

ACCESSION NR: AT4042711

vidual's tolerance threshold. The compensated phase is neither stable nor complete. The adaptation which is achieved is somewhat weakened by many factors which inhibit protective neurohumoral mechanisms. Study of the compensated phase can help in an understanding of the physiological mechanisms of adaptation and in the discovery of natural acts of self-protection. Since centripetal acceleration is equivalent to the acceleration of terrestrial gravity, the burden of resistance to increased gravitation falls on the physiological systems of adaptation to terrestrial gravity. The author emphasizes the importance of 1) protective tonic muscular reflexes triggered by various mechanisms, 2) circulation-regulating mechanisms maintaining blood supply to vital organs, 3) compensation of respiratory insufficiency, and 4) the role of the vestibular apparatus. Study of the decompensated phase permits weak links in the chain of interdependent adaptive phenomena, i. e., those which limit acceleration tolerance, to be distinguished. Data obtained by the physiological analysis of the high acceleration tolerance of insects are given, and possible remote sequelae of chronic exposure to radial acceleration are discussed.

ASSOCIATION: none

Card 2/3

ACCESSION NR: AT4042711

SUBMITTED: 27Sep63

ENCL: 00

SUB CODE: LS

NO REF SOV: 000

OTHER: 000

Card 3/3

L 20768-65 EWG(j)/EWG(r)/EWT(1)/FS(v)-3/EWG(v)/EWG(a)/EWG(c) Pe-5/Pb-4  
ASD(a)-5/AMD/AFTC(b) DD

ACCESSION NR: AR4045852

S/0299/64/000/014/A012/A012

SOURCE: Ref. zh. Biologiya. Svodnyy tom, Abs. 14A119

AUTHOR: Rozenblyum, D. Ye.

TITLE: Certain regularities of acceleration effects on the organism 2 B

CITED SOURCE: Sb. Aviats. i kosmich. meditsina. M., 1963, 425-426

TOPIC TAGS: human, acceleration effect, gravity biologic effect, vestibular apparatus, muscle

TRANSLATION: Deviation from normal gravitation introduces various qualitative and quantitative vital activity changes dependent on gravitational field value change, position of animal in evolutionary development, and individual differences. Depending on physical parameters and functional state of the organism, radial accelerations produce a phase of relative compensation and a phase of decompensation with mechanical forces exceeding individual stability thresholds. The role of defensive tonic muscle reflexes, control mechanisms of blood circulation and of ventilation insufficiency compensation if the

Card 1/2

I 20768-65

ACCESSION NR: AR4045852

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situation arises, and the role of the vestibular apparatus are also discussed. Physiological analysis data on high acceleration stability of insects are reported which are of interest for the theory of acceleration effect on biological objects. Possible remote after-effects of chronic radial acceleration action are discussed.

SUB CODE: LS

ENCL: 00

Cera 2/2

ROZENBLYUM, P.H.,; GORSHENIN, V.S., inzh.

Modernized differential relay with saturable transformers. Elek.  
sta. 35 no.6:58-63 Je '64.

(MIRA 18:1)

FRADKIN, A.Ye., kand.tekhn.nauk; ROZENI LYUM, I.S., inzh.

Stabilization and remote control of the consumption of liquid fuel  
in industrial furnaces. Trudy GIEKI no.4:93-98 '60. (MIRA 15:1)  
(Ceramic industries--Equipment and supplies) (Remote control)

ROZENBLYUM, I.S.; MANUSOV, Ye.B.

Automatic control of the firing process in tunnel kilns. Stek.i  
ker. 18 no.9:25-29 S :61. (MIRA 14:10)  
(Kilns) (Automatic control)

30(1),16(2)

06558

AUTHORS: Arzhanykh, I.S., Rozenblyum, L.M., Landsman, M.I., and Kel'bert, S.L. SOV/166-59-4-9/10

TITLE: On the Threefold Treatment of the Cotton Shrub by the Cotton Harvester With Vertical Spindles

PERIODICAL: Izvestiya Akademii nauk Uzbekskoy SSR, Seriya fiziko-matematicheskikh nauk, 1959, Nr 4, pp 64-69 (USSR)

ABSTRACT: The authors describe the results of experiments carried out on November 17-28, 1958 on the fields of the Scientific Research Institute for Mechanization and Electrification of the AS Kh N Uz SSR by the laboratory of mechanical cotton harvesters of the Institute of Mathematics and Mechanics at the AS Uz SSR, in order to examine the working of the new cotton harvesters SKhM-48M-ANT-1 and 2 which have an additional pair of spindle barrels and perform a threefold treatment of the shrub. The maximal harvest (88.9%) reached SKhM-48M-ANT-1. Because of the satisfactory results corresponding agricultural machines shall be constructed. The question of the multiple treatment of the shrub was firstly treated by L.M. Rozenblyum in 1949 (patent Nr 86 314, 1949). There are 3 tables and 3 figures.

ASSOCIATION: Institut mekhaniki AN Uz SSR (Institute of Mechanics AS Uz SSR)

SUBMITTED: April 2, 1959

Card 1/1



ACCESSION NR: AT4025435

S/0000/62/000/000/0048/0057

AUTHOR: Rozenblyum, L. Ya.

TITLE: Hypothetical model of a neuron, using a rectangular hysteresis loop core (ferristor)

SOURCE: Nauchno-tekhnicheskoye obshchestvo radiotekhniki i elektrosvyazi. Nauchno-tekhnicheskaya konferentsiya. 16th, Leningrad, 1961. Kibernetika i elektronno-vychislitel'naya tekhnika (Cybernetics and electronic computer technology); materialy\* konferentsii. Moscow, Gosenergoizdat, 1962, 48-57

TOPIC TAGS: ferrite switch, neuron, neural network, logic circuit, computer component, biodynamics

ABSTRACT: After first describing the properties of a biological neuron and the requirements for a hypothetical model of the neuron, the author describes a neuron analog of the "ferristor" type which

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ACCESSION NR: AT4025435

consists of a threshold element proper having a certain number of stimulating and suppressing inputs, and an output amplifier which shapes at the neuron output a standard signal which can stimulate several other inputs without noticeable change in the form and magnitude of the output signal. In addition, the analog contains a feedback loop to simulate the accommodation and refractor nature of the neuron. The threshold element is a rectangular-hysteresis-loop core having several input windings, an excitation winding, and an output winding. An experimental model of the ferristor was constructed to operate at frequency up to 10 kcs, accommodation time of about 5 microseconds, an absolute refractor time of about 100 microseconds, a relative refractor time of about 1100 microseconds, and a synaptic delay of about 1--2 microseconds. These parameters could be modified at will. The ferristor can be used as a logic element for computers and is also used at the computation center (headed by V. I. Varshavskiy) of the Leningrad Division of Matematicheskii institut im. Steklova Akademii nauk SSSR to model neural networks.

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ACCESSION NR: AT4025435

It is planned to investigate the properties of a network constructed of a relatively large number of neurons and enclosed in a heavy internal feedback loop. Orig. art. has: 8 figures and 4 formulas.

ASSOCIATION: None

SUBMITTED: 01Sep62

DATE ACQ: 07Apr64

ENCL: 01

SUB CODE: DP

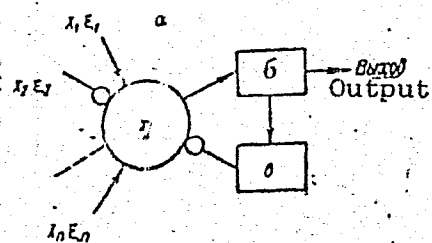
NR REF SOV: 002

OTHER: 004

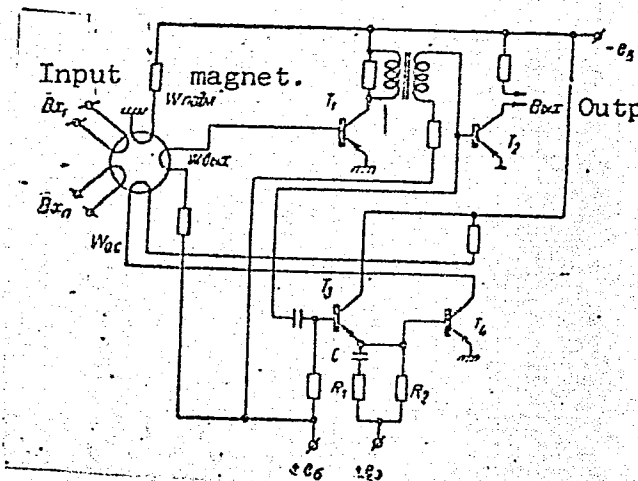
Card 3/4

ACCESSION NR: AT4025435

ENCLOSURE: 01



Block and schematic diagrams of ferristor



Card 4/4

L 10915-67 EWT(d)/EWF(1) IJP(c) BB/CG/GD  
ACC NR: AT6020527 SOURCE CODE: UR/0000/65/000/000/0080/0125

AUTHOR: Bogolyubov, I. N. ; Ovsiyevich, B. L. ; Rozenblyum, L. Ya. 37

ORG: none

TITLE: Synthesis of threshold and majority logic circuits 166

SOURCE: AN SSSR. Institut problem peredachi informatsii. Seti peredachi informatsii i ikh avtomatizatsiya (Circuits for information transfer and their automation), Moscow, Izd-vo Nauka, 1965, 80-125

TOPIC TAGS: logic design, computer logic, switching theory, circuit theory, logic element

ABSTRACT: The authors present a systematic survey of threshold and majority logic and in addition supply some original results. The threshold elements are defined. The necessary and sufficient criteria for the realization of a threshold logic function with arbitrary number of variables are derived by considering the results of a two-person zero-sum game. Simplified methods of function realization are presented where the realizability conditions are necessary but not necessarily sufficient. Later, sufficient conditions are found for a limited number of variables. The synthesis of linear-input threshold circuits are analyzed by reducing the

Card 1/2

L 10915-67

ACC NR: AT6020527

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problem of finding the weights of inputs and the threshold level to the problem of linear programming. Simplification methods for functions of n-variables are presented. The synthesis of a ternary threshold circuit is given as an example. The majority elements are defined. The synthesis of 3 and 5 input elements are stressed. It is shown how the number of inputs may be extended by using the tree methods of Cahn and Lindman. The methods of optimization of functions by minimizing the number of circuits, increasing their speed, and reducing their cost are shown. The possible trade-offs between these factors are analyzed. The realization of majority logic elements by ternary logic elements is considered. Orig. art. has: 65 formulas, 15 tables, and 17 figures.

