solutions was now achieved in determining microelements ... 10^{-7}, for Co is 10^{-4} and for Zn is 10^{-3} gm/ml. When th...

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10^{-7}, for Co is 10^{-3} and for Zn is 10^{-2} gm/ml. When th
simultaneously present the sensitivity of each was incre
In the case of copper there was a qualitative relationsh
and copper concentration in the 10^{-7} to 10^{-3} gm/ml range
Mg, Ca, Al, Si and Fe impurities from the carbon elect
analysis. Orig. art. has: 1 table and 1 figure

ASSOCIATION: Odesskiy tekhnologicheskiy institut im. M
Kafedra neorganicheskoy i analiticheskoy khimii (Odess
Department of Inorganic and Analytical Chemistry)

SUBMITTED: 01Mar63 ENCL: 00

SUB CODE: GC, OP NO REF SOV: 005

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[illegible]

matem. [illegible]

Capacitance of a round disc on a dielectric layer; for a case [illegible] layer. Izv. vys. [illegible]

1. Kafedra matematicheskogo analiza Rostovskogo [illegible] universiteta.

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"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

ZAKHARYUTA, Vyacheslav Pavlovich, starshiy prepodavatel'; SIMONENKO, Igor' Borisovich, kand.fiziko-mat. nauk, starshiy nauchnyy sotrudnik; CHUBUKOVA, Yelena Sergeyevna, mladshaya nauchnaya sotrudnitsa; YUDOVICH, Viktor Iosifovich, kand. fiziko-mat. nauk, ispolnyayushchiy obyazannosti dotsenta

Capacitance of two rectangular conductors. Izv.vys.ucheb.zav.; elektromekh. 8 no.7:727-732 '65. (MIRA 18:8)

1. Kafedra matematicheskogo analiza Rostovskogo universiteta.

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"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

L 3963-66 [illegible]

ACC NR AP[illegible]

SOURCE CODE: [illegible]

AUTHOR: Yudovich, V. I.

ORIG: none

TITLE: Evaluation of the solution to an elliptic [illegible]

SOURCE: Uspekhi matematicheskikh nauk, v. 20, no. 2,

TOPIC TAGS: boundary value problem, mathematic space, fluid dynamics, elliptic integral, mathematic physics

Abstract: The article considers the boundary [illegible]

[illegible] the dimensional region [illegible] take the values [illegible] function for $x \in \Omega$. The Hilbert space [illegible] of smooth functions, [illegible] neighborhood of its boundary [illegible] product

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[illegible]

[illegible] satisfying the [illegible]

[illegible]

[illegible] a generalized [illegible]
[illegible] the following [illegible]
[illegible] class $C^{(2)}$, [illegible]
[illegible] (1), (7) in [illegible]
exists the inequality

[illegible] only on the [illegible]
[illegible] proving this theorem, [illegible]
with initial data for equations of [illegible]
[illegible] art. has 47 formulae.

SUB CODE: MA, ME / SUBM DATE: [illegible]

Card 2/2

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

Card 1/5

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

[illegible]

[illegible] ent. [illegible]

[illegible] the normal [illegible]

[illegible] and tangent [illegible]

[illegible] The potential [illegible]

[illegible]

$$+ \frac{1}{2} \sum_{k} [illegible]$$

[illegible] authors show that the second [illegible] is positive. For the [illegible]

Card [illegible]

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

ACC NR: AP6028322 SOURCE CODE: UR/0040/66/030/004/0688/0698

AUTHOR: Yudovich, V. I. (Rostov-na-Donu)

ORG: none

TITLE: Secondary flows and the instability of fluid between rotating cylinders

SOURCE: Prikladnaya matematika i mekhanika, v. 30, no. 4, 1966, 688-698

TOPIC TAGS: Couette flow, secondary flow, flow research, rotational flow, Navier Stokes equation

ABSTRACT: It is noted that experiments have shown that a new stationary flow arises between two rotating cylinders after the Couette flow has lost its stability. It is proved that there is more than one solution for the stationary boundary value problem for the Navier-Stokes equations for this situation and that this accounts for the additional flow. This proposition is proved not just for the Couette flow, but also for some other classes of flows. The proof is based on Krasnosel'skiy's theorem on the bifurcation points of operational equations. It is also demonstrated that the flows are instable at large Reynolds numbers. Orig. art. has: 49 formulas.

