PANOV, D.G.

History of the development of the Azov Sea during the Holocene.
Okeanologiia 5 no.4:673-683 '65. (MIRA 18:9)

1. Rostovskiy-na-Donu gosudarstvennyy universitet.

PANOV, D.G.; VRONSKIY, V.A.; ALAKSANDROV, A.N.

Distribution and composition of spores and pollens in the surface layer of sediments in the Azov Sea. Dokl. AN SSSR 155 no. 4: 818-821 Ap '64. (MIRA 17:5)

1. Rostovskiy-na-Donu gosudarstvennyy universitet i TSentral'naya laboratoriya Volgo-Donskogo territorial'nogo geologicheskogo upravleniya. Predstavleno akademikom V.N.Sukachevym.

L 18834-66 EWT(1) GW

ACC NR: AP6004393 (N) SOURCE CODE: UR/0020/66/166/003/0688/0690

AUTHOR: Panov, D. G.; Khrustalev, Yu. P.

ORG: none

TITLE: Recent tectonic movements in the coast line and floor of the Sea of Azov

SOURCE: AN SSSR. Doklady, v. 166, no. 3, 1966, 688-690

TOPIC TAGS: tectonics, ocean floor topography

ABSTRACT: The literature on tectonic movements in the Azov area is reviewed and the following conclusions are presented: (1) the sinking of the coast line and the littoral portions of the floor belong to the last stage of the Quaternary; (2) this sinking has been taking place over the last 5000 years; (3) the sinking of the coast line and the Azov basin floor is recent; (4) the greatest part of the Taganrog Bay area and the northern part of the Sea of Azov to the west of it, are subject to movements at a rate of 2 to 3 mm per year; (5) the speed of the tectonic movement decreases to 1 to 2 mm per year along the coastal strip of the Taganrog Bay and near the northern sea coast; (6) the largest recent movements, up to 3 mm

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ACC NR: AP6004393

per year, predominate in the southern part of the sea; (7) the area of recent sinking in the Sea of Azov corresponds tectonically to the Kerch-Taman' pereclinal, alpine folding; and (8) the speed of recent tectonic movement in the Azov region indicates a significant tectonic factor in the development of the Sea of Azov during the Quaternary period. A detailed map of recent tectonic movements in the Azov basin is given. Presented by Academician I. P. Gerasimov on 31 July 1965. Orig. art. has: 1 figure.

SUB CODE: 08/ SUBM DATE: 31Jul65/ ORIG REF: 007/ OTH REF: 000

Card 2/2 vmb

PANOV, D.G.

Degree of climate cooling in the preglacial regions of Europe during the last glaciation. Dokl. AN BSSR 9 no.12:825-828 D '65. (MIRA 19:1)

1. Rostovskiy gosudarstvennyy universitet, kafedra fizicheskoy geografii.

PANOV, D.G.; KHRUSTALEV, Yu.P.

Latest tectonic movements of the coasts and bottom of the Sea of Azov. Dokl. AN SSSR 166 no.3:688-690 Ja '66. (MIRA 19:1)

1. Submitted July 31, 1965.

PANOV, D.G.

Tectonic map of the Arctic regions. Izv. AN SSSR Ser. geol. 29 no.7:107-109 Jl '64 (MIRA 18:1)

1. Rostovskiy gosudarstvennyy universitet, Rostov-na-Donu.

PANOV, D.G.; ALEKSANDROV, A.N.

Distribution of iron in the superficial sediment layer of the Sea of Azov. Dokl. AN SSSR 157 no.4:894-896 Ag '64 (MIRA 17:8)

1. Rostovskiy-na-Donu gosudarstvennyy universitet. Predstavlemo akademikom N.M. Strakhovym.

PANOV, D.G.

Paleothermal conditions and the paleoclimatic regionalization of Europe in the latest glaciation. Izv. Vses. geog. ob-va 96 no.6:480-487 N-D '64 (MIRA 18:1)

VRONSKIY, V.A.; PANOV, D.G.

Composition and distribution of spores and pollens in the surface layer of marine sediments in the Mediterranean Sea. Dokl. AN SSSR 153 no.2:447-449 N '63. (MIRA 16:12)

1. Predstavleno akademikom V.N.Sukachevym.

PANOV, D.G.

Relationship of contours and distribution of continents to the structure and movement of the earth. Geog.sbor. no.15:151-161 '62. (MIRA 15:12)

(Earth)

S/270/63/000/001/018/024
A001/A101

AUTHOR: Panov, D. G.

TITLE: On the relation of outlines and distribution of continents with the structure and movements of the Earth

PERIODICAL: Referativnyy zhurnal, Geodeziya, no. 1, 1963, 38, abstract 1.52.254 ("Geogr. sb.", 1962, v. 15, 151 - 161)

TEXT: Large-scale elements of the Earth's relief (continental protrusions, oceanic depressions) arise due to deformations of the geoid following the changes in the rate of Earth rotation, as well as possible displacements of subcrustal and abyssal masses. Globe-scale fractures, whose position is related to the position of the Earth's rotational axis, play an important role in the formation of the structure and morphology of continents and the surface of the oceanic bottom. Specific features in distribution and outlines of continents are related to the present or recent position of the Earth's poles, existing since the Mesozoic epoch. It follows hence that in the major part of the Earth surface large-scale features of the global relief, main relation in the distribution of land

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A001/A101

On the relation of outlines and...

and sea, and basic orographic directions originated comparatively recently in the geological sense. The statement on the remote ancientness and permanency of oceanic regions is false; data on the possibility of "oceanization" of the crust during a prolonged immersion, the presence of abyssal grooves at boundaries of rising continents and sinking oceanic depressions, and other facts testify convincingly on the comparative youth of the present configuration of continents and oceans.

Yu. Meshcheryakov

[Abstracter's note: Complete translation]

Card 2/2

PANOV, D.G., prof.; MAMYKINA, V.A., kand.geograf.nauk

Can we stop the destruction of the shores of the Sea of Azov? (MIRA 14:5)
Priroda 50 no.5:50-51 My '61.

1. Rostovskiy gosudarstvennyy universitet (for Panov). 2. Volgo-Donskoye geologicheskoye upravleniye (Rostov) (for Mamykina).
(Azov, Sea of--Coast changes)

PANOV, D.G.; SPICHAK, M.K.

Rate of sediment accumulation in the Sea of Azov. Dokl.AN SSSR 137 no.5:1213-1213 Ap '61. (MIRA 14:4)

1. Azovskiy basseynovyy nauchno-issledovatel'skiy institut rybnogo khozyaystva. Predstavleno akademikom N.M.Strakhovym.
(Azov, Sea of—Sedimentation and deposition)

PANOV, D.G.

Types of structure of the oceanic portion of the earth's crust.
Dokl. AN SSSR 5 no.3:118-121 Mr '61. (MIRA 14:3)

1. Rostovskiy-na-Donu gosudarstvennyy universitet. Predstavleno akademikom AN SSSR K.I.Lukashevym.
(Submarine geology) (Geology, Structural)

PANOV, D.G.