SUB CODE: 09/ SUBM DATE: 04Dec65/ ORIG REF: 012/ OTH REF: 058

Card 2/2 <sup>670</sup>

RCZENBIYUM, L.Ya.

A method for the synthesis of majority systems. Izv. vys.  
usheb. zav.; prib. 8 no.5:86-90 '65. (MIRA 18:10)

1. Vychislitel'nyy tsentr Leningradskogo otdeleniya matemati-  
cheskogo instituta imeni Steklova AN SSSR. Rekomendovana  
Vychislitel'nyy tsentrom Leningradskogo otdeleniya matemati-  
cheskogo instituta imeni Steklova AN SSSR.

VARSHAVSKIY, V.I. (Leningrad); ROZENBLYUM, L.Ya. (Leningrad)

Functional divisibility in majority networks. Izv. AN SSSR.  
Tekh. kib. no.4:60-64 J1-Ag '65. (MIRA 18:11)



L 44760-65

ACCESSION NR: AP5007247

S/0280/65/000/001/0028/0033

AUTHOR: Varshavekiy, V. L. (Leningrad); Rozenblyum, L. Ya. (Leningrad) 4/3

TITLE: Synthesizing pyramidal circuits from majority elements

SOURCE: AN SSSR. Izvestiya. Tekhnicheskaya kibernetika, no. 1, 1965, 28-33

TOPIC TAGS: pyramidal circuit

ABSTRACT: The expansion formula for any function of the algebra of logic suggested by R. Lindaman and M. Cohn (IRE Trans., EC-10, 1961, no. 1) does not always result in economical solutions; it is most effective when the original function is symmetrical with respect to the variables  $x_i$  and  $x_j$  or  $x_i$  and  $\bar{x}_j$ . The formula permits synthesizing (pyramidal) circuits having any number of inputs by successive elimination of variables. The present short article suggests the possibility to contract the above expansion in the general form. Also, a mixed expansion is proposed. Orig. art. has: 6 figures, 20 formulas, and 7 tables.

ASSOCIATION: none

SUBMITTED: 02Nov63

ENCL: 00

SUB CODE: DP, MA

NO REF SOV: 000

OTHER: 001

B-8  
Card 1/1

VARSHAVSKIY, V.I. (Leningrad); ROZENBLYUM, L.Ya. (Leningrad)

Minimization of pyramidal networks consisting of majority  
components. Izv. AN SSSR. Tekh. kib. no.3:24-29 Ja '64.  
(MIRA 17:10)

ARKHANGEL'SKIY, V.N.

"Surgical therapy of exfoliation of the retina." Reviewed by V.N. Arkhan-  
gel'skii. Vest.oft. 32 no.2:47 Mr-Ap '53. (MLRA 6:5)  
(Retina--Diseases) (Rozenblum, M.E.)

VYSOTSKAYA, K.P., dotsent (Irkutsk, Baykal'skaya ul., d.58-g);  
LIYV, E.Kh. [Liiv, E.] (Tartu, Estonskaya SSR, ul. Kalevi,  
d.106-a, kv.3); TIKHANE, Kh.M. [Tihane, H.]; ROZENBLYUM,  
M.B. (Minsk, ul. Kirova, d.2, kv.43); VELLER, D.G. (Khar'kov,  
Kostomarovskaya ul., d.18, kv.19); CHERKASOVA, T.I. (Moskva,  
ul. Markhlevskogo d.15, kv.14); DEDOVA, V.D.

Abstracts of articles received by the editors. Ortop.,  
travm. i protez. 24 no.3:73-76 Mr '63.

(MIRA 17:2)

1. Iz fakul'tetskoy khirurgicheskoy kliniki (zav. kafedroy -  
prof. B.D. Dobychin) Irkutskogo meditsinskogo instituta  
(rektor - prof. A.M. Nikitin) (for Vysotskaya). 2. Iz  
Tartuskoy gorodskoy klinicheskoy bol'nitsy (for Liyv,  
Tikhane). 3. Iz khirurgicheskogo otdeleniya (zav. kand.  
med. nauk G.M. Yakovenko) mediko-sanitarnoy chasti Minskogo  
traktornogo zavoda (for Rozenblyum). 4. Iz Tsentral'nogo  
instituta travmatologii i ortopedii (dir. - prof. M.V.  
Volkov) (for Cherkasova, Dedova).

L 38780-66 EWP(k)/EWT(d)/EWP(h)/EWP(l)/EWP(v) BC

ACC NR: AP6027204

SOURCE CODE: UR/0193/66/000/006/0019/0020

AUTHOR: Svidler, K. N.; Rozenblyum, M. G.

ORG: none

37  
B

TITLE: Alphanumeric output unit for a digital control computer 14

SOURCE: Byulleten' tekhniko-ekonomicheskoy informatsii, no. 6, 1966, 19-20

TOPIC TAGS: computer output unit, telegraph signal

ABSTRACT: A digital control computer output unit is described which can convert parallel output alphanumeric information from the computer into a 5-bit start-stop

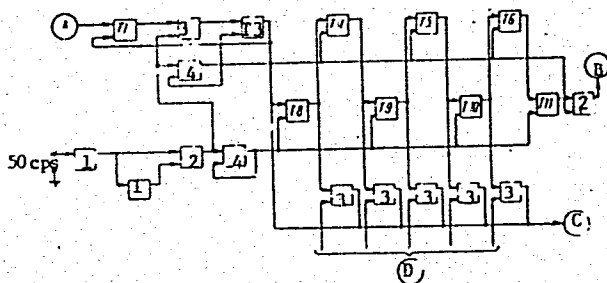


Fig. 1. Block diagram of the output unit

1 - Delay element; 2 - inhibit element; 3 - gate; 4 - NAND gate; T<sub>1</sub>,...T<sub>11</sub> - flip-flops.

Card 1/2

UDC: 681.142.32

L 38780-66

ACC NR: AP6027204

telegraph code. The unit (see Fig. 1) is based on core-diode building blocks and uses the 50 cps line frequency for synchronization. The 6.3 v 50 cps voltage derived from the power line is shaped by two delay elements and an inhibitor gate which gives out 20 msec system clock pulses. The flip-flops are arranged into a shift register circuit in which upon command the T3 flip-flop generates a start pulse and succeeding flip-flops (T<sub>8</sub>, T<sub>4</sub>, T<sub>9</sub>, T<sub>5</sub>, T<sub>10</sub>), actuated for every 20 msec, open the corresponding gates between the accumulator output of computer D and a single output telegraph line C. The stop pulse is generated when T<sub>6</sub>, T<sub>11</sub> are active, after which an end of message may be sent. The unit may accommodate other codes if its shift register is expanded accordingly. Orig. art. has: 1 figure. [BD]

SUB CODE: 09/ SUBM DATE: none/ ATD PRESS: 5051

17/

Card 2/2 *H*

ROZENBLYUM, N.

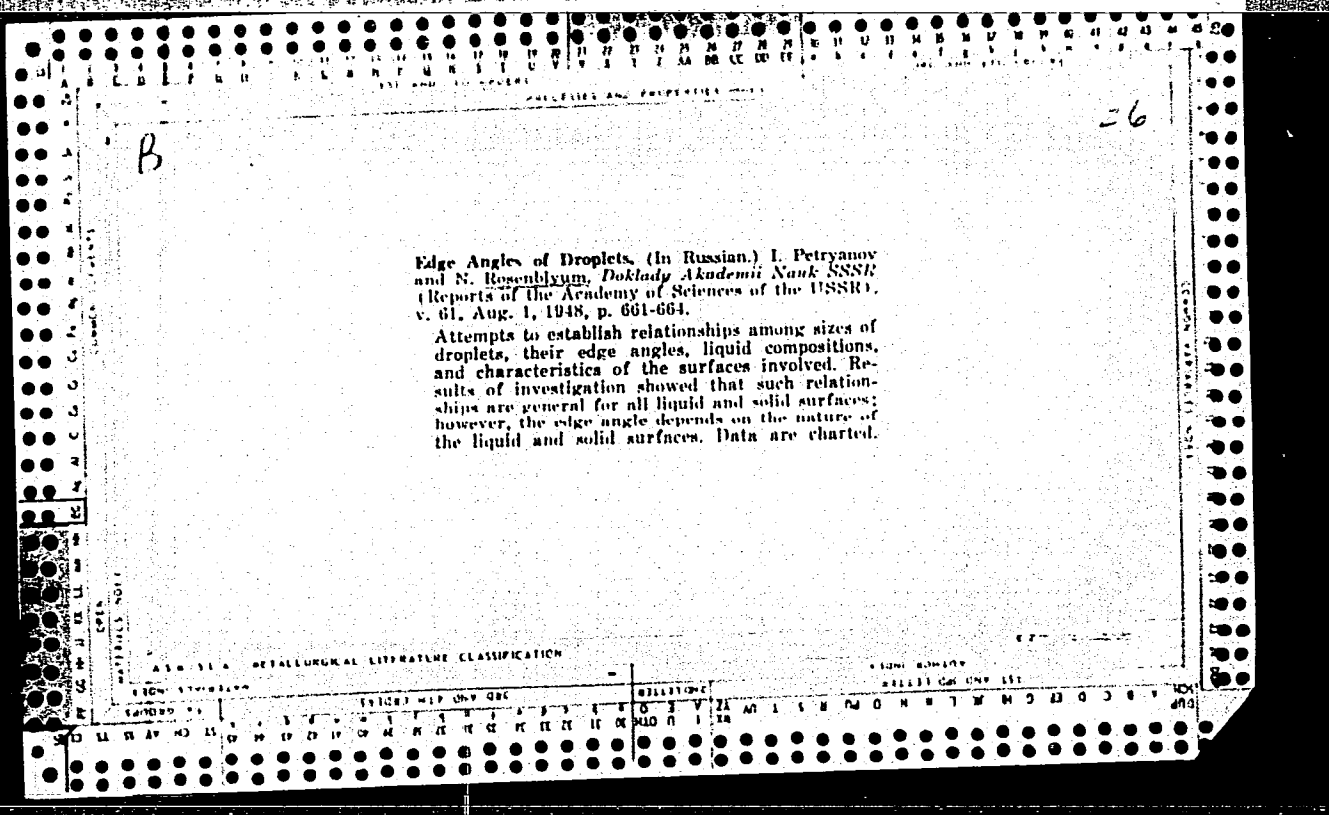
"Outer Angles in Small Droplets," Dok. AN, 61, No.4, 1948.  
Mbr., Physico-Chemical Inst. in L. Ya. Karpov., Dept. Chem. Sci., Acad. Sci., -c1948-

