YELOVSKIKH, M. P., KONDRAT'YEV, K. YA., and YAKUSHEVSKAYA, K. YE.

"On the Absorption of Infrared Radiation by the Atmosphere," an article in Scientific Notes of the Leningrad Order of Lenin State University imeni A. A. Zhdanov, No. 210, Physics Institute, Physical Science Series, No. 9, Geophysics, 1956, 190 pp.

SUM: 1360

YELOVSKIKH, M. P.

14-1-483 D

Translation from: Referativnny Zhurnal, Geografiya, 1957, Nr 1, p. 53 (USSR)

AUTHOR: Yelovskikh, M. P.

TITLE: Angular Distribution of Intensity of Atmospheric Thermal Radiation and Some Applications (Uglovoye raspredeleniye intensivnosti teplovogo izlucheniya atmosfery i nekotoryye prilozheniya)

ABSTRACT: Bibliographic entry on the author's dissertation for the degree of Candidate of Physical-Mathematical Sciences, presented to Leningrad State University, (LGU), Leningrad, 1956.

ASSOCIATION: Leningrad State University (LGU)

Card 1/1

YELOVSKIKH, M.P.; KONDRAT'YEV, K.Ya.; YAKUSHEVSKAYA, K.Ye.

Atmospheric absorption functions for heat radiation. Uch.zap.Len. un. no.210:3-8 '56. (MLRA 9:8)
(Atmospheric temperature) (Solar radiation)

49-5-16/18

AUTHORS: Yelovskikh, M. P. and Kondrat'ev, K. Ya.

TITLE: Angular distribution of the intensity of thermal emission of the atmosphere. (Uglovoye raspredeleniye intensivnosti teplovogo izlucheniya atmosfery).

PERIODICAL: "Izvestiya Akademii Nauk, Seriya Geofizicheskaya" (Bulletin of the Ac.Sc., Geophysics Series), 1957, No.5, pp. 683-688 (U.S.S.R.)

ABSTRACT: In a previous paper (1) the authors gave the results of theoretical and experimental investigations of the angular distribution of the intensity of atmospheric emission. A number of problems were, however, left unsolved because of a lack of experimental data. In the present paper a more complete account of the above is given. These new results allow some conclusions to be made which are of interest in practice. The angular distribution of the intensity of the effective emission over the sky is characterised by the function $\zeta(\vartheta) = f(\vartheta)/f_0$ where $f(\vartheta)$ and f_0 are the intensity of the effective emission at a zenith angle ϑ and in the direction of the zenith respectively. The distribution of the intensity of the counter-emission of the atmosphere relative to the vertical is characterised by the analogous function $\psi(\vartheta) = g(\vartheta)/g_0$. In the case of a

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Angular distribution of the intensity of thermal emission of the atmosphere. (Cont.)

clear sky the theoretical formulae (derived by one of the authors in Ref.2) has the form:

$$\zeta(\vartheta) = \frac{P_I(w_\infty \sec\vartheta)}{P_I(w_\infty)}$$

where $P_I(w_\infty)$ is the atmospheric transmission function for a directed radiation and w_∞ is the water vapour content of a column of the atmosphere having a unit cross section (in g/cm^2). Further expressions which are available are the following:

(a) clear sky: $\zeta(\vartheta) = \cos^r \vartheta$ (empirical)

or $\zeta(\vartheta) = 1 - \frac{0.18\ \gamma_m}{r(0)}(1 - \cos\vartheta) - \frac{11}{r(0)} \ln \frac{10}{\cos\vartheta}$

(b) cloudy sky:

Card 2/6

$$\zeta(\vartheta) = \frac{P_I(w_h \sec\vartheta)}{P_I(w_h)}$$

Angular distribution of the intensity of thermal emission of the atmosphere. (Cont.)

(c) Intensity distribution of the counter-radiation:

$$\phi(\vartheta) = \frac{A_I(w_\infty \sec \vartheta)}{A_I(w_\infty)} \qquad \text{(theoretical)}$$

where r is a linear function of the humidity near the Earth's surface, γ_m is the mean temperature gradient in degrees/km,

$$r(0) = f_o \left| \frac{\sigma}{\pi} \right. T_o^4 ,$$

T_o is the temperature at 1.5 to 2 m above the surface, σ^o is the radiation constant, w_h is the water vapour content between the Earth's surface and the cloud (g/cm^2), and $A_I = 1 - P_I$. About 200 series of measurements of $f(\vartheta,\varphi)$ were carried out during the night using a radiometer of a small solid angle and a few series of observations in cloudy conditions (ϑ = zenith angle, and φ = azimuth). The experimental values of $f(\vartheta)$ in percent are plotted in Card 3/6 Fig.1. The intensity $f(\vartheta,\varphi)$ is constant with respect to φ. using $w_\infty = 1.8\ g/cm^2$ the points all lie on the curve given by the first here mentioned equation. Experiment shows

Angular distribution of the intensity of thermal emission of the atmosphere. (Cont.)

that $\psi(\nu)$ is practically independent of w_∞ in the range considered (0.41 to 2.66 g/cm^2) and is in agreement with theoretical formulae given above (Fig.2). In the case of the clouded sky the angular distribution of the intensity of the effective emission depends on the water vapour content between the cloud and the Earth's surface and is well represented by the theoretical expression given above. Fig.3 shows calculations of $\zeta(\nu)$ as a function of ν for w_h = 0.34 g/cm^2. At such a small value of w_h the distribution is approximately isotropic. Generally, high humidity will make the distribution anisotropic. Atmospheric counter-emission in cloudy conditions is practically isotropic independently of the height of the cloud. Mean values of $\psi(\nu)$ for different values of w_h are given in Table 1. Using the data on the angular distribution an estimate can be made of the diffusion of the emission and the integral absorption function. Kondrat'ev, K. Ya. (2) defined a coefficient of diffusion β which is equal to the secant of the zenith angle φ_0 in the direction of which the intensity of the effective emission is equal to the mean

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Angular distribution of the intensity of thermal emission of the atmosphere. (Cont.)

intensity. The value of this coefficient found by the present writers from a series of 173 series of measurements in different conditions is 1.68 (w_∞ between 0.41 and 2.66 g/cm^2). This coefficient is independent of the general water vapour content. The angular distribution of the intensity of the counter-emission can be used to determine the integral absorption function for an isothermal atmosphere and a directed radiation. Since in the real atmosphere the temperature decreases with height, it is necessary to reduce it to an isothermal one. This is in accordance with the procedure suggested by Brooks (3). The absorption function for such a "reduced" atmosphere was determined from the experimental results (150 series of measurements of the intensity of counter-emission). Differences are observed between the value of A_I obtained in different places and during different times of the year. The absorption function A_I appears to depend on temperature and pressure.

Card 5/6

There are 5 figures, 2 tables and 4 references, 3 of which are Slavic.

SUBMITTED: October 12, 1956.

ASSOCIATION: Leningrad State University imeni A. A. Zhdanov. (Leningradskiy Gos. Universitet im. A. A. Zhdanova).

AVAILABLE: Library of Congress

Card 6/6

YELOVSKIKH, M.P.; KONDRAT'YEV, K.Ya.

A radiometer for measuring the intensity of the heat radiation of the atmosphere and comparison of the radiometer with the pyrgeometer. Meteor. i gidrol. no.7:49-51 Jl '57. (MLRA 10:8)
(Radiometer) (Heat--Radiation and absorption)
(Atmospheric temperature)

YELOVSKIKH, N.N.; STABROVSKIY, A.I.

Mixed ammonium-sodium carbonate compounds of uranyl. Zhur.neorg.-khim. 6 no.6:1300-1301 Je '61. (MIRA 14:11)
(Uranyl compounds)

YELOVSKIKH, N.N.; RUMYANTSEVA, K.T.

