and,(2) - by contacting (through an elastic rubber ring or a metal conductor) the tantalum plates with a steel bar (diameter 15 mm, length 150 mm), both immersed in 20% HCl. Duration of experiments (performed at 20 and 60°) was determined by appearance of fissures on the sample. Fig. 2 shows the results of this study.

Effect of Cathodic Polarization Upon Stability of Tantalum in Hydrochloric Acid

77639
SOV/80-33-2-14/52

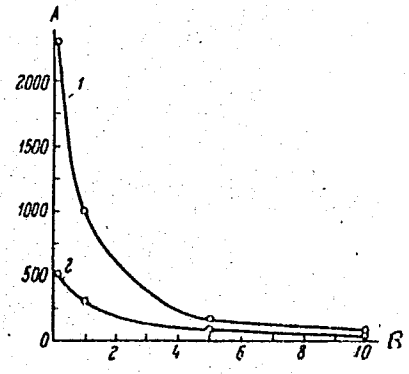


Fig. 2. Tendency of tantalum to crack as a function of current density at temperature 20° (1) and 60° (2): A -time to the moment of cracking (in hours); B - cathode current density (in amp/m^2).

Card 4/5

Effect of Cathodic Polarization Upon Stability of Tantalum in Hydrochloric Acid

77639
SOV/80-33-2-14/52

Behavior of tantalum in electrolysis of HCl is similar to behavior of steel during cathodic polarization [Karpenko, G. V., Kripyakevich, R. I., Doklady Akad. Nauk SSSR, 120, 4, 827 (1958)]. Rise of temperature speeds up the cracking process by speeding up diffusion of atomic hydrogen and its combination into molecules in the body of the metal. In the experiment designed to investigate the action of molecular hydrogen, the tantalum plate, placed into a filter funnel with HCl, was continuously washed with molecular hydrogen (obtained in electrolysis of 30% KOH) which entered the funnel through the filter. No changes were noted in appearance of tantalum. There are 3 figures; 1 table; and 9 references, 7 Soviet, 1 German, 1 U.K. The U.K. reference is: Metal. Ind., 66, 25-26, 406 (1945).

ASSOCIATION: K. Ye. Voroshilov Institute of Organic Intermediates and Dyes (Institut organicheskikh poluproduktov i krasiteley imeni K. Ye. Voroshilova)

SUBMITTED: February 2, 1959

Card 5/5

ZEYTLIN, Kh. L.

"Einwirkung des Chlors auf die Korrosion der Metalle in salzsaurem Medium."

paper submittted for the Congress on Corrosion, Budapest, 24-30 Sept 1958.

Institut fur organische Halbfabrikate und Farbstoffe, Moscow.

ZEYTLIN, L. A.

"Enzymic Treatment of Bran as a Means of Increasing its Digestibility,"

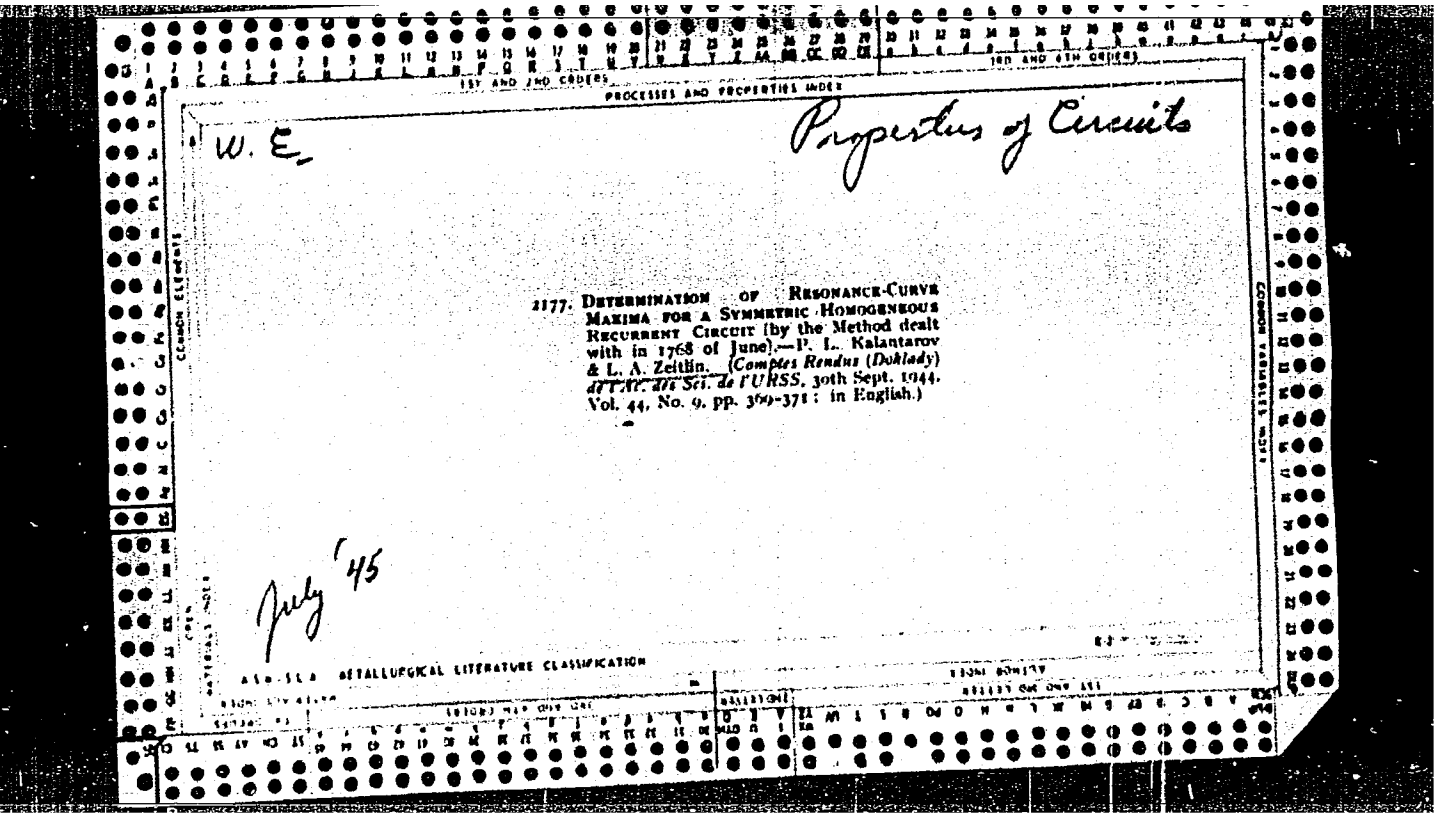
ibid, 46, No. 6, 1945, Dept. Plant Biochem.; M.V. Lomonossov State Univ., Moscow, c1945-.

1768. On the Repeating Resistance of Symmetrical Uniform Chain Schemes [New Result, and Its Application to Determining the Maxima of the Resonance Curve].—P. L. Kalantarov & L. A. Zeitlin. (*Comptes Rendus (Doklady) de l'Ac. des Sci. de l'URSS*, 10th June 1944, Vol. 43, No. 7, pp. 283–285: in English.)

"One of the essential characteristics of a four-pole is the repeating resistance which means that, having closed the leading-out terminals of the four-pole through such a resistance, one obtains an identical resistance between the leading-in terminals. Considering a uniform chain scheme whose leading-out terminals are closed through a resistance equal to the repeating resistance of the link, we readily come to realise that this resistance is also the repeating resistance of the whole scheme. However, as will be shown later, the repeating resistance of the whole scheme can in addition take values different from the repeating resistance of the link."

If the output terminals of the chain scheme are closed by a resistance Z, it is shown that the condition that this terminating resistance Z should be the "repeating" (iterative) resistance of the scheme is that $B_n Z = Z C_n$. This condition is fulfilled if $Z = \sqrt{B_n C_n}$ (or in the case of a single link, if $Z = \sqrt{B_1 C_1}$). These conditions are well known; it need only be remarked here that they are independent of the number of links.

But the above condition is also satisfied if $B_n = 0$ and $C_n = 0$ (or for a single link, $B_1 = 0$ and $C_1 = 0$). The existence of these second conditions "does not appear ever to have been called to attention. Let us therefore discuss these conditions in greater detail. It follows from eqn. 7 that if the conditions of the second kind are fulfilled for a single link, they also hold good for the chain scheme as a whole. But it may be seen from the same relations (eqn. 7) that the conditions of the second kind for the whole scheme can be satisfied even if the respective conditions for a link are not satisfied, and we have $F_n(a) = 0$. Thus, unlike the conditions of the first kind, those of the second kind depend upon the number of links but not upon the value of terminal resistance of the scheme, and if they are fulfilled, any terminal resistance is a repeating resistance."



PROCESSES AND PROPERTIES INDEX

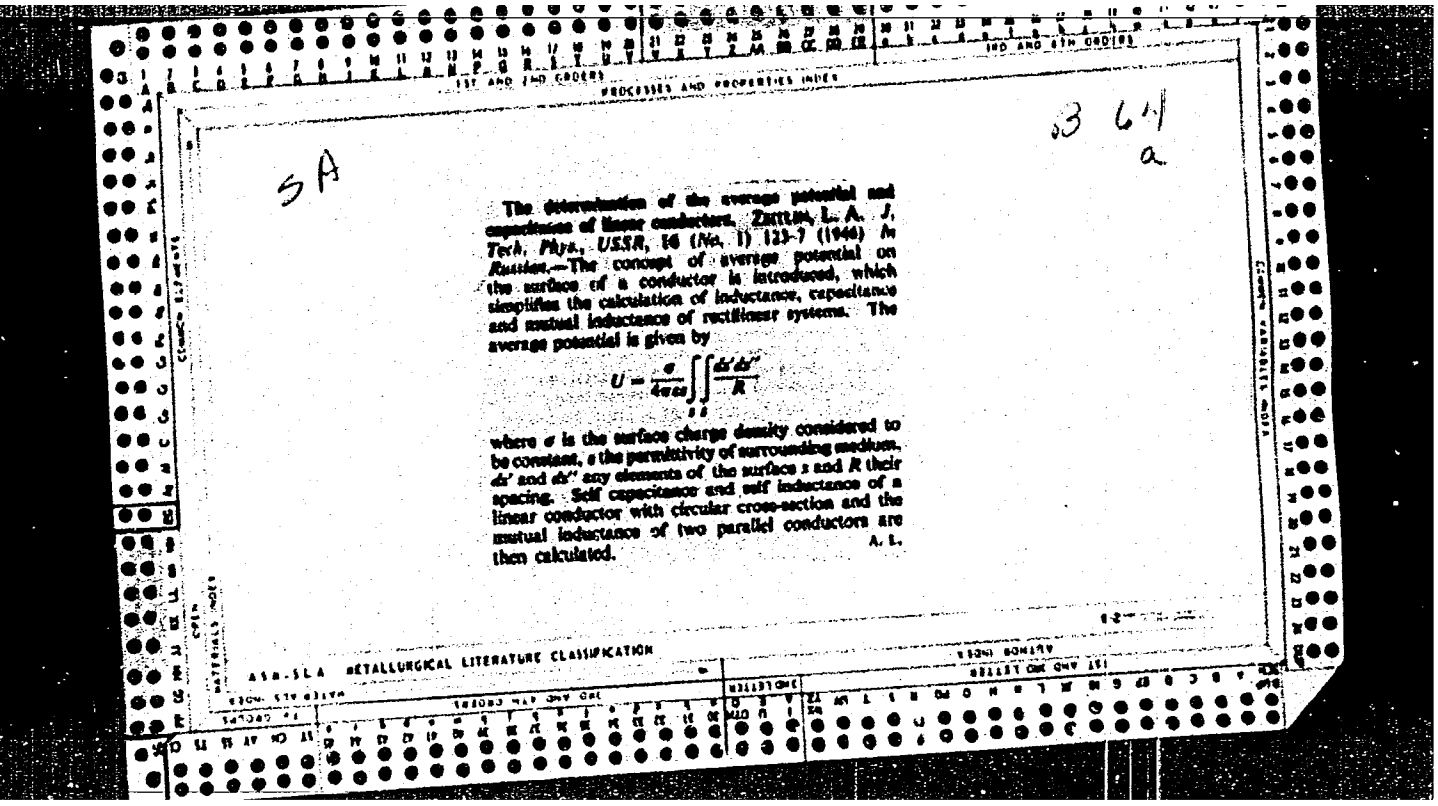
W. E.