SUB CODE: 20/ 12/ SUBM DATE: 25Jan66/ ORIG REF: 010/ OTH REF: 003

Card 1/1

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

ZAKHARYUTA, Vyacheslav Pavlovich, starshiy prepodavatel'; SIMONENKO, Igor' Borisovich, kand. fiziko-matem.nauk, starshiy nauchnyy sotrudnik; YUDOVICH, Viktor Iosifovich, kand. fiziko-matem.nauk, ispolnyayushchiy obyazannosti dotsenta

Approximation method for calculating the capacity of conductors on a dielectric layer. Izv. vys.ucheb.zav.; elektromekh. 8 no.3:247-253 '65. (MIRA 18:5)

1. Kafedra matematicheskogo analiza Rostovskogo universiteta.

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

YUDOVICH, V.I.

Estimate of a solution to an elliptic equation. Usp. mat. nauk 20 no.2:213-219 Mr-Ap '65. (MIRA 18:5)

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

L 59220-65 EWT(1)/EWP(m)/EWA(d)/FCS(s)/EWA(1)

ACCESSION NR: AP5014936

AUTHOR: Yudovich, V. I. (Rostov-na-Donu)

TITLE: Example of birth of second stationary or periodic of laminar flow of viscous incompressible fluid

SOURCE: Prikladnaya matematika i mekhanika, v. 29, no.

TOPIC TAGS: incompressible fluid, viscous fluid, stabil

ABSTRACT: The author considers

$$\nu\Delta v_i' = v_k' \frac{\partial v_i'}{\partial x_k} + \frac{\partial P}{\partial x_i} - f_i \quad (i=1,2,3)$$

the Navier Stokes equations, in the bounded region

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"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

the Navier-Stokes equations, in the bounded region [illegible]
(1), distinct from

$$v' = \gamma v_0(z), \qquad P = [illegible]$$

are sought in the form

$$v' = \gamma v + \gamma v_0, \qquad P = [illegible]$$

He thus treats the problem of nonuniqueness in the large stationary problem for this equation. Prior to his [illegible]

Card 1/2

L 59220-65

ACCESSION NR: AP5014936

nonuniqueness had been indicated in numerical [illegible] rigorously. In his basic result the author [illegible] tion points. He gives examples of birth of [illegible]

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"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

[illegible] had been indicated in numerical [illegible]
rigorously. In his basic result the author [illegible] number of bifurca-
tion points. He gives examples of birth of a [illegible]
stability of the periodic flow, and of birth [illegible]
loss of stability of the stationary flow. Or[illegible]

ASSOCIATION: none

SUBMITTED: 25Feb65 ENCL:

NO REF SOV: 006 OTHER: 00

Card 2/2

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

ZAKHARYUTA, Vyacheslav Pavlovich, starshiy prepodavatel'; SIMONENKO, Igor' Borisovich, kand. fiz.-matem. nauk, starshiy nauchnyy sotrudnik; SHATSKIKH, L.S., mladshaya nauchnaya sotrudnitsa; YUDOVICH, V.I., kand. fiz.-matem. nauk, ispolnyayushchaya obyazannosti dotsenta.

Green's function for a region with dielectric layer. Izv. vys. ucheb. zav.; elektromekh. 7 no.9:1052-1056 '64 (MIRA 18:1)

1. Kafedra matematicheskogo analiza Rostovskogo-na-Donu universiteta.

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

ZAKHARYUTA, Vyacheslav Pavlovich, starshiy prepodavatel'; SIMONEK, Igor' Borisovich, kand. fiziko-matemat. nauk, starshiy nauchnyy sotrudnik; YUDOVICH, Viktor Iosifovich, kand. fiziko-matemat. nauk ispolnyayushchiy obyazannosti dotsenta

Calculation of the capacitance of three infinite bands laying on the surface of a dielectric half-space. Izv. vys. ucheb. zav.; elektromekh. 8 no.1:20-23 '65.

(MIRA 18:3)

1. Kafedra matematicheskikh analizov Rostovskogo gosudarstvennogo universiteta.

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

SRUBSHCHIK, L.S. (Rostov-na-Donu); YUDOVICH, V.I. (Rostov-na-Donu)

Asymptotic integration of a system of equations describing a large flexure of symmetrically loaded shells of revolution. Prikl. mat. i mekh. 26 no.5:913-922 S-O '62. (MIRA 15:9)

1. Rostovskiy universitet.
(Elastic plates and shells) (Differential equations)

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

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"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

DROZDOV, K.S., inzh.; YUDOVICH, V.M., inzh.