Mixed ammonium-sodium oxalate compounds of uranyl and uranium (IV). Zhur.neorg.khim. 7 no.11:2639-2640 N '62. (MIRA 15:12)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova, kafedra neorganicheskoy khimii.
(Uranyl compounds)

YELOVSKIKH, V.

Our workers prevent accidents. Bezop.truda v prom. 6 no.4:32 Ap '62. (MIRA 15:5)

1. Predsedatel' komissii partiynogo kontrolya po tekhnike bezopasnosti Berezovskogo rudnika im. S.M.Kirova.
(Berezovskiy region--Mining engineering--Safety measures)

YELOVSKIKH, V.V.

Geology and mineral resources in the Derbeke-Nel'gekhe ore zone. Trudy IAFAN SSSR.Ser.geol. no.3:93-105 '59. (MIRA 13:6)

(Yana Valley (Yakutia)--Geology, Economic)

YELOVSKIY, V.V.

Regularities in the distribution of endogenic deposits in northeastern Yakutia. Zakon.razm.polezn.iskop. 3:523-540 '60.
(MIRA 14:11)

1. Yakutskoye geologicheskoye upravleniye.
(Yakutia--Ore deposits)

YELOVSKIKH, V. V.

Effect of the basement structure of the Verkhoyansk-Kolyma geosynclinal province on the spatial distribution of ore regions in eastern Yakutia. Geol. i geofiz. no.9:3-14 '62. (MIRA 15:10)

1. Yakutskoye geologicheskoye upravleniye.

(Yakutia—Geology, Structural)
(Yakutia—Ore deposits)

GORNSHTEYN, D.K.; GUDKOV, A.A.; KOSOLAPOV, A.I.; LEYPTSIG, A.V.; MEL'NIKOV, V.M.; MOKSHANTSEV, K.B.; FRADKIN, G.S.; CHERSKIY, N.V.; TROFIMUK, A.A., akademik, nauchn. red. vyp.; ROZHKOV, I.S., glav. red.; KOBELYATSKIY, I.A., zam. glav. red.; SHATALOV, Ye.G., zam. glav. rod.; BONDARENKO, V.I., red.; GRINBERG, G.A., red.; YELOVSKIKH, V.V., red.; RUSANOV, B.S., red.; SEMENOV, G.T., red.; TKACHENKO, B.V., red.; KALANTAROV, A.P., red.izd-va; GUSEVA, A.P., tekhn. red.

[Basic stages of the geological development and prospects for finding oil and gas in the Yakut A.S.S.R.] Osnovnye etapy geologicheskogo razvitiia i perspektivy neftegazonosnosti IAkutskoi ASSR. [By] D.K.Gornshtein i dr. Moskva, Izd-vo AN SSSR 1963. 238 p. (MIRA 16:12)
(Yakutia--Petroleum geology)
(Yakutia--Gas, Natural--Geology)

YELOVSKIKH, Yu.P., kand.tekhn.nauk

Calculating operating conditions of pneumatic machines and mechanisms. Vest.mashinostr. 45 no.10:15-19 O '65. (MIRA 18:11)

SOV/122-59-5-10/32

AUTHOR: Yelovskikh, Yu.P., Engineer

TITLE: Sub-Critical Efflux of Gas from a Container (Dokriticheskoye istecheniye gaza iz rezervuara)

PERIODICAL: Vestnik mashinostroyeniya, 1959, Nr 5, pp 35-36 (USSR)

ABSTRACT: The well-known formula for the rate of gas efflux is transformed into an expression similar to that for incompressible fluids but containing a correction factor. This factor can be expressed by a convenient approximation (Eq 5) containing only the pressure ratio and three numerical constants whose values are given in table 1 for two-atomic and three-atomic gases. Tables 2 and 3 list comparative computations by the exact and approximate formulae and show the error of the approximation to be usually below 1%. There are 3 tables and 2 Soviet references.

Card 1/1

SOV/96-59-8-23/27

AUTHOR: Yelovskikh, Yu.P., Engineer

TITLE: Some Special Features of the Process of Admission of Gas to a Variable Volume

PERIODICAL: Teploenergetika 1959, Nr 8, pp 88-89 (USSR)

ABSTRACT: In making calculations on the admission of compressed gas or super-heated steam to a variable volume the process is usually assumed to be isothermal. The calculations may also be based on the equation of energy balance in the volume. A solution of the problem has already been published by Boshnyakovich for the case of the admission of gas to a constant volume, and the present article considers the more general case of admission to a variable volume. The general equation of energy balance in a thermally insulated volume to which gas is admitted is given by equation (1); this is suitably transformed and dimensionless coordinates introduced to give equation (3). A number of particular cases are then considered and the appropriate formulae are given. The cases include a piston engine whose indicator diagram is given, and one whose piston speed

Card 1/2

Some Special Features of the Process of Admission of Gas to a Variable Volume

and gas flow rates are known. Finally, the errors introduced by assuming the process to be isothermal are assessed and it is shown that in some cases they can be considerable. There are 8 Soviet references.

YELOVATSKIY, Ivan Pavlovich; SHIBANOVA, A.A., red.; CHUVALDIN, A.M., red. kart; DRANNIKOVA, M.S., tekhn. red.

[Countries of Southeastern Asia; economic and geographical study] Strany JUgo-Vostochnoi Azii; ekonomiko-geograficheskii ocherk. Moskva, Uchpedgiz, 1961. 293 p. (MIRA 15:8)
(Asia, Southeastern—Economic geography)

BONDARENKO, F.F. (Kiyev); YELOVSKIY, V.V., elektrosvarshchik (Stryy L'vovskoy obl.)

Driers for electrodes. Stroi. truboprov. 8 no.6:28 Je '63. (MIRA 16:7)

1. Starshiy proizvoditel' rabot stroitel'no-montazhnogo upravleniya tresta Ukrgazneftestroy (for Bondarenko).
2. Stroitel'noye upravleniye No. 14 tresta Ukrgazneftestroy (for Yelovskiy).

(Electric welding—Equipment and supplies)

SOV/84-58-4-12/48

AUTHOR: Milyukov, N., Chief Engineer, Yeloyan, A., Chief of the Shipping Department, and Lebedeva, Senior Engineer-Economist

TITLE: How Twenty Thousand Ton-Kilometers per Worker Were Reached (Kak dostignut nalet v dvadtsat' tysyach tonna-kilometrov na odnogo aviarabotnika)

PERIODICAL: Grazhdanskaya aviatsiya, 1958, Nr 4, pp 13-16 (USSR)

ABSTRACT: This is a fairly detailed account of measures applied by the Armenian Aviation Group management, which resulted in a level of efficiency much above the average of Aeroflot. The measures include strict enforcement of above-the-plan quota commitments, close watch over the progress of socialist competition, efforts of the airport management to get adequate payload, persistence of crews in finding payload en route, etc. A number of characteristic incidents and practices are cited which impair operational efficiency.

ASSOCIATION: Armyanskaya otdel'naya aviagruppa GVF (Armenian Separate Aviation Group of the GVF)

Card 1/1 1. Civil aviation--Economic aspects 2. Aviation personnel--Performance

BELOVA, L.N.; YELOYEV, B.M.

Silica as a constituent of pitchblende. Dokl. AN SSSR 141 no.6: 1452-1453 D '61. (MIRA 14:12)

1. Predstavleno akademikom N.V.Belovym.
(Uraninite) (Silica)

YELOYEV, Vladimir Kazbulatovich

[On the rise] Na pod"eme. Ordzhonikidze, Knizhnoe izd-vo Severo-Osetinskoi ASSR, 1959. 91 p. (MIRA 14:8)
(Ossetia--Communist Party of the Soviet Union)
(Ossetia--Collective farms)

YELOZA, M.

84-58-2-14/46

AUTHOR: ~~Yeloza, M.~~ (Bukhara)

TITLE: At the Oblast's Expense (Za schet oblastnogo byudzheta)

PERIODICAL: Grazhdanskaya aviatsiya, 1958, Nr 2, p. 8 (USSR)

ABSTRCT: This short note reports on improvements at the Bukhara airport terminal accomplished from the funds of the oblast budget. The approach square of the terminal has been paved and landscaped. The snack bar has been replaced by a spacious tearoom.

