MILYAYEV, N.A.

Magnetic field in the area covered by the drifting stations "North Pole 3" and "North Pole 4" in 1954/55. Trudy AANII 223:46-64 '60. (MIRA 13:10)

(Magnetism, Terrestrial--Diurnal variation)

3.9100 (3805, 4705)
3.9110

40258
S/169/62/000/007/147/149
D228/D307

AUTHOR: Milyayev, N. A.

TITLE: Simultaneous magnetic variations in the Antarctic and the Arctic.

PERIODICAL: Referativnyy zhurnal, Gefizika, no. 7, 1962, 33, abstract 7G222 (Inform. byul. Sov. antarkt. ekspeditsii, no. 30, 1961, 25-28)

TEXT: The author cites examples of the simultaneous emergence of polar disturbances at a number of Arctic and Antarctic stations on 28 February and 18 May 1959. The greatest similarity in the form of the disturbances was observed at stations situated on both polar caps (Vostok, Mirnyy in Antarctica; and the drift stations СП-6 (SP-6), SP-7 in the Arctic). The disturbances recorded by the drift stations are closer to those noted by the Antarctic stations than to those in the northern auroral zone. [Abstracter's note: Complete translation.]

Card 1/1

IGNATOV, V.S.; MILYAYEV, N.A.; NIKOL'SKIY, A.P.

Results of geophysical studies in the central Arctic. Probl. Arkt.i Antarkt. no.11:65-74 '62. (MIRA 16:2)
(Arctic regions--Magnetism, Terrestrial)
(Arctic regions--Ionospheric radio wave propagation)

MILYAYEV, N.A.

Latitude shifts in the transition zone of diurnal variations of the magnetic field in the Arctic. Probl.Arkt.i Antarkt. no.11:75-79 '62. (MIRA 16:2)
(Arctic regions—Magnetism, Terrestrial—Diurnal variation)

MILYAYEV, N.A.

Variations of the magnetic field in the area of drift of "North Pole-4" and "North Pole-5" Stations in 1955 and 1956 Trudy AANII 241 no.4:65-80 '62. (MIRA 15:8)
(Arctic regions--Magnetism, Terrestrial--Diurnal variation)

MILYAYEV, N.A.

Mean level of magnetid disturbance in the central Arctic. Probl. Arkt. i Antarkt. no.12:91-97 '63. (MIRA 16:7)
(Arctic regions--Magnetism, Terrestrial)

L 2191-66 EWT(1)/EWA(h)

ACCESSION NR: AP5020921 UR/0142/65/008/003/0300/0310
621.373.4

18
B

AUTHOR: Hilyayev, N. A.

TITLE: Some problems of the theory of electron tube oscillators with nonlinear driver circuits

25

SOURCE: IVUZ. Radiotekhnika, v. 8, no. 3, 1965, 300-310

TOPIC TAGS: pn junction, electric capacitance, electronic oscillator

ABSTRACT: The capacitance of the closed pn junction is widely used in different radio components. Its reactance is easy to control and it has a wide range of operating frequencies (up to 3 gc and higher). The nonlinear dependence of its capacitance on the instantaneous voltage on the pn junction makes the junction useful as the capacitance of the driver circuit in an electron tube oscillator. This type of oscillator has received almost no mention in the literature. The authors examine the most general case, an electron tube self-excited oscillator in which the driver circuit capacitance is composed of a linear capacitor and the closed pn junction's nonlinear capacitance in parallel with inductive feedback. Equivalent

Card 1/4

L 2191-66
ACCESSION NR: AP5020921

circuits of two variants are shown in figs. 1 and 2 of the Enclosure. Results of the analysis indicate: (1) distortion of the voltage waveform is considerable at high amplitudes, results from the nonlinear variation of the pn junction's capacitance with applied voltage, and depends on the amplitude of the generated oscillations and the nonlinearity of the circuit; (2) the frequency of the generated oscillations depends strongly on their amplitude and the nonlinearity of the circuit. As amplitude is increased frequency decreases, in a strong relationship; therefore frequency stabilization requires, inter alia, a stable amplitude; (3) the effect of nonlinearity of the capacitance somewhat reduces the amplitude of the oscillations; (4) a generator tube operating in the middle of the plate-grid characteristic has a negative impedance compensating for system losses, and if the Q is high enough it does not distort the generated waveform. Orig. art. has: 28 formulas, 10 figures.

ASSOCIATION: none

SUBMITTED: 09Apr64 ENCL: 02 SUB CODE: EC

NO REF SOV: 006 OTHER: 000

Card 2/4

L 2191-66

ACCESSION NR: AP5020921

ENCLOSURE: 01

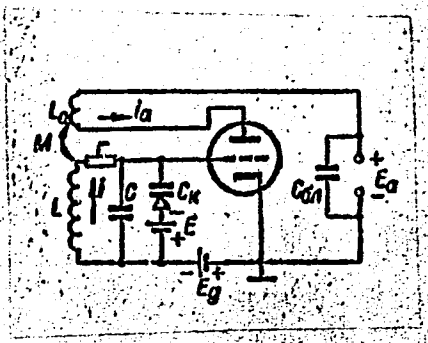

Fig. 1. Equivalent circuit of self-excited tube oscillator with grid-connected circuit.

Card 3/4

L 2191-66

ACCESSION NR: AP5020921

ENCLOSURE: 02

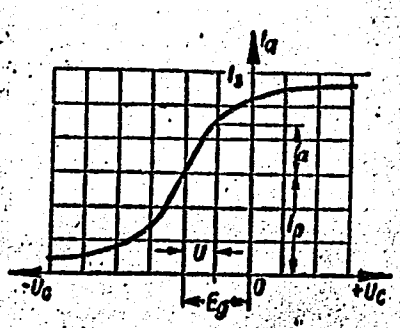

Fig. 2. Equivalent circuit of self-excited oscillator with plate-connected circuit.

Card 4/4

L 36993-65 EWT(1)/T/EWA(h) [redacted] IJP(c) AT

ACCESSION NR: AP5007091 S/0109/65/010/003/0457/0467

20
B

AUTHOR: Milyayev, N. A.

TITLE: Effect of the nonlinear capacitance of a reverse-biased p-n junction upon free oscillations in a circuit

21

SOURCE: Radiotekhnika i elektronika, v. 10, no. 3, 1965, 457-467

TOPIC TAGS: semiconductor, semiconductor junction, semiconductor device

ABSTRACT: Free oscillations are considered in a lossy nonlinear circuit whose capacitance consists of a reverse-biased p-n junction shunted by a linear capacitor. The free oscillations are described by this differential equation:

$$\ddot{x} + 2\delta\dot{x} + \frac{nk\dot{x}^2}{(1-x)[k+m(1-x)^n]} + \frac{\omega_0^2 x(1-x)^n}{k+m(1-x)^n} = 0,$$

where $x = U/(\varphi_n - E)$ is the relative a-c circuit voltage; $\delta = r/2L$ is the circuit attenuation; $\omega_0 = 1/\sqrt{L(C+C_0)}$ is the circuit natural frequency at a bias voltage E; $k = C_0/(C+C_0)$ is the circuit-capacitance nonlinearity factor; and $m = C/(C+C_0)$ is

L 36993-65
ACCESSION NR: AP5007091

0

the circuit-capacitance linearity factor. The functions constituting the above equation are expanded into power series, linear and nonlinear terms are

ASSOCIATION: none

SUBMITTED: 27Jan64 ENCL: 00 SUB CODE: EC, SS

NO REF SOV: 007 OTHER: 000 ATD PRESS: 3223

Card 2/2

APPROVED FOR RELEASE: Monday, July 31, 2000 CIA-RDP86-00513R001134330

ACC NR: AT6037052 SOURCE CODE: UR/0000/66/000/000/0148/0171

AUTHOR: Milyayev, N. A. (Engineer)

ORG: none

TITLE: The theory of forced oscillations in a nonlinear circuit with a p-n junction capacitance

SOURCE: Moscow. Aviatsionnyy institut. Teoriya i tekhnika radiolokatsii (Radar theory and techniques); sbornik statey, no. 1, Moscow, Izd-vo Mashinostroyeniye, 1966, 148-171

TOPIC TAGS: hysteresis, nonlinear differential equation, electric capacitance

ABSTRACT: An attempt is made to analyze the work of a nonlinear resonance circuit (both parallel and series) using a nonlinear closed-loop p-n junction capacitance. The solution of a nonlinear differential equation makes it possible to find the resonance curves of the nonlinear circuit and to determine the conditions for the occurrence of a "hysteresis" zone. The regulation curves of the nonlinear circuit are plotted as a function changes in the excitation amplitude and the bias voltage. The relationship between the circuit frequency and voltage shape and the

Card 1/2 UDC: 621.396.216.001(4)

ACC NR: AT6037052

amplitude of oscillations, as well as the type of junction and the degree of circuit, nonlinearity is determined. Orig. art. has: 13 figures and 65 formulas. [GC]

SUB CODE: 12, 20/SUBM DATE: 15Jul66/ORIG REF: 006/OTH REF: 001/

Card 2/2

MILYAYEV, N.A.

Annual variations of the magnetic perturbation and elements of the Arctic magnetic field. Probl. Arkt. i Antarkt. no.16:63-68 '64.
(MIRA 17:6)

MILYAYEV, N.A., red.; ANDREYEVA, T.P., red.; STUL'CHIKOVA, N.P., tekhn.red.