PETRIANOV, I.; ROZENBLYUM, N.

On the Contact-Angles of Small Droplets

Dok Akad Nauk, 51, 1948, 4, 661-4





ROZENBLYUM, N.D.

Graphic method for determining the elements of the parabolic orbit of a  
meteor stream. Biul. VAGO no. 11:15-19 '52. (MLRA 6:6)  
(Meteors) (Orbits)

ROZENBLYUM, N.D.

Conditions under which the noctilucent clouds are visible. Biul.  
VAGO no.12:20-25 '53. (MLRA 7:3)

1. Moskovskoye otdeleniye VAGO.

(Clouds)

ROZENBLYUM, N.D. (Moskva)

Approximate method for determining the height of meteors from one-sided photographic observations. *Biul. VAGO no.19:46-53 '56.*

(MLRA 10:3)

1. Moskovskoye otdeleniye Vsesoyuznogo astronomo-geodezicheskogo obshchestva, meteornyy otdel.

(Meteors) (Astronomical photography)

ROZENBLYUM, N.D., (Moskva)

Giving greater accuracy to some formulas of meteor astronomy's letter to the editor. Biul. VAGO no.19:74-75 '56. (MIRA 10:3)

1. Moskovskoye otdeleniye Vsesoyuznogo astronomo-geodezicheskogo obshchestva, meteornyy otdel.  
(Meteors)

ROSENBLUM, N.D.

Processing meteor photographs on stereocomparator. Astron.tsirk.  
no.168:22-23 '56. (MLRA 9:8)

1.Meteornyy otdel Vsesoyuznogo astronomo-geodezicheskogo  
obshchestva.  
(Meteors) (Astronomical photography)

ROZENBLYUM, N.D.

Using tables in determining approximate elements of parabolic orbits of meteor showers. *Biul.Kom.po komet. i meteor.* AN SSSR no.1:35-42 '57. (MIRA 12:5)

1. Moskovskoye otdeleniye Vsesoyuznogo astronomogeodezicheskogo obshchestva, *Meteornyy otdel.*  
(Meteors)

KOZENBLYUM, N.D.

(1)

PHASE I BOOK EXPLOITATION

804/5011

Vsesoyuznoye astronomo-geofizicheskoye obshchestvo

Bulleten', no. 2 / 52/ (Bulletin of the All-Union Astronomical and Geodetic Society, Nr 25 / 52/) Moscow, Izd-vo AN SSSR, 1979. 50 p. 1,500 copies printed.

Sponsoring Agency: Akademiya nauk SSSR.

Editorial Board: V.V. Fedynskiy (Resp. Ed.), M.S. Bobrov (Deputy Resp. Ed.), M.M. Dugayev, I.T. Lotkin, A.A. Isotov, P.P. Parenago, P.I. Popov, V.A. Bronshtan (Scientific Secretary)

PURPOSE: This booklet is intended for astronomers and geophysicists.

COVERAGE: This is a collection of 14 articles on various questions in astronomy. Among the problems treated are: determining the age of lunar formation by analyzing meteoritic crater distribution, atmospheric extinction in the occurrence of noctilucent clouds, star brilliance, solar cycles, meteor and comet studies. There is an article on the 12th Moscow Astronomical Olympiad competition for students of astronomy and geodesy. References accompany individual articles.

Vasil'yev, O.B. Accounting for Atmospheric Extinction in the Observation of Noctilucent Clouds	24
Goloborod'ko, T.A. Statistical Relationship Between the Amplitude of the Variations in the Brilliance of Variable Stars and Their Spectral Class	26
Pyshenko, Y.N., and M.N. Pyshenko. Observations of the Comets Arvid-Boland and Mrkos in 1957	31
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Rosenblyum, N.D. Processing a One Sided Photograph of the Meteor 9-10 of December 1950	37
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Mil'khiker, M.A. Results of Observations of the Solar Eclipse of June 30, 1954, in the Town of Cherkassy	44
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KULAGIN, S.G.; KOVBASYUK, L.D.; DAGAYEV, M.M.; ROZENBLYUM, N.D.; YEGORCHENKO, I.F. (Irkutsk); KAVERIN, A.A. (Irkutsk); KONSTANTINOVA, T.G. (Irkutsk); KUKLINA, V.A. (Irkutsk); KUKLIN, G.V. (Irkutsk); SAZONOVA, Z.G., (Irkutsk); CHERNYKH, L.I. (Irkutsk); CHERNYKH, N.S. (Irkutsk); DEMIDOBICH, Ye.G.; BRONSHTEN, V.A.; YAKHONTOVA, N.S. (Leningrad); PEROVA, N.B.; DOKUCHAYEVA, O.D.; KATASEV, L.A.; KLYAKOTKO, M.A.; PARENAGO, P.P.; SHCHERBINA-SAMOYLOVA, I.S.; MASEVICH, A.G.; RYABOV, Yu.A.; SHCHEGLOV, V.P.; PEREL', Yu.G.; MARTYNOV, D.Ya.; FEDYNSKIY, V.V.; VORONTSOV-VEL'YAMINOV, B.A.; ZIGEL', F.Yu.; BAKULIN, P.I., *otv.red.*; RAKHLIN, I.Ye., *red.*; AKHLAMOV, S.N., *tekh.red.*

[Astronomical calendar] *Astronomicheskii kalendar'*. [A yearbook; variable section for 1959] *Ezhegodnik. Peremennaya chast'*, 1959. *Red.kollegiia P.I. Bakulin i dr. Moskva, Gos.izd-vo fiziko-matem.lit-ry*, 1958. 370 p. (*Vsesoiuznoe astronomo-geodezicheskoe obshchestvo*, no.62) (MIRA 12:2)

1. *Gosudarstvennoye astronomo-geodezicheskoye obshchestvo* (for Kulagin, Kovbasyuk, Demidovich). 2. *Moskovskoye otdeleniye Vsesoyuznogo astronomo-geodezicheskogo obshchestva* (for Dagayev, Rozenblyum, Bronshten, Perova).

(Astronomy--Yearbooks)

ROZENBLYUM, N.D.

Graphic processing of observations of noctilucent clouds with  
theodolites. Biul.VAGO no.26:39-40 '60. (MIRA 13:10)

1. Moskovskoye otdeleniye Vsesoyuznogo astronomo-geodezicheskogo  
obshchestva.

(Clouds)

26.1640

S/OB9/51/010/001/012/020  
B006/B063

AUTHORS: Mitel'man, M. G., Yerofeyev, R. S., Rozenblyum, N. D.

TITLE: Conversion of Energy of Short-lived Radioactive Isotopes

PERIODICAL: Atomnaya energiya, 1960, Vol. 10, No. 1, pp. 72-73

TEXT:  $\alpha$ - and  $\beta$ -active isotopes produced by interaction between neutrons and matter may be used as emitters of charged particles, and a potential difference can be effected by gathering these particles on a collector. Basing on this principle, it is possible to build converters consisting of an emitter and a collector which are separated by a solid dielectric or a vacuum. The current supplied by such a converter is proportional to the number of charged particles leaving the emitter.  $A = (N_a \sigma n G / M) (1 - \exp(-0.693t/T))$ , where  $N_a$  is the Avogadro number;  $\sigma$  is the neutron-capture cross section;  $n$  is the neutron flux;  $G$  is the mass of the emitter;  $M$  is the atomic weight of the emitter substance;  $T$  is the half-life of the forming isotope; and  $t$  is the time of irradiation of the emitter. If  $t$  is much greater than  $T$ , the number of charged particles is independent of

Card 1/3

Conversion of Energy of Short-lived Radioactive Isotopes S/089/60/010/001/012/020  
B006/B063

time, and if  $t$  is much smaller than  $T$ , it is proportional to the time of exposure; this means that only a substance with the smallest possible value of  $T$  will ensure steady operation of the converter. Moreover,  $\sigma$  should be as great as possible. Experiments were made with  $Rh^{103}$  ( $\sigma = 150$  b). The resulting  $Rh^{104}$  emits  $\beta$ -particles with an energy of 2.5 Mev and has a  $T$  value of 41.8 sec. Such an element consists of a rhodium wire (diameter, 0.8 mm; weight, 0.42 g) which is coated with an isolating varnish and a polyethylene film 1.5 mm, and is placed in an aluminum container serving as a collector. The element was placed in a hole of the research reactor of the Institut atomnoy energii AN SSSR im. I.V.Kurchatova (Institute of Atomic Energy AS USSR imeni I. V. Kurchatov). There, it was exposed to a neutron flux of  $10^{12}$  n/cm<sup>2</sup>.sec ( $4.2 \cdot 10^{-8}$  a; external resistance,  $10^{10}$  ohms, 420 v). The electrons released by neutron bombardment can supply a current of  $6 \cdot 10^{-8}$  a which is, however, reduced by absorption. Thereupon, the converter was introduced into a hole with  $10^{10} - 10^{11}$  n/cm<sup>2</sup>.sec. The current dropped to  $1.6 \cdot 10^{-9}$  a within two minutes. Such a converter may be used as a source of constant high frequency and for the determination of neutron fluxes. Finally, the optimum choice of  $t/T$  for a given neutron

Card 2/3

Conversion of Energy of Short-lived Radioactive Isotopes S/089/61/010/001/012/020  
B006/B063

flux is discussed. The optimum value corresponds to an equilibrium concentration of the isotope obtained and ensures steady operation. There are 1 figure and 1 Soviet reference.