Properties of Circuits

3177. Determination of Resonance-Curve Maxima for a Symmetric Homogeneous Recurrent Circuit (by the Method dealt with in 1768 of June).—P. L. Kalantarov & L. A. Zeitlin. (*Comptes Rendus (Doklady) de l'Ac. des Sci. de l'URSS*, 30th Sept. 1944. Vol. 44, No. 9, pp. 369-371; in English.)

July '45

A1a-31a METALLURGICAL LITERATURE CLASSIFICATION



5A

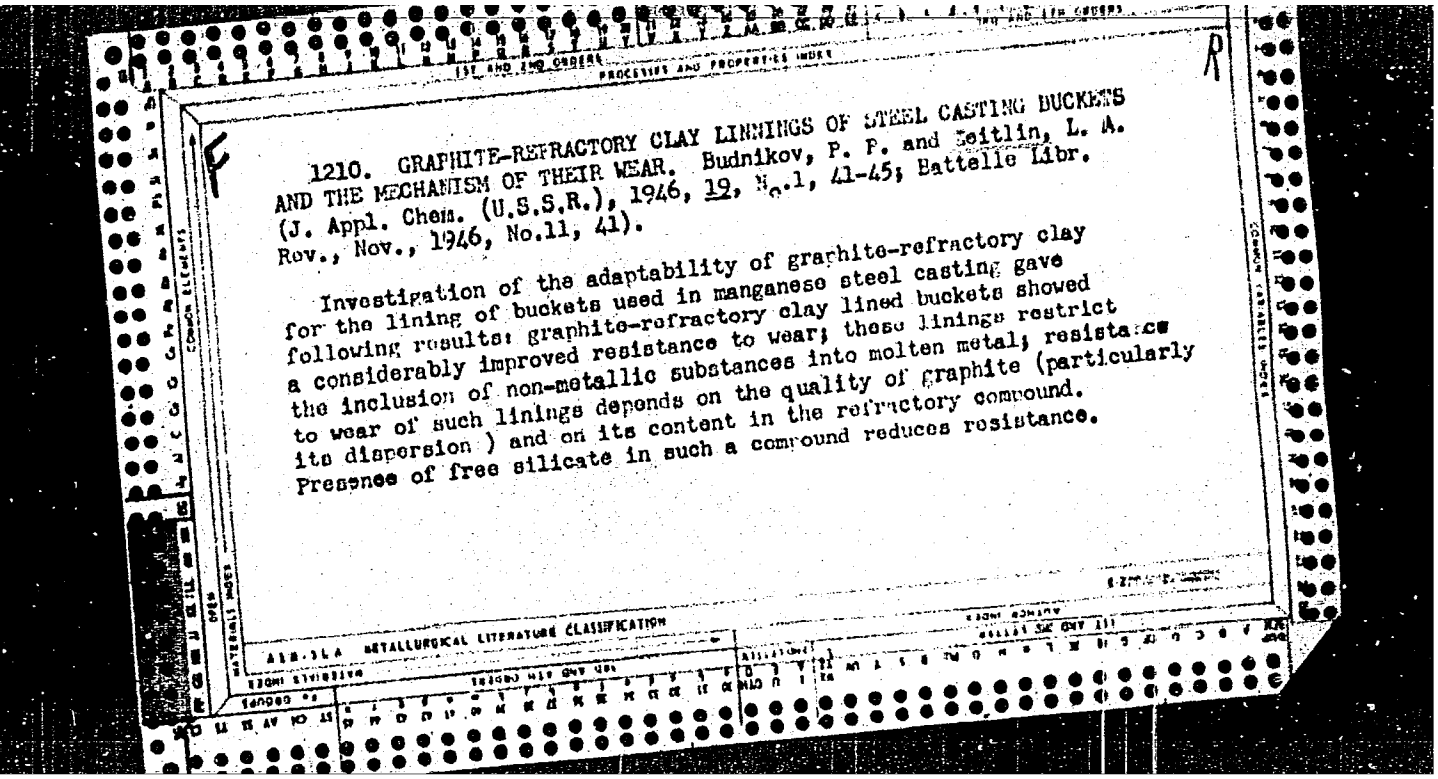
53 64
a

The determination of the average potential and capacitances of linear conductors. ZEITLIN, L. A. *J. Tech. Phys., USSR*, 16 (No. 1) 123-7 (1946) *In Russian.*—The concept of average potential on the surface of a conductor is introduced, which simplifies the calculation of inductance, capacitance and mutual inductance of rectilinear systems. The average potential is given by

$$U = \frac{\sigma}{4\pi\epsilon s}\int\int_{ss}\frac{ds'ds''}{R}$$

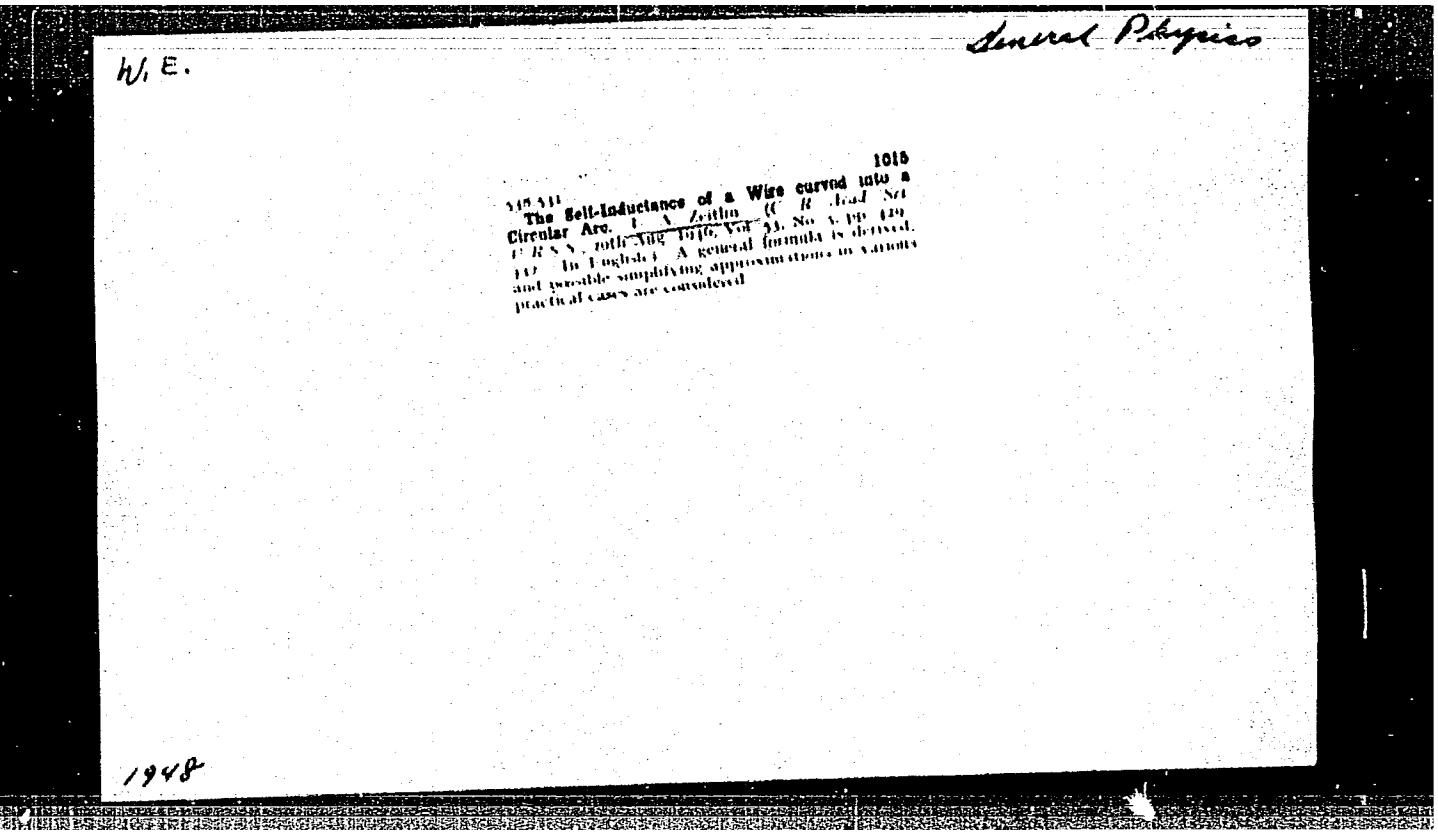
where σ is the surface charge density considered to be constant, ϵ the permittivity of surrounding medium, ds' and ds'' any elements of the surface s and R their spacing. Self capacitance and self inductance of a linear conductor with circular cross-section and the mutual inductance of two parallel conductors are then calculated. A. L.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



1210. GRAPHITE-REFRACTORY CLAY LININGS OF STEEL CASTING BUCKETS AND THE MECHANISM OF THEIR WEAR. Budnikov, P. P. and Seitlin, L. A. (J. Appl. Chem. (U.S.S.R.), 1946, 19, No.1, 41-45; Battelle Libr. Rev., Nov., 1946, No.11, 41).

Investigation of the adaptability of graphite-refractory clay for the lining of buckets used in manganese steel casting gave following results: graphite-refractory clay lined buckets showed a considerably improved resistance to wear; these linings restrict the inclusion of non-metallic substances into molten metal; resistance to wear of such linings depends on the quality of graphite (particularly its dispersion) and on its content in the refractory compound. Presence of free silicate in such a compound reduces resistance.