[Tables of observations performed at the drifting research stations "North Pole-6" and North Pole-8" in 1959 and 1960] Materialy naboiudenii nauchno-issledovatel'skikh dreifuiushchikh stantsii "Severnyi polius-6" i "Severnyi polius-8" 1959/60 goda. Leningrad. Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut. Trudy, vol. 265. (MIRA 16:7)

(Arctic regions--Magnetism, Terrestrial--Observations)
(Arctic regions--Ionosphere--Observations)

L 31137-66 EWT(1)/FCC GW
ACC NR: AT6012782 SOURCE CODE: UR/2561/65/000/021/0072/0080

AUTHOR: Milyayev, N. A.

ORG: none

TITLE: Magnetic field disturbances in the vicinity of the "North Pole-8" drift station

SOURCE: Leningrad. Arkticheskiy i antarkticheskiy nauchno-issledovatel'skiy institut. Problemy Arktiki i Antarktiki, no. 21, 1965, 72-80

TOPIC TAGS: magnetic field, geomagnetism, drift station

ABSTRACT: Personnel assigned to the "North Pole-8" drift station drifted across the central part of the Arctic Ocean Basin in 1959—1961, where they made absolute observations and continuous variation recordings of the Z, H, and D components of the earth's magnetic field. Part of the station's route covered that of the "North Pole-4" station (1954—1956) and of the "North Pole-7" (1957—1958); the former travelled in a period of minimum sunspot activity and the "North-Pole-8" at a time of high activity. Data obtained from both stations are compared. The average magnetic declination varied from +25° in the southern section of the course to +90° in the northern section; the horizontal component varied correspondingly from 6500 to 2000 γ, and the vertical Z-component from 56,500 to 57,500 γ. Magnetic disturbances were measured by the hourly amplitude variation of the H-component r_H^{γ}, with variations in the mean monthly values shown graphically. Attempts to find a

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L 31137-66
ACC NR: AT6012782 0

connection between the frequencies of magnetic disturbances and sunspot activity are discussed. Annual variations in differences in values of distrubances r_H^γ showed no definite pattern of difference between years with high and low sunspot activity in high latitudes during equinoctial periods; values of r_H^γ passed through zero almost every half year. Moreover, even when the Wolf number varied by 175 and 152 units, the magnetic disturbance r_H^γ varied only by 13 and 4 γ, respectively. During the drift period, three types of diurnal variation were noted: 1) a summer type characterized by a marked morning maximum at 2300—2400 hr World Time, a very weak maximum near local midnight, and a comparatively large amplitude of variation sometimes exceeding 170; 2) a winter type distinguished by marked morning and night maxima; 3) a winter type corresponding to an area of high geomagnetic latitudes between 77—78° (January—March 1961) which was characterized by almost no night maximum and a very weak maximum at 2300 hr World Time, with small variations in the level of disturbance of about 50—70 γ. Orig. art. has: 5 figures and 4 tables. [EO]

SUB CODE: 08/ SUBM DATE: 13Mar64/ ORIG REF: 003/ ATD PRESS: 4240

Card 2/2 CC

STRAUSOV, Boris Georgiyevich; IKONNIKOV, S.N., kand. tekhn. nauk, retsenzent; MILYAYEV, N.A., inzh., retsenzent; IVANOV-TSYGANOV, A.I., red.; MARTEM'YANOVA, V.A., red.; BARANOVSKAYA, K.P., tekhn. red.

[Measurements in electrical and radio engineering] Elektricheskie i radiotekhnicheskie izmereniia. Moskva, Mosk. aviatsionnyi in-t, No.1. 1962. 69 p. (MIRA 16:10)
(Electric measurements) (Radio measurements)

MILYAYEV, P.M.; GORDIYENKO, I.F.

Automatic control of the composition of the nitrogen and hydrogen mixture in the ammonia synthesis section. Prom. energ. 15 no.5:22 My '60. (MIRA 13:7)
(Ammonia) (Automatic control)

26411
S/056/61/041/001/006/021
B102/B212

24.7900

AUTHORS: Manenkov, A. A., Milyayev, V. A.

TITLE: Relaxation phenomena in the paramagnetic resonance of Mn^{2+} ions in the cubic crystal field of SrS

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 41, no. 1 (7), 1961, 100 - 105

TEXT: Following a previous work (ZhETF, 40, 1606, 1961) the authors have investigated the spin-lattice relaxation of Mn^{2+} ions in SrS. In this reference it has been shown that SrS will crystallize cubic-symmetrically with a very weak splitting ($\sim 10^{-4}$ cm^{-1}) of the ^6S state. Therefore, the ground state of Mn^{2+} in SrS has to be nearly a pure S state, and it may be assumed that the spin-lattice relaxation time is already significant at room temperature. This, however, is not the case, since at room temperature it is $\sim 10^{-8}$ sec, and at liquid nitrogen temperature $\sim 10^{-6}$ sec. The authors discuss these results with regard to relaxation mechanisms. Mn^{2+} ions are

Relaxation phenomena in the....

also very interesting with respect to the spin-spin cross relaxation since they exhibit a large number of hyperfine-structural levels, which come about through an interaction of the electron spin of Mn^{2+} ($S = 5/2$) with the nuclear spin of Mn^{55} ($I = 5/2$). These effects have already been studied theoretically and experimentally. The authors have observed marked cross-relaxation effects at liquid helium temperature in the Mn^{2+} spectrum of SrS. The studies have been made with polycrystalline SrS·Mn specimens (0.05 % Mn^{2+}). A superheterodyne radiospectroscope (9300 Mc/sec) was employed, and measurements were made at 300°K, 77°K, 4.2 and 1.6°K. The measurements were made at the lines corresponding to the electron transition $M = 1/2 \rightarrow -1/2$, for various hyperfine-structural constants ($m = \pm 1/2, \pm 1/3, \pm 5/2$). The spin-lattice relaxation time T_1 was estimated at 300°K from the line broadening caused by spin-lattice interaction. The broadening was calculated by comparing the lines at 300 and 77°K. At 77°K T_1 was determined by the method of continuous saturation of the lines (ZhETF, 38, 729, 1960), and at liquid helium temperatures the relaxation phenomena were investigated by

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the method of pulsed saturation of the lines. In order to separate the spin-spin cross relaxation and spin-lattice relaxation effects, two types of saturation pulses were used: "narrow" pulses (τ = 0.1 - 1 msec) and "broad" pulses (τ = 70 msec). For comparison, the relaxation times were also determined by the method of continuous saturation at 4.2°K. T_1 was determined at 300°K for the components m = $\pm 5/2$. For both lines T_1 was 5.10^{-8} sec. At 77°K the value was $T_1 = 1.5 \cdot 10^{-6}$ sec. The spin-spin relaxation time was found to be $T_2 = 6.10^{-8}$ sec. At 4.2°K it was found that $T_1 = 2.9 \cdot 10^{-2}$ if T_2 had the same value as at 77°K. If, however, a spin-spin cross relaxation exists, than T_2 will only be 1/3 as great as at 77°K, and the following results are obtained: $T_1 = 9 \cdot 10^{-2}$ sec. At 1.6°K $T_1 = 2.1.10^{-1}$ sec. All these data are valid for lines with m = $\pm 5/2$. As to the character of the relacation processes of the Mn^{2+} spectrum, the following can be concluded: In the range 4.2 - 1.6°K one finds that $T_1 \sim T^{-1}$, i. e., single-

Relaxation phenomena in the...

phonon processes play the main role in spin-lattice relaxation. At higher temperatures, T_1 becomes a stronger function of temperature. T_1 drops non-monotonically ($T_1 \sim T^{-n}$) at an increase from 4.2 to 300°K. At 300°K it is found that $T_1 \approx T_2$. The Mn^{2+} ions are found in the S state, and their levels are only slightly split by the SrS crystal field. The spin-lattice relaxation is essentially determined by mechanisms other than Kroning's. One of these mechanisms can be a modulation of the covalent bond between M^{2+} and the surrounding diamagnetic ions. Marked spin-spin cross relaxation occurs at liquid helium temperatures. The authors thank Professor A. M. Prokhorov and Professor S. A. Al'tshuler for discussion, and N. M. Medvedev for producing the SrS·Mn specimens. There are 2 figures and 9 references: 4 Soviet and 5 non-Soviet. The two most important references to English-language publications read as follows: N. Bloembergen et al. Phys. Rev. 114, 445, 1959; J. G. Cartle et al. Phys. Rev. 119, 953, 1960.

Card 4/5

26411
S/056/61/041/001/006/021
B102/B212

Relaxation phenomena in the...

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR (Institute of Physics imeni P. N. Lebedev of the Academy of Sciences USSR)

SUBMITTED: February 25, 1961

Card 5/5

MANENKOV, A. A.; MILYAYEV, V. A.

"Investigations of the Spin-Lattice Relaxation of ions in S-state."
Report presented at the First International Conference on
Paramagnetic Resonance, Jerusalem, Israel, 16-20 July 1962

34230

S/181/62/004/002/013/051
B102/B138

24.7900 (1055, 1144, 1163)

AUTHORS: Manenkov, A. A., Milyayev, V. A., and Prokhorov, A. M.