SUBMITTED: April 22, 1960

X

Card 3/3

37427

S/190/62/004/005/001/026  
B119/B101

5.3431

AUTHORS: Kocherginskaya, L. L., Rozenblyum, N. D., Stasyuk, Kh. A.

TITLE: Preparation and properties of ion exchange films from graft copolymers on the basis of polyolefins and some monomers

PERIODICAL: *Vysokomolekulyarnyye soyedineniya*, v. 4, no. 5, 1962, 633-636

TEXT: Ion exchange membranes were prepared by radiation grafting of styrene or mixtures of styrene and acrylonitrile on films of high-pressure polyethylene or of the ethylene copolymer with 15% propylene (CEP-15) (film thickness: 30 and 15  $\mu$ ) and by subsequent sulfonation. Cobalt-60 was used as radiation source. The radiation dose was varied between 1.03 and 16.5 megarad, the mixing ratio acrylonitrile - styrene between 0 : 100 and 20 : 80, and the solvent for the monomer was also varied. The electrical resistivity in a 1 N NaCl solution, the extensibility, and the tensile strength of the resulting membranes were measured. Results: The electrical resistivity decreases as the content of graft monomer increases; whereas the ion exchange capacity increases. Extensibility and

Card 1/2

20776-55 EWP(j)/EWT(m)/ETC(f) GG/RM/JS

ACC NR: AP6022136

SOURCE CODE: UR/0080/65/038/012/2662/2665

AUTHOR: Kocherginskaya, L. L.; Rozenblyum, N. D.; Stasyuk, Kh. A.; Zhitkova, L. G.; Breger, A. Kh.

ORG: none

32  
B

TITLE: Obtaining ion-exchange membranes by the pre-irradiation method

SOURCE: Zhurnal prikladnoy khimii, v. 38, no. 12, 1965, 2662-2665

TOPIC TAGS: phosphorylation, ion exchange membrane, gamma irradiation, sulfonation

ABSTRACT: To verify the possibilities of the pre-irradiation method, polystyrene films were irradiated on a unit used for radiation-chemical research with  $Co^{60}$  gamma-radiation source (dose strength -- 0.15 megarad/hour) in the presence of atmospheric oxygen. The peroxide group content in irradiated films was determined by an iodometric method. It was established that the peroxide group content at room temperature does not vary over a period of two to three months. Grafting of the monomer was carried out in air at an elevated temperature outside the irradiated zone. For introduction of ionogenic groups, the grafted films underwent sulfonation, saponification, or phosphorylation. It was found that the presence of an oxidation inhibitor

Card 1/2

UDC: 661.183.123

ACC NR: AP6022136

in the polyolefin films, introduced during their manufacture, does not affect rate of monomer grafting (the monomers were purified by agitation with 20% NaOH, rinsed with distilled water, dried over calcium chloride, and distilled at reduced pressure). Conditions were selected for radiation grafting by the pre-irradiation method, with styrene and acrylonitrile in the ratio of 85:15, from an 80% solution of this mixture in methanol. Orig. art. has: 3 figures and 2 tables. JPRS

SUB CODE: 07 / SUBM DATE: 10Dec63 / ORIG REF: 002 / OTH REF: 005

Card 2/2

JS



ACC NR: AP6034151

SOURCE CODE: UR/0076/66/040/010/2464/2467

AUTHOR: Rozenblyum, N. D.; Bubyreva, N. S.; Bukhareva, V. I.; Kazakevich, G. Z.

ORG: All-Union Scientific Research Institute of Power Sources (Vsesoyuznyy nauchno-issledovatel'skiy institut istochnikov toka)

TITLE: Silver diffusion in silver oxides

SOURCE: Zhurnal fizicheskoy khimii, v. 40, no. 10, 1966, 2464-2467

TOPIC TAGS: silver, silver electrode, silver zinc battery, oxide formation, metal diffusion

ABSTRACT: Solid diffusion of silver in silver suboxide  $Ag_2O$  and in silver oxide  $AgO$  has been studied at different temperatures as a means of evaluating the oxidation rate of a silver electrode in silver-zinc electrochemical power sources. The diffusion coefficient  $D$  of silver, was determined by contact method using an  $Ag^{110}$  isotope as the diffusing tracer, was found to vary in  $AgO$  from  $10^{-16}$  to  $10^{-13} \text{ cm}^2 \cdot \text{sec}^{-1}$  in the 20—85C range and in  $Ag_2O$  from  $10^{-12}$  to  $10^{-10} \text{ cm}^2 \cdot \text{sec}^{-1}$  in the 20—163C range. Diffusion equations were established from the plots of  $D$  versus temperature for  $Ag \rightarrow AgO$  and  $Ag \rightarrow Ag_2O$  transfers within the indicated temperature ranges. The difference in  $D$  between  $AgO$  and  $Ag_2O$  was explained as different mechanisms of diffusion. Diffusion in  $AgO$  occurs by interstitial migration

Card 1/2

UDC: 541.17

ACC NR: AP6034151

of Ag atoms and in  $Ag_2O$  by migration between vacancies (lattice points) of the crystal lattice. Orig. art. has: 2 figures and 1 table. [WA-100]

SUB CODE: 07, 10/ SUBM DATE: 16Oct65/ ORIG REF: 005/ OTH REF: 003

Card 2/2

BUBYREVA, N.S.; DOLIN, P.I.; KONONOVICH, A.A.; ROZENBLYUM, N.D.

Radiolysis of water vapor in the presence of oxide semiconductors  
ZnO and V<sub>2</sub>O<sub>5</sub>. *Kin. i kat.* 6 no.5:936-938 S.O '65.

(MIRA 18:11)

MITELMAN, M.G., inzh.; KONONOVICH, A.A., inzh.; ROZENBLYUM, N.D., doktor  
khimicheskikh nauk; KIRSANOV, V.S., inzh.; ~~ZAGADKIN, V.A.~~; tekhnik

Nuclear high-voltage sources. Elektrotehnika 35 no.7:42-44 '64.  
(MIRA 17:11)

ACCESSION NR: AP4029696

S/0089/64/016/004/0351/0353

AUTHORS: Kononovich, A.A.; Mitel'man, M.G.; Rozenblyum, N.D.

TITLE: Calculating the nuclear sources of a direct-charge current

SOURCE: Atomnaya energiya, v. 16, no. 4, 1964, 351-353

TOPIC TAGS: energy conversion, radioactive radiation,  $\beta$  particle spectrum, Sr sup 90, I sup 90, isotope, charging current, emitter, collector, infinite electrode, self absorption, duraluminum

ABSTRACT: Described in this report is an attempt to calculate a voltage source produced by a direct charge based on a simple principle. The primary beta-particles of a radioactive isotope escape from an emitter and gather in a collector. The charging current produces a potential difference between the electrodes located in a high vacuum, and is determined by the general activity and spectrum of the beta-particles of the employed radioactive preparation. It is determined also by the voltage on the source electrodes, the geometry of the electrodes, the leakage current produced on the collector by the secondary emission of beta-particles, and the self-

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ACCESSION NR: AP4029696

absorption of beta-particles which reduces the effectiveness of the preparation and displaces the peak of the beta-particle spectrum in the direction of higher energies. The emitter consisted of a plate measuring 100 x 60 mm;  $Pm^{147}$  preparations were attached onto that plate. The sheet duraluminum lining the walls of the vacuum chamber served as a collector. The insulation resistance was about  $10^{14}$  ohms, and the capacitance of the system about 10 picofarads. The discrepancy between the experimental and estimated results can be explained by the inaccurate definition of such parameters as resistance, capacitance, activity, etc. Orig. art. has: 2 figures and 3 formulas.

ASSOCIATION: None

SUBMITTED: 14Mar63

DATE ACQ: 01May64

ENCL: 00

SUB CODE: NP

NR REF SOV: 002

OTHER: 003

Card 2/2

U ZHUN-ZHUY [Wu Jung-juí]; STASYUK, Kh.A.; KOCHERGINSKAYA, L.A.;  
ROZENBLYUM, N.D.; KONKIN, A.A.; ROGOVIN, Z.A.

Radiation grafting of vinyl monomers to polyolefin fibers. Khim.  
volok. no.5:12-15 '63. (MIRA 16:10)

1. Moskovskiy tekstil'nyy institut.

D'YAKOV, A.A.; ROZENBLYUM, R.G.