Geographical conclusions from the pulsation theory of geotectonics.
Uch. zap. RGU 44:17-25 '59. (MIRA 14:1)
(Geology, Structural) (Physical geography)

PANOV, D.G., prof., otv.red.; GAVRILYUK, F.Ya., prof., red.; MALIK, S.A., dotsent, red.; ZARKHINA, I.Ya., red.; PAVLICHENKO, M.I., tekhn.red.

[Division of the Northern Caucasus and the lower Don Valley into natural regions; reports of an intercollegiate conference] Prirodnoe raionirovanie Severnogo Kavkaza i Nizhnego Dona; doklady. Rostov-na-Donu, Izd-vo Rostovskogo univ., 1959. 110 p.
(MIRA 13:12)

1. Mezhvuzovskoye soveshchaniye po prirodnomu rayonirovaniyu Severnogo Kavkaza i Nizhnego Dona. 1959.
(Caucasus, Northern--Physical geography)
(Don Valley--Physical geography)

PANOV, Dmitriy Gennadiyevich; KHAIN, V.Ye., prof., otv. red.; GRISHINA, L.I., red.; MALKES, B.N., mladshiy red.; MAL'CHEVSKIY, G.N., red. kart.; GLEYKH, D.A., tekhn. red.

[Origin of continents and oceans] Proiskhozhdenie materikov i okeanov. Moskva, Gos.izd-vo geogr. lit-ry, 1961. 182 p. (MIRA 14:11)
(Geology)

PANOV, Dmitriy Gennadiyevich; GAKKEL', Ya.Ya., doktor geograf.nauk, prof., otv. red.; PAVLOVSKIY, Ye.N. akademik, glavnyy red.; TSVETKOV, N.V., red.izd-va; ZAMARAYEVA, R.A., tekhn.red.

[Bottom morphology of the world ocean] Morfologiia dna mirovogo okeana. Moskva, Izd-vo Akad. nauk SSSR, 1963. 226 p. (Geograficheskoe obshchestvo SSSR. Zapiski Novaia seriia, vol.23) (MIRA 16:3)

1. Prezident Geograficheskogo obshchestva SSSR (for Pavlovskiy).
(Ocean bottom)

PANOV, D.I.; BYZOVA, S.L.; SNEZHKO, Ye.A.

New data on the stratigraphy of Lower and Middle Jurassic sediments in the central part of the Greater Caucasus. Izv. vys. ucheb. zav.; geol. i razv. 7 no.4:35-47 Ap '64.
(MIRA 18:3)

1. Kavkazskaya ekspeditsiya Moskovskogo gosudarstvennogo universiteta.

BEZNOSOV, N.V.; KAZAKOVA, V.P.; LEONOV, Yu.G.; PANOV, D.I.

Stratigraphy of lower and middle Jurassic sediments in the central Caucasus. Biul.MOIP.Otd.geol. 34 no.4:150 Jl-Ag '59.
(MIRA 13:8)

(Caucasus--Geology, Stratigraphic)

PANOV, D.I.; BOLDYREV, A.F., inzh.; KASHIRSKIY, K.F., inzh.; MATVEYEV, N.I., inzh.

Introducing improvements in the city of Moscow. Gor.khoz.Mosk. 34 no.3:5-12 Mr '60. (MIRA 13:8)

1. Nauchal'nik Upravleniya blagoustroystva g. Moskvy. (Moscow--Municipal service)

PANOV, D.I.; BATURKIN, S.I., inzh.; KASHIRSKIY, K.F., inzh.; MIKHAYLOV, B.V., inzh.

Prospects for improving municipal services in the city of Moscow according to the seven-year plan. Gor. khoz. Mosk. 33 no.5:3-8 My '59. (MIRA 12:7)

1.Nachal'nik Upravleniya blagoustroystva g.Moskvy (for Panov).
(Moscow--Municipal services)

PANOV, D.I.; SHEVCHENKO, V.I.

Stratigraphy of Lower and Middle Jurassic sediments in the southern slope of the Greater Caucasus in the Mount Kazbek region. Dokl. AN SSSR 155 no.1:92-95 Mr '64. (MIRA 17:4)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova. Predstavleno akademikom N.M.Strakhovym.

BEZNOSOV, N.V.; KAZAKOVA, V.P.; LEONOV, Yu.G.; PANOV, D.I.

Lower and middle Jurassic stratigraphy of the central part of the Northern Caucasus. Trudy VNIIGAZ no.10:109-191 '60. (MIRA 13:10)

(Caucasus, Northern--Geology, Stratigraphic)

PANOV, D.L.; LEONOV, Yu.G.

Stratigraphy of lower and middle Jurassic sediments in the Kuban-Baksan interfluve. Trudy VNIIGAZ no.7:59-87 '59. (MIRA 13:5)
(Kuban Valley--Geology, Stratigraphic)

KALYAYEV, Anatoliy Vasil'yevich, dotsent, kand. tekhn. nauk; PANOV, Dmitriy Nikolayevich, kand. tekhn. nauk, starshiy prepodavatel'; SUKHOMLINOV, Maksim Maksimovich, kand. tekhn. nauk, starshiy prepodavatel'

Apparatus for converting continuous electric quantities into numerical form. Izv. vys. ucheb. zav.; elektromekh. 2 no.6:25-33 '59. (MIRA 12:11)

1.Zamestitel' direktora Taganrogskogo radiotekhnicheskogo instituta (for Kalyayev). 2.Taganrogskiy radiotekhnicheskiy institut (for Panov, Sukhomlinov).
(Automatic control) (Information theory)

PANOV, D.N.

Some problems of the theory of bast fiber scutching. Izv. vys. ucheb. zav.; tekh. tekst. prom. no.4:42-50 '63.
(MIRA 16:11)

1. Kostromskoy tekhnologicheskiy institut.

SOV/144-59-6-4/15

AUTHORS: Kalyayev, A.V., Panov, D.N. and Sukhomlinov, M.M. Candidates of Technical Sciences

TITLE: A Converter of Continuous Electrical Quantities Into a Digital Form

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Elektromekhanika, 1959, Nr 6, pp 25 - 33 (USSR)

ABSTRACT: The authors describe an analogue-to-digital converter of their own design. The converter is based on the transformation of continuous function y(t) into a sequence of pulses having a frequency f such that f is proportional to y(t). It is possible to design digital integrators and differentiators by employing the same principle. The basic converter, whose output is given in the form of a discrete binary code, is illustrated by the block schematic of Figure 5. This consists of a detector А which converts the input function y(t) into its modulus $|y(t)|$, a converter of the modulus $|y(t)|$ into a train of pulses П, a reversible counter РС, a pulse generator ГИ, an electronic switch ЭР and a delay circuit ЛЗ. The functioning of the device is as follows. The converter of y(t) into a train of pulses