AVAILABLE: Library of Congress

Card 1/1

1. Airports - USSR

YELOZINA, A.A.

Clinical and X-ray observations on the formation of tuberculomas in the lungs. Vrach. delo no.5:31-34 My '61. (MIRA 14:9)

1. Kafedra ftiziatrii (zav. - prof. Ye.D.Petrov) Kiyevskogo instituta usovershenstvovaniya vrachey i Kiyevskiy nauchno-issledovatel'skiy institut tuberkuleza imeni akademika F.G. Yanovskogo.

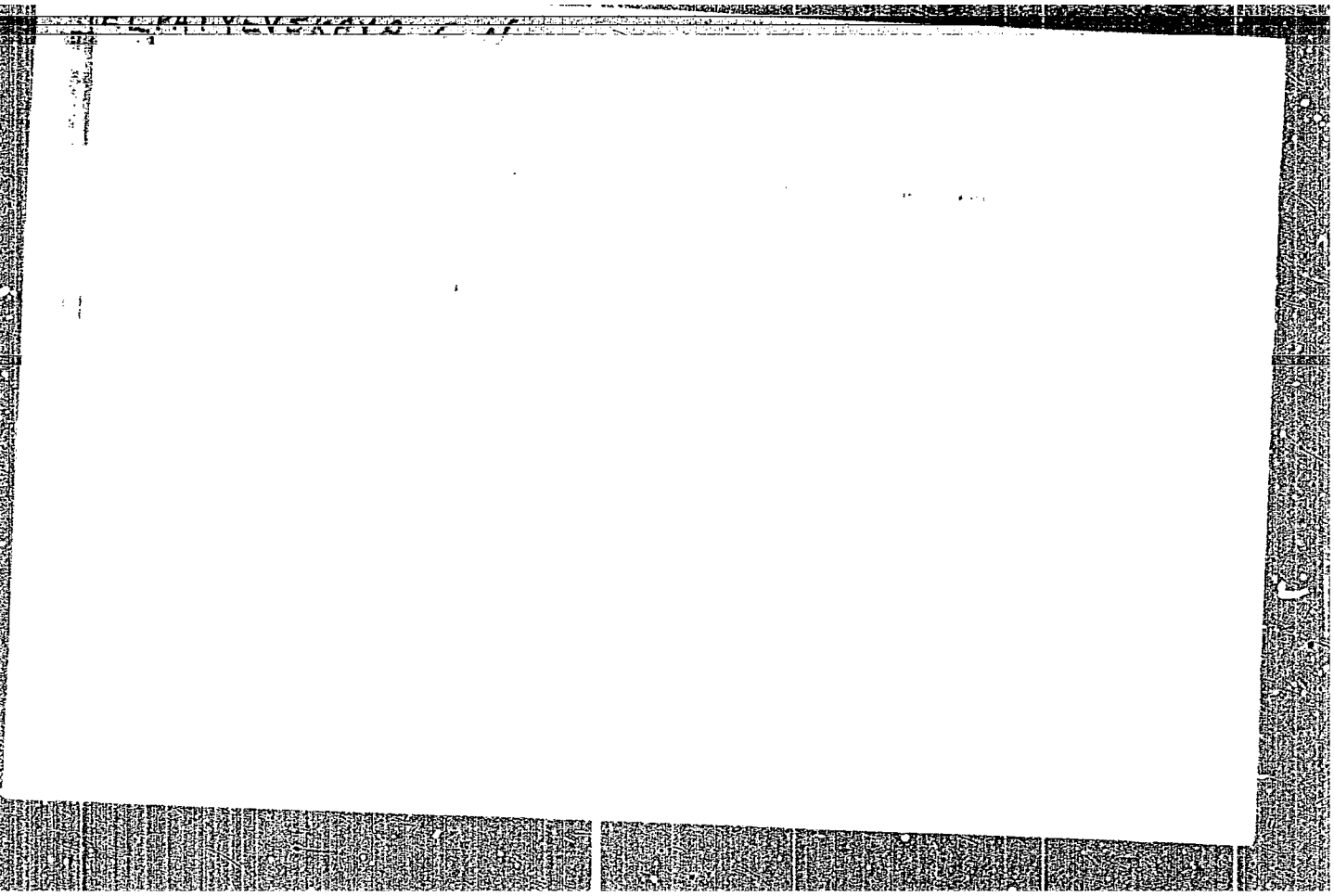
(TUBERCULOSIS) (LUNGS—RADIOGRAPHY)

YELPACHEV, N.I., gornyy inzh.

Mining a thick steep seam with forced caving of interbedded strata. Ugol' 34 no.6:41-47 Je '59. (MIRA 12:8)
(Coal mines and mining)

YELPAKOV, K. A.

Cand Vet Sci - (diss) "Some data on the etiology and treatment of chickens suffering from postnatal endometritis." Leningrad, 1961. 17 pp; 1 p tables; (Ministry of Agriculture USSR, Kazakhstan Veterinary Inst imeni N. E. Bauman); 180 copies; price not given; (KL, 5-61 sup, 199)



CHAYKOVSKAYA, M.Ya. (Moskva, B-64, ul.Chkalova, d.21, kv.93); SERGEL', O.S.; YELPAT'YEVSKAYA, G.N.

Combined treatment of radiation sickness in hemorrhage. Vest. rent. i rad. 34 no.3:47-52 My-Je '59. (MIRA 12:10)

1. Iz radiologicheskogo otdela (zav. - prof.A.V.Kozlova) Gosudarstvennogo nauchno-issledovatel'skogo instituta rentgeno-radiologicheskogo instituta Ministerstva zdravookhraneniya RSFSR (dir. - dotsent I.G.Lagunova).

(ROENTGEN RAYS, inj. eff.
radiation sickness with hemorrh., eff. of combined ther. in dogs (Rus))
(HEMORRHAGE, exper.
x-ray induced, eff. of combined ther. in dogs (Rus))

POLITOVA, Ye.M.; YELPAT'YEVSKAYA, G.N.; GARVEY, N.N.

Change in the content of readily separable iron and erythroblastic hemopoiesis in acute radiation sickness. Lab.delo 7 no.9:20-24 S '61. (MIRA 14:10)

1. Radiologicheskiy otdel (zav. - prof. A.V.Kozlova) Rentgeno-radiologicheskogo instituta (dir. - prof. I.G.Lagunova), Moskva.
(IRON IN THE BODY) (RADIATION SICKNESS)
(HEMOPOIETIC SYSTEM)

GARVEY, N.N.; POLITOVA, Ye.M.; YELPAT'YEVSKAYA, G.N. (Moskva)

Clinical and morphological characteristics of chronic radiation sickness caused by external irradiation in an experiment. Gig. truda i prof. zab. 6 no.12:26-33 D '62.
(MIRA 16:7)

1. Nauchno-issledovatel'skiy rentgeno-radiologicheskiy institut.
(RADIATION SICKNESS)

41585

S/241/62/010/010/007/007
D296/D307

27.1220

AUTHOR: Yelpat'yevskaya, G.N. (Moscow)

TITLE: The influence of ionizing radiation upon the serum level of mobile Fe ions

PERIODICAL: Meditsinskaya radiologiya, v. 10, no. 10, 1962, 67-68

TEXT: The author determined the serum levels of mobile Fe ions in 1043 persons, who, by virtue of their occupation, were exposed for prolonged periods (3 - 5 years) to small doses of ionizing radiation. In most cases the iron level was estimated only once in 120 cases, however, the changes were followed up by repeated estimations. The author used the rhodanine method (Barkan) with his own modification. Most of the subjects investigated complained of mild symptoms (fatigue, headaches, insomnia, pricordial pain, loss of hair and weight etc); These symptoms were usually more severe towards the end of the day or the working year and subsided after resting or after leave. In 86 % of the persons investigated the serum levels of iron were found to be decreased (50 - 15 γ %) compared with the normal level of 60 - 120 γ %. Mild hypochromic anemia and

Card 1/2

The influence of ionizing ...

leucopenia could be observed, but no direct relation between these changes and the iron-level could be established. Follow up by repeated estimations revealed a parallelism between the severity of the symptoms and the serum iron levels.