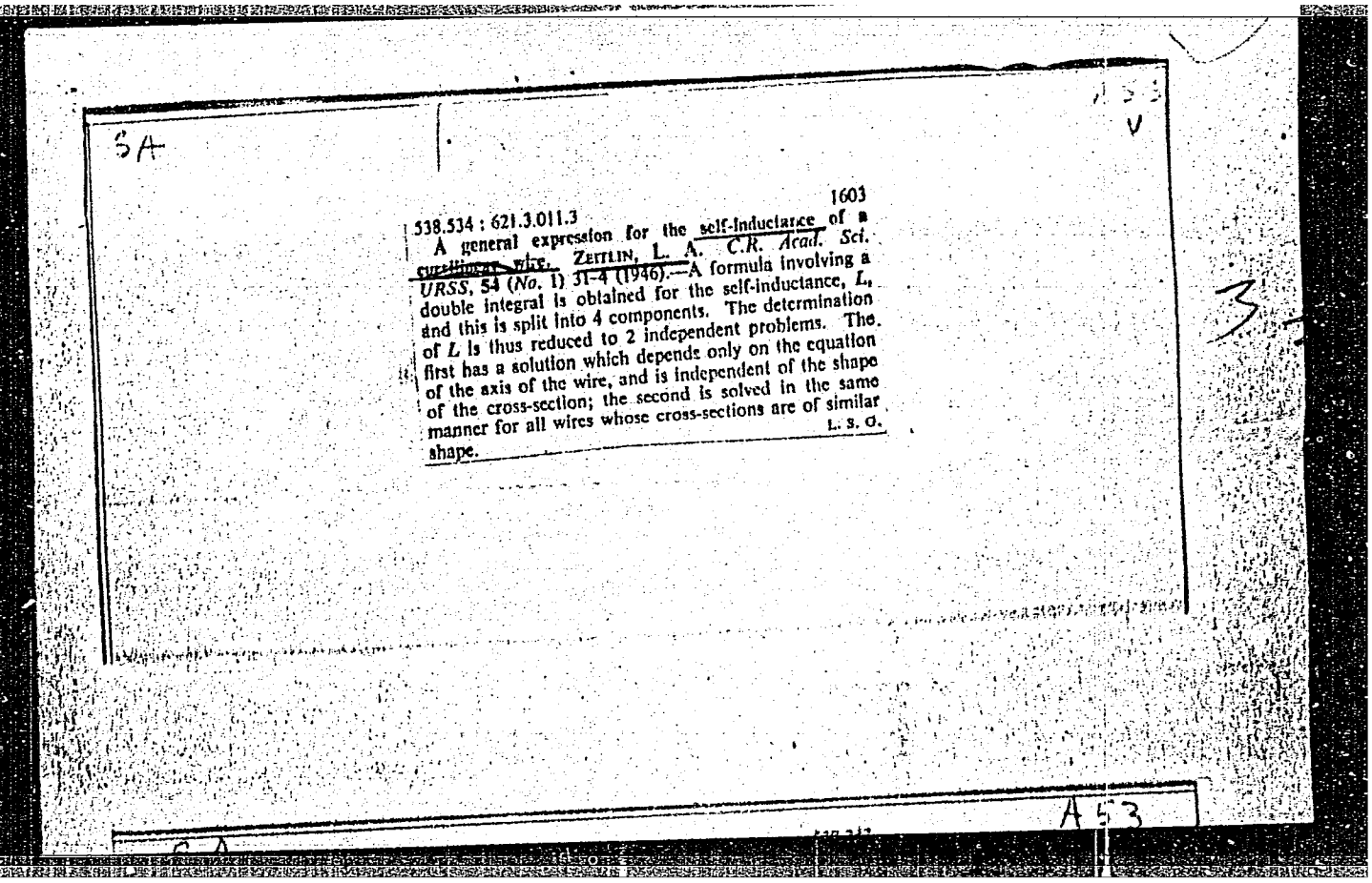
W. E.

General Physics

1015

The Self-Inductance of a Wire curved into a Circular Arc. I. A. Zeitlin (C. R. (Doklady) Acad. Sci. URSS, (n.s.) 59, 1015–1018, 1948. In English.) A general formula is derived, and possible simplifying approximations in various practical cases are considered.

1948



5A

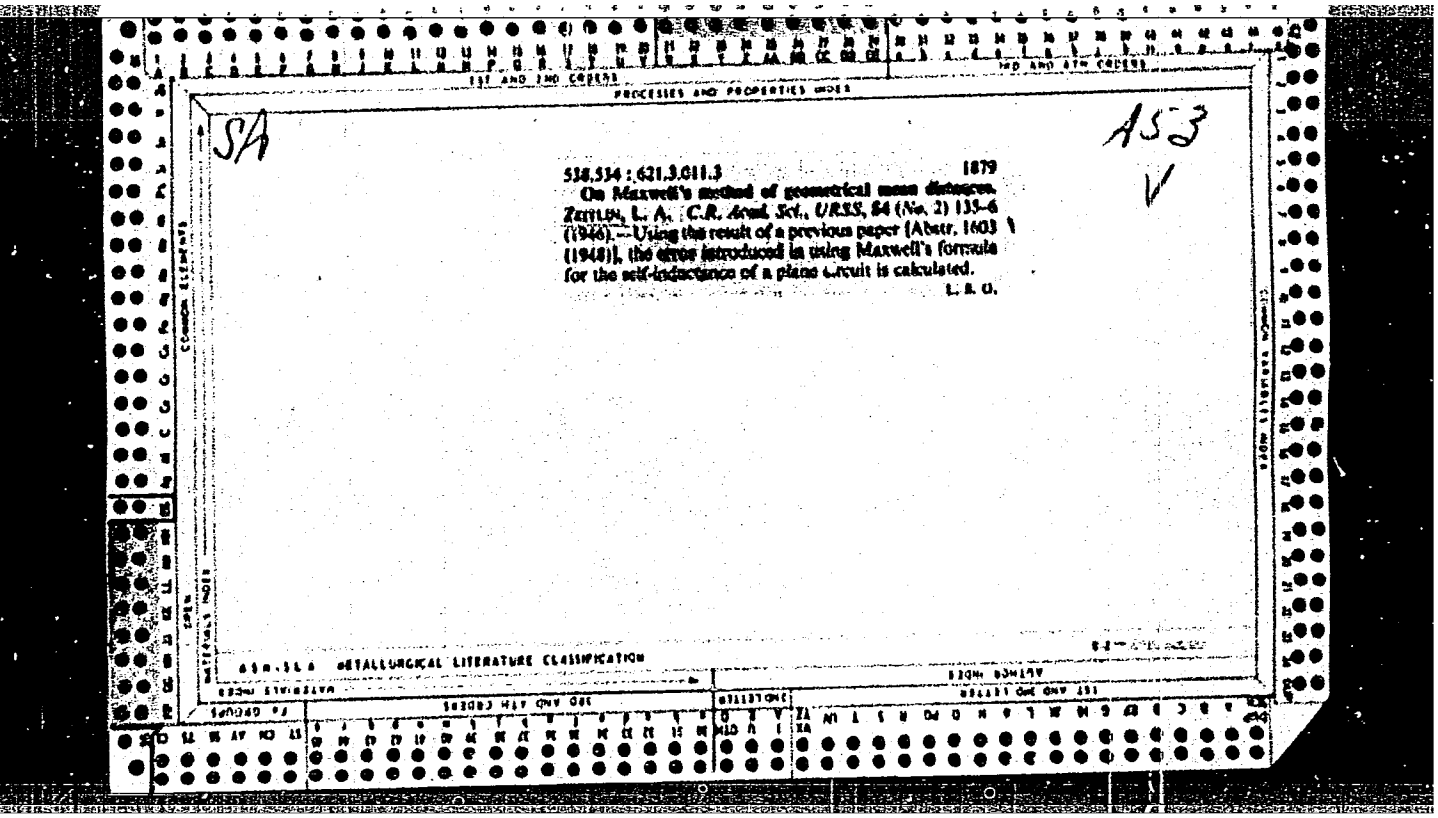
1603

538.534 : 621.3.011.3

A general expression for the self-inductance of a curvilinear wire. ZEITLIN, L. A. *C.R. Acad. Sci. URSS*, 54 (*No.* 1) 31–4 (1946).—A formula involving a double integral is obtained for the self-inductance, *L*, and this is split into 4 components. The determination of *L* is thus reduced to 2 independent problems. The first has a solution which depends only on the equation of the axis of the wire, and is independent of the shape of the cross-section; the second is solved in the same manner for all wires whose cross-sections are of similar shape.

L. S. G.

A53



538.534 : 621.3.011.3 1879

On Maxwell's method of geometrical mean distances. ZEITLIN, L. A. *C.R. Acad. Sci., URSS*, 64 (No. 2) 135–6 (1948).—Using the result of a previous paper (Abstr. 1603 (1948)), the error introduced in using Maxwell's formula for the self-inductance of a plane circuit is calculated.

L. B. O.

W.E.

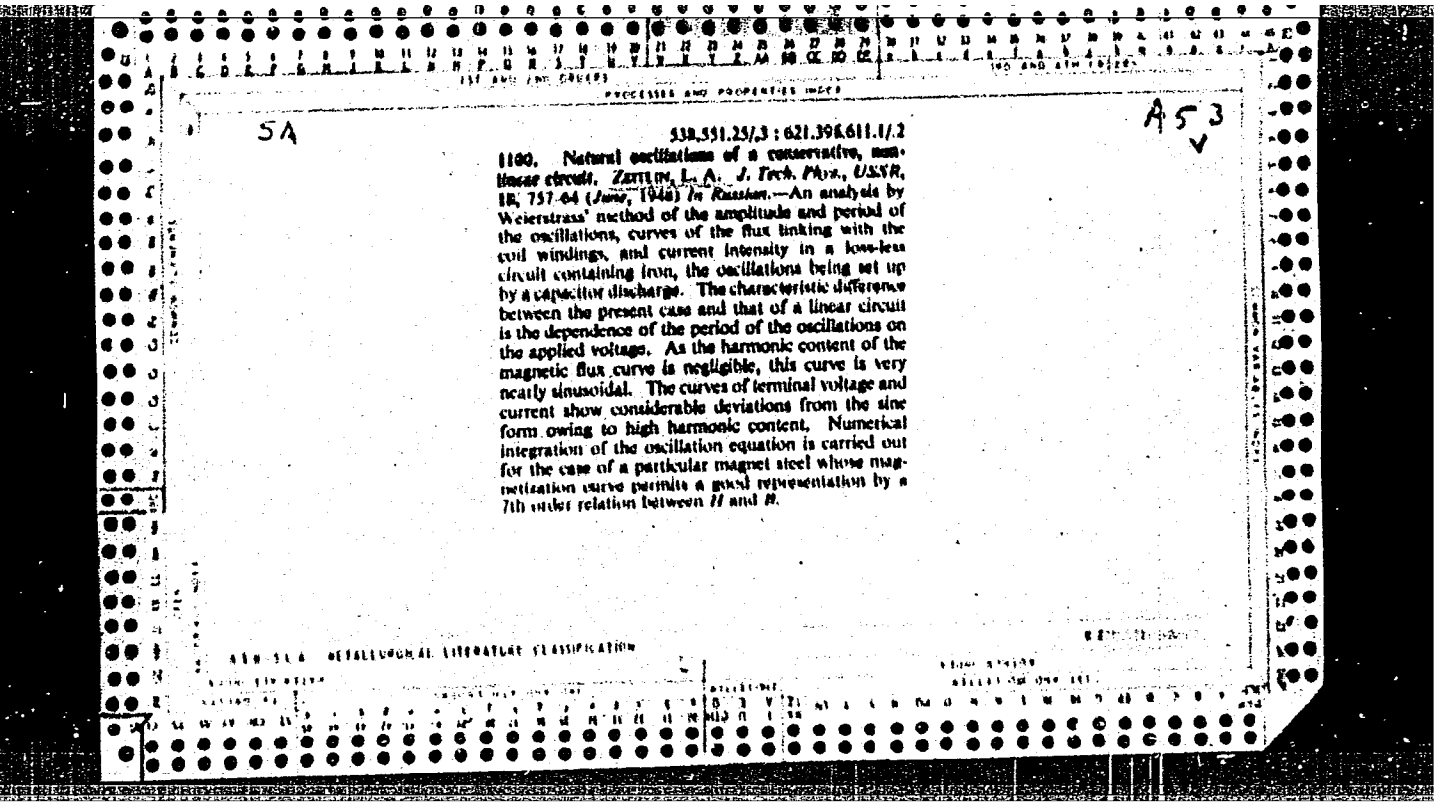
Circuits & Circuit Elements

3059

[illegible]

Resonance Phenomena in Homogeneous Symmetrical Recurrent Circuits. P. L. Kalantarov & L. A. Zeitlin. (C. R. Acad. Sci. U.R.S.S., 20th Feb. 1940, Vol. 26, No. 5, pp. 457-460. In English.)