Marl-concrete for exterior wall panels. Bet. i zhel.-bet. no.9: 426- S'60. (MIRA 13:9)

(Lightweight concrete)

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

S/081/62/000/024/031/073
B193/B186

AUTHOR: Yudovich, Ya. E.

TITLE: A method for chemical determination of germanium

PERIODICAL: Referativnyy zhurnal, Khimiya, no. 24, 1962, 233, abstract 24D104 (Materialy po geol. i polezn. iskopayemym Yakutskoy ASSR. no. 7, Yakutsk, Knigoizdat, 1961, 124 - 127)

TEXT: Practical advice is given, based on experience in determining germanium in mineralogical raw materials, regarding the technique of carrying out decomposition of various samples (sulphides, silicates, coal ash, Fe ore), extraction of the Ge from CCl_4 and photometric determination with fluorobenzene. [Abstracter's note: Complete translation.]

Card 1/1

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

YUDOVICH, Ya.E.

Independent genetic rare-element concentrations. Lit. i pol. iskop. no.3:55-63 '63. (MIRA 17:1)

1. Yakutskaya tsentral'naya geologos"yemochnaya ekspeditsiya.

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

YUDOVICH, Ya.E.

Distribution of ash in coals. Vest. Mosk. un. Ser. 4: Geol. 19 no.3:101-104 My-Je '64. (MIRA 17:12)

1. Kafedra geologii i geokhimii goryuchikh iskopayemykh Moskovskogo universiteta.

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

YUDOVICH, YE. A.

Senna

Study of the anatomic structure of Cassia angustifolia. Apt. delo, no, 3, 1952.

Monthly List of Russian Accessions, Library of Congress, November 1952.
UNCLASSIFIED.

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

1. GENGRINOVICH, A. I.; YUDOVICH, Ye. A.

2. USSR (600)

4. Chemistry, Medical and Pharmaceutical

7. Determination of the iodine number of fats in acqueous medium. Apt. delo no. 5, 1952

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

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

YUDOVICH, Ye. A.

"Pharmacological Research on the Giant Elecampane." Cand Pharm Sci, Tartu State U, Tashkent Pharmacological Inst, Tashkent, 1954. (RZhBiolKhim, No 2, Jan 55)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (12)
SO: Sum. No. 556, 24 Jun 55

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

SOV/137-59-2-2,56

Translation from: Referativnyy zhurnal. Metallurgiya, 1959, Nr 2 p 56 (USSR)

AUTHORS: Dantsis, Ya. B., Yudovich, Ye. Ye.

TITLE: On the "Dead" and "Rampant" Phases of Three-phase Electric Arc Furnaces (O "mertvoy" i "dikoy" fazakh trekhfaznykh dugovykh pechey)

PERIODICAL: Vestn. tekhn. i ekon. inform. Mezhotrasl. labor. tekhn. ekon. issled. i nauchno-tekhn. inform. N.-i. fiz khim. in-ta im L. Ya. Karpova, 1958, Nr 2 (7), pp 25-32

ABSTRACT: The problem of the power transfer (PT) in the secondary circuit (SC) of a completely asymmetrical three-phase electric arc furnace is examined. Equations were worked out for the determination of the PT by means of a theoretical analysis of the phenomenon. The validity of the formulae developed was verified on an experimental apparatus imitating a three-phase furnace and also on an active three phase furnace with an over-all asymmetry of the SC. The author notes that the PT between the electrodes constitutes an insignificant portion of the total PT in the SC. It is established that the second (middle) phase can be "dead" or "rampant", depending on the [illegible]

Card 1/2

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"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

SOV/137-59-2-2659

On the "Dead" and "Rampant" Phases of Three-phase Electric-arc Furnaces

of SC and the order of sequence of the phases and not only neutral as it is usually considered, and that the middle phase is neutral only in that particular case of SC asymmetry in which the extreme phases are placed with strict symmetry in relation to the middle phase. In the construction of powerful furnaces with an over-all asymmetrical SC the PT occurs mainly from the extreme (long) phase to the middle one

A. St

Card 2/2

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

TUROV, Yu.Ya.; YUDOVICH, Ye.Ye.