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can be only operated with positive voltages. Consequently, it is necessary to form the modulus $|y(t)|$ .This is accomplished in the detector. The modulus is now converted into a train of pulses which is applied to the reversible counter PC . Since the counter should add the pulses corresponding to the positive values $y(t)$ and substract the pulses corresponding to the negative values of $y(t)$, the counter is controlled by an electronic switch. This applies an "adding" signal during the positive values of $y(t)$ and a subtraction signal during the negative values of $y(t)$. The pulses are added (or subtracted) during a fixed interval Δt . This is done by controlling the operation of a counter by means of the timer-generator TM. The timer periodically "discharges" the counter and transfers the number of pulses recorded in the counter into a memory device. After the transfer of the information into memory, the counter is re-set by the timer through the delay circuit. The system of Figure 5 can be employed to carry out a functional transformation of $y(t)$ if a "functional transformer" is inserted at the input of the

system. It is possible, however, to achieve the transformation if the frequency of the output pulses is made functionally dependent on $y(t)$, i.e. $f = F(y)$. An integrating circuit can easily be constructed. For this purpose, it is necessary to interrupt the line of the delay circuit in Figure 4. In this case, the reversible counter will continuously add on the pulses obtained from the output of the pulse converter. This process is equivalent to an approximate integration. The system of Figure 5 can also be employed as a differentiator. For this purpose, it is necessary to add a flip-flop circuit and two switches K, which operate in accordance with the logic sequence indicated in the table in Figure 6. The most important element of the converter of Figure 5 is the $y(t)$-to-f transformer. This can take the form of the circuit described by V.I. Ryzhov (Ref 1). It is possible, however, to devise more satisfactory transformers by employing an inductively coupled multivibrator (Refs 3-4). A multivibrator of this type, based on two vacuum tubes, is shown in Figure 8. Another satisfactory transformer circuit,

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based on two transistors, is indicated in Figure 9; the relationship between the input voltage (to be converted into digits) and the frequency of the output pulses is linear over a wide range of voltages, as can be seen from the graph in Figure 9.
There are 9 figures and 4 references, of which 3 are Soviet and 1 English.

ASSOCIATION: Taganrogskiy radiotekhnicheskiy institut
(Taganrog Radiotechnical Institute)

SUBMITTED: April 21, 1959

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SOV/105-58-7-1/32

AUTHORS: 1)Larionov, A. N., Professor, Corresponding Member, Academy of Sciences, USSR, Mastyayev, N. Z., Docent, Candidate of Technical Sciences, Orlov, I. N., Engineer
2)Panov, D. N., Candidate of Technical Sciences

TITLE: General Problems of the Theory of Hysteresis Motors (Obshchiye voprosy teorii gisterezisnykh elektrodvigateley)

PERIODICAL: Elektrichestvo, 1958, Nr 7, pp. 1 - 6 (USSR)

ABSTRACT: The first work on hysteresis motors was begun in the USSR in 1950, by the Professorial Chair of Electric Equipment of Aircraft and Automobiles at the MEI and later also by other Scientific Research Organizations and Works. First, the operational principle is described here. Next the character of magnetic reversal and the field distribution in the rotor are dealt with. Here the law governing the field distribution in the rotor by taking account of rotor-hysteresis is investigated for the most general case: A charged motor of normal-or reversible construction with a rotor which has an internal

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case (box) or rim(ring). If this rule is known, the formula for the electromagnetic hysteresis-moment and for the parameters of the equivalent circuit scheme for the hysteresis motor can be found. It is assumed that magnetic permeability μ and the hysteresis angle γ do not depend on inductance. Work is based upon some mean values. The error occuring in this connection can be estimated at 20%. Moreover, it is assumed that: 1) the normal induction-component of the rotor-surface facing the stator is distributed according to the cosine-like law; 2)there are no eddy currents in the material of the rotor; 3) the field in the machine is plane-parallel. It is shown that the character of field distribution and of magnetic reversal of the material of the rotor may differ according to the properties of the material, the dimensions, the construction of the rotor and the number of poles of the motor. The electromagnetic moment and the parameters of the equivalent circuit scheme are investigated in the last chapter. The principle of possible displacements and generalized coordinates is applied and the equation for the electromagnetic moment of the hysteresis motor (15) is written down. The formulae (17) for the effective component

F_{2a} of the magnetizing force of the stator and formula (18) for the reactive component $F_{2\mu}$ of the same are derived. The equivalent circuit scheme of an ordinary asynchronous motor and the formulae (17) and (18) are applied and the equivalent circuit scheme for the hysteresis motor is obtained. The determination of the parameters of the rotor circuit in the equivalent circuit scheme is briefly discussed. The experience gathered with projecting of hysteresis motors shows that motors with a relatively thin rotor have the best characteristics, also where the one induction-component predominates and where the other may be neglected. For this case, formulae for a motor with internal rotor with tangential magnetization and further formulae for a motor with internal rotor and magnetic box (radial magnetization) are written down. The equivalent circuit scheme for the hysteresis motor can be built up on the basis of the equivalent circuit scheme for an ideal hysteresis motor and of one for an asynchronous motor with a massive rotor (without taking account of the influence of higher harmonic

magnetizing forces of the stator) by adding the circuit of the eddy currents to the scheme of the ideal motor. The calculations of the characteristics of a series of motors according to this equivalent circuit scheme with circuit parameters obtained by way of testing agree well with the characteristics obtained by experiments. Unfortunately, it is not possible, at present, to produce analytical terms for the parameters of the eddy current branch, which can be determined only experimentally. The three ranges of the rotor in a hysteresis motor with different magnetic permeabilities are investigated. There are 7 figures.

ASSOCIATION: 1.)Moskovskiy energeticheskiy institut (Moscow Institute of Power Engineering)
2.)Taganrogskiy radiotekhnicheskiy institut (Taganrog Institute of Radio-Engineering)

SUBMITTED: October 21, 1957

General Problems of the Theory of Hysteresis Motors SOV/105-58-7-1/32

1. Electric motors--Design 2. Elektric motors--Theory 3. Hysteresis

Card 5/5

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edited by Kurosh, A.G.,
Markushevich, A.I.,
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Priblizhennoye graficheskoye pesheniye krayevykh zadach uravneniya laplasa. Trudy tsagi, 169 (1934), 3-24.

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KUZ'MIN, G.I., and D.YU. PANOV

Raschet vozdushnogo vinta na prochnost8s uchetom razgruzki tsentrobezhnymi silami. Moskva, 1934. 63.p., tables, diagrs. (TSAGI. Trudy, no.160)

Summary in English.

Title tr.: Propeller stress analysis, under consideration of centrifugal forces.

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

PANOV, D.Yu. Continued

O primenenii metoda akademika S.A. Chaplygina k resheniyu integral'nykh uravneniy. IAN, ser. matem. (1934), 843-886.

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PANOV, D. YU., S. G. POPOV and A. I. KHOKHLOV.

Priblizhennoe reshenie graficheskim metodom zadachi o kruchenii dlia vintovogo profilia. (TSAGI. Trudy, 1934, no. 169, p. 25-31, diagrs.)

Summary in English.

Title tr.: Approximate solution of the problem of torsion of a propeller section by means of a graphical method.

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PANOV, D.Yu. Continued

Primeneniye metoda akad. S.A. Chaplygina dlya resheniya integral'nykh uravnenii. M.—L., Tsagi, Tekhn. zametki, 45 (1935), 69-71.