TITLE: Relaxation times of Cr^{3+} and Fe^{3+} ions in rutile single crystals

PERIODICAL: Fizika tverdogo tela, v. 4, no. 2, 1962, 388 - 391

TEXT: The pulse saturation method (9400 Mc) was used to study spin-lattice relaxation for Cr^{3+} and Fe^{3+} ions in rutile at liquid-helium temperatures. The paramagnetic resonance lines were saturated with pulse durations between 100 and 0.01 msec, in order to find the reason for the existence of spin-spin cross relaxation effects. With no cross relaxation, the curves describe spin-lattice relaxation only and are independent of pulse duration. The single crystals investigated were grown by the Verneuil method. In all experiments crystal orientation was such that the external magnetic field was perpendicular to the c-axis and coincided with one of the a-axes. With saturation pulses of 100-50 msec the relaxation curves of rutile with Cr^{3+} impurity were found to consist of two components:

Card 1/3

Relaxation times of Cr^{3+} and Fe^{3+}...

$I(t) - I_o = A_1 e^{-t/T_1} + A_2 e^{-t/T_1'}$; $A_1 + A_2 = -I_o$, where I(t) is the line intensity at a moment of time t after the end of the pulse, I_o - equilibrium line intensity. The following spin-lattice relaxation times were calculated for the Cr^{3+} ions:

Transition	4.2°K			1.7°K		
	T_1 msec	T_1' msec	A_1/I_o %	T_1 msec	T_1' msec	A_1/I_o, %
1 ⟷ 2	4	1.1	38	9	2.8	60
3'⟷4'	2.3	0.5	13	3.3	0.8	30
3 ⟷ 4	2.2	0.5	24	3.3	1	60

The weak temperature dependence of the transitions 3⟷4 and 3'⟷4' can be explained if the lower levels 1,2 and 1',2' take part in these transitions. For the 1⟷2 transition cross-relaxation was observed with pulses of 0.05 msec duration. In this case, besides T_1 and T_1', the relaxation curve also

Card 2/3

Relaxation times of Cr^{3+} and Fe^{3+}...

contains a "fast" exponent $T_{12} \ll T_1, T_1'$. For Fe^{3+} relaxation was studied on several paramagnetic resonance lines for [110], between 1000 and 3500 oe. The relaxation times for the lines observed were similar and ~2 msec. T_1 and T_1' were between 3.5 and 6, and 0.6 and 2.5 msec. Cross relaxation was also observed with short pulses. R. P. Bashuk and A. S. Bebchuk were thanked for the preparation of the rutile single crystals. There are 3 figures, 1 table, and 5 references: 1 Soviet and 4 non-Soviet. The four references to English-language publications read as follows: H. J. Gerritsen et al. Phys. Rev. Lett. 2, 153, 1959; H. J. Gerritsen et al. J. Appl. Phys., 31, 1566, 1960; A. Okaya et al. Bull. Am. Phys. Soc. 5, 73, 1960; J. H. Van Vleck. Phys. Rev. 57, 426, 1940; J. H. Pace et al. Proc. Phys. Soc. B77, 257, 1961.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR Moskva
(Physics Institute imeni P. N. Lebedev AS USSR, Moscow)

SUBMITTED: August 14, 1961

Card 3/3

YEMEL'YANOVA, Ye.N.; KARLOV, N.V.; MANENKOV, A.A.; MILYAYEV, V.A.; PROKHOROV, A.M.; SMIRNOV, S.P.; SHIRKOV, A.V.

Electron paramagnetic resonance spectrum and spin-lattice relaxation of chromium and iron ions in zinc tungstate single crystals. Zhur. eksp. i teor. fiz. 44 no.3:868-869 Mr '63. (MIRA 16:3)

1. Fizicheskiy institut imeni P.N.Lebedeva AN SSSR.
(Paramagnetic resonance and relaxation) (Zinc tungstate crystals)
(Ions)

L 20375-65 EWT(l)/EWT(m)/EEC(t)/EWP(t)/EWP(b) Peb IJP(c)/AFWL/
ASD(a)-5/SSD/AS(mp)-2/RAEM(c)/RAEM(l)/ESD(gs)/ESD(t) JD/JG/GG
ACCESSION NR: AP4039648 S/0181/64/006/006/1649/1653

AUTHOR: Andreyeva, Ye. V.; Karlov, N. V.; Manenkov, A. A.; Milyayev, V. A.; Shirkov, A. V.

TITLE: Electron paramagnetic resonance of chromium ions in cadmium tungstate

SOURCE: Fizika tverdogo tela, v. 6, no. 6, 1964, 1649-1653

TOPIC TAGS: electron paramagnetic resonance, Czochralski method, spin lattice relaxation, spin Hamiltonian, chromium ion, cadmium tungstate

ABSTRACT: Samples were grown by the Czochralski method from pure fused $CdWO_4$ to which $(NH_4)Cr_2O_7$ had been added. The crystal thus obtained contained no Cr^{3+} ions, but after annealing in air for several hours at 700C, a transition to the trivalent state occurred. Electron paramagnetic resonance was observed in the temperature [illegible] from 300 to 1.6K at frequencies from 9.4 to 98 gigacycles in magnetic

interval from 300 to 1.6K [illegible]

fields ranging up to 10 kilogauss. The constants of the spin Hamiltonian for Cr^{3+}

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L 20375-65
ACCESSION NR: AP4039648

3

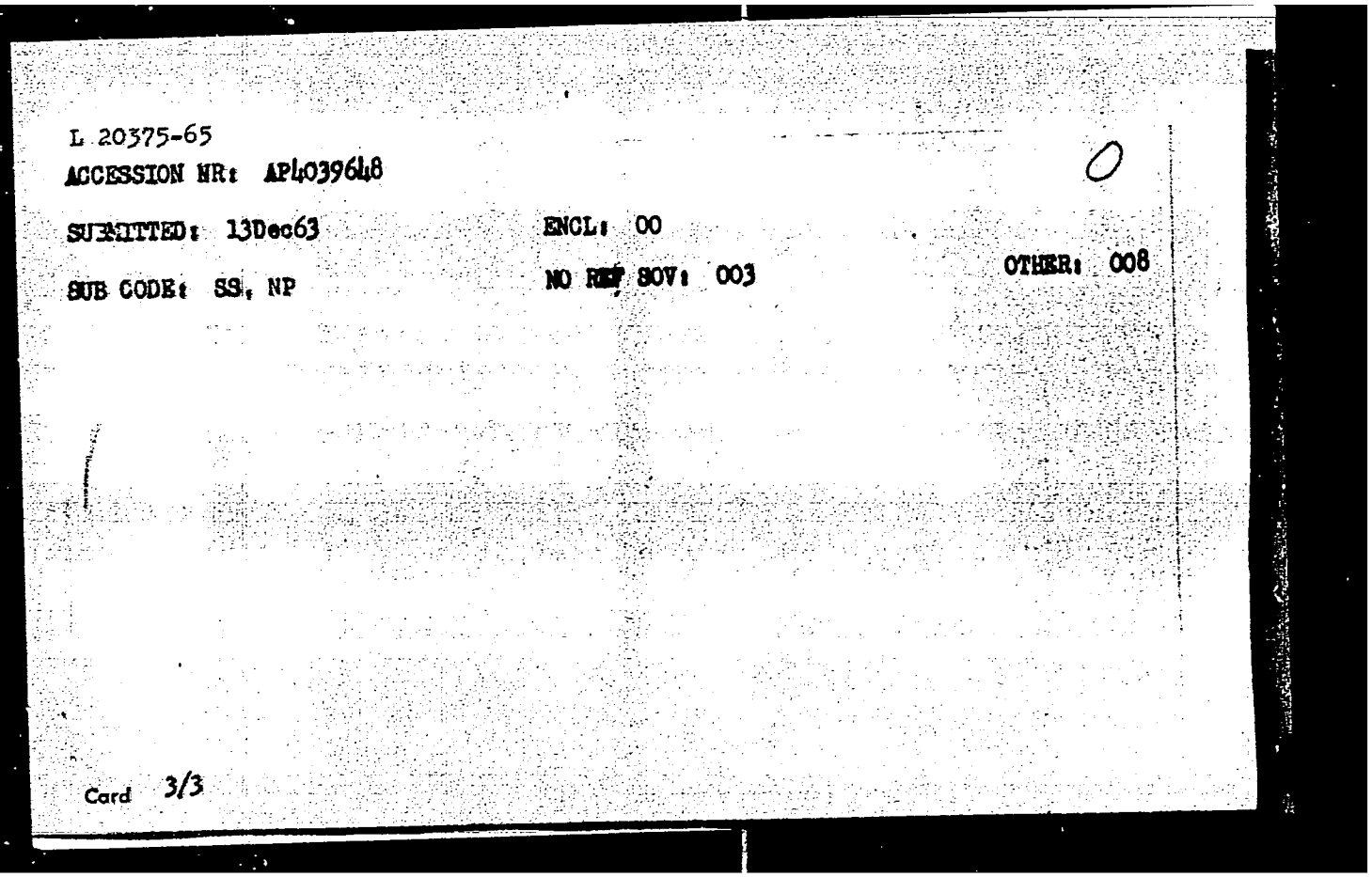
were found to be D = 42.9 ± 0.05 gigacycles, E = 2.35 ± 0.02 gigacycles, g_x = 1.97 ± 0.01, g_y = 1.97 ± 0.01, and g_z = 1.98 ± 0.01. The spin-lattice relaxation time, measured when the magnetic field was parallel to z, was found to be 0.36 microseconds at 4.2 and 3.0 microseconds at 1.6K. This time dependence may be explained by direct resonance processes of relaxation if it is assumed that direct relax-

$CdWO_4$, and L. N. Demyanets, [illegible]

art. has: 2 figures, 3 tables, and 2 formulas.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR, Moscow (Physics Institute, AN SSSR)

Card 2/3



L 20375-65
ACCESSION NR: AP4039648

SUBMITTED: 13Dec63 ENCL: 00

SUB CODE: SS, NP NO REF SOV: 003 OTHER: 008

Card 3/3

ACC NR: AP7005339 SOURCE CODE: UR/0181/67/009/001/0157/0161

AUTHOR: Milyayev, V. A.