1949



5A

538.551.25/.3 : 621.398.611.1/.2

1180. **Natural oscillations of a conservative, nonlinear circuit.** ZEITLIN, L. A. *J. Tech. Phys., USSR*, 18, 757–64 (*June*, 1948) *In Russian.*—An analysis by Weierstrass' method of the amplitude and period of the oscillations, curves of the flux linking with the coil windings, and current intensity in a loss-less circuit containing iron, the oscillations being set up by a capacitor discharge. The characteristic difference between the present case and that of a linear circuit is the dependence of the period of the oscillations on the applied voltage. As the harmonic content of the magnetic flux curve is negligible, this curve is very nearly sinusoidal. The curves of terminal voltage and current show considerable deviations from the sine form owing to high harmonic content. Numerical integration of the oscillation equation is carried out for the case of a particular magnet steel whose magnetization curve permits a good representation by a 7th order relation between H and B.

A53

ZEYTLIN, P.

"Oxidation and Polymerization of Styrene," Acta Phys., 20, No. 1, 1945.

Mbr. Lab. Synthetic Rubber Technology, Inst. Fine Chemical-Technology im. M.V. Lomonosov,-1944-, Moscow.

ZEYTLIN, ENG. Z. D.

Peat Industry

Work of the peat gathering and dumping machines. UPF on drained fields.
Torf. prom. 30 no. 1, 1953

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

PA 52/49T108

ZEYTLYONOK, G. A. Prof

USSR/Radio May/Jun 49
Discharge Circuits

"Reactive Discharge Circuits," S. A. Drobov, Cand Tech Sci, 15 pp

"Radiotekh" Vol IV, No 3

Discusses method for analysis of reactive discharge circuits based on previously derived triggering characteristics. Discusses trigger circuits used in pulse shorteners, pulse elongators, frequency dividers, and multivibrators. Submitted 15 Feb 49.

FDD 52/49T107

GOSTISHCHEV, V.S.; TREN, B.M.; ZEYTMAN, G.I.; DIANOV, V.F.

Nomogram of the exposure of steel to gamma rays. Zav. lab. 30 no.10:1281-1282 '64. (MIRA 18:4)

1. Bazovaya izotopnaya laboratoriya Severo-Kavkazskogo soveta narodnogo khozyaystva i Taganrogskiy zavod "Krasnyy kotel'shchik".

TRUNIN, I.I.; TSEYTLIN, V.Z.; ZEYTMAN, G.I.

Role of interruptions in tests for long-period strength. Zav.lab. 27 no.1:66-71 '61. (MIRA 14:3)

1. TSentral'nyy nauchno-issledovatel'skiy institut tekhnologii i mashinostroyeniya i Taganrogskiy zavod "Krasnyy kotel'shchik. (Steel—Testing)

S/032/61/027/001/017/037
B017/B054

AUTHORS: Trunin, I. I., Tseytlin, V. Z., and Zeytman, G. I.

TITLE: Effect of Interruptions on Stress-rupture Tests

PERIODICAL: Zavodskaya laboratoriya, 1961, Vol. 27, No. 1, pp. 66-71

TEXT: The authors tested the effect of periodic interruptions on stress-rupture tests of the following steels and alloys: IX18N9T (IKh18N9T), EI 723 (0.22-0.33% C, 2.1-2.5% Cr, 0.90 - 1.10% Mo, 0.3-0.5% V), EI 765 (0.09% C, 14.5% Cr, 1.3% Ti, 5.2% W, 4.2% Mo, 1.94% Al, 0.08% B, balance Ni), and nickel-chromium alloys in a highly plastic state. Interruption of the stress-rupture endurance test during which the specimen was cooled to room temperature, and then held at this temperature for 24 hrs, had little effect on the course of the curves. A significant effect, however, was produced on specimens that had not been cooled before. IX18N9T (IKh 18N9T) and EI 765 (EI 765) steel specimens were destroyed at the grain boundaries. Most of the materials which had been cooled previously withstood up to 14 interruptions. Only EI 723, which possesses a very high ductility in continuous tests (average reduction of area of 55.8%), showed

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Effect of Interruptions on Stress-rupture Tests

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B017/B054

lower ductility in interrupted tests. A considerable effect of interruptions on rupture life can be expected in cases where total elongation in continuous tests does not exceed 1%, and when sudden shocklike load removal occurs. Engineer T. A. Bugrov and Senior Technician M. F. Lesnykh (TSNIITMASh = Central Scientific Research Institute of Technology and Machine Building) assisted in the tests. There are 6 figures, 1 table, and 4 references: 3 Soviet and 1 German.

ASSOCIATION: Tsentral'nyy nauchno-issledovatel'skiy institut tekhnologii i mashinostroyeniya (Central Scientific Research Institute of Technology and Machine Building), Taganrogskiy zavod "Krasnyy kotel'shchik" (Taganrog "Krasnyy kotel'shchik" Plant)

Card 2/2

ACC NR: AP6034143 (N) SOURCE CODE: UR/0424/66/000/005/0045/0053

AUTHORS: Zeytman, M. F. (Moscow); Kushul', M. Ya. (Moscow)

ORG: none

TITLE: Nonlinear vibrations of elastic pendula with elastic connections

SOURCE: Inzhenernyy zhurnal. Mekhanika tverdogo tela, no. 5, 1966, 45-53

TOPIC TAGS: vibration, nonlinear differential equation, pendulum motion, approximation method

ABSTRACT: The planar motion of an elastic pendulum whose arm can be deformed in deflection is analyzed. The rigidity of the pendulum EI, shown in Fig. 1, is assumed to be constant, and a helical spring with stiffness constant k is placed at the point of support O. The equation of motion for the mass m and the equation of bending deformation for the tie rod are written separately, and (for small amplitude vibrations), the natural frequency equation of the system is expressed by the bi-quadratic

$$\theta^2 [(c_1\alpha - c_3) + c_1\alpha\beta (c - c_3)] \nu_0^4 - g/l (\theta^2 [c_1\alpha\beta (c - c_3 + 2) + (c_1\alpha - c_3 + 1)] + (1 + c\beta)) \nu_0^2 + (g/l)^2 [1 + \beta (c + 1)] = 0$$

$\left(\beta = \frac{k}{mgl}, \theta = \frac{\rho}{l}\right)$.

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ACC NR: AP6034143

For zero rod-mass, this equation is simplified to

$$\varphi'' + \frac{g}{l}(1+\varkappa)\varphi + \frac{g}{6l}(3d\varkappa^2 - 1)\varphi^3 - d\varkappa^2\varphi\varphi'^2 = 0$$

$$\left(\varkappa = \frac{k}{mgl + ck} = \frac{\beta}{1 + c\beta}\right),$$

which lends itself to the periodic solution

$$\varphi = A\cos\tau + A^2\varphi_2(\tau) + A^4\varphi_4(\tau) + \ldots$$

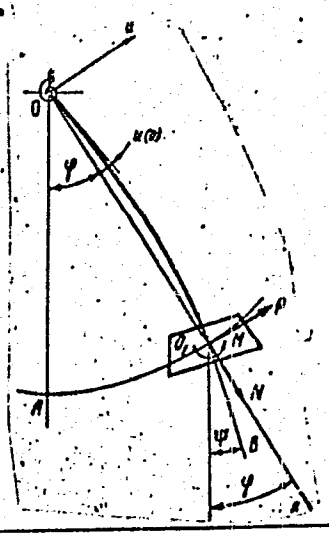

Fig. 1.

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ACC NR: AP6034143

The analysis is then extended to the case where a forcing function $q\sin\omega t$ is applied to the system. Finally, a general case is considered, in which the elastic pendulum rod contains n-masses of unequal weights, distributed evenly along its length. Orig. art. has: 40 equations and 6 figures.

SUB CODE: 20/ SUBM DATE: 03May66/ ORIG REF: 002/ OTH REF: 001

Card 3/3

L 00887-67 EWT(m)/EWP(w)/EWP(v)/T-2/EWP(k) IJP(c) WW/EM

ACC NR: AP6019218 (N) SOURCE CODE: UR/0380/66/000/002/0026/0035

AUTHOR: Zeytman, M. F. (Moscow)

ORG: None

TITLE: Selecting optimum design parameters for multiple-support rotors in the case of flexural vibrations

SOURCE: Mashinovedeniye, no. 2, 1966, 26-35

TOPIC TAGS: turbine rotor, flexural vibration, frequency characteristic, shaft vibration, electric rotating equipment part

ABSTRACT: A simple computational scheme is proposed for determining the amplitude-frequency characteristics of a rotor shaft in a given range of angular velocities. The proposed system is a combination of the method of dynamic compliances and the method of initial parameters. Assuming r variable parameters, the rotor is divided into subsystems only in those sections where parameter variation takes place. Each of the $r+1$ subsystems may be as complex as desired. In the most general form, these subsystems are composite multiple-support shafts with distributed and concentrated masses, elastically coupled to a deformable frame. In the general case, $2r$ canonical equations are given in the method of dynamic compliances, and the compliances appearing in these equations are determined for each subsystem by the method of initial parameters as dis-

Card 1/2 UDC: 621.001.2/62-253

L 00887-67

ACC NR: AP6019218

placements of the bounding cross sections due to unit force factors which are constant in magnitude but rotate with the angular velocity of the rotor. If the location of the sections with variable parameters does not change, the canonical equations are set up so that the dynamic compliances are functions of the angular velocity alone (the variable parameters appear in the canonical equations as cofactors or terms in the coefficients associated with the unknown force factors). The determinant of the system of canonical equations is an algebraic polynomial with respect to the variable parameters. A computer may be used to find values for these parameters which give critical velocities of various orders sufficiently removed from the zone of operating rotational velocities. Regardless of the structure of the system, the number of canonical equations is no more than double the number of variable parameters. A detailed mathematical description of the proposed method is given and application is illustrated on the basis of a three-support composite shaft. The effect of compliance and location of the elastic hinged coupling on the dynamic characteristics of the rotor is analyzed in detail. Orig. art. has: 6 figures, 10 formulas.

SUB CODE: 09,20/ SUBM DATE: 15Aug65/ ORIG REF: 005

Card 2/2 afs

BAYEV, V.A., inzh.; ZEYTMAN, S.M., inzh.

For the saving of nonferrous metals in the manufacture of electric apparatus and machinery. Vest.elektroprom. 32 no.8:1-4 Ag '61. (MIRA 14:8)

(Electric engineering--Materials) (Nonferrous metals)

ZEYTMAN, V.M., inzh.; LERNER, L.K., tekhnik

Silica-brick with marl additives. Ster. trud. IUZHNII no.2:58-61 '59. (MIRA 13:9)

1. Yuzhnyy nauchno-issledovatel'skiy institut po stroitel'stvu.
(Brick)

ZEYTS, F.Yu.; SHARAPOV, V.N.