Card 2/2

ABATUROVA, Ye.A.; SVIRIDOV, N.K.; YELPAT'YEVSKAYA, G.N.; ZUYKOVA, Ye.A.

Clinicohematological, biochemical and morphological changes in the recovery period during therapy of radiation sickness. Biul. eksp. biol. i med. 58 no.8:34-39 Ag '64.

(MIRA 18:3)

1. Radiologicheskiy otdel (zav. - prof. A.V. Kozlova) Nauchno-issledovatel'skogo rentgeno-radiologicheskogo instituta (dir. - prof. I.G. Iagunova) Ministerstva zdravookhraneniya RSFSR. Submitted Sept. 14, 1963.

YELPAT'YEVSKAYA, G.N. (Moskva)

Age factor in occupational influence of ionizing radiation. Trudy TSentr. nauch.-issl. inst. rentg. i rad. 11 no.1:42-46 '64. (MIRA 18:11)

1. YELPAT'YEVSKAYA, Kamysheva V.G.

2. USSR (600)

4. Foraminifera-Volga Valley

7. New data on the range of Oligocene deposits in the lower Volga region based on the foraminiferous fauna., Dokl.AN SSSR, 87, No.2, 1952

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

USSR/Electricity / Semiconductors

Abs Jour : Ref Zhur - Fizika, No 3, 1957, No 7031

Author : Ablova, M.S., Yelnet'yevskaya, O.D., Regel', A.R.

Title : Electric Conductivity of Germanium-Silicon Alloys in Liquid State.

Orig Pub : Zh. tekhn. fiziki, 1956, 26, No 6, 1366-1368

Abstract : Investigation results are given on the electric conductivity of germanium-silicon alloys at high temperatures. Measurements were made in vacuum with the application of the method of rotating magnetic fields. The dependences of the width of the forbidden zone, of the value of the jump in electric conductivity upon melting, and of the maximum electric conductivity in the liquid state on the percentage ratio of the alloy component are all given.

Card : 1/1

ELPAT'EVSKAYA, O.D.

SUBJECT USSR / PHYSICS CARD 1 / 2 PA - 1554
AUTHOR ELPAT'EVSKAJA,O.D., KONOKOVA,R.A., REGEL',A.R., JAVORSKIJ,I.V.
TITLE On the Stability of the Crystalline Structure of the System of the Solid Solutions HgSe - HgTe.
PERIODICAL Zurn.techn.fis, 26, fasc.10, 2154-2156 (1956)
Issued: 11 / 1956

The cast samples of HgSe and HgTe and their solid solutions were, as usual, produced by melting the initial components in evacuated quartz ampules. Also the further treatment of the samples is described. These solid solutions are characterized by a great mobility of their current carriers (up to 15.000 $cm^2/V.sec$) and maximum mobility is attained by the solid solution with 50% HgSe and 50% HgTe. X-ray investigations of structure were carried out in the case of cast and powdery samples with DEBYE'S powder method, but in the case of film-like samples the grinding method was employed. The constants of the crystal structure measured are shown in a table.

Conclusions: Annealing changes the constant of crystal structure in the HgSe-HgTe system only little, and the structure itself is left unchanged. The samples of HgSe and HgTe obtained by the simple mechanical mixing of components have the same crystal structure as the cast samples with the same composition. In the films of the HgSe-HgTe system a structure with the same parameters as in the cast samples is found, no matter whether they are transparent or not. Thus the films are distinguished in structure apparently only by the "size of grain". HgSe proved to be a very stable compound. Even at a sublimation temperature of

Zurn.techn.fis,26, fasc.10, 2154-2156 (1956) CARD 2 / 2 PA - 1554

500°C sublimation takes place (if the lattice parameters of the obtained film and electric properties are taken as a basis) without any noticeable dissociation. HgTe turned out to be less stable than HgSe. Already at an evaporation temperature of 320° the parameters of the crystal lattice of the obtained film change noticeably. This is in agreement with the test results obtained by BRIDGMAN, according to which HgTe is the only substance that is dissociated at a pressure of 15000 atm and at a temperature of 20° C. The films of the solid solutions, which contain a large quantity of HgTe, are thermally less stable than the HgSe films. The films which are transparent in the optical spectral range have a crystalline but finely dispersive structure, which is confirmed by the data of electronographical analysis.

INSTITUTION:

YELPATYEVSKAYA, O.D.

CARD 1 / 2 PA - 1680

SUBJECT USSR / PHYSICS
AUTHOR ELPAT'EVSKAJA,O.D., REGEL',A.R.
TITLE On Some Possibilities of Measuring a Magnetic Field Strength with Thin-Film-Like Donors of HALL'S Electromotoric Force produced from HgSe, HgTe and their Solid Solutions.

PERIODICAL Žurn.techn.fis, 26, fasc.11, 2432-2438 (1956)
Issued: 12 / 1956

Summary: In the thin films of HgSe the mobility of electrons at room temperature attains 3000 $cm^2/V.sec$. The concentration of the current carriers can, on this occasion, amount to from 10^{18} to 10^{17} cm^{-3}. Thin films having such properties permit the production of donors of electromotoric force, the sensitivity of which approaches that of donors of Ge- and InSb-monocrystals. Similar results are obtained also with thin films of the solid solutions HgSe - HgTe. The donors of HALL'S electromotoric force produced here had a sensitivity of from 20 to 40 microvolts/Ørstedt (at a width of 1 cm), and in certain cases up

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YELPAT'YEVSKAYA, O.D

AUTHORS: Yelpat'yevskaya, O. D., Perchuk, V. A. 57-27-7-27/40

TITLE: Oscillographic Measurement of the Electromagnetic Moment of a Direct-Current Motor With the Aid of Film Transmitters of the Hall-EMF (Ostsillografirovaniye elektromagnitnogo momenta elektrodvigatelya postoyannogo toka s pomoshch'yu plenochnykh datchikov eds Kholla).

PERIODICAL: Zhurnal Tekhnicheskoy Fiziki, 1957, Vol. 27, Nr 7, pp. 1595-1596 (USSR)

ABSTRACT: Not monocrystals but thin semiconductor-films of mercury selenide or mercury telluride were here used as sensitive transmitters of the Hall-EMK. The magnetic permeability of the air was assumed equal to one. At first only one film was used, as the authors assumed that below the center of the pole shoe the magnetic induction is proportional to the total magnetic flux. But as this is not accurate the attempt was made, for the purpose of obtaining exacter measurements, to perform an approximate integration of the magnetic flux according to one of the mathematical formula with the aid of several transmitters that were fixed along the pole and connected with the battery. It is assumed that the error

Oscillographic Measurement of the Electromagnetic Moment of a Direct-Current Motor With the Aid of Film Transmitters of the Hall-EMF

57-27-7-27/40

of measurement is not above 5 %. Satisfactory results were already obtained with three film transmitters. The tests made show the possibility of the use of thin semiconductor-films in the measurement of the electromagnetic moment of a direct-current motor in the case of transition- and static methods of operation.
There are 3 references, all of which are Slavic.

ASSOCIATION: Institute for Semiconductors AS USSR, Leningrad
(Institut poluprovodnikov AN SSSR, Leningrad)

SUBMITTED: February 15, 1957

AVAILABLE: Library of Congress

Card 2/2

1. Electric motors (D.C.)-Electromagnetic moment-Measurement
2. Oscillorgraphs-Applications 3. Semiconductor-films-Applications
4. Mercury selenide-Applications 5. Mercury telluride-Applications

ELPAT'YEVSKAYA, O.D.