ORG: Physics Institute im. P. N. Lebedev, AN SSSR, Moscow (Fizicheskiy institut AN SSSR)

TITLE: Analysis of the conditions for "heating" of phonons in paramagnetic crystals

SOURCE: Fizika tverdogo tela, v. 9, no. 1, 1967, 157-161

TOPIC TAGS: paramagnetic material, phonon spectrum, spin phonon interaction, population inversion, phonon, activated crystal

ABSTRACT: In connection with interest attaching to the experimentally observed "phonon bottleneck" and the possible realization of a generator of simulated phonon emission, the author analyzes the behavior of a coupled spin-phonon system in which the spin-system temperature has a higher specific heat than the phonons, so that phonon heating becomes possible. The time characteristics of the relaxation occurring under various states of the spin system are investigated and the conditions under which maximum phonon heating is attained are determined. Principal attention is paid to heating of the phonons following relaxation in pulsed saturation of a two-level spin system and to the generation of phonons by spin level population inversion. It is shown that, under conditions actually realized in experiments, phonon "heating" in a narrow region of the phonon spectrum is a casdade-like process and is described by the same equations that are normally used to analyze the operation of a Q-switched

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ACC NR: AP7005339

laser. The maximum phonon heating in activated lanthanum-magnesium-nitrate (LMN:Ce^{3+}) crystals with relatively small "bottleneck" parameter (4.4) is estimated at 5×10^3K, and the number of generated phonons corresponding to this temperature is about 10^4 times larger than the equilibrium (Boltzmann) value. Even larger heating can be expected in crystals in which the "bottleneck" coefficient is larger (~10^3) following pulsed inversion of the spin-level population. Phonon heating increases the relaxation time of LMN:Ce^{3+} from about 7 milliseconds to 2.4 seconds. Orig. art. has: 13 formulas. [WA-14] [02]

SUB CODE: 20/ SUBM DATE: 09Jun66/ ORIG REF: 002/ OTH REF: 009

Card 2/2

MILYAYEV, V. G.

Milyayev, V. G. -- "Investigation of the Mechanism of Formation of End Losses with Radial Clearance in Compressor Gratings." Min Higher Education USSR. Moscow Order of Lenin Power Engineering Inst imeni V. M. Molotov. Moscow, 1956. (Disseration For the Degree of Candidate in Technical Sciences).

SO; Knizhnaya Letopis', No. 11, 1956, pp 103-114

MILYAYEV, V.G., kand.tekhn.nauk

Weight method remote control of lumber moisture in dryers. Der. prom. 11 no.11:8-9 N '62. (MIRA 15:12)
(Lumber—Drying)

MILYAYEV, V.G., kand. tekhn. nauk

Mechanism of the terminal effect in the presence of a radial gap in a compressor cascade. Izv. vys. ucheb. zav.; energ. 7 no.2:95-100 F '64. (MIRA 17:3)

1. Rybinskiy vecherniy tekhnologicheskiy institut.

MILYAYEV, V. L.

136-1-6/20

AUTHORS: Babadshan, A. A., Aglitskiy, V. A., Drobchenko, A. T., Garenskikh, A. D., Bulatov, V. D., Kondrashov, D. P., Medvedev, V. K., and Milyayev, V. L.

TITLE: Treatment of Polymetallic Sulphide Concentrates in a Converter by Pyrometallurgical Selection (Pererabotka polimetallicheskikh sul'fidnykh kontsentratov v konvertere metodom pirometallurgicheskoy selektsii)

PERIODICAL: Tsvetnyye Metally, 1958, No. 1, pp. 24 - 30 (USSR).

ABSTRACT: The method described for the treatment of copper-zinc and copper-lead beneficiation products depends on the blowing of these in a converter with a carbon-air mixture after preliminary oxidation. The method was adopted at the Kirovgrad Works after tests in which the following participated L. N. Leonov, K. L. Demyak, L. M. Kabanov, SH. G. Bolgozhin, P. I. Dochello, G. I. Chermnykh, F. P. Kulenko, N. P. Savchenko, K. Ya. Shreyber, and M. D. Galimov, at the Kirovgrad Works and P. S. Vlasov, M. S. Khamylov, I. S. Reunov and others at the Karabashskiy Copper Smelting Works (Karabashskiy medenlavil'nyy zavod). After briefly mentioning preliminary experiments in 16- and 40-ton converters, the article goes on to describe the characteristics of the materials used. These consisted of a wide variety of polymetallic materials with a

Treatment of Polymetallic Sulphide Concentrates in a Converter by Pyrometallurgical Selection.

copper and zinc content of 5-25% and a sulphur content of over 30%. Difficulties with coal injection were encountered in tests and care hade to be exercised in balancing concentrate feed rate with the blowing rate. During the first (melting) stage, the gas is rich in sulphur trioxide, which is neutralised in the second (oxidation) stage by the zinc dust evolved; for the third (reducing) stage, a bath temperature of 1 350 - 1 450 °C is recommended. The article discusses the characteristics of the stages and shows contents of sulphur and zinc against time d (Figs. 1, 2 and 3). From a joint study of the full-scale process by the Unipromed' Institute and the Kirovgrad Works, the following were among the main conclusions drawn: the method is practicable for the treatment of copper-zinc and copper-lead-zinc sulphide concentrates to give a dust containing zinc, lead and rare metals; the ratio of previously charged liquid matte to concentrate is 1:2.5-3.0; coal consumption in the reducing period does not exceed 20% of the concentrate weight; melt temperatures should be 1 150 - 1 250 °C in Stage I, 1 200 - 1 400 in II and 1 350 - 1 450 °C in III; complete oxidateion is neither practicable or desirable; the

Treatment of Polymetallic Sulphide Concentrates in a Converter by Pyrometallurgical Selection.

air/coal ration shoud be such as to give 40% CO_2 amd 60% CO

in the gas phase; copper contents in the ferruginous slag are 1.5-3%, hence the slage is treated further; 80% of the zinc is trapped in the dust; 80% of the copper is in the crude copper (98.0-98.5% Cu, 0.07% Ni, 0.004-0.02% Sb, 0.002.0.004% Bi; crude dust yield is 11% of the concentrate weight. The present form fo the plant layout is shown (Fig.4) and the economic advantages of the process for Kirovgrad-region ores are said to have been confirmed by calculations by the Giprotsvetmet and Unipromed Organisations.
There are 4 figures and 7 references, of which 6 are Russian and 1 English.

ASSOCIATIONS: Unipromed' and Kirovgrad Copper Smelting Works (Kirovgradskiy medeplavil'nyy zavod)

AVAILABLE Library of Congress

MILYAYEV, Yu. I.

Pathomorphological changes in the endocrine glands in alimentary-toxic aleukia and in other hemopoietic diseases. Arkh. pat., Moskva 14 no.4: 33-38 July-Aug 1952. (CLML 23:2)

1. Of the Histological Department (Head -- Prof. B. V. Aleshin), Ukrainian Institute of Experimental Endocrinology and of the Department of Pathological Anatomy (Head -- Prof. G. L. Derman), Khar'kov Medical Institute.

MILYAYEVA, E.L.

Embryological study of the strawberry tree (Arbutus andrachne L.)
Nauch.dokl.vys.shkoly: biol.nauki no.4:129-134 '60. (MIRA 13:11)

1. Rekomendovana kafedroy vysshikh rasteniy Moskovskogo gosudarstvennogo universiteta im. M.V.Lomonosova.
(STRAWBERRY TREE)
(BOTANY--EMBRYOLOGY)

MILYAYEVA, L.S.

Recent tectonics of the Eastern Sayan Mountains. Trudy Inst. geol. i geofiz. Sib. otd. AN SSSR no.44:243-250 '64.
(MIRA 17:11)

MILYAYEVA, M. P.

PA 59/49T58

USSR/Medicine - Narcosis Mar 49
Medicine - Ethyl Chloride

"Chlorethyl Narcosis," M. P. Milyayeva, Med Nurse, 3 pp

"Med Sestra" No 3

Results proved that chlorethyl is the equal of any good narcotic. Describes chemical properties of chlorethyl and presents a clinical picture of its effects. Chlorethyl should be used as a narcosis in surgical operations requiring only a very short time, and the application must be discontinued immediately when narcosis takes effect. Chlorethyl

59/49T58

USSR/Medicine - Narcosis (Contd) Mar 49

narcosis is a great help in treating ambulatory cases.