Genetic relationships between the igneous activity and the complex metal mineralization in the Kondoma region of Gornaya Shoriya. Geol. i geofiz. no.8:113-116 '63. (MIRA 16:10)

1. Institut geologii i geofiziki Sibirskogo otdeleniya AN SSSR, Novosibirsk, Rudnik Tashtagol.
(Gornaya Shoriya—Ore deposits)

ZEYTS, F.Yu.

Karst in the Tashtagol iron-ore deposit and its effect on mining operations. Gor.zhur. no.4:19-21 Ap '62. (MIRA 15:4)

1. Glavnyy geolog rudnika "Tashtagol", Kemerovskaya oblast'.
(Gornaya Shoriya--Karst) (Iron mines and mining)

ZEYTS, F.Yu.; MOISEYEVA, O.A., inzh.

Certain problems in the methods of ore sampling the Tashtagol iron mine. Gor. zhur. no.7:57-59 Jl '64. (MIRA 17:10)

1. Glavnyy geolog rudnika "Tashtagol" (for Zeyts).

DUBYNIN, N.G.; BATUGIN, S.A.; YEGOROV, P.V.; ZEYTS, F.Yu.

Causes of the fracture of pillars and ore blocks at the Tashtagol mine. Vop. gor. davl. no.18:34-54 '63. (MIRA 18:7)

ZEYTS, F.Yu.

Regularities of the deflection of deep holes in the making of upraises. Gor. zhur. no.2:34-39 F '65. (MIRA 18:4)

1. Glavnyy geolog rudnika "Tashtagol".

ZEYTS, F. Yu.

Estimation of ore deposits. Gor. zhur. no.4:3-6 Ap '60.
(MIRA 14:6)

1. Glavnyy geolog rudnika Tashtagol, Kemerovskaya oblast'.
(Ores--Sampling and estimation)

ZEYTS, R. F.

Thickness of Perma frost in the Kolyma Kray.
Trudy Kom Po Izuch. Vechu. Merzl. Vol. 5, 1937

SO: Trudy Arkticheskogo Nauchno-Issledovatel'skogo Instituta, GUSMP, Council of Ministers, Vol. 201, 1948

ZEYTS, Z. R.

ZEYTS, Z. R. -- "Investigation of the Bone Marrow of Patients in a State of Alimentary Dystrophy." First Leningrad Medical Inst imeni Academician I. P. Pavlov. Leningrad, 1955. (Dissertation for the Degree of Candidate in Medical Sciences).

So.: Knizhnaya Letopis', No. 2, 1956.

ZEYTTY[illegible].

Osmolytic resistance of leucocytes in newborn infants.
Vop. gemat. v pediat. no.3:20-21 '64.

(MIRA 18:7)

LARIONOV, V. P., dotsent; ZEYTUN, Asaad, inzh.

Voltage-time charactertics of air gaps at large impulses with long duration. Izv vys ucheb zav; energ 7 no. 1:13-19 Ja '64. (MIRA 17:5)

1. Moskovskiy ordena Lenina energeticheskiy institut.

KRASNYKH, I.G.; ZHEREBCHENKO, P.G.; SEMENOV, L.F.; SUVOROV, N.N.; ZEYTUNYAN, K.A.

Prevention of radiation sickness in monkeys with the aid of 5-methoxytryptamine. Radiobiologiia 3 no.2:259-261 '63 (MIRA 17:1)

41850
S/205/62/002/004/014/014
I015/I215

27.2400

AUTHORS: Zeytunyan, K.A., Konstantinova, M.M., and Semenov, L.F.

TITLE: The effect of certain antiradiation agents on the oxygen level in tissues in relation with their effect on the radiosensitivity of animals

PERIODICAL: Radiobiologiya, v.2, no.4, 1962, 616-619

TEXT: This is the continuation of a previous study. The experiments were carried out on albino mice of both sexes, weighing 18-20g. Adrenalin (0.02mg/mouse), acetylcholin (0.6mg/mouse), tryptamine (1.5mg/mouse), serotonin (0.5mg/mouse), phenylethylamine (0.8mg/mouse), thiourea (45.0mg/mouse) and aminoethylisothiouracil (AET) (3.0mg/mouse) were injected s.c. in aqueous solutions. The oxygen tension in liver and spleen was determined polarographically. The effect of these substances on the oxygen tension was different for spleen and for liver, and varied also with each substance. Acetylcholin brought about the most marked

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The effect of certain antiradiation...

decrease in oxygen tension in both the spleen (59%) and the liver. The combined administration of serotonin, adrenalin and tryptamine with acetylcholin, brought about a moderate increase in hypoxia in the spleen, in comparison with acetylcholin alone, whereas phenylethylamine lowered the effect of acetylcholin. No such effect was observed, however, in the liver. A certain parallelism was found to exist between the hypoxia-promoting-effect, and the radioprotective properties of the substances examined, and it was assumed that these agents act as radioprotectors by decreasing the oxygen tension in tissues. The sulphur-containing compounds did not affect the oxygen tension and it was therefore assumed that the radioprotecting mechanism of these compounds is of a different nature. There are 4 figures and 1 table.

ASSOCIATION: Institut eksperimental'noy patologii i terapii AMN SSSR, Sukhumi (Institute of Experimental

SPASSKAYA, I.G.; PLATONOVA, G.N.; SOLOPAYEVA, I.M.; SEMENOV, L.F.; ZEYTUNYAN, K.A.; LARIONOV, L.F.

Reducing the toxicity of dcpan by means of aminoethylisothiuronium (AET) in experiments on monkeys. Vop. onk. 9 no.12:44-46 '63. (MIRA 17:12)

1. Iz laboratorii eksperimental'noy khimioterapii (zav. - chlen-korrespondent AMN SSSR prof. L.F. Larionov) Instituta eksperimental'noy i klinicheskoy onkologii AMN SSSR (direktor-deystvitel'nyy chlen AMN SSSR prof. N.N. Blokhin) i iz laboratorii radiobiologii (zav. - L.F. Semenov) Instituta eksperimental'noy patologii i terapii (direktor - prof. B.A. Lapin). Adres avtorov: Moskva, I-110, ul. Shchepkina, 61/2, korp.9, Institut eksperimental'noy i klinicheskoy onkologii AMN SSSR.

SEMENOV, L.F.; LARIONOV, L.F.; PETROVA, M.F.; PUKHAL'SKAYA, Ye.Ch.; ZEYTUNYAN, K.A.

Use of serotonin in the prevention of acute radiation sickness in monkeys. Med. rad. 8 no.4:58-62 Ap'63 (MIRA 17:2)

1. Iz Instituta eksperimental'noy patologii i terapii AMN SSSR, Sukhumi i Instituta eksperimental'noy i klinicheskoy onkologii AMN SSSR, Moskva.

ZEYTUNYAN, K. A.

AID Nr. 995-2 21 June

PROPHYLACTIC EFFECT OF SEROTONIN ON ACUTE RADIATION SICKNESS IN MONKEYS (USSR)

Semenov, L. F., L. F. Larionov, M. F. Petrova, Ye. Ch. Pukhal'skaya, and K. A. Zeytunyan. Meditsinskaya radiologiya, v. 8, no. 4, Apr 1963, 58-62. S/241/63/008/004/002/006

Rhesus monkeys weighing 2.5 to 4.0 kg were subjected to total-body γ-radiation (Co^{60}) with a single dose of 630 r (LD_{90}) or 700 r (LD_{100}) at 96 to 102 r/min. To prevent dysentery, the animals were given levomycetin (400 mg per animal) and biomycin (100 mg per animal) every other day starting 24 hrs after exposure. Serotonin hydrochloride was injected intramuscularly (aqueous solutions) in doses of 50 to 175 mg/kg or 35 to 40 mg/kg 5 to 10 min before irradiation; doses of 100, 150, and 175 mg/kg proved toxic. Spasms salivation, and contraction of the muscles of the extremities were observed a few minutes after the injection of serotonin, followed by coma and death within 2 to 40 hrs. A dose of 50 mg/kg of serotonin caused spasms and coma which gradually disappeared, after which the animals recovered. Doses below 40 mg/kg caused slight hyperemia of facial

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PROPHYLACTIC EFFECT OF SEROTONIN [Cont'd] S/241/63/008/004/002/006

skin and increased the muscular tonus of the toes but did not markedly impair the vital activity of the animals. Acute radiation sickness induced in rhesus monkeys by γ-irradiation with 630 r caused the death of most of the animals (controls), although prophylactic use of serotonin (35 to 40 mg/kg) alleviated the symptoms of radiation sickness and increased the survival rate (6 monkeys out of 17 survived after a 30-day observation period). When subjected to γ-irradiation with 700 r (> LD_{100}) and treated with serotonin hydrochloride (35 to 40 mg/kg prior to exposure) and antibiotics, the monkeys succumbed within 17 days.

SGM

Card 2/2

AID Nr. 996-6 24 June) K. H,

PROPHYLACTIC EFFECT OF 5-METHOXYTRYPTAMINE ON RADIATION SICKNESS IN MONKEYS (USSR)

Krasnykh, I. G., P. G. Zherebcher'ko, L. F. Semenov, N. N. Suvorov, and K. A. Zeytunyan. Radiobiologiya, v. 3, no. 2, 1963, 259-261.

S/205/63/003/002/016/024

Radiation sickness was induced in rhesus monkeys by subjecting them to γ-irradiation with 607 r at 81 r/min for 7.5 min. Survival of the animals for 30 days after exposure, severity of individual symptoms, and changes in body weight, mean life span, and peripheral blood were used as indices to evaluate the prophylactic effect of 5-methoxytryptamine. The monkeys were given injections of syntomycin and levomycin every other day to prevent dysentery. 5-Methoxytryptamine was administered intramuscularly in a dose of 25 mg/kg 10 min before exposure, or *per os* in a dose of 250 mg/kg 30 min before exposure. The control animals died within 6 to 17 days from severe acute radiation sickness (mean life span, 9.2 days). Disturbances

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PROPHYLATIC EFFECT [Cont'd]

8/205/63/003/002/016/024

in the general condition of the control animals became evident by the third day. Towards the end their weight decreased 18 to 38% and the leucocyte count decreased to 3% of the initial level. Hemorrhages, ulcers, and necrosis of the oral mucosa were observed. Of the seven monkeys injected intramuscularly with 25 mg/kg of 5-methoxytryptamine, one survived 30 days; the mean life span of the other six was 17.3 days. Of the eight monkeys given 250 mg/kg of 5-methoxytryptamine *per os*, three survived and the mean life span of the rest was 14.0 days. Symptoms of radiation sickness in the two groups injected with 5-methoxytryptamine were much milder than in the control group. The highest rates of survival and increased life span were found in the group that received 250 mg/kg of the protector *per os*. The general condition of these animals was only slightly affected, their weight loss was only 10%, and they suffered less from hemorrhages than the other two groups. Pneumonia was observed in one out of five monkeys treated *per os* and in three out of six in the control group. 5-Methoxytryptamine proved to be most effective when administered *per os*.

[SGM]

Card 2/2

ZEYTUNYAN, Kh.N.