SUBJECT USSR / PHYSICS CARD 1 / 2 PA - 1949
AUTHOR ELPAT'EVSKAJA,O.D., REGEL',A.R.
TITLE Some Special Features of the Electric Properties of HgSe- HgTe-Films.
PERIODICAL Žurn.techn.fis,27,fasc.1, 45-50 (1957)
Issued: 2 / 1957

At first a survey of the present stage of the problem is given. Dealing with the entire system of solid solutions HgSe-HgTe, the authors dealt with the closest attention with the properties of HgSe films, because they have formed the subject of the most intense study. The properties of the films of the entire system of the firm solutions HgSe - HgTe are essentially similar to the properties of HgSe films. The electric conductivity and the HALL effect of a group of transparent HgSe films (thickness from 0,1 to 6 microns) were measured. The films were produced by evaporation (in a vacuum) on a base of quartz, glass, mica, farfor, organic glass or getenacs (probably a material similar to farfor ?). The material of these bases exercised but little influence on the properties of the films, and further glass and mica were mainly used as material for these bases. Electrodes of copper or silver were at first fixed on these bases, after which they were electrolytically coated with nickel or platinum.
There follow some remarks concerning stability and reproducibility of results, as well as remarks on some peculiar features of the structure of the films. The following results were obtained from these investigations: The HgSe-HgTe films obtained by evaporation in a vacuum, in air and in steam differ only little with

Zurn.techn.fis,27.fasc.1,45-50 (1957) CARD 2 / 2 PA - 1949

respect to their properties. According to the temperature of the base and the forming velocity of the layer it is possible to obtain two basic types of HgSe-HgTe films, namely transparent and untransparent films. In transparent films the dimensions of crystallites are smaller than in untransparent ones, and also amorphous intermediary layers or a considerable deficiency of the crystals are possible. Untransparent films have characteristics which are similar to those of cast samples. The concentration of the carriers in these films is usually lower by one order than in the case of cast (films ?), and mobility is from three to six times as low. The electric characteristics of transparent films are distinguished from the properties of untransparent films mainly by a decrease of the mobility of current carriers by one order of magnitude, which is in agreement with the usual correlation between the structure and the mobility of the carriers. Transparent HgSe - HgTe films at the same time have considerable conductivity, which may be of practical interest. It is possible to produce untransparent films which are suited for measuring magnetic field strength on the basis of the HALL effect.

INSTITUTION: Institute for Semiconductors, Leningrad.

YELIPAT'YEVSKAYA, O.D., Cand Phys-Math Sci-- (diss) "Electrical properties of thin semiconductor films of ~~the~~ and HgSe--HgTe solutions and certain possibilities of their practical ~~def.~~ (application)." Len, 1958. 16 pp (Acad Sci USSR. Inst of Semiconductors), 175 copies. Bibliography: pp 15-16 (11,45-58, 141)

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24(6)

AUTHOR: Yelpat'yevskaya, O. D.

SOV/57-58-12-4/15

TITLE: Electrical Properties of Thin Films of a HgSe-HgTe System (Elektricheskiye svoystva tonkikh plenok sistemy HgSe-HgTe)

PERIODICAL: Zhurnal tekhnicheskoy fiziki, 1958, Nr 12, pp 2676-2683 (USSR)

ABSTRACT: It is shown that in thin layers of a system of solid solutions the maximum difference in the electric properties is observed in samples of HgSe and HgTe. The data for the intermediate compositions in the HgSe-HgTe system provide values for the electric properties that agree well with the properties of the system which forms a continuous series of solid solutions. The formation of solid solutions in the films was confirmed by an X-ray analysis. The mobility of the carriers in the films may be increased up to the values of the mobility in a monocrystal. The value of the mobility does not depend on the thickness of the film and on the character of the scattering at the boundary of the films (the Fuchs-Sondheimer (Fuks - - Zondgeymer) theory not being applicable in this case) but depends on the size and the degree of imperfection of the crystallites which constitute the sample. In the course of the selection of conditions of production mercury selenide layers

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with a Hall (Kholl) constant and a concentration that practically do not depend on the temperature may be obtained. This fact offers a possibility of producing Hall e.m.f. donors with characteristics that in the domain from -200 to +60-80°C and in some cases up to 100°C are independent of temperature. In a number of cases the temperature constancy of the donors may be decisive. Also films exhibiting a temperature coefficient of the resistance practically equalling zero in the range from -200 to +80°C may be produced. The head of the laboratory Anatoliy Robertovich Regel', Doctor of Physical and Mathematical Sciences, showed constant interest in the work. There are 6 figures and 17 references, 11 of which are Soviet.

ASSOCIATION: Institut poluprovodnikov AN SSSR Leningrad (Institute of Semiconductors AS USSR Leningrad)

SUBMITTED: May 28, 1958

SOV/105-58-7-7/32

AUTHORS: Yelpat'yevskaya, O. D., Engineer,
Perchuk, V. A., Engineer (Leningrad)

TITLE: Oscillographing the Electromagnetic Moment in Electric Direct Current Machines by Means of the Hall Effect in Semi-Conductors (Ostsillografirovaniye elektromagnitnogo momenta v elektricheskikh mashinakh postoyannogo toka s pomoshch'yu effekta Kholla v poluprovodnikakh)

PERIODICAL: Elektrichestvo, 1958, Nr 7, pp. 31 - 35 (USSR)

ABSTRACT: Thin mercury selenide films which were applied on to a mica base, were used for the measuring of the magnetic field in the air gap of the electromotor. The most important advantages offered compared to monocrystalline transmitters are the elasticity of the film transmitters and their thinness. Production of the film transmitters of Hall's (Goll) electromotive force and the manner of mounting them on the pole of the electromotor are described. The measuring method, zero compensation and the tuning of the transmitters are described. Special methods of compensation are applied. Zero compensation is carried out here by means of

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selection of resistances connected between one of the current- -method and one of the Hall-method. The interferences are investigated and two ways for reducing the influence of the electromotive force of the mutual induction are shown: 1)Increase in the sensitiveness of the film transmitters and 2) Introduction of a filtrating coil into the Hall circuit. The results obtained by tests are summarized as follows: 1) Oscillographing of the electromagnetic moment of a direct current motor according to the method of the Hall effect in semi-conductor films is possible on principle and gives sufficiently accurate practical results. 2)The semi-conductor transmitters of the Hall e.m.f. are inertialess and the inertia with oscillographing is determined exclusively by the vibrator-characteristics in the case of lacking of a polishing filter. 3) The transmitters of Hall's e.m.f. (electromotive force)are simple with respect to their manufacturing method and can be produced in laboratories. 4) Mounted on electromotors they can be used for years. The sensitiveness of the transmitters changes at most for 10%. 5) They can be used tightly sealed and in a humid medium. 6) According to this method, the electromagnetic moment of the electromotor

can be measured both with dynamic and static operation. 7) Hall's electromotive force can be applied as continuous electrical factor systems of automatic regulation. 8) The methods of approximated integrating of the magnetic flux can be applied for the measurement of the summary value of the fields which are nonuniform with respect to their longitudinal direction - on important surface. 9) The method of oscillographing the electromagnetic moment by means of film-shaped Hall-transmitters may be applied with both synchronous and asynchronous machines. A.R.Regel',Doctor of Physico-Mathematical Sciences and I.A. Matus, Engineer, have been interested in the work. N.A.Bezobrazov rendered technical assistance in carrying out the tests. There are 5 figures, 1 table, and 11 references, 6 of which are Soviet.