59/49T58

AUTHOR: Milyayeva, N. M. SOV/78-3-9-4/38

TITLE: On the Acidity Function of the Aqueous Solutions of Formic-, Acetic-, Hydrochloric-, Nitric-, and Sulfuric Acid (O funktsii kislotnosti vodnykh rastvorov murav'inoy, uksusnoy, solyanoy, azotnoy i sernoy kislot)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1958, Vol 3, Nr 9, pp 2011-2015 (USSR)

ABSTRACT: The function of the acidity of the aqueous solution of sulfuric acid 2,2-29,2 N, hydrochloric acid 0,1-8,61 N, nitric acid 0,77-8,76 N, acetic acid 0,72-16,06 N, and formic acid 0,89-21,9 N at 17°C was investigated by the indicator method. In non-ionized state the indicators are yellow. In the ionized state the indicators do not adsorb within the visible range. 5-chloro-2-nitro-aniline with $pK_B = 1,55$ in H_2SO_4, $pK_B = 1,24$ in HNO_3 and $pK_B = -1,44$ in HCl were used as indicators. The concentration of the indicators amounts to $10^{-3} - 10^{-4}$ mol/l. The concentration of the dissolved acid was determined by the alkalimetric method. The results are given in the tables 2-6. The values obtained for H_o, the acidity function, for the

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On the Acidity Function of the Aqueous Solutions of Formic-, Acetic-, Hydrochloric-, Nitric-, and Sulfuric Acid

aqueous solution of H_2SO_4, HCl, and HNO_3 agree with those given in publications.
There are 5 figures, 6 tables, and 4 references, 2 of which are Soviet.

ASSOCIATION: Uzhgorodskiy gosudarstvennyy universitet (Uzhgorod State University)

SUBMITTED: March 4, 1957

KONDRATENKO, A.B.; TARANENKO, A.G.; MILYAYEVA, P.K.; SEREDKINA, Ye.P.

Change in the ethyl fraction supply network to the ethyl benzene department. Prom. energe. 16 no.2:16 F '61. (MIRA 14:3)
(Benzene)

DOLOGOPOLOV, V.I., inzh; DOLOGOPOLAV, L.N., inzh; PETROVA, N.G., inzh; MILYAYEVA, T.I., inzh.

Electroluminescent panels. Svetotekhnika 8 no.11:24-26 N '62. (MIRA 15:10)

1. Vsesoyuznyy svetotekhnicheskiy institut.
(Luminescence) (Electric apparatus and appliances)

MILYAYEVA, Ye.N.

Determining the infestation of everyday objects with Shigella by phage titer growth. Zhur. mikrobiol. epid. i immun. 29 no.12:34-38 D '58. (MIRA 12:1)

1. Iz Tsentral'nogo instituta usovershenstvovaniya vrachey.

(SHIGELLA,
detection of various objects with phage titer growth (Rus))
(BACTERIOPHAGE,
phage titer growth reaction in detection of Shigella on various objects (Rus))

MILYAYEVA, Ye.N.

Use of bacteriophage titer growth in the detection of dysenterial microbes in artificially infected water. Gig. i san. 24 no.12: 69-71 D '59. (MIRA 13:4)

1. Iz Kuybyshevskogo nauchno-issledovatel'skogo instituta epidemiologii, mikrobiologii i gigiyeny.
(WATER microbiol.)
(SHIGELLA)
(BACTERIOPHAGE)

UNDRITSOVA, T.M.; MILYAYEVA, Ye.N.

Q fever in Kuybyshev Province. Zhur. mikrobiol., epid. i immun. 33 no.1:128-129 Ja '62. (MIRA 15:3)

1. Iz Kuybyshevskogo instituta epidemiologii, mikrobiologii i gigiyeny.

(KUYBYSHEV PROVINCE--Q FEVER)

SPIVAK, M.Ya.; ARGUDAYEVA, N.A.; NABIYEV, E.G.; CHISTOVICH, G.N.; RIVLIN, M.I.; SEMENOV, M.Ya.; KRUGLIKOV, V.M.; SHAL'NEVA, A.M.; TITROVA, A.I.; RAYKIS, B.N.; MILYAYEVA, Ye.N.; BRUDNAYA, E.I.; GODINA, I.F.; VOL'FSON, G.I.; SOSONKO, S.M.; KOLESINSKAYA, L.A.; VYSOTSKIY, B.V.; MALYKH, F.S.; MIROTVORTSEV, Yu.I.; SYCHEVSKIY, P.T.; GOPACHENKO, I.M.; KARPITSKAYA, V.M.; FETISOVA, I.A.; MARTYNYUK, Yu.V.; EMDINA, I.A.

Annotations. Zhur. mikrobiol., epid. i immun. 40 no.3:128-131 Mr '63. (MIRA 17:2)

1. Iz Kemerovskogo meditsinskogo instituta i Kemerovskoy klinicheskoy bol'nitsy No.3 (for Spivak, Argudayeva). 2. Iz Kazanskogo instituta usovershenstvovaniya vrachey imeni Lenina (for Nabiyev). 3. Iz Leningradskogo kozhnogo dispansera No. 1 (for Chistovich, Rivlin). 4. Iz Rostovskoy oblastnoy sanitarno-epidemiologicheskoy stantsii (for Semenov). 5. Iz Stavropol'skogo instituta vaktsin i syvorotok (for Kruglikov, Shal'neva, Titrova, Raykis). 6. Iz Kuybyshevskogo instituta epidemiologii, mikrobiologii i gigiyeny i TSentral'nogo instituta usovershenstvovaniya vrachey (for Milyayeva). 7. Iz Vsesoyuznogo nauchno-issledovatel'skogo instituta zheleznodorozhnoy gigiyeny Glavnogo sanitarnogo upravleniya Ministerstva putey soobshcheniya i Detskoy poliklinik st. Lyublino

(Continued on next card)

MILYEVSKIY, U.

"An auto-transformer with automatic switch-off."

So. Radio, Vol. 1, p. 55, 1952

PHASE I BOOK EXPLOITATION 836

Milyeyev, Yu.F.

Tipovaya modernizatsiya krivoshipnykh odnostoyechnykh pressov (Standard Modernization of Single-column Crank Presses) Leningrad, 1955. 7 p. (Series: Leningradskiy dom nauchno-tekhnicheskoy propagandy. Informatsionno-tekhnicheskiy listok, no. 53 /741/) 7,000 copies printed.

Sponsoring Agencies: Vsesoyuznoye obshchestvo po rasprostraneniyu politicheskikh i nauchnykh znaniy, Leningradskiy dom nauchno-tekhnicheskoy propagandy.

Ed.: Posternyak, Ye.F., Engineer; Tech. Ed.: Freger, D.P.

PURPOSE: The booklet is intended for technicians and operators of column crank presses.

COVERAGE: The booklet describes improvement of existing presses by adding automatic mechanisms and replacing bushings with roller bearings.

Card 1/2

Standard Modernization of Single-column Crank Presses 836

Information and drawings for the above-mentioned mechanisms are available through LDNTP (Leningradskiy Dom nauchno-tekhnicheskoy propagandy -- Leningrad House of Scientific and Technical Propaganda). There are no references. No personalities are mentioned. No Table of Contents is given. The subjects discussed are the following:

AVAILABLE: Library of Congress

Card 2/2

GO/jmr
11-10-58

POPOV, Ye.Ya.,; MILYKH, A.A.

Salt treatment of cows' hides. Leg.prom. 15 no.4:34-37 Ap '55.
(MLRA 8:7)

1. Glavnyi inzhener Kurskogo kozhevennogo zavoda imeni Seregina.
2. Nachal'nik khimicheskoy laboratorii Kurskogo kozhevennogo zavoda imeni Seregina.
(Hides and skins)

MILYKH, Anatoliy Filippovich; NAZAROV, Fedor Nikolayevich; GERASIMUK, G.N., spets. red.; KAMMER, V.A., red.; GERASIMOVA, Ye.S., tekhn. red.

[Planning of design and research operations in construction] Planirovanie proektno-izyskatel'nykh rabot v stroitel'stve. Moskva, Gos. izd-vo planovo-ekon. lit-ry pri Gosekonomsovete SSSR, 1961. 72 p. (MIRA 14:7)

(Building research)

MILYKH, V.P., mashinist teplovoza

The "secret" of our achievements. Elek.i tepl.tiaga 6 no.5:18-19 My '62. (MIRA 15:6)

1. Depo Liski Yugo-Vostochnoy dorogi.
(Liski—Diesel locomotives—Maintenance and repair)

SMIRNOV, S.; KIRSANOV, A.; RUDAKOV, N.; MILYUCHIKHIN, A.

Machine mends stockings. Prom.koop. no.6:11 Je '57. (MLRA 10:7)
(Sewing machines)

BRONEVITSKIY, V.P.; VISLENEV, M.V.; ZINOV'YEVA, U.Z.; MILYUGIN, A.M.; RASIN, B.I.; FEDOROV, A.A.; FEDOROV, A.D.; FEDOTOVA, A.Ye.; VOLKHOVER, R.S., tekhn. red.

[Central Museum of Communications named after A.S.Popov] TSentral'nyy muzei sviazi imeni A.S.Popova. Leningrad, 1962. 234 p. (MIRA 15:11)

1. Russia (1923- U.S.S.R.)Ministerstvo sviazi. (Leningrad--Communications museums)

KOLDOMASOV, Yu.I.; MILYUKIN, F.P., retsenzent; RYSHCHUK, N.S., red.; USENKO, L.A., tekhn.red.

[Comprehensive development of Soviet transportation] Kompleksnoe razvitie transporta SSSR. Moskva, Vses.izdatel'sko-poligr.ob"edinenie M-va putei soobshcheniia, 1961. 179 p.
(Transportation) (MIRA 14:6)

MILYUKIN, F.P.

Railroad transportation on a steady upswing. Zhel.dor.transp. 43 no.10:3-11 O '61. (MIRA 14:9)

1. Nachal'nik Planovo-ekonomicheskogo upravleniya Ministerstva putey soobshcheniya.

(Railroads)

BOTSIN, M.; MILYUKOV, A.; NORENKOV, P.

Trade and economic cooperation between the U.S.S.R. and the democratic Republic of Vietnam. Vnesh.tor. 43 no.3:3-5 '63. (MIRA 16:4)

(Russia--Foreign economic relations--Vietnam, North)

MILYUKOV, A.I.