Calculation of the wind shift with altitude in the flow of an air current aroung obstacles. Trudy MMTS no.6:65-76 '65.
(MIRA 18:12)

S/020/63/148/003/022/037
B108/B180

AUTHOR: Zeytunyan, Kh. N.

TITLE: Hydrodynamic calculation of the orographic cloudcover in a stable and an unstable atmosphere

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 148, no. 3, 1963, 585-588

TEXT: Due to unstable stratification peculiarities will arise in the movement of the atmosphere. These are considered here and compared with that of a stable atmosphere (A. A. Dorodnitsyn. Tr. Glavn. geofiz. obs., no. 31 (1940)). The basic motion $U(z_1)$ is assumed to be along the horizontal axis x_1. Neglecting the turbulence and the Coriolis force, a second-order differential equation is obtained for the vertical motion of the atmosphere. This equation is solved for stable and unstable stratification. The result for the latter case is used to calculate the flow around a paraboloid of revolution. There are 4 figures.

Card 1/2

L 27515-66 EWT(1)/FCC GW

ACC NR: AT5024838 UR/3118/65/000/006/0065/0076

AUTHOR: Kh. N. Zeytunyan

ORG: None

TITLE: Consideration of the rotation of wind direction with altitude for a wind flow over obstacles.

SOURCE: Mirovoy meteorologicheskiy tsentr. Trudy, no. 6, 1965. Voprosy gidrodinamicheskogo kratkosrochnogo prognoza pogody i mezometeorologii (Problems in hydrodynamic short-range weather forecasting and mesometeorology), 65-76

TOPIC TAGS: ~~wind direction, wind profile, topography~~ ~~weather prediction, wind altitude turn, wind over obstacles~~
wind direction, wind profile, topography

ABSTRACT: A theoretical approach is presented for the solution of the problem of wind flow over obstacles, with the consideration of wind turn with altitude. The linear three-dimensional problem is of interest for the clarification of wave features of the flow over mountains, but has been little investigated. An approach is due to J. Sawyer (Quart. T.Roy.Met.Soc. v.88, 1962). The present work presents a new method of solution for the case of flow over an obstacle, with the flow rotating with altitude. The start is from the thermohydrodynamic equations, with the usual notations for the three-dimensional case (N). With certain simplifications (neglect of turbulence and the Coriolis force, the equations are , (1) - (6); by elimination, introduction of non-dimensional variables and new boundary conditions, the equation for

Card 1/4 UDC: None

vertical velocities is found, (13), with boundary conditions (14)

$$u = U_\infty(z_1) + u'(x_1, y_1, z_1);$$
$$v = V_\infty(z_1) + v'(x_1, y_1, z_1); \quad (N)$$
$$w = w'(x_1, y_1, z_1); \quad p = \tilde{P}(z_1) + p'(x_1, y_1, z_1);$$
$$T = \tilde{T}(z_1) + T'(x_1, y_1, z_1); \quad \rho = \tilde{\rho}(z_1) + \rho'(x_1 y_1 z_1)$$

$$U_\infty \frac{\partial u'}{\partial x_1} + V_\infty \frac{\partial u'}{\partial y_1} + w' \frac{dU_\infty}{dz_1} = -\frac{1}{\tilde{\rho}} \frac{\partial P'}{\partial x_1}; \quad (1)$$

$$U_\infty \frac{\partial v'}{\partial x_1} + V_\infty \frac{\partial v'}{\partial y_1} + w' \frac{dV_\infty}{dz_1} = -\frac{1}{\tilde{\rho}} \frac{\partial P'}{\partial y_1}; \quad (2)$$

$$U_\infty \frac{\partial w'}{\partial x_1} + V_\infty \frac{\partial w'}{\partial y_1} = -\frac{1}{\tilde{\rho}} \frac{\partial P'}{\partial z_1} - \frac{g}{\tilde{\rho}} \rho'; \quad (3)$$

$$U_\infty \frac{\partial T'}{\partial x_1} + V_\infty \frac{\partial T'}{\partial y_1} = -\left(\gamma_a - \tilde{\gamma}\right) w'; \quad (8)$$

$$\frac{\partial \tilde{\rho} u'}{\partial x_1} + \frac{\partial \tilde{\rho} v'}{\partial y_1} + \frac{\partial \tilde{\rho} w'}{\partial z_1} = 0; \quad (5)$$

$$\rho' = -\tilde{\rho} \frac{T'}{\tilde{T}}. \quad (6)$$

$$\left(U_\infty \frac{\partial}{\partial \bar{x}} + V_\infty \frac{\partial}{\partial \bar{y}}\right)^2 \left(\varepsilon^2 \Delta \bar{w} + \frac{\partial^2 \bar{w}}{d\bar{z}^2}\right) + \mu \Delta \bar{w} - \quad (13)$$
$$-\left(U_\infty \frac{\partial}{\partial \bar{x}} + V_\infty \frac{\partial}{\partial \bar{y}}\right)\left(\frac{d^2 U_\infty}{d\bar{z}^2} \frac{\partial \bar{w}}{\partial \bar{x}} + \frac{d^2 V_\infty}{d\bar{z}^2} \frac{\partial \bar{w}}{\partial \bar{y}}\right) = 0.$$

$$\varepsilon = \frac{H}{L}; \quad \Delta = \frac{\partial^2}{\partial \bar{x}^2} + \frac{\partial^2}{\partial \bar{y}^2}; \quad \mu = \frac{g}{\tilde{T}}\left(\gamma_a - \tilde{\gamma}\right) H^2.$$

$$\bar{w}_{z=1} = \Gamma(\bar{x}, \bar{y}) = \rho_0 e \left(U_\infty \frac{\partial \eta}{\partial \bar{x}} + V_\infty \frac{\partial \eta}{\partial \bar{y}}\right) \quad (14)$$

$$\bar{w}_{z=1} = 0 \quad \left(\eta = \frac{h}{H}\right)$$

Considering the midlayer (z=.5) solution, and transforming to new axes x and y, turned by an angle α, yields the oriented axes equation in the form (20), with boundary cond. corresponding to the mid-layer and the notations per (21):

$$\varepsilon^2\frac{\partial^4 W}{\partial x^4}+(\bar{\delta}-8-\bar{A})\frac{\partial^2 W}{\partial x^2}-\bar{B}\frac{\partial^2 W}{\partial x\,\partial y}+\bar{\delta}\frac{\partial^2 W}{\partial y^2}+\varepsilon^2\frac{\partial^4 W}{\partial x^2\partial y^2}=$$
$$=-4\frac{\partial^2\Gamma}{\partial x^2}. \qquad (20)$$

$$\bar{\delta}=\left[\frac{R}{\bar{T}}\frac{T_a-\bar{T}}{v_\infty^2}H^2\right]_{\bar{z}=0,5}$$

$$\bar{A}=\left[\frac{1}{v_\infty}\frac{d^2v_\infty}{d\bar{z}^2}-\left(\frac{d\alpha}{d\bar{z}}\right)^2\right]_{\bar{z}=0,5} \qquad (21)$$

$$\bar{B}=\left[\frac{d^2\alpha}{d\bar{z}^2}+2\frac{1}{v_\infty}\frac{dv_\infty}{d\bar{z}}\frac{d\alpha}{d\bar{z}}\right]_{\bar{z}=0,5}$$

Putting now

$$\Gamma(x,\ y)=\rho_0\varepsilon\bar{v}_\infty\frac{\partial\eta}{\partial x}, \qquad \Gamma(x,\ y)=\sum_{n=-\infty}^{+\infty}\Gamma_n(x)e^{iny}, \qquad (22)$$

and looking for W(x,y) in the form (23) -

$$W(x,\ y)=\sum_{n=-\infty}^{+\infty}W_n(x)e^{iny}. \qquad (23)$$

$$\frac{d^4W_n}{dx^4}+\alpha_n\frac{d^2W_n}{dx^2}-\beta_n\frac{dW_n}{dx}-\gamma_nW_n=f_n, \qquad (24)$$

- the author arrives at the equation for the $W_n(x)$, - (24). (24) contains, and (25) defines the angle of rotation of the wind, α; this solves the basic problem. Specific cases and a study of wind waves behind the obstacle follow. In Fig. 2, an example of wind rotation with altitude is calculated and shown, on the basis of wind profile (assumed) of Fig. 1. Orig. art. has: 2 fig., 42 main formulas

$$\alpha_n=\frac{1}{\varepsilon^2}(\bar{\delta}-8-\bar{A})-n^2$$

$$\beta_n=\frac{1}{\varepsilon^2}in\bar{B} \qquad (i=\sqrt{-1})$$

$$\gamma_n=\frac{1}{\varepsilon^2}n^2\bar{\delta} \qquad (25)$$

$$f_n=-\frac{4}{\varepsilon^2}\frac{d^2\Gamma_n}{dx^2}$$

L 27515-66

ACC NR: AT5024838

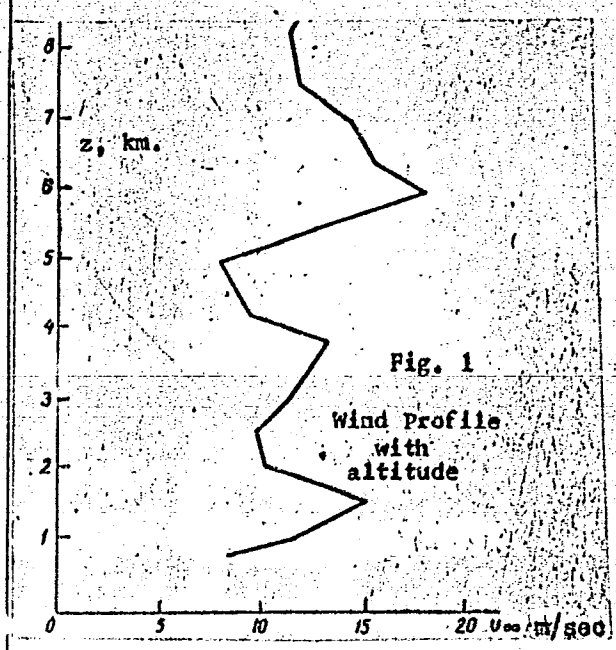

Fig. 1

Wind Profile with altitude

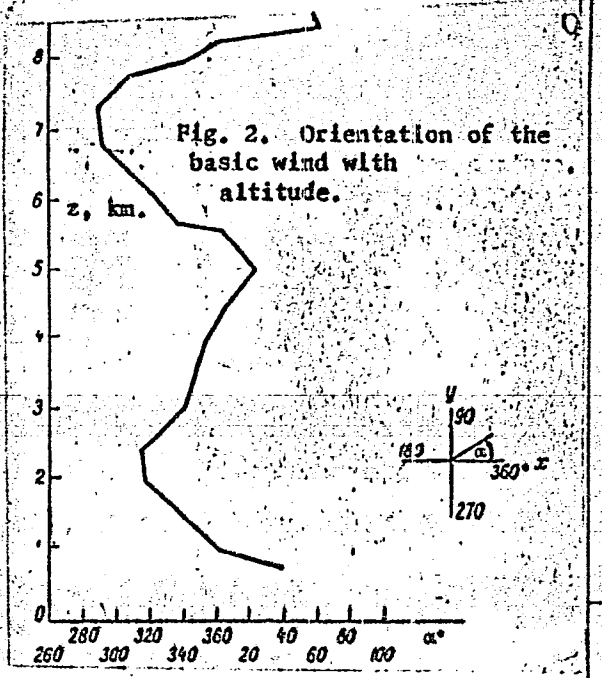

Fig. 2. Orientation of the basic wind with altitude.