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Summary in English.

Title tr.: On some cases of solution of the problem of flexure with the stress function in the form of a polynomial.

QA911.M65 no. 209

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

PANOV, D. YU.

O kruchenii sterzhnei, poperechnoe sechenie kotorykh ogranicheno dvumia konicheskimi secheniiami. (TSAGI. Trudy, 1935, no. 209, p. 31-40, diagrs)

Summary In English.

Title tr.: Torsion of rods having cross-sections bounded by two conical sections.

QA911.M65 no. 209

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

PANOV, D. Yu. Continued

O primenenii metoda akad. Chaplygina dlya resheniya integral'nykh uravneniy. L., Trudy Vtorogo Vsesoyuzn. Matem. s"yezda, t.2 (1936), 385-386.

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Raschet vozdushnogo vinta na prochnost'. Moskva, 1937. 182 p., tables, diagrs. (TSAGI. Trudy, no.288)

Bibliography: p. 122-123

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Summary in English.

Title tr.: The stress-strain analysis of a propeller.

QA911.M65 no.288

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

PANOV, D.Yu.

Spravochnik po chislennomu resheniyu differentsial'nykh uravneniy v chastnykh proizvodnykh. m.--l., I 3 d. an (1938), 1-129.

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O kruchenii sterzhney, poperechnoye secheniye kotorykh ogranicheno krivoy $x = k\sqrt{x(1-x)}$
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Panov, Dmitriy Yur'yevich

"Application of Galerkin's Method to Some Nonlinear Problems of the Theory of Elasticity," Prik. Matemat. i Mekh., 3, No. 2, 1939.

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"On Secondary Effects Arising at the Torsion of an Elliptical Cylinder," Dok. Ane, 22, No. 2, 1939.

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Summary in English.
Title tr.: Approximate graphical solution of the boundary problems of Laplace's equations.

QA911.M65 no. 169

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

PANOV, D. YU.

Krutil'nye kolebaniia kruglogo sterzhnia pri nalichii uprugogo gisterezisa. Moskva, 1940, 16 p., illus. (TSAGI. Trudy, no. 485)

Title tr.: Torsional oscillation of round rods in the presence of elastic hysteresis.

NCF

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

Panov, Dmitriy Yur'yevich

"Torsional Oscillations of Bars with Elastic Hysteresis, "Prik. Matemat. I Mekh., 4, No. 1, 1940.

PANOV, Dmitriy Yur'yevich

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QA377.P27 1943

PANOV, D. Yu.

"On Large Deflections of Corrugated Membranes,"

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Acad. of the Red Army, c1944-.

PANOV, D. YU.

Panov, D. J. Application of the R. Becker theory of elastic after effect to the investigation of hystereses in oscillations [illegible] Akad. Nauk SSSR. Prikl. Mat. Mech. 10, [illegible] (Russian. [illegible] summary)

The author extends Becker's theory of the elastic after-effect [Z. Physik 33, 185–213 (1925)] to the case of periodic stresses. For simplicity, the stress intensity is supposed to remain constant, the sign of the stress changing every half period. The problem is reduced to three simultaneous linear difference equations from the solutions of which the log. [illegible] be computed as function of the amplitude. [illegible]

[illegible] Reviews, Vol 8 No. 6

PA 52T19

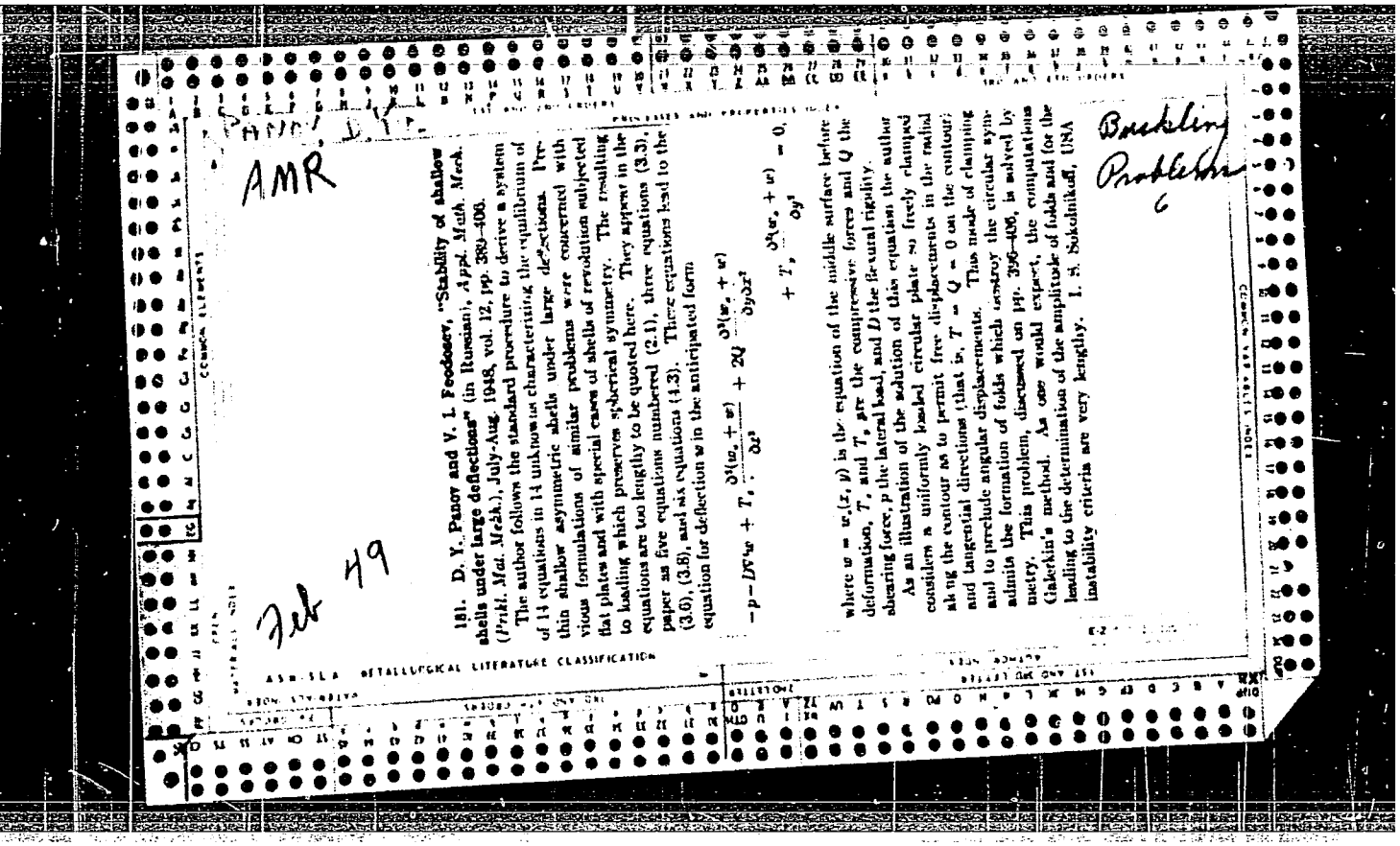
PANOV, D. YU.