Group piece-rate wages in furniture enterprises. Der. prom. 14 no.2:16-18 F '65. (MIRA 18:6)

A

KOVALENKO, M.; MILYUKOV, D.; ASTREINOV, N.

Using thin-walled mesh-reinforced concrete slabs or shells in industrial construction. Prom.stroi. i inzh. soor. 4 no.4: 43-44 Jl-Ag '62. (MIRA 15:9)

1. Donetskiy nauchno-issledovatel'skiy institut nadshakhtnogo stroitel'stva, Akademii stroitel'stva i arkhitektury UkrSSR (for Kovalenko, Milyukov). 2. "Metallurgkhimmashstroy" (for Astreinov).
(Precast concrete construction)
(Open-hearth furnaces--Foundations)

KOVALENKO, M.A., inzh.; MILYUKOV, D.A., inzh.; ASTREINOV, N.I., inzh.

Use of thin-walled mesh-reinforced concrete slabs or shells.
Prom. stroi. 40 no.5:44-45 '62. (MIRA 15:5)
(Reinforced concrete construction)

BUGROVA, V. P.; GOROKHOVA, YE. N; KARPOVSKAYA, A. P.; KOKINA, N. N.; MILYUKOV, F. G.; PALILOV, N. A.; RASTREPINA, V. S.

Onions

Adopting warm storage of onion seed plants, Sad i og., No. 8, 1952.

9. Monthly List of Russian Accessions, Library of Congress, October 1952, Uncl.

MILYUKOV, M.A., prepodavatel'

Determining the optimal level of using the production capacity of harbors. Ekon. i ekspl. mor. transp. no.1:47-54 '63.
(MIRA 17:8)

1. Odesskiy institut inzhenerov morskogo flota.

KORYAKIN, Sergey Fedorovich, kand. ekon. nauk, dots.; BERNSHTEYN, Iosif L'vovich, kand. ekon. nauk, dots.; Prinimal uchastiye: ELLINSKIY, Yu.F., st. prep.; SHRABSHTEYN, Ye.A., dots., retsenzent; CHERKASOV-TSIBIZOV, A.A., st. prepod., retsenzent; MILYUKOV, M.A., st. prepod., retsenzent; MOZHAROV, N.D., kand. ekon. nauk, retsenzent; MAKAL'SKIY, I.I., kand. ekon. nauk, retsenzent; KREMER, B.A., inzh., retsenzent; PETRUCHIK, V.A., kand. ekon. nauk, red.; GUBERMAN R.L., kand. ekon. nauk, red.; RODIN, Ye.D., kand. ekon. nauk, red.; DUBCHAK, V.Kh., inzh., red.; MARTIROSOV, A.Ye., inzh., red.; PALYUSHKIN, V.A., inzh., red.; BELOV, M.I., doktor geogr. nauk, red.; SINITSYN, M.T., inzh., red.; KOLESNIKOV, V.G., kand. tekhn. nauk, red.; ZAMAKHOVSKIYA, A.G., kand. ekon. nauk, red.; KUZ'MIN, T.P., inzh., red.; NEMCHIKOV, V.I., kand. tekhn. nauk, red.; GEKHTBARG, Ye.A., inzh., red.; FILIPPOV, K.D., red.; KRUGLOVA, Ye.M., red.

[Economics of the merchant marine] Ekonomika morskogo transporta. Izd.2., perer. i dop. Moskva, Transport, 1964. 527 p. (MIRA 18:1)

MILYUKOV, M.P., agronom

Soil structure. Zemledelie 24 no.5:34 My '62. (MIRA 15:7)

1. Zaveduyushchiy Rybnovskim gosudarstvennym sortoispytatel'nym uchastkom Ryazanskoy oblasti.
(Soil structure)

MILYUKOV, N.; YELOYAN, A.; LEBEDEVA, A.

How flights averaging 20,000 kilometer tons per aviation worker were realized. Grashd. av. 15 no.4:13-16 Ap '58. (MIRA 11:5)

1.Glavnyy inzhener Armyanskoy otdel'noy aviagruppy Grashdanskogo vozdushnogo flota (for Milyukov). 2.Nachal'nik otdela perevozok Armyanskoy otdel'noy otdel'noy aviagruppy Grashdanskogo vozdushnogo flota (for Yeloyan). 3.Starshiy inzh.-ekonomist Armyanskoy otdel'noy aviagruppy Grashdanskogo vozdushnogo flota (for Lebedeva).
(Armenia--Air lines--Accounting)

ACC NR: AN7001761 (N) SOURCE CODE: UR/9001/67/000/002/0038/0038

AUTHOR: Milyukov, O.

ORG: none

TITLE: Arctic rubber

SOURCE: Ekonomicheskaya gazeta, no. 2, —Jan 67, 38

TOPIC TAGS: rubber, ~~low temperature resistance~~ cryogenics

ABSTRACT: The Institute of the Rubber Industry and the Institute of Synthetic Rubber are attempting to produce rubber for Arctic conditions. These attempts follow three paths. The first is the use of low temperature resistant rubber, which requires that various properties which are sometimes contradictory be combined. The second method is the introduction of special "antifreezes" into the composition and the combining of various types of rubbers. The third way is the application of methods which make it possible to use many types of ordinary rubber in the north. If the best shape, load, and usage of various types of parts are selected, many parts can be made from ordinary rubber. At present, 23 types of rubber are being tested. [NC]

SUB CODE: 11/ SUBM DATE: none/ ATD PRESS: 5110

Card 1/1

MILYUKOV, O.V.

Use of precision casting in the automobile industry. Avt.prom. 31 no.4:45 Ap '65. (MIRA 18:5)

MILYUKOV, P. I.

Meteorological Abst.
Vol. 4 No. 8
Aug. 1953
Part 1
Aqueous Vapor and Hydrometeors.

4.8-210 551.579.5:06

Miliukov, P. I., *Iz opyta obsluzhivaniia stroitel'stva Tsymlianskogo gidrouzla gidrologicheskimi prognozami i informatsiei.* [The experience of serving the construction of the Tsumliansk Hydraulic Network with hydrological forecasts and information.] *Meteorologiia i Gidrologiia*, No. 5:13-17, 1952. 4 refs. DLC—Report on special hydrological service for the new hydraulic project near Tsymlianskaia (on the Don River) during 1950-1951. The chief problems of the service were forecasts and information on water levels and runoff, especially for the period of spring floods. Experiences in analogous work during construction of hydroelectrical stations at Volkhovo (near Leningrad) and on the Dnepr were utilized in planning the service. A special office gathered daily information transmitted by telegraph from 16-20 hydrological stations and received special weather and hydrological forecasts from the Central Hydrological Institute, Central Institute of Forecasting and from the Weather Bureau at Rostov-on-Don. Special observations were made from airplanes for more complete investigations of snow and ice conditions in the river basin before the spring flood. The spring flood of 1951 was near the highest level observed during the last 60-70 years and caused much trouble for the Hydrometeorological Service. Hydrological forecasts issued by Rostov Hydrometeorological Service 21 days before the date of the flood peak were very effective and the error was only about 2% of level range (the absolute error was +10 cm). *Subject Headings:* 1. Hydrometeorological services 2. Hydrologic forecasting 3. Spring floods 4. Don Basin 5. U.S.S.R.—*N.T.Z.*

Milyukov, P. I.

Book—2157. Milyukov, P. I., edited by, Problems of forecasts and evaluations of spring and summer runoff (in Russian), Trudi Tsentr. Inst. Prognozov, no. 59, Leningrad, Gidrometeoizdat, 1957, 168 pp. $1.50.

Series of articles by 7 authors on methods of forecasts for flat lands in Russia and Siberia. They are of great interest for hydrologists.

S. Kolupaila, USA

MILYUKOV, P. I.

KALININ, G.P.; MILYUKOV, P.I.

Calculating unsteady motion of water in open beds. Meteor.i gidrol. no.10:10-18 O '57. (MIRA 10:11)
(Hydrodynamics) (Differential equations)

3(7) PHASE I BOOK EXPLOITATION SOV/1883

Kalinin, G.P. and P.I. Milyukov

Priblizhennyy raschet neystanovivshegosya dvizheniya vodnykh mass (Approximate Calculation of the Non-Stabilized Motion of Water Masses) Leningrad, Gimiz, 1958. 70 p. (Series: Leningrad. Tsentral'nyy institut prognozov. Trudy, vyp. 66) 1,000 copies printed.

Resp. Ed.: A.N. Vazhnov; Ed. (Title page): A.N. Vazhnov; Ed. (Inside book): L.P. Zhdanova; Tech. Ed.: O.G. Vladimirov

Additional Sponsoring Agency: USSR. Glavnoye upravleniye gidrometeorologicheskoy sluzhby.

PURPOSE: This publication is intended for hydrologists and hydraulic engineers concerned with problems in hydrometry, hydrological forecasting, and quantitative estimates in the field of hydrology and water economy.

Card 1/3

Approximate Calculation (Cont.)

COVERAGE: The authors discuss a new approximative method of analyzing non-stabilized motion in water in open river beds. The possibility of plotting single value graphs of discharges for cases of non-stabilized flow is demonstrated, and an analytical method of computing motion and transformation of sporadic floods and incoming waves in the downstream water-races of hydrotechnical structures is described. A theoretical basis for graphs of overflowing run-off in river beds is given, and a new approach in plotting graphs for the excess water from reservoirs and the computation of elementary rainfall runoff is also discussed. Theoretical conclusions are illustrated with examples of computations. There are 13 tables, 28 diagrams, and 31 references of which 25 are Soviet, 4 English, and 2 French.