SUBMITTED: September 19, 1957

Oscillographing the Electromagnetic Moment in Electric Direct Current Machines by Means of the Hall Effect in Semi-Conductors SOV/105-58-7-7/32

1. Semiconductors--Applications 2. Oscillographs--Test methods 3. Generators (D. C.)--Electromagnetic properties

Card 4/4

24(6)

AUTHOR: Yelpat'yevskaya, O. D. SOV/57-58-12-3/15

TITLE: On the Formation Mechanism of Thin Layers of Mercury Selenide and Mercury Telluride (O mekhanizme obrazovaniya tonkikh sloyev selenida i tellurida rtuti)

PERIODICAL: Zhurnal tekhnicheskoy fiziki, 1958, Nr 12, pp 2669-2675 (USSR)

ABSTRACT: According to the investigation carried out in this paper the following is stated: 1) Thin layers of mercury selenide and mercury telluride (obtained by means of thermal evaporation) are produced only at certain temperatures of evaporation and of the support. 2) If the temperature of the support is below -30°C layers enriched with mercury are forming. This proves that the HgSe and HgTe molecules partly disintegrate when vaporized in vacuum. 3) If in the synthetization an optimum regimen is obeyed layers exhibiting properties that approximate the properties of the cast samples are obtained. The maximum mobility in HgSe films amounts to 4000 $cm^2/V.sec$, in HgTe films 6000 $cm^2/V.sec$. Therefore in the selection of the production method it is possible to reduce the imperfections in the crystal lattice in thin HgSe and HgTe layers. 4) An overheating of the support during the spraying and the subsequent annealing

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leads to a deterioration of the properties of the film: An increase in the concentration of the carriers and a decrease in their mobility. This may be connected either with the occurrence of intercrystalline interlayers offering increased resistance to recrystallization, or a partial vaporization of the film during the annealing in vacuum. 5) The reduction of the imperfections in the crystallites constituting the film leads not only to a change of the electrical but also of the optical properties of the layers. 6) The synthetization of HgSe-HgTe layers exhibiting a mobility approximating the mobility of a cast sample permits to draw the conclusion that the production of films of other semiconductors with characteristics similar to the characteristics of the monocrystals of the same substances is also quite possible. The head of the laboratory A. R. Regel', Doctor of Physical and Mathematical Sciences, showed constant interest in the work. There are 7 figures, 3 tables, and 13 references, 6 of which are Soviet.

On the Formation Mechanism of Thin Layers of Mercury Selenide and Mercury Telluride SOV/57-58-12-3/15

ASSOCIATION: Institut poluprovodnikov AN SSSR Leningrad
(Institute of Semiconductors AS USSR Leningrad)

SUBMITTED: May 28, 1958

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SOV/57-28-9-23/33

AUTHORS: Yelpat'yevskaya, O. D., Matus, I. A., Perchuk, V. A.

TITLE: Oscillographing the Electromagnetic Moment of Alternating Current Machines With Hall-EMF Battery Transmitters (Ostsillografirovaniye elektromagnitnogo momenta elektricheskikh mashin peremennogo toka s pomoshch'yu plenochnykh datchikov eds Kholla)

PERIODICAL: Zhurnal tekhnicheskoy fiziki, 1958, Vol 28, Nr 9, pp. 2019-2021 (USSR)

ABSTRACT: This is a report on the generalization of the battery method to alternating current machines. In references 7 and 8 methods were published permitting the /measurement of the/ electromagnetic moment of d.c. machines by means of Hall-(Kholl) EMF battery transmitters and to produce oscillograms. The following theoretical considerations were the premise for this generalization: It can be shown that the electromagnetic moment of a.c. machines is proportional to $M_e = k(i_A \Phi_B - i_B \Phi_A)$, where M_e denotes the electromagnetic moment of the machine, k a proportionality factor, i_A and i_B the instantaneous current values in the phase A and B, respectively, and Φ_A and Φ_B the instantaneous values of

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Oscillographing the Electromagnetic Moment of Alternating Current Machines With Hall-EMF Battery Transmitters

the magnetic fluxes in each phase which are generated by the phases A and B. In order to obtain the instantaneous values of the magnetic fluxes in each phase the Hall-EMF film batteries were placed symmetrically at the inner stator surface in the (longitudinal) magnetic axes of the respective phases. The number of cells in the battery is determined by the requirement to exclude the highest harmonics of the rotating magnetic field and is dependent upon the winding lay-out of the machine. In this investigation each battery consisted of three Hall-EMF transmitters. They were placed each at an angle of 60 electric degrees. The middle transmitter was located immediately at the phase axis. In order to exclude the first harmonic of the component of the rotating electromagnetic field such a current was admitted by the middle transmitter of each battery as to raise the sensitivity of this transmitter (such a distribution of the sensitivities follows from the Fourier (Fur'ye) formula) to twice that of the side transmitters. If the transmitters are placed in such a way the instantaneous values of the projection of the vector $\bar{\Phi}$ of the first harmonic of the rotating magnetic field upon the corresponding axis are measured, that is to say

Oscillographing the Electromagnetic Moment of Alternating Current Machines With Hall-EMF Battery Transmitters

the instantaneous values of the flux coupled with the winding of the respective phase. These quantities are multiplied by the instantaneous values of the phase currents. When two transmitter outputs are counterbalanced the alternating components of the Hall-EMF cancel whereas the constant components add and provide signals proportional to the electromagnetic moment. It is necessary to use batteries with an equal overall sensitivity. At present a study is being made to reduce the noise to a minimum, and to design a filter with a narrow resonance band. Detailed results of this paper and the description of the method will be published later. The Head of the Laboratory A. R. Regel' discussed the work with the authors. V. N. Yeremeyeva and A. P. Ivanov assisted in the technicalities of the experiments. There are 1 figure and 10 references, 4 of which are Soviet.

ASSOCIATION: Institut poluprovodnikov AN SSSR, Leningrad (Institute of Semiconductors, AS USSR, Leningrad)

3(2), 8(5) SOV/105-59-2-12/25

AUTHORS: Yelpat'yevskaya, O. D., Candidate of Physical-Mathematical Sciences, Matus, I. A., Engineer, Perchuk, V. A., Engineer

TITLE: How to Take Electromagnetic Torque Oscillograms of A.C. Electrical Machines Using Hall-Effect EMF Transmitters (Ostsillografirovaniye elektromagnitnogo momenta elektricheskikh mashin peremennogo toka s pomoshch'yu datchikov e.d.s. Kholla)

PERIODICAL: Elektrichestvo, 1959, Nr 2, pp 48-52 (USSR)

ABSTRACT: The use of batteries of film transmitters of the Hall emf for taking electromagnetic torque oscillograms of a.c. motors (Ref 9) is described. This torque is proportional to the difference of formula (1). According to (1) the batteries of the Hall emf transmitters are mounted in a recess in the stator. Each of them is situated symmetrically in relation to the magnetic longitudinal axes of any two phases of the stator winding. At such a transmitter position the vector of the rotating magnetic field is recorded by each transmitter battery in the form of a projection on the magnetic axis of the corresponding phase. If currents that are proportional to the currents in the opposite phases are circulated through the batteries and the Hall outputs are connected in series

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How to Take Electromagnetic Torque Oscillograms of A.C. Electrical Machines Using Hall-Effect EMF Transmitters

a Hall emf is attained, at the total output of the battery, of a value proportional to the instantaneous value of the electromagnetic torque of the electric motor as may be seen from formula (1). The elimination of the first harmonic of the rotating magnetic field takes place in accordance with the method of the harmonic analysis according to the Perri formulae (Ref 10). The choice of the number of transmitters in each battery depends on the winding data of the machine and on the necessity of eliminating the highest harmonics of the magnetic field up to the harmonics of sufficiently high order. The transmitters in each battery must be evenly spaced. The two possible cases are indicated. The utmost accuracy is achieved when the transmitter is mounted on each tooth on the length of a pole pitch. The transmitters are supplied by current transformers connected to the phases A and B. Gives feeding and positioning the transmitters. The disturbances are investigated. In spite of all tests parasitic emfs and the emf of the mutual inductance appear. The first mentioned ones require the insertion of filters into the Hall circuit. Summarizing the following is stated: Measuring the electro-

How to Take Electromagnatic Torque Oscillograms of A.C. Electrical Machines Using Hall-Effect EMF Transmitters

magnetic torque by means of film transmitters of the Hall emf can be done by using the above described method at synchronous and induction machines. Calculation of the deviation of the beam at static operation have shown that the error did not exceed 5%. For practical measurements 3 (in some cases even 2) transmitters per battery are sufficient and give thoroughly acceptable results. The signal of the electromagnetic torque can be used as electrical quantity in systems of automatic control. A. R. Regel' discussed the work with the authors. V. N. Yeremeyeva and L. P. Ivanov assisted the work in technical respect. There are 5 figures, 2 tables, and 11 references, 7 of which are Soviet.