Kinetics of chemical nickel plating (conditions of a  
single use of solution). Zhur. prikl. khim. 38 no.3:589-  
596 Mr '65. (MIRA 18:11)

1. Submitted June 22, 1963.



1ST AND 2ND ORDERS      PROCESSES AND PROPERTIES INDEX      3RD AND 4TH ORDERS

ROZENBLYUM, R.M.

METHOD FOR THE GRAPHICAL DETERMINATION OF THE CRITICAL POINTS OF STEEL FROM DIFFERENTIAL DILATOMETRIC CURVES. AN Chervyakov and RM Rozenblum. *Zavodskaya Laboratoriya* 1949, vol. 15, №, pp 610-612. In Russian. A geometrical method of examining differential dilatometric curves is proposed. In this method the curve is transposed into an oblique angle system of coordinates. The abscissae have the direction of the displacement of the light spot along the photographic plate when the standard specimen along the photographic plate when the standard specimen alone in the upper quartz tube of the dilatometer acts on the prism (or mirror). Similarly the direction of the ordinate corresponds to that of the movement of the light spot during the action on the same prism (or mirror) of the specimen under test alone in the lower quartz tube of the dilatometer. Curves of this type are shown to be capable of giving accurate values for the critical points of steels.

ASS-SLA METALLURGICAL LITERATURE CLASSIFICATION      REGION NOMINALLY

Common Element      MATERIALS INDEX      OPEN      MATERIALS INDEX      COMMON ELEMENT

1ST GROUPS      2ND GROUPS      3RD GROUPS      4TH GROUPS      5TH GROUPS      6TH GROUPS      7TH GROUPS      8TH GROUPS      9TH GROUPS      10TH GROUPS

KOCHERGINSKAYA, L.L.; ROZENBLYUM, N.D.; STASYUK, Kh.A.

Preparation and properties of ion exchange films of graft  
copolymers based on polyclefins of some monomers. Vysokom.  
soed. 4 no.5:633-636 My '62. (MIRA 15:7)

1. Vsesoyuznyy institut istochnikov toka.  
(Plastic films) (Polymers)

GURDZHI, Ye.S.; ROZENBLYUM, N.I.; KOPYTINA, M.S.; KHARITONOVA, G.N.;  
NIKONOVA, V.B.; SABUROVA, A.V.

The "PPK-1" preparation composition for the formation of  
nylon fibers. Khim. volok. no.2:60-61 '65. (MIRA 18:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo  
volokna (for Gurdzhi, Rozenblyum, Kopytina). 2. Klinskiy kombinat  
(for Kharitonova, Nikonova). 3. VNIISV (for Saburova).

BUZKOV, A.I.; HOZHENLYUM, R.G.

Determination of hypophosphite in solutions of chemical nickel  
plating. Zav. lab. 30 no.10:1216 '64. (MGRA 18:4)

ROZENBLUM, R. M.

PA 169T62

USSR/Metals - Testing

Sep 50

"Apparatus for Determination of the Electrical Resistance of Alloys at High Temperatures," R. M. Rozenblum, Ye. K. Novikova, Cen Sci Res Inst of Ferrous Metallurgy

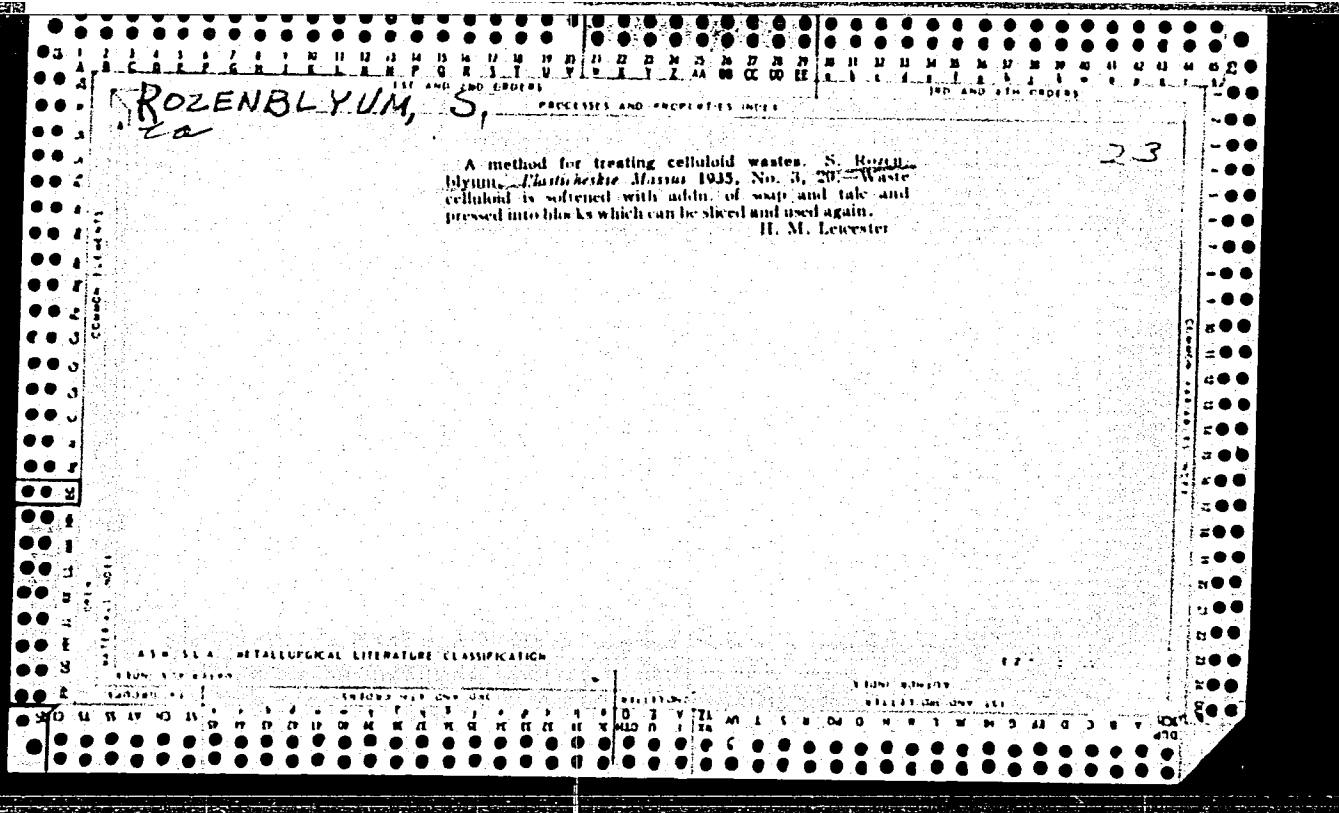
"Zavod Lab" Vol XVI, No 9, pp 1135

Device consists of tube electric furnace and precision double Thomson bridge. Heating is conducted in atmosphere of neutral gas-Ar or N. A Pt vs Pt-Rh thermocouple is used. Apparatus satisfies all conditions required.

169T62

ROZENBLYUM, S., arkhitektor; VOINOV, N., inzh.

Standard plans for two-story apartment houses in the 1-24 series.  
Zhil. stroi. no.12:23-25 '61. (MIRA 15:2)  
(Uzbekistan--Apartment houses)



ROZENBLYUM, S.G.

Structural changes in the 7417-type slotting machine manufactured  
by the Chkalov Machinery Plant. Mod. metallorezh stan. no.1:  
24-29 '58. (MIRA 12:12)

(Machine tools)



ROZENBLYUM, S.G.

Structural changes in the 7A590-type automatic slot-broaching  
machine made by the Melitopol' Machine-Tool Plant. Mod.  
metallerezh.stan. no.2:37-41 '58. (MIRA 13:5)  
(Melitopol'--Machine tools)

ROZENBLYUM, S. I.

THE PATHOLOGY AND PROPERTIES OF  
 kidney disorders. S. I. Rozenblyum. *Trav. Acad. militaire med. armee rouge* 1937, 2, 10-28 (1935).  
*Chem. Zentr.* 1937, I, 1720-1. The basal metabolism according to Krough and Knipping in disorders of the kidney was studied. There was an increase in the rate of infectious conditions. In the case of noninfectious disorders no noticeable change could be detected. The detn. of the dynamic effect of sugar in these cases permitted the detection of certain peculiarities in various types of renal disorders. In cancerous conditions the respiratory quotient is very low. This substantiates the fact that the carbohydrate metabolism is altered in the sense of an incomplete oxidation, which is in agreement with data on the metabolism of cancerous tissue. M. G. Moore

ROZENBLYUM, S.Ye., instruktor kul'turnogo obslyzhvaniya bol'nykh.

Cultural activities for patients under institutional therapy.  
Med.sestra 17 no.5:30-33 My '58 (MIRA 11:6)

1. Nauchno-issledovatel'skiy ordena Trudovogo Krasnogo Znameni  
institut neyrokhirurgii imeni akad. N.N. Burdenko Akademii medi-  
tsinskikh nauk SSSR, Moskva.

(INVALIDS--RECREATION)

(HOSPITALS)

ROZENBLYUM, S.Ye

The role of books in bedside care of the sick. Med. sestra no.  
7:20-24 JI '54. (MLRA 7:7)

1. Instruktor kul'turnogo <sup>obsluzhivaniya</sup> obsluzhivaniya bol'nykh Instituta  
neyrokhirurgii imeni N.N.Burdenko, Moskva.  
(BIBLIOTHERAPY)

\*

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99TH AND 100TH LETTERS

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99TH AND 100TH LETTERS

CA

Lubricants of low pour point. K. S. Ramalya, T. A. Rozenblyum, M. A. Shegroya, E. L. Litvintseva, and E. A. Shmidt. U.S.S.R. 61,988, Jan. 31, 1915. Alkylphenols, produced by condensation of chlorinated paraffin with phenol in the presence of AlCl<sub>3</sub>, or alkylphenyl phthalates, produced by causing these alkylphenols to react with phthalic anhydride or chloroanhydride, are used as addn. agents in lubricants in order to prevent the sepn. of paraffin and ceresin. M. Hosh

22

ROZENBLYUM, Sergey Germanovich, kand. tekhn. nauk; ZHUKOVA, V.I., inzh., red.; FOMICHEV, A.G., red. izd-va; GVIRTS, V.L., tekhn. red.