TABLE OF CONTENTS:

AVAILABLE: Library of Congress

Card 3/3

MM/ad
6-18-59

KHARSHAN, Sh.A.; MILYUKOV, P.I., otv.red.; BLINNIKOV, L.V., red.; ZARKH, I.M., tekhn.red.

[Long-range forecasting of the flood runoff of mountain rivers in Siberia] Dolgosrochnye prognozy stoka polovod'ia gornykh rek Sibiri. Moskva, Gidrometeor. izd-vo, 1958. 76 p. (MIRA 12:2)
(Floods)

AUTHORS: Kalinin, G. P., Milyukov, P. I. SOV/ 50-58-7-3/20

TITLE: On the Calculation of the Irregular Stream Flow in the River Beds by the Unit-Graph Method (O raschete neustanovivshegosya dvizheniya vody po ruslam pri pomoshchi krivykh dobeganiya)

PERIODICAL: Meteorologiya i gidrologiya, 1958, Nr 7, pp. 18-25 (USSR)

ABSTRACT: The calculation of the formation and the displacement of floods on the basis of the unit-graph method is used to a great extent in the practice of the USSR as well as of other countries (Refs 4 and 8). In the present paper the attempt is made to prove the unit-graphs on the strength of the theory of irregular water flow in the river beds. This is extremely difficult owing to the fact that the calculation methods of such a flow are complicated. The basic methods applied at present, the method of the characteristics (Ref 7) and the method of the momentary water supply which are used at present (Refs 1, 2, and 3) are complicated and it is not possible to derive from them a general equation of the unit-graph. The authors suggest a new simplified calculation method of the irregular water flow (Ref 5). The calculation is simplified thanks to the established theory that each river

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bed may be represented as consisting of a series of single sections. For each of these sections an obvious connection exists between the water volume in the section concerned and the flow quantity across its lower line of division $Q = f(W)$. Such sections are denoted as characteristic sections. The obvious dependence of the flow quantity on the water supply in the characteristic section makes possible the derivation of a simple analytical formula for the flow quantity across the lower line of division of the section. This depends on the supply of water in the pertinent section and on time. In the case of several complementary assumptions such a simple solution may be found simultaneously for several sections, i.e. an equation of the unit-graph can be set up. These assumptions are the following:

1) the dependence $Q = f(W)$ is linear - $Q = \frac{1}{\tau} W$,

where τ is constant.

2) the parameter τ has the same value for all characteristic sections. The first assumption is obligatory. The second may

On the Calculation of the Irregular Stream Flow in the River Beds by the Unit-Graph Method

be neglected, this renders, however, the equation of the unit-graph more complicated. The authors used the second assumption as well. (Fig 1) shows to which extent the unit-graph changes according to the number of the characteristic sections. On the strength of the unit-graphs calculated by means of the described method a number of examples of the transformation of the flood waves as well as of the tolerance of the GES was calculated (Fig 2). Finally it must be taken into account that the water supplies in the river bed are exhausted. The flow quantity of the water at the cost of the exhaustion of the supplies in the section at the beginning is expressed by the flow quantity across the lower lines of division of the characteristic sections which are multiplied with the ordinates of the corresponding unit-graphs. The total flow quantity of the water across the line of division for which the calculation was carried out is equal to the sum of the flow quantity at the expense of the exhaustion of primary water supplies in the characteristic sections 1, 2, 3 ..... n as well as at the expense of

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the increase of the water from the upper to the lower line of direction. There are 2 figures, 1 table, and 8 references, 7 of which are Soviet.

1. Inland waterways--Analysis 2. Fluid flow--Performance
3. Flood--Control 4. River currents--Analysis 5. Mathematics

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3 (7)

AUTHORS: Kalinin, G. P., Milyukov, P. I. SOV/50-59-9-2/16

TITLE: Forecast and Calculation of Water Levels Below Hydroelectric Power Stations on the Basis of Water Gauge Observations

PERIODICAL: Meteorologiya i gidrologiya, 1959, Nr 9, pp 13 - 19 (USSR)

ABSTRACT: The present article points out the possibility of forecasting and calculating the water levels and the water quantity when reliable curves for the water quantities and the morphometric characteristics of the river bed are missing, but data are available, at least on short-termed observations of the water levels in those places where a forecast is required. The basis of the method suggested by the authors in the papers (Refs 1,2) is the conception of the characteristic section, i.e. the river section where a distinct relation is maintained between the water volume W and the water quantity Q in the lower range of the section, as well as between the water quantity mentioned and the level in the middle of the characteristic section. The length of the characteristic section is determined by formula (1). The calculation consists in the solution of the system of formulas (2) for every characteristic section. Here, the time

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$\tau = \frac{dW}{dQ}$ is used, which is obtained on the basis of the volume curve (Ref 2) for every characteristic section. Of the 3 possible kinds of solution of the formulas (2), the analytical method is indicated here. It is based on the calculation with respect to short time intervals (Δt) within which a constancy of τ and a linear law for the change of the water quantity q arriving at the section can be assumed. If $\Delta t < \tau$, the solution of (2) leads to the simple formula (3): $\Delta Q = (q_{mean} - Q_o)K_1$. The coefficient K_1 only depends on the ratio between Δt and τ, and can be determined in 4 different ways which are pointed out here. The first kind is described in detail in the papers (Refs 1,2), the third in the paper (Ref 3). The 4th kind is explained here by the example of a calculation of the wave motion and stretching of it at the Gor'kovskaya GES (Gor'kiy Hydroelectric Power Station) on the Volga. This is an empirical method by means of choice. The order in the calculation is pointed out. The observation data of 1956-1958 are used.

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To check the water quantities calculated, the levels were determined at all water level measuring points. Table 1 shows that the levels calculated are in good agreement with the actual levels. If the coefficients for the analytical method are determined by the method shown here, the water level can be determined at the same water level measuring points for any given or assumed working curve of the hydroelectric power station.- Finally, the calculations of water levels carried out on request of the management of the Gor'kiy Hydroelectric Power Station at all water level measuring points used in 1956-1958 are pointed out for some variants of the daily working curve of the power station. There are 3 figures, 1 table, and 2 Soviet references.

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B012/B056

AUTHORS: Kalinin, G. P., Milyukov, P. I., Nechayeva, N. S.

TITLE: Simple Electronic Simulating Device for the Forecast of Floods

PERIODICAL: Meteorologiya i gidrologiya, 1960, No. 8, pp. 20 - 28

TEXT: Programs for the solution of problems in the field of flood-forecasts were made at the GGI and Gidroproyekt. A short survey is given of the analog computers, and it was found that for calculating flood forecasts, at water power plants, special simulators are the most useful, which have to solve one and the same problem several times. The problems to be solved in developing such electrical special simulators are pointed out. In 1958 such a device was developed at the Tsentral'nyy institut prognozov (Central Institute of Weather Forecasts). Upon this device, the calculation of non-steady water motion according to the method developed by G. P. Kalinin and P. I. Milyukov (Ref. 2) was based. In this method, the river or river-bed respectively is subdivided into a number of sections of certain length. In each section there is a unique

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interrelation between the water volume W in the section and the quantity of drained-off Q water in its lower part. Such sections are described as characteristic. Calculation consists in solving the differential equations (1) and (3) for each of these sections. This manner of determination makes it possible to produce an electric simulator for one or else for several consecutive characteristic sections. Equations (1) and (3) are solved, and formula (4) is obtained. Also the circuit consisting of a resistance and capacity has such a formula (9), which contains the product RC=T, the time constant. The latter is analogous to the inflow rate of water in the characteristic section and plays the same part in formula (9) as τ in formula (4). The simulator device was produced in two variants in the institute mentioned; a) for a characteristic section, and b) for 6 of such sections. Fig. 1b shows and describes the main circuit of the first variety. Fig. 2 shows the circuit, and Fig. 3 the second variety. It is pointed out that this device may also be used for calculating other processes, the individual steps of which or the processes as a whole may be expressed by linear differential equations. The collaborators of the Tsentral'nyy institut kompleksnoy avtomatizatsii (Central Institute of Large-scale Automation) V. A. Sukharev,

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Simple Electronic Simulating Device for the Forecast of Floods

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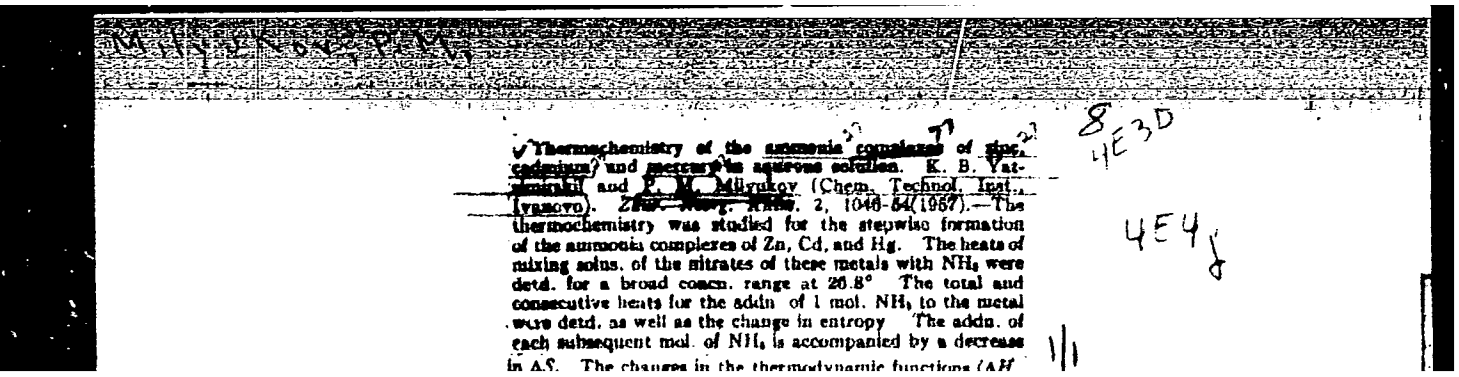
Yu. A. Rozental', and N. D. Lanin assisted in developing and adjusting the simulator device. There are 4 figures, 1 table, and 8 references: 6 Soviet and 2 British.