Present state and prospects for the production and consumption of calcium carbide. Zhur.VKHO 7 no.1:81-86 '62. (MIRA 15:3)
(Calcium carbide)

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

DANTSIS, Ya.B., kand.tekhn.nauk; ZHILOV, G.M., inzh.; LYADSKIY, N.K., inzh.; YUDOVICH, Ye.Ye., inzh.

Electrical engineering problems in the manufacture of calcium carbide. Elektrotekhnika 34 no.12:6-9 D '63. (MIRA 17:1)

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

ACCESSION NR: AP4029195 S/0078/64/009/004/1015/1016

AUTHOR: Tsintsius, V. M.; Yudovich, Ye. Ye.

TITLE: Vapor pressures of vanadium dibromide and diiodide

SOURCE: Zhurnal neorganicheskoy khimii, v. 9, no. 4, 1964, 1015-1016

TOPIC TAGS: vanadium dibromide, vanadium diiodide, vapor pressure, vapor tension, flux method, sublimation, heat of sublimation, entropy of sublimation, V-Br bond energy, V-I bond energy, vanadium bromine bond energy, vanadium iodine bond energy, thermodynamic characteristic

ABSTRACT: The vapor tension of vanadium dibromide and vanadium diiodide was investigated by the flux method (S. A. Shchukarev, I. V. Vasil'kova, M. A. Oranskaya, V. M. Tsintsius, N. S. Subbotina. Vestn. LGU, No. 16, vy*p. 3, 125 (1961)) using argon as the gas-carrier. Based on the data obtained, the following thermodynamic characteristics of the process of vanadium dibromide and vanadium diiodide sublimation were determined: in the 800-905 C temperature interval, ΔH_{subl} [VBr_2] = 45 ± 4 kcal/mol; ΔS_{subl} [VBr_2] = 27 ± 2 joules;

Card 1/2

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"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

ACCESSION NR: AP4029195

in the 850-1016 C temperature interval, ΔH subl $[VI_2]$ = 44 ± 4 kcal/mol and ΔS subl $[VI_2]$ = 28 ± 2 joules

The V-Br and V-I bond energies were also calculated: E V-Br = 107 kcal, E V-I = 96 kcal. Orig. art. has: 2 tables.

ASSOCIATION: None

SUBMITTED: 16Sep63 DATE ACQ: 29Apr64 ENCL: 00

SUB CODE: GC, GP NO REF SOV: 004 OTHER: 003

Card 2/2

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

Obtaining a binding material from powdered-coal ash at electrical stations. B. Z. Yudovich and P. D. Kevesh. *Prom. Stroitel. Material.* 2, No. 10-11, 11-17(1940). A binding material of the type of roman cement can be made by introducing chalk into the fuel fed to the furnace. This does not interfere with operation of the furnace. The optimum amount of chalk is 20%. The inconstancy of vol. of the binding material can be eliminated by hydration of the free lime by a jet of superheated steam in the gas flumes before the ash collector. The strength of the binding material obtained increases continuously for 5 months, attaining in water in 28 days a value several times greater than that required by the standard for roman cement. E. E. Stefanowsky

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

Hydroinsulating material. Ya. N. Novikov, E. Z. Vadovich, and A. Ya. Shugaev. U.S.S.R. 67,220, Oct. 31, 1946. For water-proofing (foundations, walls, etc.) is used a thin Al sheet coated on both sides with a bituminous compn. In order to impart to the Al sheet the required pliability, the sheet is heat-treated for 2–6 hrs. at 350–400° followed by slow cooling; finally the Al sheet is drawn through the bituminous compn. at 180° and then cooled slowly. M. Hosch

U.S.S.R. METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

YUDOVICH, YE. Z.

Waterproofing underground installations
Moskva, Gos. izd-vo stroit. lit-ry, 1949. 147 p. (50-31143)

TA901.I78

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

YUDOVICH, E. Z.

NOVIKOV, YA. N. - inzh. i, YUDOVICH, E. Z. - laureaty stalinskoy premii kand. tekhn. nauk.