[Decorative finishing of stainless steel in a gold color] Dekorativnaia otdelka nerzhavieiushchei stali v zolotisty tsvet. Leningrad, 1961. 9 p. (Leningradskii Dom nauchno-tekhnicheskoi propagandy. Obmen peredovym opytom. Seria: Zashchitnye pokrytiia metallov, no.3) (MIRA 14:7)

(Steel, Stainless)

(Finishes and finishing)

Kozenblyum, S.G.

25(5) PHASE I BOOK EXPLOITATION 507/2613

Ekspiermental'nyy nauchno-issledovatel'skiy institut metallorazhreshchikh stankov... Otdel modernizatsii...

Modernizatsiya metalloreshchikh stankov; abornik informatsionnykh materialov, Ypp. 2/20/ (Modernization of Metal-cutting Machine Tools; Collection of Informative Materials, Nr 2/20/) Moscow, TsSTI, 1958. 44 p. Errata slip inserted. 5,000 copies printed.

Sponsoring Agency: Glavniyproyekt pri gosplane USSR.

Ed.: A.Ye. Prokopovich; Tech. Ed.: T.Y. Aleksayeva.

PURPOSE: This brochure is intended for designers and manufacturers of machine tool attachments.

COVERAGE: The articles in the brochure briefly describe automatic loading attachments for universal metal-cutting machine tools which are successfully used by various plants. These attachments are used to facilitate the reduction of support time and to ease the work of operators. Specific design changes introduced on currently manufactured spline-broaching machines and representative machine tool modernization projects are also discussed. No personalities are mentioned. There are 21 Soviet references.

Kozenblyum, S.G. Design Changes Introduced on Model 7A590 Automatic Spline-broaching Machine Manufactured by the Melitopol'skiy stankostroitel'nyy zavod imeni 23 Oktabrya (Melitopol' Machine Tool Manufacturing Plant imeni 23 October)

ROZENBLYUM, S. G.

25(5)

PHASE I BOOK EXPLOITATION SOV/2582

Shiferson, Mikhail Mikhaylovich, and Samuil Getselevich Rozenblyum

Modernizatsiya metallovezhushchikh stankov, vyp 19; sbornik informatsionnykh materialov, vyp. 1 (Modernization of Metal-cutting Machine Tools; Nr 19; Information on Bulletin, Nr 1) Moscow, TsBTI, 1958. 35 p. Errata slip inserted. 5,000 copies printed.

Sponsoring Agencies: Eksperimental'nyy nauchno-issledovatel'skiy institut metallovezhushchikh stankov. Otdel modernizatsii, and Glavniiprojekt pri Gosplane SSSR.

Ed.: A. Ye. Prokopovich; Tech. Ed.: T. V. Alekseyeva.

PURPOSE: This collection of articles is intended for engineering and technical personnel engaged in the modernization of metal-cutting machine tools.

COVERAGE: The collection of articles discusses the design of modernized assemblies, mechanisms, and fixtures intended to increase the productivity of grinding machines. Design modifications introduced at the Chkalovskiy stankozavod (Chkalov Machine Tool Plant) on the Model 7417 Slotter are also discussed. No personalities are mentioned. There are 25 references, all Soviet.

Card 1/3



Modernization of Metal-cutting Machine Tools (Cont.)

SOV/2582

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AVAILABLE: Library of Congress

Card 3/3

JG/mg  
11-9-59

RUZHENLICH, S. G.

"Architectural Metal Enclosure," The Municipal Economy of Moscow, 1951.

ROZENBLYUM, S.Ye., instruktor kul'turnogo obsluzhivaniya bol'nykh

Role of positive emotions in the therapeutic and protective  
schedule. Med. sestra 20 no.4:48-50 Ap '61. (MIRA 14:5)

1. Nauchno-issledovatel'skiy ordena Trudovogo Krasnogo Znamani  
institut neyrokhirurgii imeni akad. N.N.Burdenko AMN SSSR.  
(EMOTIONS) (MEDICINE, PSYCHOSOMATIC)

SOV/124-59-1-830

Translation from: Referativnyy zhurnal. Mekhanika, 1959, Nr 1, p 121 (USSR)

AUTHORS: Lur'ye, A.I., Radtsig, M.A., Krol', A.P., Rozenblyum, V.I.

TITLE: The Development Methods for Calculating Turbine Parts Under the Conditions of Creeping

PERIODICAL: Inform. pis'mo Nr 119, Tsent. n.-i. kotloturbinnyy in-t. Moscow-Lenin-grad, Mashgiz, 1953, pp 1-5

ABSTRACT: A short exposition of the development results of calculation methods for the creeping of non-uniformly heated turbine disks of an arbitrary profile and turbine diaphragms is given. The calculation of the unsteady creeping of a turbine disk is based on the variation method proposed by L.M. Kachanov. The distribution of stresses in the state of stationary creeping, necessary for this method, is determined by means of the numerical integration of the system of two equations with respect to two functions, through which the stresses and the deformations in the disk are expressed. To satisfy the boundary conditions it is necessary to integrate the system 2 - 3 times. The calculation is based on the equations of the fluid dynamics. The steady creeping of a turbine diaphragm is schematically considered as a semi-ring of constant thickness, at an arbitrary relation between the

Card 1/2

SOV/125-59-1-830

The Development Methods for Calculating Turbine Parts Under the Conditions of Creeping

creeping rate and the stress. For the determination of the maximum deflection of the diaphragm a very simple method by means of two given graphics is proposed. The effect of the vane deformation can be taken into account, but the calculation appears very difficult.

A.G. Kostyuk ✓

Card 2/2

ROZENBLYIM, V. I.

Distr: LF1/4E2c

### Buckling Problems

(See also Revs. 1199, 1207)

✓ 1183. ~~Rozenblim, V. I.~~ Stability of compressed struts in the presence of creep (in Russian), *Inzhener. Sbornik. Akad. Nauk SSSR* 18, 99-104, 1954.

Paper presents an approximate solution of the problem of stability under conditions of creep of a strut of symmetrical cross section hinged at both ends. The material of the strut, although being elastic, is subject to creep in accordance with the law which assumes the time rate of creep to be proportional to stress, with the coefficient of proportionality being itself a function of stress as well as of time. The strut is assumed to possess an initial curvature in the form of a sine curve. As time goes, the immediate deflection caused by the load is increased further by the creep until at some finite time later the strut collapses. The formulas for the time of development of the deflection, given in the paper, are derived by calculus of variations.

A. Hrennikoff, Canada

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2

1/1

ROZENBLYUM, V. I.

FD-636

USSR/Physics - Plastic shell theory

Card 1/1 : Pub. 85 - 3/12

Author : Rozenblyum, V. I. (Leningrad)

Title : Approximate theory of equilibrium of plastic shells

Periodical : Prikl. mat. i mekh., 18, 289-302, May/June 1954

Abstract : States that the theory of elastic-plastic deformations of thin-walled shells was developed mainly by A. A. Il'yushin ('Plastichnost', GTTI, 1948) and by Yu. N. Rabotnov ("Approximate technical theory of elastic-plastic shells," PMM, 1951, Vol. 15, No. 2). A considerable portion of this theory consists of problems of calculating shells whose material follows the scheme of ideal plasticity (does not admit simplification); here, the main problem is to determine supporting capacity.

Institution : --

Submitted : February 2, 1954



ROZENBLYUM, V.I. (Leningrad)

Calculation of creep of high-pressure compounded turbine diaphragms.

Inzh. sbor. 20:49-54 '54.

(MLRA 8:7)

(Creep of materials) (Turbomachines)

ROZENBLYUM, V. I., and ZERZIN, V. N.

Remanent stresses in welded heterogenous discs of austenitic steel with pearlitic.  
Energomashinostroenie, No 1, p. 19, 1956.

The remanent stresses are investigated in application to the possible construction of welded rotors. The general laws of distribution of remanent stresses are established for the initial state after welding and after tempering. A calculation is made of the remanent stresses in welded heterogenous discs. It is concluded that the remanent stress distribution is the same before and after tempering. Tempering after welding leads to a new state of stress characterized by the appearance of tensile stresses in the austenitic steel and compressive stresses in the pearlitic with stress discontinuities in the welding zone. The calculations are confirmed by experiment. Cyclic heating tests are necessary to evaluate the suitability for operation of heterogenous welded joints.

Abstract - D 470255

ROZENBLYUM, V. I.

"The Bearing Capacity of the Turbine Blade Fork-Root Fixing" Akademiya Nauk SSSR.  
Izvestiya, Otdeleniye Tekhnicheskikh nauk. 1956, no. 4, p. 141-144, diagrs.  
2 refs.

Summary - 519851

ROZENBLYUM, V. I. Cand Tech Sci -- (diss) "Certain Problems of the Calculation of the Creep of Metal Structures." Len, 1957. 8 pp ~~21x~~ 21x 21 cm. (Min of Higher Education USSR, Len Polytechnic Inst im M. I. ~~KALININ~~ Kalinin), 100 copies (KL, 26-57, 109)

AUTHOR: Rozenblyum, V.I. (Leningrad).

24-5-18/25

TITLE: Design of a T-tail of a turbine blade according to the principle of limit loads. (Proyektirovaniye T-obraznogo khvosta turbinnoy lopatki po printsipu predel'nykh nagruzok).