Card 3/3

MILYUKOV, P. M., Master Chem Sci — "The thermochemistry of ammonia complexes in a water solution." Ivanovo, 1957, 16 pp. (Min Higher Educ USSR, Ivanovo Chem-Tech Inst) 100 copies. (KL, No 41, 1957, p. 106)



Thermochemistry of the ammonia complexes of zinc, cadmium and mercury in aqueous solution. K. B. Yatsimirskii and P. M. Milyukov (Chem. Technol. Inst., Ivanovo). *Zhur. Neorg. Khim.* 2, 1046-54(1957).—The thermochemistry was studied for the stepwise formation of the ammonia complexes of Zn, Cd, and Hg. The heats of mixing solns. of the nitrates of these metals with NH_3 were detd. for a broad concn. range at 20.8°. The total and consecutive heats for the addn. of 1 mol. NH_3 to the metal were detd. as well as the change in entropy. The addn. of each subsequent mol. of NH_3 is accompanied by a decrease in ΔS. The changes in the thermodynamic functions (ΔH

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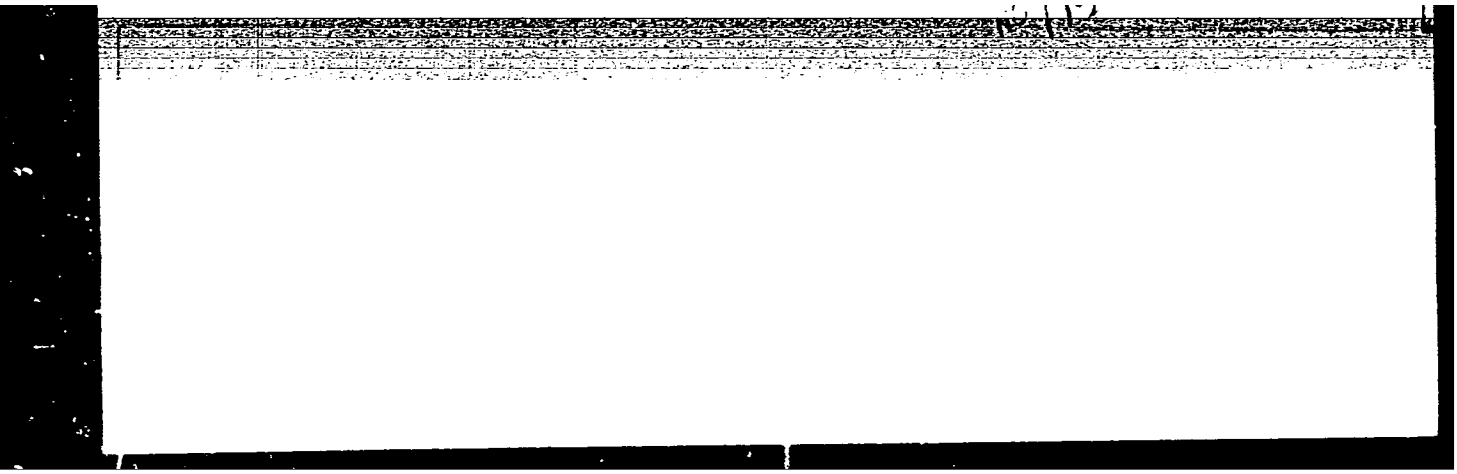

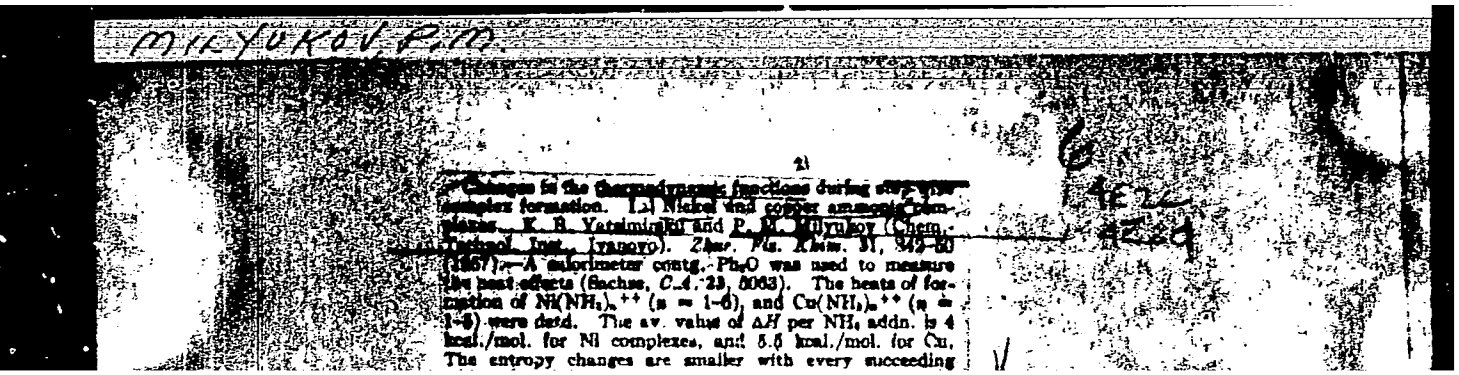

MIKHAYLOV, P.M.

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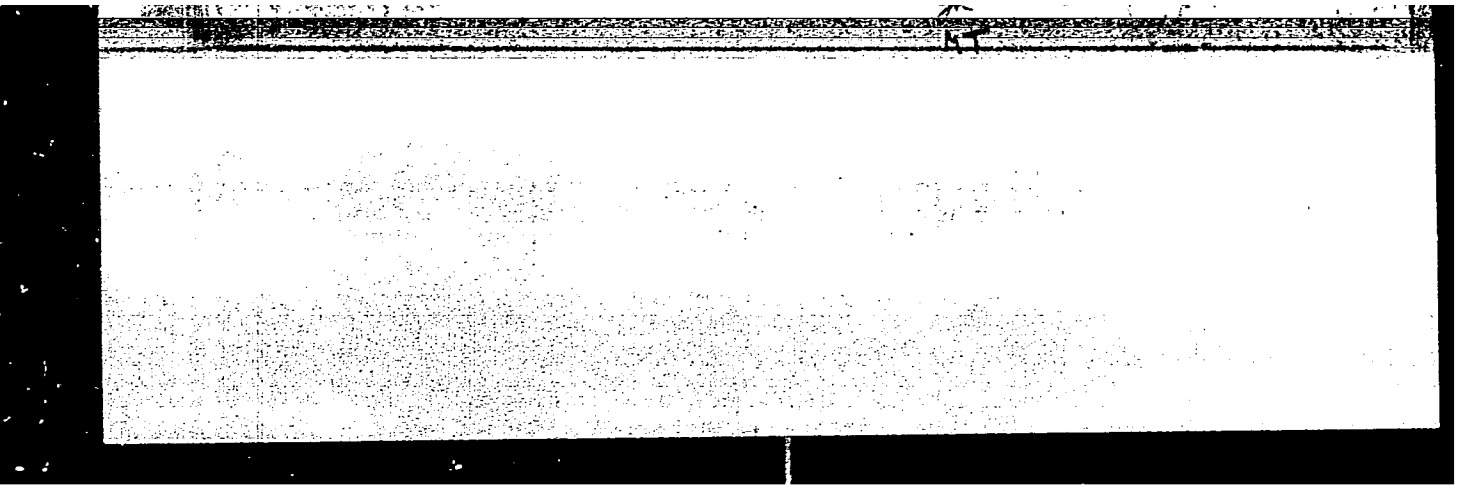
Changes in the thermodynamic functions during step-wise complex formation. I. Nickel and copper ammonia complexes. K. B. Yatsimirskii and P. M. Mikhaylov (Chem.-Technol. Inst., Ivanovo). *Zhur. Fiz. Khim.* 31, 349-60 (1957).—A calorimeter contg. Pb_3O was used to measure the heat effects (Bachus, *C.A.* 23, 3063). The heats of formation of $Ni(NH_3)_n^{++}$ (n = 1-6), and $Cu(NH_3)_n^{++}$ (n = 1-5) were detd. The av. value of ΔH per NH_3 addn. is 4 kcal./mol. for Ni complexes, and 5.5 kcal./mol. for Cu. The entropy changes are smaller with every succeeding



MILYUKOV, P.M.

Thermochemistry of zinc ethylenediamine complexes in aqueous solutions. Izv. vys. ucheb. zav.; khim. i khim. tekh. 4 no. 2:212-217 '61. (MIRA 14:5)

1. Ivanovskiy khimiko-tekhnologicheskiy institut.
(Zinc compounds) (Thermochemistry)