SUBMITTED: November 18, 1957

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S/275/63/000/003/014/021
A052/A126

AUTHOR: Yelpat'yevskaya, O.D.

TITLE: Properties of film pickups of Hall e.m.f. and their application to measuring magnetic flux

PERIODICAL: Referativnyy zhurnal, Elektronika i yeye primeneniye, no. 3, 1963, 31 - 32, abstract 3B208 (In collection: Elektroprivod i avtomatiz. prom. ustanovok. Moscow-Leningrad, Gosenergoizdat, 1960, 467 - 469)

TEXT: Hall e.m.f. pickups have been developed on the base of thin polycrystalline mercury selenide and telluride layers. Thin films are applied to insulating mica sublayers by means of thermal vacuum evaporation. The sensitive-layer thickness ranges from tenths to tens of a micron. By their properties Hall film pickups are not inferior to those of the single-crystal type: the sensitivity under no-load conditions approaches that of standard Hall oscillators made of InAs single-crystals and manufactured at present by Siemens (FRG); 2) Hall's e.m.f. temperature coefficient for HgSe pick-

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ups makes up 0.3 - 0.047% per 1°C; 3) Hall film pickups have a better Hall e.m.f. linearity and a lower dependence of resistance on magnetic field strength; 4) small thickness and flexibility of the Hall pickups make it possible to measure magnetic fields in narrow gaps. On the basis of Hall film pickups a new method of approximate integration and harmonic analysis of magnetic flux of nonuniform constant and variable longitudinally uniform magnetic fields by means of a Hall pickup battery has been developed and realized.

I.B.

[Abstracter's note: Complete translation.]

YELPAT'YEVSKIY, A. N.

"Application of the Variational Method of Prof V. Z. Vlasov to the Calculation of Thin-Walled Elements in High Buildings." Cand Tech Sci, Moscow Order of Labor Red Banner Construction Engineering Inst imeni V. V. Kuybyshev, Min Higher Education USSR, Moscow, 1954. (KL, No 3, Jan 55)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (12)

SO: SUM No. 556, 24 Jun 55

SOV/24-58-8-19/37

AUTHORS: Yelpat'yevskiy, A. N. and Konovalov, B. A. (Moscow)

TITLE: The Application of a Variational Method to Calculations for Conical Shells (Primeneniye odnogo variatsionnogo metoda k raschetu konicheskikh obolochek)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1958, Nr 8, pp 106-111 (USSR)

ABSTRACT: The method is applicable to shells of small apex angle. The standard shell is assumed to have constant thickness. The work is based on the variational method which V. Z. Vlasov developed for prismatic shells. Equations are obtained from which it is possible to improve the solution obtained by assuming plane cross-sections. By representing the longitudinal and transverse displacements in the form of several terms in which the first terms correspond to the hypothesis of plane cross-sections, a solution can be obtained which more accurately describes the stressed and deformed state of the type of shell

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SOV/24-58-8-19/37

The Application of a Variational Method to Calculations for Conical Shells

under discussion.
There are 4 figures and 1 Soviet reference.

SUBMITTED: February 28, 1958

1. Conical shells--Mathematical analysis

Card 2/2

SOV/24-58-9-27/31

AUTHORS: Yelpat'yevskiy, A.N. and Silkin, Ye.I.

TITLE: ~~Bimoment Theory of Three~~-dimensional Stressing of Thin-walled Shipbuilding Structures (Bimomentnaya teoriya prostranstvennoy raboty tonkostennykh sudostroitel'nykh konstruktsiy)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1958, Nr 9, pp 147 - 150 (USSR)

ABSTRACT: It is known that torsion in the hulls of cargo ships is important in calculating their strength, expecially for ships having large open hatches. The generalised torsion of a ship may also be accompanied by appreciable normal stresses. In the present paper, two computational schemes are used to assess the torsional and associated normal stresses:
a) the hull is regarded as a thin-walled rod strengthened by planking which acts as the section of deck between the hatches; the calculation is carried out in accordance with the theory of thin-walled rods (Ref 1);
b) the hull is regarded as a thin-walled three-dimensional shell of partly open and partly closed profile; the calculation is carried out by a

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Bimoment Theory of Three-dimensional Stressing of Thin-walled Shipbuilding Structures

variational method (Ref 2). The following conclusions are drawn:
1) The normal stresses in constrained torsion are considerable. 2) Both calculations give normal stresses of approximately the same order but the stress distributions along the hull and over the cross-section are different. 3) The second computational scheme is more general and can be recommended for vessels having different sizes and forms of hatches. 4) The first scheme can only be recommended for long ships with narrow sections between hatches.
There are 12 figures and 2 Soviet references.

SUBMITTED: June 4, 1957

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SOV/24-58-12-23/27

AUTHOR: Yelpat'yevskiy, A.N. (Moscow)

TITLE: Dynamical Calculations on a Rectangular Plate Lying on a Single-Layer Elastic Base (Dinamicheskiy raschet pryamougol'noy plity, lezhashchey na odnosloynom uprugom osnovanii)

PERIODICAL: Izvestiya Akademii Nauk, Otdeleniye Tekhnicheskikh Nauk, 1958, Nr 12, pp 136-140 (USSR)

ABSTRACT: The problem is formulated as follows. At time $t = 0$ an external concentrated force $P(t)$ is applied to the surface of the plate at the point x_0, y_0 (see Fig.1). The force $P(t)$ is of the form

$P(t) = \text{const} \quad (0 \leqslant t \leqslant \tau) \qquad P(t) = 0$ (at all other times).

As a result of the sudden application of the external load the plate will vibrate. During $0 \leqslant t \leqslant \tau$ the vibrations will continue under the action of $P(t)$ and later the plate will execute free vibrations. The present paper is concerned with the derivation of

Card 1/2 expressions for the bending moments and transverse

Dynamical Calculations on a Rectangular Plate Lying on a Single-Layer Elastic Base

stresses which act upon the plate during the oscillations. There are 2 figures, 1 table and 1 Soviet Reference.

SUBMITTED: 26th March 1958.

YELPAT'YEVSKIY, A.N.

PHASE I BOOK EXPLOITATION SOV/4531

Akademiya nauk SSSR. Institut mekhaniki

Inzhenernyy sbornik, tom 26 (Engineering Symposium, Vol. 26) Moscow, 1958. 286 p. 2,400 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Otdeleniye tekhnicheskikh nauk. Institut mekhaniki.

Resp. Ed.: A. A. Il'yushin; Ed.: G. I. Pshenichnov; Tech. Ed.: R. M. Lerman.

PURPOSE: This book is intended for engineers.

COVERAGE: The book contains 29 articles dealing with professional work performed by mechanical engineers, such as the calculations of shells, rods, and plates, and solutions of problems in stress distribution and equilibrium. Oscillations (including flutter) and deformation of shells, equilibrium of shell panels, rods and solids, stability of rods, plates, frame and other members, stress concentration, and bending are discussed. Oscillations of aircraft wings are studied. References accompany each article.

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Yelpat'yevskiy, A.N.

PHASE I BOOK EXPLOITATION SOV/5862

Raschety na prochnost'; konstruktsionnyye issledovaniya prochnosti mashinostroitel'nykh konstruktsiy; sbornik statey, vyp. 5 (Strength Analysis; Theoretical and Experimental Investigations of the Strength of Machine Elements; Collection of Articles, No. 5) Moscow, Mashgiz, 1960. 298 p. Errata slip inserted. 5,000 copies printed.