USSR/Electricity Nov/Dec 1947
Switches, Thermal
Circuit Breakers

"The Stability of Bimetallic Sheathing During Heating," D. Yu. Panov, Moscow, 8 pp

"Priklad Matemat i Mekhanik" Vol XI, No 6

Discusses simple construction and operation of the Klixon thermal switch which works on the principle of uneven expansion of different types of metal leaves. Tests conducted with electric current running through the leaves of such a thermal switch reveal that upon reaching a certain temperature, the leaves separate and act as a cutoff switch.
Submitted 23 Oct 1947. [redacted] 52T19



AMR

Feb 49

181. D. Y. Panov and V. I. Feodosev, "Stability of shallow shells under large deflections" (in Russian), *Appl. Math. Mech. (Prikl. Mat. Mekh.)*, July-Aug. 1948, vol. 12, pp. 389–406.

The author follows the standard procedure to derive a system of 14 equations in 14 unknowns characterizing the equilibrium of thin shallow asymmetric shells under large deflections. Previous formulations of similar problems were concerned with that plates and with special cases of shells of revolution subjected to loading which preserves spherical symmetry. The resulting equations are too lengthy to be quoted here. They appear in the paper as five equations numbered (2.1), three equations (3.3), (3.6), (3.8), and six equations (4.3). These equations lead to the equation for deflection w in the anticipated form

$$-p - L^2 w + T_1 \frac{\partial^2 (w_0 + w)}{\partial x^2} + 2S \frac{\partial^2 (w_0 + w)}{\partial x \partial y} + T_2 \frac{\partial^2 (w_0 + w)}{\partial y^2} = 0,$$

where $w = w_0(x, y)$ is the equation of the middle surface before deformation, T_1 and T_2 are the compressive forces and Q the shearing force, p the lateral load, and D the flexural rigidity.

As an illustration of the solution of this equations the author considers a uniformly loaded circular plate so freely clamped along the contour as to permit free displacements in the radial and tangential directions (that is, $T = Q = 0$ on the contour) and to preclude angular displacements. This mode of clamping admits the formation of folds which destroy the circular symmetry. This problem, discussed on pp. 396–406, is solved by Galerkin's method. As one would expect, the computations leading to the determination of the amplitude of folds and for the instability criteria are very lengthy. I. S. Sokolnikoff, USA

Buckling
Problem
6

PANOV, D. Yu., and V. I. FEODOS'EV.

O ravnovesii i potere ustoichivosti pologikh matematika i mekhanika, 1948, v. 12, no. 4, p. 389-406, diagrs., bibliography.)

Title tr.: On the equilibrium and instability of sloping shells with large deflections.

See errata in the same periodical for 1949, v. 13, no. 1, p. 116.

Reviewed by I. S. Sokolnikoff in Mathematical Reviews, 1949, v. 10, no. 3, p. 218.

QA 801. P7 1948

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

PANOV, D. Yu.

1978. Panov, D. Yu. Ob odnom obobshchenii fokuly berstoy. Prikl. Matematika i mekhanika, 1949, Vyp. 3, S. 131-32

SO: LETOPIS' ZHURNAL STATEY, Vol. 27, Moskva 1949

PANOV, D. Yu.

USSR/Engineering
Elasticity
Rods

Mar/Apr 49

"Review of Books, 'Theory and Design of Ductile Elastic Components,' and 'Nonlinear Problems of the Statics of Fine Rods,' by Ye. P. Popov," D. Yu. Panov, 2 pp

"Priklad Matemat i Mekh" Vol XIII, No 2

Favorable review of subject books. First is a detailed engineering guide for the design of ductile elements subject to large elastic deformations during operation. Second is devoted mainly to the practical solution of problems involving large deformations during bending of elastic rods in a plane.

42/49T34

PA 51/49T38

USSR/Mathematics May/Jun 49
Equations

"One Generalization of Bairstow's Formula," D. Yu. Panov, Moscow, 10 pp

"Priklad Matemat i Mekh" Vol XIII, No 3

In study of the equation of motion of an airplane, Bairstow first used an approximate calculation of the roots of a fourth-degree equation based on an expansion which is justifiable only when the roots are greatly different in value. Sometimes these formulas are useful in other fields. Generalizes Bairstow's formula for approximate calculation of 51/49T38

USSR/Mathematics (Contd) May/Jun 49

the roots of a sixth-degree equation. Submitted 28 Feb 49.

51/49T38

PANOV, D. Yu.

PANOV, Dmitriy Yur'yevich

[Manual on the numerical solution of partial differential equations] Spravochnik po chislennomu resheniiu differentsial'nykh uravnenii v chastnykh proizvodnykh. Izd.5. Moskva, Gos. izd-vo tekhniko-teoret.lit-ry, 1951. 182 p. (MIRA 13:4)
(Differential equations, Partial)

*Panov, D. Yu. On a formula of mechanical quadratures. Trudy Mat. Inst. Steklov., v. 38, pp. 317–320. Izdat. Akad. Nauk SSSR, Moscow, 1951. (Russian) 20 rubles.

The author presents a formula of mechanical quadratures using three ordinates, not necessarily equally spaced, reducing to Simpson's formula in the case of equal spacing. If the spacing is nearly equal, so that $(x_2-x_1)/(x_1-x_0)=1+\epsilon$ where ϵ is small and higher powers of ϵ are neglected, the formula becomes

$$\int_{x_0}^{x_2} y\,dx=\frac{h}{3}\left[y_0\left(1-\frac{\epsilon}{2}\right)+xy_1\left(1+\frac{\epsilon}{2}\right)+y_2\left(1+\frac{3\epsilon}{2}\right)\right].$$

He shows how this formula can be used in the solution of partial differential equations with two families of characteristic curves in the xy-plane. *W. E. Milne.*

Source: Mathematical Reviews, Vol. 13, No. 5

PANOV, D.Yu., redaktor.

[High-speed computing devices] Bystrodeistvuiushchie vychislitel'nye mashiny. Perevod s angliiskogo. Moskva, Izd-vo inostrannoi lit-ry, 1952. 431 p. (MLRA 6:5)

1. Engineering Research Associates, inc. (Calculating machines)

USSR/Mathematics - Approximations, Numerical Computations 21 Apr 52

"Approximate Numerical Solution of Quasilinear Partial Differential Equations of the Hyperbolic Type," D. Yu. Panov, Inst of Precision Mech and Computation Tech, Acad Sci USSR

"Dok Ak Nauk SSSR" Vol LXXXIII, No 6, pp 793-795

One of the most convenient methods of numerically solving hyperbolic differential eqs is the method of characteristics. This method offers the possibility of approximately constructing a net of characteristics issuing from a system of points disposed along

223T65

a certain curve. The construction reduces to a successive search for intersecting points of pairs of straight lines by which the arcs of the characteristics are replaced; tangents to the characteristics are ordinarily chosen as the straight lines. Subject method is refined here. Submitted by Acad M. A. Lavent'yev.

223T65

PANOV, D. YU.