SUB CODE: ~~02~~ 04, 08 SUBM DATE: 00/ ORIG REF: 001 OTH REF: 002

Card 4/4 BLG

ZEYTUNYAN, Kh.N.

Theory of small-scale convection. Dokl.AN Arm.SSR 31 no.1: 29-36 '60. (MIRA 13:9)

1. Institut prikladnoy geofiziki Akademii nauk SSSR. Predst. akad. AN ArmSSR N.Kh. Arutyunyanom.
(Heat--Convection) (Atmospheric temperature)

ZEYTUNYAN, Kh.N.

Nonlinear problem of cloud formation behind a barrier. Izv. AN SSSR. Ser. geofiz. no.9:1427-1437 S '63. (MIRA 16:10)

1. Vychislitel'nyy meteorologicheskiy tsentr Glavnogo upravleniya gidrometeorologicheskoy sluzhby pri Sovete Ministrov SSSR.

S/020/60/133/006/004/016
B019/B054

AUTHOR: Zeytunyan, Kh. N.

TITLE: On the Nonlinear Theory of Unsteady Anabatic Wind

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 133, No. 6, pp. 1319-1322

TEXT: The author studies the unsteady plane problem of the wind over an inclined, thermally homogeneous area. He writes down the equation system (1), typical for this case, in a curvilinear coordinate system which is adapted to the relief. Referring to A. A. Dorodnitsyn, he finds the solution of (1) in the form of series (4) which represent the two wind components in the direction of the coordinates and the temperature deviations. The terms of series (4) are represented by the functions (17) - (19) which are obtained from the equation system (5) - (7); these functions (17) - (19) are graphically shown in Figs. 1 and 2. With the aid of these formulas, the author calculated the development with respect to time of the anabatic wind at different altitudes in different places of the

Card 1/2

On the Nonlinear Theory of Unsteady Anabatic Wind

S/020/60/133/006/004/016
B019/B054

slope. Finally, he thanks I. A. Kibel', Corresponding Member of the AS USSR, for his interest in the investigation. There are 2 figures and 3 Soviet references.

ASSOCIATION: Institut prikladnoy geofiziki Akademii nauk SSSR (Institute of Applied Geophysics of the Academy of Sciences, USSR)

PRESENTED: April 19, 1960, by L. I. Sedov, Academician

SUBMITTED: April 19, 1960

Card 2/2

ZEYTUNYAN, KH. N., CAND PHYS-MATH SCI, "On the NONLINEAR THEORY OF NON-stationary LOCAL ATMOSPHERIC CIRCULATIONS."

MOSCOW, 1960. (ACAD SCI USSR, INST OF APPLIED GEOPHYS).

(KL, 3-61, 203).

S/169/62/000/007/101/149
D228/D307

AUTHOR: Zeytunyan, Kh. N.

TITLE: Influence of vertical currents generated in the boundary layer on movement in the free atmosphere for problems of small-scale convection

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 7, 1962, 33, abstract 7B196 (Tr. 1-y Zakavkazsk. konferentsii molodykh nauchn. sotrudn., posvyashch. vopr. energ., gidravliki-gidrodinamiki i meteorol.-gidrol., Yerevan, 1960, 275-283)

[Abstracter's note: Complete translation.]

Card 1/1

ZEYTUNYAN, Kh.N.

Hydrodynamic calculation of lee waves. Izv. AN SSSR. Ser. geofiz. no.9:1429-1433 S '64. (MIRA 17:10)

1. Vychislitel'nyy meteorologicheskiy tsentr.

ZEYTUNYAN, Kh.N., kand. fiz.-matem. nauk; FEDOTOVA, N.A.

Spottiness of precipitation in a large city. Meteor. i gidrol. no.3:8-13 Mr '65. (MIRA 18:2)

1. Mirovoy meteorologicheskiy tsentr.

Card 3/3

TER-POGOSYAN, R.A.; ARZUMANYAN, G.A.; ZEYTUNYAN, M.A.

Early diagnosis of cancer by means of the fluorescent cytological method. Zhur.eksp.i klin.med. 4 no.5:81-85 '64. (MIRA 18:11)

1. Yerevanskiy institut rentgeno-radiologii i onkologii AMN SSSR.

ZEYVANG, L. S.

"Determination of the Rupture of the Bag of Waters with Stains", Akusher. i Ginekol.,No. 6, 1949. p. 33-35 Mbr. Pathomorphological Div. Inst. Obstetrics and Gynecology, Min. Public Health,-c1949-.

ZEYVANG, L. S.

"Diagnosis of leakage of embryonic fluids by means of microscopic investigation of vaginal content." Min Health RSFSR. First Moscow Order of Lenin Medical Inst imeni I. M. Sechenov. Moscow, 1956. (Dissertations for the Degree of Candidate in Medical Science)

So: Knizhaya letopis', No. 16, 1956

ZEYZEL'MAN, R. D.; TSYPKIN, B. V.

Bearings (Machinery)

"Rolling contact bearings." R.D. Zeyzel'man, B.V. Tsypkin. Reviewed by L.D. Chasovnikov, I.Ya. Al'shits, A.A. Korolev. Vest. mash., 32, No. 3, 1952.

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

ZEZEGOV, B.

Public industrial safety inspector. Zhil.-kom.khoz. 10 no.2: 18 '60. (MIRA 13:5)

1. Tekhnicheskiy inspektor Novosibirskogo oblastnogo Soveta profsoyuzov.
(Arykov, Georgii Nikolaevich)

ZEZELJ, B. , and others.

Materials and structures in housing constructions. p. 1.

Periodical: SAOBRACAJ

Vol. 1, no. 4, 1958.

TECHNOLOGY

SO: Monthly List of East European Accessions (EEAI) LC

Vol. 8, no. 4
April 1959, Uncl.

ZEZELJ, Branko

Report on the Österreichischer Betontag 1962, Innsbruck, September 11-14, 1962. Glas SANU 14 no.2:126-127 Jl-D '62 [publ. '63].

Conference on Reinforced-Concrete and Prestressed Bridges, Smolenice, October 1-5, 1962. Ibid.:

1. Corresponding Member of the Serbian Academy of Sciences and Arts, Belgrade.

ZEZELJ, Branko, inz. (Beograd)

The bridge across the Danube River at Novi Sad. Tehnika Jug 17 no.5:Suppl.: Gradevinarstvo 16 no.5:853-862 '62.

1. Upravnik Instituta za ispitivanje materijala NR Srbije, Beograd.

ZEZELJ, B.

Progress of the building industry. p.1708. TEHNIKA. Beograd.
Vol. 10, no. 12, 1955.

SOURCE: East European Accessions List (EEAL), Library of Congress
Vol. 5, No. 6, June 1956

ZEZELJ, Branko, inz.

Bridge across the Danube in Novi Sad. Inz stavby 11 no.2:69-71 F '63.

1. Clen korespondent Srbske akademie ved; reditel Ustavu pro zkouseni materialu a konstrukci, Belehrad.

ŽEŽELJ, Branko, inz. (Beograd)

New bridge over the Danube River at Novi Sad. Gradevinar 14 no.4:105-111 '62.

ZEZELJ, Branko, inz. (Beograd, Bul. Voj. Misica 43)

Scientific research and its role in the development of building industries. Tehnika Jug 18 no. 8: Supplement: Gradevinarstvo 17 no. 8: 1443-1448 Ag '63.

1. Upravnik Instituta za ispitivanje materijala SRS, Beograd.

ZEZELJ, Branko

Report on the 4th Congress of the International Federation of Prestressing, Rome and Naples, May 27-June 2, 1962. Glas SANU 14 no.1:61-62 Ja-Je '62 [publ. '63]

1. Corresponding Member of the Serbian Academy of Sciences and Arts, Belgrade.

ZEZELJ, Branko, inz.

Prestressed prefabricated skeleton for house construction. Poz stavby 11 no.2:82,91-92 '63.

1. Clen korespondent Srbske akademie ved; reditel Ustavu pro zkouseni materialu, Belehrad.

ZEZELJ, D.

For better utilization of mechanical means in handling material. p. 1243.
Safety in handling p. 1246.

(TEHNIKA. Vol. 12, No. 7, 1957, Beograd, Yugoslavia)

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

ZEZELJ, D.

Importance and organization of the collection of wastes.

p. 1748 (Tehnika) Vol. 12, no. 10, 1957, Belgrade, Yugoslovia

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

ZEZELJ, D.

Importance, selection, and training of foremen in industry. p. 1102. TEHNKA (Savaz inzenjera i techicara Jugoslavije) Beogard. Vol. 11, no. 7, 1956.

SOURCE: East Europe Accession List (EEAL), Library of Congress, Vol. 5, no. 11, Nov. 1956

ZEZELJ, D.

"The Standardization Of Packing Cases" p. 13, "Direction Lines For Screw Junctions. Tr. From The German" p. 16. (Standardizacija, No. 2, Feb., 1953, Beograd.)

SO: Monthly List of East European Accessions, Library of Congress, Vol. 2, No. 9, September 1953, Uncl.

ZEZELJ, Stevan, tehn. (Beograd, Brane Cosica 45)

New small-capacity equipment for production and fractionation of liquid air. Tehnika Jug 19 no.1:Suppl:Hemindustrija 18 no.1: 139-145 Ja '64.

ZEZELJ, Stevan

YUGOSLAVIA/Chemical Technology - Chemical Products and Their Application. Safety Engineering. Sanitary Engineering. H-6

Abs Jour : Ref Zhur - Khimiya, No 8, 1958, 25647

Author : Ljubic Radojko, Zezelj Stevan
Inst : -
Title : Foaming Agents for Extinguishment of Fires.

Orig Pub : Kemija u industriji, 1957, 6, No 4, 115-119

Abstract : Description of chemical properties and procedure for the preparation of foaming agents obtained by hydrolysis of protein compounds and utilized for the extinguishment of hydrocarbon fires. They are also suitable for quenching of burning liquids of lower capillary activity, provided that urea or thiourea is added to them.

Card 1/1

ZEZEREV,E.G.(Zezerov,H.G.); HRIPUNOVA,I.I.(Khripunova, N.I.)

Electrometric method for the determination of tissue repiration.
Analele biol 16 no.1:133-140 Ja-F '62

ZEZEROV, Ye.G.; KHRIPUNOVA, I.I.

Electrometric method for studying tissue respiration.
Biokhimiia 26 no. 1:86-92 Ja-F '61. (MIRA 14:2)
(RESPIRATION) (PHYSIOLOGICAL APPARATUS)

ZEZEROV, Ye.G.

Study of protein biosynthesis by the incorporation of labeled methionine. Biokhimiia 25 no.4:727-734 Jl-Ag '60. (MIRA 13:11)
(PROTEIN METABOLISM) (METHIONINE)

88544

S/190/60/002/010/019/026
B004/B054

AUTHORS: Kozlov, P. V., Iovleva, M. M., Khakimova, A. Kh., and Zezin, A.