PERIODICAL: "Izvestiya Akademii Nauk, Otdeleniye Tekhnicheskikh Nauk" (Bulletin of the Ac.Sc., Technical Sciences Section), 1957, No.5, pp.122-126 (U.S.S.R.)

ABSTRACT: Detailed theoretical investigation of the stress state of the tail of a blade is difficult and therefore strength calculations are usually made on the basis of "conditional" methods, "the tooth" being calculated for shear and crushing and the neck for tension, Levin, A.V.(1). Photo-elastic investigations (2 and 3) have revealed that the real stress state differs considerably from that obtained on the basis of simplified assumptions. Particularly, considerable local stresses were revealed at the angles of the tail with stress concentration coefficients reaching in some cases the values of two or even three. These results contradict to some extent the experience over many years of trouble-free operation of such tails designed on the basis of simplified calculation methods. This contradiction can be explained by

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Design of a T-tail of a turbine blade according to the principle of limit loads. (Cont.) 24-5-18/25

calculation according to the principle of limit loads. The existence of slight local plastic deformations does not generally bring about a fracture of the tail and is, therefore, admissible. In this paper the limit load is determined for a T-tail and also the most rational configuration of such a tail. It is assumed that the tail fills completely the slot in the disc and that it cannot increase in thickness during its deformation. The contact between the tail and the rim of the disc is effected along the upper edge of the tooth and the contact pressure is assumed constant; according to Drucker (4) the obtained value of the limit load will be lower than the real one in this case. The centrifugal force of the tail is added to the centrifugal force of the blade, thus assuming that there are no body forces in the tail. It was found that the entire area which is in the plastic state is of hyperbolic shape. The theoretical conclusions are utilised for calculating a practical example. Comparison of the configuration of tails which were in operation for a long time is very similar to the configuration arrived at theoretically in this paper.

Card 2/3

AUTHOR: Rozenblyum, V.I. (Leningrad). 24-7-20/28

TITLE: On the adaptability (shakedown) of non-uniformly heated elastic-plastic bodies. (O prisposoblyayemosti neravnomerno nagretykh uprugoplasticheskikh tel).

PERIODICAL: "Izvestiya Akademii Nauk, Otdeleniye Tekhnicheskikh Nauk" (Bulletin of the Ac.Sc., Technical Sciences Section), 1957, No.7, pp.136-138 (U.S.S.R.)

ABSTRACT: Much attention is being paid to the problem of "thermal" fatigue observed during cyclic changes in the temperature of non-uniformly heated components. In this paper the author considers the problem from the point of view of the theory of "adaptability" which permits very simple investigation of certain practically important cases. If the loads applied to an elastic-plastic system vary arbitrarily within given limits the following three cases may occur: the plastic deformation increases indefinitely as a function of time; the plastic deformation changes cyclically within certain limits but remains limited in magnitude; with the progress of time a certain field of residual stresses develops which excludes the possibility of plastic flow during all further changes in the external forces. In the latter case it can be said that the system

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On the adaptability (shakedown) of non-uniformly heated  
elastic-plastic bodies. (Cont.)

24-7-20/28

3/3 There are 8 references, 3 of which are Slavic.

SUBMITTED: March 30, 1957.

AVAILABLE:

*(available in the Thermodynamics)*



ROZENBLYUM, V. I.

AUTHOR: Rozenblyum, V. I. (Leningrad)

24-10-13/26

TITLE: On calculating the temperature stresses in a turbine rotor during starting. (K raschetu temperaturnykh napryazheniy v rotore turbiny pri puske)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1957, No.10, pp.80-83 (USSR)

ABSTRACT: The problem of calculating the non-stationary stresses in steam and gas turbine rotors becomes complicated if the rotor temperature varies along the length of the rotor. A general solution of this problem (for a long cylinder) was published in the form of trigonometric series by N. N. Lebedev (Ref.1) in 1937 and also by Trostel (Ref.2) in 1956. In this brief communication a simple closed solution is derived for the practically frequent case when the temperature of the medium which heats the rotor changes along the rotor axis in accordance with a linear law. First, the solution is considered for the case that the temperature of the rotor is independent of the axial coordinate  $z$  and the values relating to this are denoted by the index "0", Eqs.(1.1), p.80, utilising the results published by Ponomarev, Biderman et alii (Ref.3), then the author considers the case when the temperature of the medium

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24-10-13/26

On calculating the temperature stresses in a turbine rotor during starting.

shows a linear dependence on the coordinate  $z$ . Finally, the stress state is considered in a rotor, the temperature of which is defined by Eq.(2.5), p.81 and equations are derived for the deformations and the stresses in the cylinder. The faces of the rotor can be assumed as being stress free. However, the obtained solutions, Eqs.(3.15), do not satisfy this condition and, therefore, they are suitable only for describing the stress state at some distance from the cylinder faces. To obtain a solution which satisfies all the boundary conditions, it is necessary to deduce from the second equation (3.15) a solution for a cylinder, the lateral surfaces of which are free and the faces of which are loaded with loads as expressed by Eqs.(4.1). Accurate solution of this problem is not known; for a cylinder without a central hole a solution was published by A. I. Lur'e (Ref.6). A simple approximate solution was published by Biderman (Ref.3). It is stated that this non-conformity of the calculated stresses at the faces of the rotor does not cause appreciable distortions in the temperature field defined by Eq.(2.5), p.81, and that this relation can be used

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24-10-13/26

On calculating the temperature stresses in a turbine rotor during starting.

for solving the problem of thermo-elasticity.

There are 1 figure and 6 references, 5 of which are Slavic.

SUBMITTED: February 28, 1957.

AVAILABLE: Library of Congress.

Card 3/3

ROZENBLYUM, V.I. (Leningrad)

Time needed for the desintegration of a rotating disk under  
conditions of creep. Prikl.mat. i mekh. 21 no.3:440-444 My-Je  
'57. (MIRA 10:10)  
(Disks, Rotating) (Creep of materials)

ROZENBLYUM, V.I., inzh.

Calculation and design of the turbine cylinder flange according  
to the principle of limit loads. Energomashinostroenie 4 no.5:  
13-15 My '58. (MIRA 11:9)  
(Steam turbines)

SOV/24-58-6-8/35

AUTHOR: Rozenblyum, V.I. (Leningrad)

TITLE: On the Theory of Shakedown in Elastic-Plastic Bodies (K teorii prisposoblyayemosti uprugoplastycheskikh tel)

PERIODICAL: Izvestiya Akademii Nauk SSSR Otdeleniye Tekhnicheskikh Nauk, Nr 6, 1958, pp 47-53 (USSR)

ABSTRACT: The theory of shakedown of plastic-elastic structures has been worked out principally for columns (Refs 1,2). The general theory has also been studied (Refs 3,4) but its applications are virtually non-existent. However, if we restrict ourselves to approximate solutions then as is seen from this paper results can be obtained which are fully adequate for many applications. The paper takes as its starting point a theorem of Melan (Ref 3). In accordance with this theorem the necessary and sufficient condition for shakedown is the existence of a statically possible field of residual stresses for which the action of any set of loads within given limits is such that the body does not pass beyond its yield point. The case considered is that for which all the loads are proportional to a parameter  $p$ , and the residual stress distribution to a parameter  $q$ . The problem reduces to the

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On the Theory of Shakedown in Elastic-Plastic Bodies

choise of a  $q$  such that the permissible interval of values of  $p$  is a maximum. Some examples of the possibilities are discussed; extension and torsion of a column of circular cross-section; a non-uniformly heated rotating disk; and a body of arbitrary shape whose stressed state is caused by some non-stationary temperature distribution.

There are 10 figures and 10 references (1 German, 1 English and 8 Soviet)

SUBMITTED: December 25, 1957

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21774

S/170/61/004/004/005/014  
B108/B209

26.2/20

AUTHOR: Rozenblyum, V. I.

TITLE: Calculation of thermal stresses in cooled gas turbine vanes

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, v. 4, no. 4, 1961, 32 - 37

TEXT: In conducting this study, the author derived formulas that allow to calculate stresses in a vane arising from a thermal gradient due to internal cooling. This problem is quite important since the majority of modern gas turbines employ hollow, internally cooled vanes. The type of vane concerned is assumed to be a thin-walled hollow aerofoil body with the same linear temperature distribution in the wall all across the profile. The expressions  $t_{out} = a + bx$  and  $t_{inn} = c + dx$  (1) describe the variation of temperature of the outer and inner surfaces with the distance  $x$  from one end of the vane. With the distance  $s$  from any straight reference line along the vane, and with the distance  $z$  from a middle surface of the hollow vane, perpendicular to the walls, the temperature distribution is

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Calculation of thermal stresses ...