USSR/Mathematics - App

"Determining More Prec
Approximate Numerical
Differential Equations
Panov, Inst of Precisi
Acad Sci USSR

"Dok Ak Nauk SSSR" Vol

States that the method
to solve certain probl
which are analyzed in
triya Fisstichnosti" Th
1950, and other proble

calcns that, although
detg the necessary qua
the total number of ca
possibility of enlargi
accuracy of results.
yev 19 Feb 52.

PANOV, D. YU.

PANOV, D.Yu.

[Slide rule] Schetnaia lineika. Izd. 9. Moskva, Gos. izd-vo tekhn.-teoret. lit-ry, 1953. 128 p.
(Slide rule)

(MLRA 7:11)

PANOV, Dmitriy Yur'yevich

Avtomatizatsiya perevoda s odnogo yazka na drugoy (by) D.Y. Panov, A.A. Lyapunov (i) I.S. Mukhin. Moskva, Izd-vo Akademii Nauk SSSR, 1956.
33 p.
At head of title: Akademiya Nauk SSSR. Sessiya po Nauchnym Problemam Avtomatizatsii Proizvodstva. Plenarnoye Zasedaniye.

PANOV, Dmitriy Yur'yevich

Concerning the problem of machine translation of languages. (Moskva, Academy of Sciences, U.S.S.R.) 1956.

34 p. illus 27 cm.
Bibliography: p. 35

LEBEDEV, Aleksandr Vasil'yevich; FEDOROVA, Rimma Maksimovna; PANOV, D.Yu., professor, otvetstvennyy redaktor; KARPOV, K.A., redaktor izdatel'stva; AUZAN, N.P., tekhnicheskiy redaktor

[A manual of mathematical tables] Spravochnik po matematicheskim tablitsam. Moskva, Izd-vo Akademii nauk SSSR, 1956. 549 p. (MLRA 9:8)
(Mathematics—Tables, etc.)

PANOV, D. Yu.

BEL'SKAYA, I.K.; KOROLEV, L.N.; MUKHIN, I.S.; PANOV, D.Yu.; RAZUMOVSKIY, S.N.

Some problems in automatic translation. Vest.AN SSSR 26 no.12:24-33 D '56. (MLRA 10:1)

(Machine translating)

PANOV, D. Yu. (Dr. Tekh. Sci.); LYAPUNOV, A. A., (Dr. Phys. Mat. Sci.); MUKHIN, I. S. (Cand. Phys. Mat. Sci.)

"Automation of Translation from One Language to Another,"

paper read at the Session of the Acad. Sci. USSR, on Scientific Problems of Automatic Production, 15-20 October 1956.
Avtomatika i telemekhanika, No. 2, p. 182-192, 1957.

9015229

PANOV, D. Yu.

"Automatic Translation," Moscow Popular Scientific Series, AS USSR, pp.45, 1956

Translation No.629, 14 Mar 57

This book discusses the problem of automatic translations from one language to another and some results of the work being done in that connection at the Inst. of Precision Mechanics and Computer Technology and at the Inst. of Scientific Information of the AS USSR.

This work was started in January 1955. The first attempts to translate a scientific text from English into Russian were made at the end of 1955 by means of the BESM electronic computer of the AS USSR.

The linguistic part of the problem was worked out by I. K. Bel'skaya, Programming and coding problems were handled by I. S. Mukhin, L. N. Korolev, S. N. Razumovskiy, N. P. Trifonov, and G. P. Zelenkevich.

SOV/112-58-1-927

Translation from: Referativnyy zhurnal, Elektrotekhnika, 1958, Nr 1, p 135 (USSR)

AUTHOR: Panov, D. Yu., Lyapunov, A. A., and Mukhin, I. S.

TITLE: Automation of Interlingual Translations
(Avtomatizatsiya perevoda s odnogo yazyka na drugoy)

PERIODICAL: V sb.: Sessiya AN SSSR po nauchn. probl. avtomatiz. proiz-va, 1956. Plenarn. zasedaniya, Moscow, AS USSR, 1957, pp 181-213, discussion p 214.

ABSTRACT: A detailed description is submitted of two methods of translating foreign languages into Russian, as developed at the Mathematical Institute imeni Steklov and at the Institute of Fine Mechanics and Computing Techniques. The first method was programmed for "Strela" computer; the second method for "BESM" computer. In addition to translations from European languages, some problems of translation from Chinese and Japanese are also considered, as well as from one foreign language into another, using Russian as an intermediary language. There are 7 illustrations.

N. Ya. N.

AVAILABLE: Library of Congress

Card 1/1 1. Language 2. Computers--Applications

PHASE I BOOK EXPLOITATION 560

Panov, Dmitriy Yur'yevich

Chislennoye resheniye kvazilineynykh giperbolicheskikh sistem differentsial'nykh uravneniy v chastnykh proizvodnykh (Numerical Solution of Quasilinear Hyperbolic Systems of Partial Differential Equations) Moscow, Gostekhizdat, 1957. 215 p. 6,000 copies printed.

Ed.: Razumovskaya, A. P.; Tech. Ed.: Akhlamov, S. M.

PURPOSE: The book is intended for scientific workers and graduate students working in the field of numerical analysis and its applications in mechanics, in particular in gas dynamics and theory of plasticity.

COVERAGE: A new method is presented of numerical solution of the system of two partial differential quasilinear hyperbolic equations of the first order with two variables. This method takes into account the curvature of characteristics and makes it possible to receive more accurate results than those obtained by the generally used methods of numerical solution.

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Numerical Solution of Quasilinear Hyperbolic Systems (Cont.) 560

The book gives the calculation formulas and a series of examples with detailed calculations. The preface mentions S. A. Khristyanovich and V. V. Sokolovskiy in connection with the improvement of the method of characteristics and its application in fluid mechanics and the theory of plasticity. There are 13 references, 10 of which are Soviet, 2 English and 1 French.

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Numerical Solution of Quasilinear Hyperbolic Systems (Cont.) 560

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Numerical Solution of Quasilinear Hyperbolic Systems (Cont.) 560

Card 4/5

AVAILABLE: Library of Congress

Card 5/5

IK/mas
9/28/58

PA - 2623

AUTHOR: PANOV, D.YU.

TITLE: Symposium on the Information Theory in the U.S.A. (Simposium po teorii informatsii v S.Sh.A., Russian)

PERIODICAL: Vestnik Akademii Nauk SSSR, 1957, Vol 27, Nr 3, pp 104 - 106 (U.S.S.R.)