TITLE: Preparation of Some Grafted Copolymers by Ozonization

PERIODICAL: Vysokomolekulyarnyye soyedineniya, 1960, Vol. 2, No. 10, pp. 1575-1579

TEXT: The authors studied the grafting of monomers on ozonized polymers: 1) Polystyrene with a molecular weight of 200,000 was ozonized by a method described (Ref. 6), and allowed to react with vinyl acetate either a) in the benzene - water interface, or b) by heating to 88°C. Method a) produced a grafting of 6-7% vinyl acetate, method b) a grafting of 20% vinyl acetate on the polymer (Table). The molecular weight of the polyvinyl acetate side chains was between 8,000 and 12,000. Fig. 1 compares the intrinsic viscosity of the copolymer with that of polystyrene. The decrease in viscosity is explained by a lower solubility of the polymer. 2) Polyethylene terephthalate was ozonized for different periods (1.5 to 6 hours), and allowed to react with acrylic acid at 80°C. The grafted

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Preparation of Some Grafted Copolymers by Oxonization

copolymer contains 53% of acrylic acid. 3) Polyisobutylene with a molecular weight of 331,000 was ozonized for 4.5 hours, and then heated with styrene for 3 - 4 hours at 110°C. The turbidimetric titration of the reaction mixture with methanol dissolved in toluene (Fig. 2) yielded three maxima: a) precipitation of the copolymer, b) and c) precipitation of various polystyrene fractions. A 30% grafting was established by bromination. There are 2 figures, 1 table, and 15 references: 9 Soviet, 3 US, 1 Belgian, and 2 German.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

SUBMITTED: June 9, 1960

S/190/60/002/010/020/026
B004/B054

AUTHORS: Kozlov, P. V., Iovleva, M. M., Khakimova, A. Kh., Zezin, A., and Klushina, A.

TITLE: Solubility of Some Grafted Copolymers

PERIODICAL: Vysokomolekulyarnyye soyedineniya, 1960, Vol. 2, No. 10, pp. 1580-1585

TEXT: The authors studied the grafted copolymers from starch and polystyrene (1 : 15), polyethylene terephthalate and polyacrylic acid, polystyrene and polyacrylic acid, and the copolymers from polyisobutylene and polystyrene, as well as polystyrene and polyvinyl acetate, which have common solvents. For starch with polystyrene, and polystyrene with polyacrylic acid, the phase diagrams were taken by precipitation with methanol from benzyl alcohol solution (Fig. 1). There is only a limited solubility range (3 - 4%), and the other part of the diagram area represents a heterogeneous phase. In polyethylene terephthalate with polyacrylic acid dissolved in benzyl alcohol, and polyisobutylene with polystyrene dissolved in cyclohexane, two phases are formed when cooling their

Card 1/3

Solubility of Some Grafted Copolymers

S/190/60/002/010/020/026
B004/B054

solutions; thus, phase diagrams could be taken on the basis of the equilibrium concentration of the two layers at different temperatures (Fig.2). Also here, the authors observed a wide range of heterogeneity. In polystyrene with polyvinyl acetate, the phase diagram was also determined by precipitation with methanol from benzyl alcohol, and compared with that of polystyrene (Fig. 3). Also here, the solubility of the copolymer is much restricted. Thus, grafting always effected a decrease in solubility of the copolymer as compared with the components. An investigation of the integral swelling heat of polystyrene in benzene, polystyrene with polyvinyl acetate in benzene, polystyrene with polyvinyl acetate in the mixture of hydrogenated monomers (ethyl benzene and ethyl acetate), and a mechanical mixture from polystyrene and polyvinyl acetate in this mixture yielded an increase in the swelling heat for the copolymers (Table). As in the previously studied copolymers from polystyrene with polyacrylic acid, grafting effects a loosening of the structure, and a variation of the energy- and entropy component of the swelling and solution of the copolymer acting unfavorably on the solubility. The authors thank V. A. Kargin for his interest and discussion. There are 3 figures, 1 table, and 9 references: 7 Soviet, 1 US, and 1 British.

Card 2/2 ASSN: Moscow State Univ.

KARGIN, V.A., akademik; KABANOV, V.A.; ZUBOV, V.P.; ZEZIN, A.B.

Polymerization of acetonitrile and other nitriles. Dokl. AN SSSR 139 no.3:605-607 Jl '61. (MIRA 14:7)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.
(Nitrile) (Polymerization)

KOZLOV, P.V.; BAKEYEV, N.F.; ZEZIN, A.B.; SHMYREVA, R.K.

Electron microscope study of the supermolecular structure of poly-γ-benzyl-L-glutamate and poly-γ-methyl-L-glutamate. Biofizika 7 no.3:266-269 '62. (MIRA 15:8)

1. Khimicheskiy fakul'tet Moskovskogo gosudarstvennogo universiteta imeni Lomonosova.
(GLUTAMIC ACID) (STEREOCHEMISTRY)

KOZLOV, P.V.; BAKEYEV, N.F.; SHMYREVA, R.K.; ZEZIN, A.B.

Electron microscope study of the supermolecular structure of poly-γ-benzyl-L-glutamate. Dokl. AN SSSR 143 no.4:905-907 Ap '62. (MIRA 15:3)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova. Predstavleno akademikom V.A.Karginym.
(Glutamic acid) (Electron microscopy) (Peptides)

15-8050 1423, 2409, 1436

5.4800 1273, 1297, 2209

25717
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B103/B226

AUTHORS: Kargin, V. A., Academician, Kabanov, V. A., Zubov, V. P., and Zezin, A. B.

TITLE: Polymerization of acetonitrile and other nitriles

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 139, no. 5, 1961, 605-607

TEXT: The authors proved the possibility of adding another multiple bond (C≡N) to the bonds undergoing polymerization. This is possible when applying the principle of preliminary ordering of the monomer molecules. Thus, the formation of a new class of polymers having conjugated bonds in the principal chain becomes possible. For this purpose, the authors used nitriles (acetonitrile, propionitrile, tolyl nitrile, benzonitrile, trifluoroacetonitrile, and others). Under standard conditions, polymerization of these compounds on the C≡N bond is not possible, because these bonds should form a C=N- and a C—N bond each. In this case, a heat absorption of about 11 kcal/mole would be caused (M. Kh. Karapet'yants, Ref. 2: Khimicheskaya termodinamika (Chemical thermodynamics), M. 1953), without considering conjugation energy. The latter energy, which is

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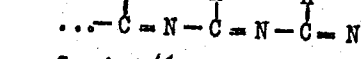
released in the formation of the bond system $-C=N-C=N-...$ would, at best, cover the deficiency mentioned. In this way, the thermal effect of the reaction would be nearly zero. However, the transition from a liquid monomer to a solid polymer is always accompanied by an entropy decrease ($\Delta S<0$) (with a change of heat contents $\Delta H=-Q\cong 0$ and $\Delta S<0$ the change of isobaric-isothermal potentials $\Delta Z=\Delta H-T\Delta S>0$). The authors have ordered the monomer molecules in solid complexes which are readily formed by nitriles with such coordination-unsaturated metal halides as $ZnCl_2$, $BeCl_2$, $TiCl_4$, $AlCl_3$, $SnCl_4$. These complexes are crystalline substances of constant composition (usually $MeX_n \cdot 2RCN$). During their formation the entropy of the system is essentially decreased. There is reason to believe that the monomer molecules in these complexes form packings favoring their combination into molecular chains. Heating of these complexes to 180-350°C in hermetically sealed glass ampoules or in the autoclave in the absence of moisture and air oxygen resulted in polymerization of the ordered nitrile molecules with the formation of conjugated



chains. In this process, the metal halide

Polymerization of acetonitrile and...

plays the part of agents which displace the chemical monomer-polymer equilibrium in favor of the polymer formation. After polymerization the inorganic salt can be washed out by water, ammonia, or acids. Other experiments (heating of nitriles in which only small quantities of the above-mentioned salts are dissolved, 10,000 atm pressure) are unsuccessful, since they lead only to the formation of cyclic trimers. The above-mentioned structural formula of polynitriles is confirmed by data of infrared spectroscopy (Fig. 1). According to the authors' opinion, polymerization proceeds step by step. The molecular weight of the polymer increases with time. The yellow, low-molecular, water-soluble products forming at first gradually become dark brown and black. From the acetonitrile complex with $ZnCl_2$ heated to 250°C for 5 hr, a dark brown powder is formed, which is soluble in dimethyl formamide. Further heating yields polymers that are soluble only in concentrated (formic, phosphoric, sulfuric) acids. After 10 hr and more, black insoluble polymers are formed. This is confirmed by the increasing viscosity of polymer solutions in H_2SO_4. Similar relationships can be noted when increasing the reaction temperature. On the assumption that each of the

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polymer chains in the complex increases step by step independently of the other chains, the change of the polymerization degree (P) in time (t) can be written as $dP/dt = k$ or $P = kt$, where, in first approximation, k can be assumed as a constant depending on the temperature and structure of the complex. The intrinsic viscosity is related with P by $[\eta] = KP^{\alpha}$. For very hard polymers, such as polynitriles, α is probably ~ 2. Therefore, $[\eta] \cong k^2Kt^2 = Kt^2$. In fact, the experimental function $[\eta]$ of t^2 can be described by a straight line which is extrapolated up to the origin of the coordinates. Polynitriles exhibit a high thermal stability, semi-conductive properties, and the electron paramagnetic resonance spectra characteristic of polyconjugated systems. The electrical conductivity of polymer powders changed within wide limits with good reproducibility on a change of the polymerization temperature. It increases with increasing time and temperature of polymerization. For a temperature increase between 20 and 200°C, conductivity is rigorously changed according to the equation $\sigma = \sigma_o e^{-E/RT}$. The activation energy of electrical conductivity decreases with increasing time and temperature of polymerization between

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0.35 and 0.2 ev. From the increase in σ_0, the authors conclude that "compensated effects" are absent. There are 3 figures, 1 table, and 5 references: 4 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: H. J. Emeleus, G. S. Rao (Ref. 3: J. Chem. Soc., 1958, 4245).

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

SUBMITTED: May 4, 1961

Card 5/6

ZEZIN, A.B.; BAKEYEV, N.F.; MERZLOV, V.P.; SHALDINA, L.A.; KOZLOV, P.V.

Aggregation of molecules of poly-L-glutamic acid in aqueous solutions at low pH values. Biofizika 10 no.2:207-211 '65. (MIRA 18:7)

1. Khimicheskiy fakul'tet Moskovskogo gosudarstvennogo universiteta imeni Lomonosova.

ZEGIN, M.A., inzh.

Gas cut off valve. Stek.i ker. 21 no.12:34-35 D '64.

1. Proyektno-konstruktorskoye byuro Instituta stekla. (MIRA 18:3)

ZEZIN, Mikhail Anatol'yevich; CHUGUNOV, I.I., otv. red.; BEZPALOV, K.M., inzh., nauchnyy red.; OVOD, M.Ye., red.; BORISOV, B.L., tekhn. red.

[Regulating devices of automatic control systems used in glass manufacture] Reguliruiushchie ustroistva sistem avtomatiki v stekol'noi promyshlennosti. Moskva, Gos. nauchno-issl. in-t stekla, 1961. 53 p. (MIRA 15:2)
(Automatic control) (Glass manufacture)

ZEZIN, M.A.; RAKOV, I.D.; POPOV, N.T.

Automatic control for changing the direction of the flame in pot furnaces. Stek.i ker. 18 no.8:18-22 Ag '61. (MIRA 14:8)
(Automatic control) (Glass furnaces)