$t = t_0 + \beta x + \gamma z + \delta xz$  (2) with  $t_0 = \frac{1}{2}(a + c)$ ;  $\gamma = \frac{1}{h}(a - c)$ ;  
 $\beta = \frac{1}{2}(b + d)$ ;  $\delta = \frac{1}{h}(b - d)$ .  $h$  denotes the wall thickness which is  
 assumed to be uniform all over the profile. The differential equations  
 stating equilibrium in such a hollow body have the following form:

$$\begin{aligned}
 \frac{\partial T_1}{\partial x} + \frac{\partial T_{21}}{\partial s} = 0, \quad \frac{\partial M_1}{\partial x} + \frac{\partial M_{21}}{\partial s} - N_1 = 0, \\
 \frac{\partial T_{12}}{\partial x} + \frac{\partial T_2}{\partial s} + \frac{N_2}{r} = 0, \quad \frac{\partial M_{12}}{\partial x} + \frac{\partial M_2}{\partial s} - N_2 = 0, \\
 \dots \quad \frac{\partial N_1}{\partial x} + \frac{\partial N_2}{\partial s} - \frac{T_2}{r} = 0
 \end{aligned} \quad (3)$$

with the notations of Ref. 3 (Novozhilov V. V. Teoriya tonkikh obolochek.  
 Sudpromgiz, 1951).  $r = R_2(s)$  denotes the radius of curvature of the

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Calculation of thermal stresses ...

middle surface. The relationships between the inner stresses and moments  $T_1, T_{21}, T_{12}, \dots, M_2$  and the components of the deformation of the middle surface,  $\epsilon_1, \epsilon_2, \omega, \kappa_1, \kappa_2, \tau$ , are the following:

$$T_1 = \frac{Eh}{1-\nu^2} (\epsilon_1 + \nu\epsilon_2) - \frac{E\alpha}{1-\nu} \int_{-\frac{h}{2}}^{\frac{h}{2}} t dz,$$

$$(4) \quad T_2 = \frac{Eh}{1-\nu^2} (\epsilon_2 + \nu\epsilon_1) - \frac{E\alpha}{1-\nu} \int_{-\frac{h}{2}}^{\frac{h}{2}} t dz,$$

$$M_1 = \frac{Eh^3}{12(1-\nu^2)} (\kappa_1 + \nu\kappa_2) - \frac{E\alpha}{1-\nu} \int_{-\frac{h}{2}}^{\frac{h}{2}} tz dz,$$

$$M_2 = \frac{Eh^3}{12(1-\nu^2)} (\kappa_2 + \nu\kappa_1) - \frac{E\alpha}{1-\nu} \int_{-\frac{h}{2}}^{\frac{h}{2}} tz dz, \quad (4)$$

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Calculation of thermal stresses ...

$$T_{12} = \frac{Eh}{2(1+\nu)} \left( \omega + \frac{h^2}{2r} \tau \right),$$

$$T_{21} = \frac{Eh}{2(1+\nu)} \omega, \quad M_{12} = M_{21} = \frac{Eh^3}{12(1+\nu)} \tau. \quad (4)$$

(Ref. 3). With the boundary condition  $x = \text{const}$ ,  $u$ ,  $v$ , and  $w$  are the projections of the displacement vectors of the middle surface in the  $x$ ,  $s$ , and  $z$  direction, respectively:  $u = U$ ;  $v = V \cdot \cos \varphi - W \cdot \sin \varphi$ ;  $w = V \cdot \sin \varphi + W \cdot \cos \varphi$  (7), where  $U$ ,  $V$ ,  $W$  are the projections of the above displacement vectors upon Cartesian coordinates ( $X$ ,  $Y$ ,  $Z$ ).  $\varphi$  denotes the twist angle,  $\varphi$  - the angle between the  $z$  and  $Z$  axes. Introducing  $t = t_0 = \text{const}$  into

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Calculation of thermal stresses ...

Eq. (4), one obtains a partial solution:

$$T_1 = T_{12} = T_{21} = T_2 = M_1 = M_2 = M_{12} = N_1 = N_2 = 0, \quad (6)$$

$$x_1 = x_2 = \omega = \tau = 0, \quad \varepsilon_1 = \varepsilon_2 = \alpha t_0,$$

When uniform heating is assumed, this is expressed by  $U = \alpha t_0 X$ ,  $V = \alpha t_0 Y$ ,  $W = \alpha t_0 Z$  (8). The Eqs. (6) - (8) determine the conditions at any point of the hollow vane. The author suggests various boundary conditions, as

$$T_1 = 0, \quad T_{12} + \frac{M_{12}}{r} = 0, \quad N_1 + \frac{\partial M_{12}}{\partial s} = 0, \quad M_1 = 0. \quad (9),$$

or the geometrical boundary conditions

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Calculation of thermal stresses ...

$$\begin{aligned} u &= 0, v = \alpha t_0 (Y \cos \varphi - Z \sin \varphi), \\ w &= \alpha t_0 (Z \cos \varphi + Y \sin \varphi), \vartheta = 0 \end{aligned} \quad (10)$$

or

$$\begin{aligned} T_1 &= 0, v = \alpha t_0 (Y \cos \varphi - Z \sin \varphi), \\ w &= \alpha t_0 (Z \cos \varphi + Y \sin \varphi), M_1 = 0 \end{aligned} \quad (11)$$

Analogous calculations are performed for the linear temperature distribution along the vane:  $t = \beta x$ . The temperature field  $t = \gamma z$  (third term in Eq. (2)) has the partial solution

$$T_1 = T_2 = T_{12} = T_{21} = M_{12} = N_1 = N_2 = 0, \quad (15)$$

$$\varepsilon_1 = \varepsilon_2 = \omega = \alpha_1 = \alpha_2 = \tau = 0, \quad (15)$$

$$M_1 = M_2 = -\frac{E \alpha \gamma}{1-\nu} \frac{h^3}{12} = M^0. \quad (16)$$

The expression for the axial bending moment  $M_1 = -E \alpha \gamma \frac{h^3}{12}$  (19), may at

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Calculation of thermal stresses ...

high temperatures (where Poisson's ratio  $\nu = 1/2$ ) lead to an error of up to 100%. The solution corresponding to the last term in Eq. (2) is analogous to that of the other terms. With the static Eq. (3), one finds the

shearing forces  $N_1 = \frac{\partial M_1}{\partial x} = N^0$ ,  $N_2 = 0$  (22). A combination of the above

solutions may offer the possibility of calculating various designs of turbine vanes. There are 1 figure and 3 references: 2 Soviet-bloc and 1 non-Soviet-bloc.

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SUBMITTED: May 27, 1960

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67608

SOV/179-59-5-33/41

24.4100

AUTHOR: Rozenblyum, V.I. (Leningrad)

TITLE: Approximate Creep Equations

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Mekhanika i mashinostroyeniye, 1959, Nr 5, pp 157-160 (USSR)

ABSTRACT: Approximate solutions of creep problems are often obtained by replacing the canonic equations for steady creep (Ref 1) by approximate ones based on the Tresca-Saint Venant flow potential. These approximate equations, however, may lead to appreciable errors. In the present paper, a power law is assumed for creep and applied to the following problems: (1) a plane containing a circular hole and subjected to uniform extension; (2) an infinite plate uniformly loaded by a tensile stress distributed round the contour of a hole and (3) a rotating disc with a central hole. In the first problem, a general solution on the basis of the accurate equations has not been obtained. In the particular case when the exponent  $m$  in the power creep law is unity, comparison of the accurate with the approximate solution shows that the error in the estimate of the maximum hoop stress round

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Approximate Creep Equations

the hole is about 36%. As  $m$  approaches infinity, the difference between the exact and approximate solutions approaches the difference between the ideally plastic solutions corresponding to the Mises and Tresca-St. Venant flow conditions, a difference known to be small. In the second problem, the difference between the exact and approximate solutions is shown graphically as a function of  $m$ . The difference is appreciable, especially at large values of  $m$ . The errors of the approximate solution in the third problem are also evaluated and in the case where the external radius of the hole is 10 times the radius of the central hole, the error is found to be 66 per cent. There are 6 figures and 10 references, 4 of which are Soviet and 6 English.

SUBMITTED: May 4, 1959

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88516

S/179/60/000/006/008/036

E191/E135

26.2/21

AUTHOR: Rozenblyum, V.I., (Leningrad)

TITLE: The Effect of Cyclic Loading on the Strength of Composite Turbine Discs

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Mekhanika i mashinostroyeniye, 1960, No. 6, pp 63-67

TEXT: The behaviour of turbine discs, made of austenitic steel rim and a pearlitic centre portion, under the effect of cyclic loading is analysed. It is appropriate to assume that the core portion of the disc remains fully elastic because, in practice, the yield strength of the core exceeds that of the rim by a factor of 2-2.5. If so, the loading condition is determined mainly by two parameters, the speed and the temperature. The general case of varying conditions is considered when the speed changes between standstill and the operating speed and some chosen characteristic temperature changes throughout the permitted interval. Beyond the yield point, the rim material is assumed ideally plastic. So long as the rim material is not also subject to creep, it is shown that  
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The Effect of Cyclic Loading on the Strength of Composite Turbine Discs

the failure criteria can be very simply derived virtually by inspection of the field of variables. The actual magnitudes of the stresses require, of course, the usual elastic theory analysis of the core portion and knowledge of the temperature field throughout the disc. When the rim material is subject to a creep process, it is appropriate to assume that the core portion does not creep. It is shown that, in the presence of creep and assuming a practical range of conditions in starting, stopping, and steady state operation, there will be a relaxation of stress in the rim which may become complete. In practice, the actual loading conditions will resemble more closely the process of relaxation with periodic tightening up. Such a cycle has been the subject of experimental study. It has been shown that endurance failures under repeated loads are possible in such cycles and a composite disc should be examined with a failure of this type in mind. There are 7 figures and 10 references: 7 Soviet and 3 English.

SUBMITTED: April 25, 1960  
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16.7300

77992  
SOV/40-24-1-20/28

AUTHORS: Kuratov, P. S., Rozenblyum, V. I. (Leningrad)

TITLE: Integration of the Unsteady Creep Equations for Solids

PERIODICAL: Prikladnaya matematika i mekhanika, 1960, Vol 24, Nr 1, pp 146-148 (USSR)

ABSTRACT: The authors present an approximate method using finite increments for integrating the unsteady creep equations. They consider a material occupying some volume; on a part of its surface a load is given and on the remaining part, the components of the velocity vector are assigned. The elastic stressed state for  $t = 0$  is regarded as known, and the surface and volume stress components are assumed to be time-dependent. The equilibrium equations and assigned surface load are first differentiated with respect to time. The resulting equations, the formulas for the strain rates in terms of the velocity components, and the creep stress-strain relations of L. M. Kachanov (Certain Questions in the

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