Received: 5 / 1957 Reviewed: 6 / 1957

ABSTRACT: An international symposium on the information theory was held at the Technological Institute of Massachussetts in the U.S.A. on the 10 - 12 September 1956. The Soviet Delegation consisted of B.V. Gnyedyenko (member of the Academy of Science of the Ukrainian SSR), V.I.Siforov (corresponding member of the Academy of Science of the U.S.S.R.), and Professor D.YU.Panov (the author of this paper). The program of this symposium included lectures on the theory of coding (linear coding with correlative-bound signals. coding with half-groups, code with correction of errors, etc). The author mentions the good reception which the Soviet Delegation had on their arrival in the U.S.A. and speaks about the talks the members of the delegation had with American scientists. Thus, K.Shennon inquired about the progress made in the U.S.S.R. with respect to the infor- [illegible] theory and its application, and he also displayed interest [illegible]

28(2) PHASE I BOOK EXPLOITATION SOV/1309

Panov, Dmitriy Yur'yevich

Sovremennaya vychislite'naya tekhnika i primeneniye yeye v narodnom khozyaystve (Modern Computer Technique and Its Application in the National Economy) Moscow, Izd-vo "Znaniye", 1958. 32 p. (Series: Vsesoyuznoye obshchestvo po rasprostraneniyu politicheskikh i nauchnykh znaniy. Seriya IV, 1958, no. 29) 31,000 copies printed.

Sponsoring Agency: Vsesoyuznoye obshchestvo po rasprostraneniyu politicheskik i nauchnykh znaniy.

Ed.: Faynboym, I.B.; Tech. Ed.: Trofimov, A.V.

PURPOSE: This booklet is written for the general reader.

COVERAGE: The booklet describes modern electronic computers and their application in various branches of the national economy. A brief presentation of several types of computers developed in the USSR

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Modern Computer Technique (Cont.) SOV/1309

and abroad is given. Among the modern Soviet computers the following are mentioned: 1. The universal "BESM" or high-speed electronic computer, developed by the Academy of Sciences, USSR, under the supervision of Academician S.A. Lebedev. (According to the author, the performance of this computer surpasses the performance of all European and the majority of American computers). 2. The digital electronic computers M-2 and M-3, developed under the supervision of I.S. Bruk, Corresponding Member of the Academy of Sciences. 3. The "Strela" computer, developed under the supervision of Yu. Ya. Bazilevskiy. There are 4 Soviet references, of which 3 are translations.

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PHASE I BOOK EXPLOITATION 883

Panov, Dmitriy Yur'yevich

Avtomaticheskiy perevod (Machine Translation) 2d ed., rev. and enl. Moscow, Izd-vo AN SSSR, 1958. 69 p. (Series: Akademiya nauk SSSR. Nauchno-populyarnaya seriya) 20,000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR

Resp. Ed.: Nesmeyanov, A.N., Academician; Ed. of Publishing House: Volodina, Ye. I.; Tech. Ed.: Guseva, I.N.

PURPOSE: This brochure is addressed to the general public interested in the problem of machine translation from one language into another.

COVERAGE: This brochure discusses machine translation from one language into another and reports on some results of research carried out in this field at the Institut tochnoy mekhaniki i vychislitel'noy tekhniki (Institute of Exact Mechanics and

Card 1/5

Calculating Technique) and the Institut nauchnoy informatsii Akademii nauk SSSR (Institute of Scientific Information of the AN SSSR). This research was started in the beginning of January, 1955. At the end of 1955, the first experiments in the machine translation of scientific and technical texts from English into Russian were made with the aid of a BESM AN SSSR computer. [Bystrodeystvuyushchaya elektronnaya schetnaya mashina Akadamii Nauk SSSR—High-speed Computer of the Academy of Sciences, USSR]. The philological part of the problem was worked out by I.K. Bel'skaya, while the programming and coding problems were handled by I.S. Mukhin, L.N. Korolev, S.N. Razumov, N.P. Trifonov and G.P. Zelenkevich. The present edition of this work includes some of the results realized at the Institute of Exact Mechanics and Calculating Technique and at other establishments since publication of the first edition in 1956. The various points of view presented since 1956 on the principles which must constitute the basis of machine translation are discussed. P.P. Troyanovskiy is described as the first to have developed a system of machine

translation and to have obtained an author's certificate for his invention in the USSR in 1933. There is a bibliography of four English references.

TABLE OF CONTENTS:

AVAILABLE: Library of Congress (PN242.P31958)

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Card 5/5

SMIRNOV-TROYANSKIY, P.P.; TROYANSKIY, Petr Petrovich [deceased]; BEL'SKAYA, I.K.; KOROLEV, L.N.; PANOV, D.Yu.; GUROV, K.P., red.izd-va; MARKOVICH, S.G., tekhn.red.

[P.P.Troianskii's translating machine; a collection of papers on a translating machine, proposed by P.P.Troianskii in 1933, for translating from one language to another] Perevodnaia mashina P.P.Troianskogo; sbornik materialov o perevodnoi mashine dlia perevoda s odnogo iazyka na drugie, predlozhennoi P.P. Troianskim v 1933 g. Moskva, Izd-vo Akad.nauk SSSR, 1959. 50 p. (MIRA 12:7)

1. Akademiya nauk SSSR.
(Translating machines)

IANOV, Dmitriy Yur'yevich

Automatic translation. New York, London, Pergamon Press, 1960.
73 p. Illus., Diagrs., Tables.
Translated from the original Russian: Avtomaticheskiy perevod, Moscow, 1958.
"References": p. 65.

PANOV, Dmitriy Yur'yevich; UGAROVA, N.A., red.; BRUDNO, K.F., tekhn.red.

[Slide rule] Schetnaia lineika. Izd.14, dop. Moskva, Gos.izd-vo fiziko-matem.lit-ry, 1960. 160 p. (MIRA 13:5)
(Slide rule)

PANOV, Dmitriy Yur'yevich, doktor tekhn. nauk; NEKHLYUDOVA, A.S., red.; NAZAROVA, A.S., tekhn. red.

[Electronic calculating machines] Elektronnye vychislitel'nye mashiny. Moskva, Izd-vl "Znanie," 1961. 38 p. (Narodnyi universitet kul'tury: Estestvennonauchnyi fakul'tet, no.28) (MIRA 15:4)

(Electronic calculating machines)

S/720/61/001/000/001/003

AUTHORS: Panov, D. Yu., Oshanin, D.A.

TITLE: The place of man in automatic control systems.

SOURCE: Kibernetiku - no sluzhbu kommunizmu. v.1. A.I.Berg, ed. Moscow. Gosenergoizdat, 1961, 173-184.