Nauchno-issledovatel'skiy institut zheleznodorozhnogo stroitel'stva i proyektirovaniya

VODONEPRONITSAYEMYY TSEMENT I YEGO FIZIKO-KHIMICHESKIYE SVOYSTVA Page 110

SO: Collection of Annotations of Scientific Research Work on Construction, completed in 1950, Moscow, 1951

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

APRAKSIN, L.; KUZNETSOV, A.; YUDOVICH, Yu., prepodavatel' fiziki (Moskva)

A radio engineering institute helps the school. Radio no.12:10 D '60. (MIRA 14:1)

1. Institut radiotekhniki i elektroniki AN SSSR.
(Radio—Education and training)

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

USSR/ Engineering - Steam turbines

Card : 1/1 Pub. 128 - 30/[illegible]

Authors : Yudovin, B. S.

Title : The first national [illegible] for [illegible] with gear transmissions.

Periodical : Vest. mash. 34/7, 90 - 92, July [illegible]

Abstract : The article is dedicated [illegible] the [illegible] turbine engines during 18[illegible]-19[illegible]. [illegible]

Institution : ...

Submitted : ...

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

YUDOVIN, B. S.

YUDOVIN, B. S.-"Investigation of Characteristics of Power Plants of Light Ships." Leningrad Shipbuilding Inst, Leningrad, 1955 (Dissertations for Degree of Candidate of Technical Sciences)

SO: Knizhnaya Letopis' No. 26, June 1955, Moscow

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

YUDOVIN, B.Sh., inzhener.

Investigating the development of power installations on light vessels. Trudy VNITOSS 6 no.3:185-204 '55. (MLRA 10:4)
(Marine engines)

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

YUDOVIN, B.S., kand.tekhn.nauk

Special features in the development of power plants on ships of the American Navy. Sudostroenie 23 no.9:59-63 S '57. (MIRA 10:12)

(U.S.Navy--Electric installations)

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

BRANDAUS, A.I., laureat Leninskoy premii; YUDOVIN, B.S., kand.tekhn.nauk

Power plant on the atomic icebreaker "Lenin." Sudostroenie 27 no.8:21-29 Ag '61. (MIRA 14:9)
(Lenin (Atomic ship)) (Marine gas turbines)

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

YUDOVIN, Boris Solomonovich; KURZON, A.G., doktor tekhn. nauk, retsenzent; LAZAREV, N.A., inzh., retsenzent; MASLOV, L.A., tekhn. nauk, nauchn. red.; SHAURAK, Ye.N., red.

[Marine combination power plants with booster engines] Sudovye kombinirovannye ustanovki s forsazhnymi dvigateliami. Leningrad, Sudostroenie, 1964. 255p. (MIRA 17:6)

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

YUDOVIN, B.S., kand.tekhn.nauk

Ways of improving cooling systems for the power plants of ice breakers. Sudostroenie 31 no.1:36-39 Ja '65.

(MIRA 18:3)

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

YUDOVIN, B.S.

Some characteristics of and outlook for the development of the power plants of icebreakers. Sudostroenie no.8:25-29 Ag '65. (MIRA 18:9)

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

IVANOV, V.V.; SHITOV, I.K.; YUDOVIN, I.B.

Using pulsed loadings for pipe fastening. Mashinostroitel' no.11:26-27 '65. (MIRA 18:11)

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

FISHKIN, M.B., inzh.; YUDOVIN, L.G., inzh.

Automatic line for machining crankcase-block surfaces of the S2D diesel engine on broaching machines. Mash. Bel. no.2:64-68 '60. (MIRA 16:7)

(Broaching machines) (Automation)

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963110018-1

YUDOVIN, L.G.

PHASE I BOOK EXPLOITATION SOV/5861

Gorbatsevich, Aleksandr Feliksovich, Vladimir Petrovich Kuznetsov, and Lev Grigor'yevich Yudovin

Avtomaticheskiye linii iz protyazhnykh stankov i avtomatizatsiya protyagivaniya (Automatic Broaching Lines and Automation in Broaching) Minsk, Gosizdat BSSR, 1961. 110 p. 1500 copies printed.

Ed.: S. Pol'skiy; Tech. Ed.: G. Domovskaya.

PURPOSE : This booklet is intended for tool engineers and technicians concerned with broaching operations and equipment.

COVERAGE: The booklet reviews various types of broaching machines. Detailed descriptions and illustrations are provided for some of these machines. Also discussed are the development of automation and automatic broaching lines and their fixtures. There are 19 references: 12 English, 5 Soviet, 1 Czech, and 1 German.

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