TEXT: The psychophysiological functions of man in automatic control systems are explored. Ten years ago American reactionary business men believed that automation could do away with man and thereby resolve the working-class problem. The facts of life have taught them differently. Automatic means of control admittedly are necessary where they are effective and where man, because of psychological weakness or prevailing strain, is ineffective. However, the machine can do only what it is instructed to do; when confronted with an unprogrammed task it breaks down and only man can restore its function with new programming. Self-organizing and learning machines have their limitations; they are presumably imitating the learning process of man's brain, but we do not know, to date, just how the human learning process operates. In addition, man's role is essential in certain critical functions which do not lend themselves to simulation and modeling. Man is able to analyze and synthesize information coming from signals nearly buried in random background noise and to react to vitally important, individually selected, signals beyond the

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The place of man in automatic control systems. S/720/61/001/000/001/003

capability of all but the most complex and costly devices. Man reads by a hop-skip advancement of fixation points, halting only on every fourth to sixth letter. He can read a line of printed half-letters. Imagination enables him to project spatial forms into a few lines sketched on a sheet. He can correlate and generalize seemingly unrelated bits of information. This may be attributed to the development of the higher nerve centers and the brain of man. Modern computing machines have tens of thousands of elements, man's brain has 10^{10} neurons. Neurons consume 10^{-9} w, transistors 10^{-1} to 10^{-2} w. Yet, neurons work 10^{4} to 10^{5} times more slowly than man-made machine elements. A summary is given of John von Neumann's conclusion (Computing machines and the brain. In Russian-language Kiberneticheskiy sbornik - Compendium of Cybernetics. Moscow. 1960), in which he states that "the language of the brain is not the language of mathematics," also analogous comments by Vannevar Bush, R. Peierls (In The Laws of Nature, Russian translation. Moscow. Fizmatgiz, 1959). If man's brain operates on basically different principles than those of a machine, it is necessary to find an optimal solution for the respective roles of the engineering factor and the human factor in combined control systems, with precise consideration of both the relative weaknesses and the relative strengths of either. Experimental investigation of the psychophysiological functioning of man at work is necessary therefor. One important element is the assessment of what constitutes "heavy work" and "light work" and its consequent nervous and emotional

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drain on man. Example: The seemingly "do-nothing" hours of presumable "idleness" at the dispatcher's desk of a power network are actually spent in the constant and exhausting expectation of sudden possible emergencies. Co-author Aseyev has studied the specific functional shifts in the nervous system under monotonous working conditions (Akademiya pedagogicheskikh nauk RSFSR, Doklady, no.3, 1960). The need to convey information and warnings in a conspicuous and unmistakable manner is stressed (cf. Borisov, A.V., Voprosy psikhologii, no.1, 1959). The time rate of the acceptance of information is detailed for various sensual stimuli (cf. Bills, A.I., in Andrews, T.I., Methods of Psychology, French-language translation, Paris, v.II, 1952, 570). The character of stimuli must be attuned to the type of operation performed: Numerical signals are not suitable for operation under tension; shapes and colors, also "signal instructions" indicating the required directional sense of corrective motion (cf. Oshanin, D.A., Vopr. psikhol., no.1, 1959, 64-75), are more effective. Thus, optimal man-machine integration requires an engineering solution above all, but always with due consideration of the specific physical and psychological characteristics of man. Legibility of dials (cf. Sleight, B.B., J.Appl.Psychol., v.32, 1948, 170-188; Chapanis, A., et al., Applied experimental psychology. New York. v.12, 1949, 434) and of character fonts (Mackworth, N.H., Psych. Lab., Univ. Cambridge, Engl., Flying Personnel Res'ch Comm., Rept.no.423 (S), April 1944), and the need for indicative point positions for correct qualitative "howgozit" appraisals is stressed.

The place of man in automatic control systems. S/720/61/001/000/001/003

Control organs must be: (1) minimal in number, consistent with required control actions; (2) readily and unmistakably recognizable; (3) suggestively shaped for intuitive identification; (4) singular in mode and effect of operation; (5) optimal in effectiveness; (6) having control forces and control-force gradients commensurate with the control effect produced; (7) logically tied in with the geometry of the operation required and with the functional asymmetry of the human body (prevalence of the right-hand half, etc.). Consideration of working conditions is stressed, including the temperature (a graph of errors-per-hour vs. temperature is shown), brightness, brightness contrast, wavelength of secondary light in relation to needed dark adaptation for the primary task, and, especially, the personal equation of the operator. The personal factors are divided into 3 groups: (1) Anatomic and psychophysiological factors; (2) psychomotor and intellectual performance; (3) traits of character. It is indispensable that knowledge be developed on (1) the science of the psychophysiological and social structure of these factors; (2) diagnostic methods for their detection and prognostic techniques for the prediction of their effects on the quality of anticipated performance. This knowledge, today, is inversely proportional to the complexity of each factor. There are no known methods for ascertainment of high moral qualities, whereas more is known on the typological peculiarities of the nervous system. Operative-aptitude-improvement experiments made at the Department of Psychology of Kazan' University are reported, with

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particular emphasis on a compensating upward adjustment of activity levels by workers engaged in intensely demanding work processes to avoid the need for sudden acceleration of activity in emergencies (Klimov, Ye.A., Vopr. psikhol., no.3, 1960, 89-97). Other aptitude tests, at the Psychophysiology Laboratory of the Institute of Psychology of the Academy of Pedagogical Sciences, RSFSR, have tested the mobility of nervous processes that produce quick comprehension, liveliness of response, and flexibility, and have also investigated the balance of the nervous processes on which selfcontrol, presence of mind, endurance, etc., depend. Granting the justification of much criticism against objective psychotechnical aptitude tests, there is a place for scientific preselection of operators for responsible and demanding control tasks. Automatic systems must be designed to make the best possible use of the functional capabilities of man; there is a need for a study of these capabilities and, especially, those intellectual functions of man which cannot be readily simulated or modeled. This is the psychology of work. Attention is drawn to the enormous Western activity on industrial psychology reported in the U.S. "Psychological Abstracts" alone (450-800 annual completed-project entries over the past 10 years), such as IBM work on psychophysics, visual and aural perception problems, learning problems, communications theory, information theory, psychometrics, the processes involved in the solution of problems, etc. In the USSR work in the psychology and physiology of work is being conducted at scientific research

institutes in Moscow, Leningrad, Kiyev, Tbilisi, Kazan', and elsewhere. While in capitalist countries the study of "human factors" may be a step toward the highly perfected exploitation of man through the creation of a favorable "psychological climate," the achievement of optimal working conditions for man in the socialist state is no mere step toward an improvement in the productivity of labor but a goal in itself. There are 6 figures and 18 references (6 Soviet and 12 English language, of which 4 are cited in their Russian translation).

ASSOCIATION: None given.

Card 6/6

S/245/62/000/005/001/002
D222/D307

AUTHORS: Zinchenko, V.P. and Panov, D.Yu. (Moscow)

TITLE: The main problems of engineering psychology

PERIODICAL: Voprosy psikhologii, no. 5, 1962, 15-30

TEXT: The specific features of an operator's activity in an automatic control system are used to demonstrate a number of problems in engineering psychology. These features are: that the operator is prevented from observing directly the controlled objects and must instead use transmitted information; that the operator is dealing with models of real objects and must reconstruct some information which is not transmitted or is lost during transmission, he must organize this information and make predictions; he must make decisions between alternative actions. The subject of engineering psychology is defined as the study of an operator's activity in dealing with physical control models instead of real objects. The main problem is to find such a design for these models which takes into account the operator's functional characteristics and abilities.

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The main problems ...

Among these human factors two are discussed in detail: effective coding of information and the speed of reception. Effective coding depends on the 'operative units of perception' which can lead to the construction of a natural way of coding, easily acquired by the operator. The speed of reception depends on the channel capacity of the operator. The reception speed is also a good measure of the effectiveness of the coding system. The measurement of reception speed requires the definition of a unit of perception. It is concluded that the solution of small specific problems without a unified method of approach is of little value in this field. There are 2 figures.

Card 2/2

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