Ed.: V.S. Ayrton, Candidate of Technical Sciences; Ed. of Publishing House: L.S. Bandlov; Tech. Ed.: B.I. Kodel'; Managing Ed. for Literature on General Technical and Transport Machine Building (Mashgiz): A.P. Kozlov, Engineer; Editorial Board: G.S. Glushkov, Doctor of Technical Sciences, Professor; V.M. Makushin, Candidate of Technical Sciences, Docent (Secretary); S.D. Ponomarev, Honored Scientist and Technologist of the RSFSR, Doctor of Technical Sciences, Professor; S.V. Serensen, Member of the Academy of Sciences UkrSSR, Doctor of Technical Sciences, Professor; S.S. Solntsev, Doctor of Technical Sciences, Professor; N.D. Turbanov, Doctor of Technical Sciences, Professor; and Ye.A. Tikhomirov, Honored Scientist and Technologist of the RSFSR, Professor (Chairman).

PURPOSE: The book is intended for engineers and scientists specializing in stress analysis.

COVERAGE: This collection of 15 articles deals with the design and calculation of machine elements for strength, rigidity, and stability. The collection is divided into two sections: 1) calculation for strength, 2) stress and strain analysis, and 3) calculation for stability. Methods and formulas for calculating strength parameters are presented. No personalities are mentioned. References follow several of the articles.

24.4200 [illegible] 2607, 1327

27802

S/508/60/028/000/018/022
D251/D305

AUTHOR: Yelpat'yevskiy, A.N. (Moscow)

TITLE: On calculating cantilever plates by the variation method of V.Z. Vlasov

PERIODICAL: Akademiya nauk SSSR. Otdeleniye tekhnicheskikh nauk. Inzhenernyy sbornik, v. 28, 1960, 212 - 219

TEXT: The author considers an elastic cantilever plate of arbitrary contour, and finds a solution by the energy method of Lagrange, with the bending function in the form derived by V.Z. Vlasov. A thin plate with initial rigidity D = const in a rectangular system of coordinates is considered, under the action of an arbitrary transverse load q = q(x, y). Lagrange's equation is

$$\delta\vartheta = \delta U + \delta T = 0 \qquad (1)$$

where δU is the variation in the potential energy of the internal forces, and δT is the variation of the energy of the external forces. Following L.S. Leybenzon, one obtains

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On calculating cantilever ...

$$\iint_{\Omega} (D\nabla^2\nabla^2 w - q)\delta w dx dy - \oint [M_n \frac{\partial}{\partial n}(\delta w) - Q_n \delta w + H_n \frac{\partial}{\partial s}(\delta w)] ds = 0 \quad (3)$$

and hence, integrating by parts

$$\oint H_n \frac{\partial}{\partial s}(\delta w)\, ds = \oint d(H_n \delta w) - \oint \frac{\partial H_n}{\partial s} \delta w ds. \quad (4)$$

If the contour is smooth, the first term of the right-hand-side vanishes, otherwise, the integral at the angular points is considered in the sense of the Stil't'yes integral, and one obtains

$$\iint_{\Omega} (D\nabla^2\nabla^2 w - q)\,\delta w\, dx\, dy - \oint \Big[M_n \frac{\partial}{\partial n}(\delta w) - \Big(Q_n + \frac{\partial H_n}{\partial s}\Big)\delta w \Big] ds + \sum_{i=1}^{m} (H_{i+} - H_{i-})\,\delta w_i = 0. \quad (6)$$

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On calculating cantilever ...

[Abstractor's note: Symbols not explained]. Writing (6) in Vlasov's form, the bending function w(x, y) is obtained in the form

$$w(x, y) = \sum_{j=1}^{k} W_j(y)\, \varphi_j(x, y). \qquad (7)$$

The variation of this function equals

$$\delta w = \varphi_k(x, y)\delta W_k(y). \qquad (8)$$

Hence Vlasov's variation equation is derived

$$\sum_{j=1}^{k} (a_{jk}W_j^{IV} + t_{jk}W_j''' + b_{jk}W_j'' + f_{jk}W_j' + c_{jk}W_j - G_k) = 0, \qquad (12)$$

where the coefficients are given by

$$a_{jk} = \int_{a_1}^{a_2} \varphi_j \varphi_k\, dx,\ t_{jk} = 4\int_{a_1}^{a_2} \frac{\partial \varphi_j}{\partial y}\, \varphi_k\, dx, \qquad (13)$$

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On calculating cantilever ...

$$b_{jk} = \int_{a_1}^{a_2} \left(6 \frac{\partial^2 \varphi_j}{\partial y^2} \varphi_k - 2 \frac{\partial \varphi_j}{\partial x} \frac{\partial \varphi_k}{\partial x} \right) dx + \left| \frac{\partial \varphi_j}{\partial x} \varphi_k + \mu \varphi_j \frac{\partial \varphi_k}{\partial x} \right|_{a_1}^{a_2},$$

$$f_{jk} = \int_{a_1}^{a_2} \left(4 \frac{\partial^2 \varphi_j}{\partial y^2} \varphi_k - 4 \frac{\partial^2 \varphi_j}{\partial x \partial y} \frac{\partial \varphi_k}{\partial x} \right) dx + \left| 2 \frac{\partial^2 \varphi_j}{\partial x \partial y} \varphi_k + 2\mu \frac{\partial \varphi_j}{\partial y} \frac{\partial \varphi_k}{\partial x} \right|_{a_1}^{a_2}, \quad (13)$$

$$c_{jk} = \int_{a_1}^{a_2} \left(\frac{\partial^4 \varphi_j}{\partial y^4} \varphi_k - 2 \frac{\partial^3 \varphi_j}{\partial x \partial y^2} \frac{\partial \varphi_k}{\partial x} + \frac{\partial^2 \varphi_j}{\partial x^2} \cdot \frac{\partial^2 \varphi_k}{\partial x^2} \right) dx +$$

$$+ \left| \frac{\partial^3 \varphi_j}{\partial x \partial y^2} \varphi_k + \mu \frac{\partial^2 \varphi_j}{\partial y^2} \frac{\partial \varphi_k}{\partial x} \right|_{a_1}^{a_2},$$

$$G_k = \frac{1}{D} \int_{a_1}^{a_2} q(x, y) \varphi_k dx.$$

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On calculating cantilever ...

The bending moment M_y, the transverse form Q_y and the torque H_n are given by

$$\left.\begin{aligned}
M_y &= -D\sum_{l=1}^{k}\left[\frac{\partial^2 W_l}{\partial y^2}\varphi_l + 2\frac{\partial W_l}{\partial y}\cdot\frac{\partial \varphi_l}{\partial y} + W_l\left(\frac{\partial^2 \varphi_l}{\partial y^2} + \mu\frac{\partial^2 \varphi_l}{\partial x^2}\right)\right],\\
Q_y &= -D\sum_{l=1}^{k}\left[\frac{\partial^3 W_l}{\partial y^3}\varphi_l + 3\frac{\partial^2 W_l}{\partial y^2}\frac{\partial \varphi_l}{\partial y} + \frac{\partial W_l}{\partial y}\left(3\frac{\partial^2 \varphi_l}{\partial y^2} + \frac{\partial^2 \varphi_l}{\partial x^2}\right) + \right.\\
&\qquad \left. + W_l\left(\frac{\partial^3 \varphi_l}{\partial y^3} + \frac{\partial^3 \varphi_l}{\partial y \partial x^2}\right)\right],\\
H_y &= D(1-\mu)\sum_{l=1}^{k}\left(\frac{\partial W_l}{\partial y}\frac{\partial \varphi_l}{\partial x} + W_l\frac{\partial^2 \varphi_l}{\partial x \partial y}\right),\\
M_x &= -D\sum_{l=1}^{k}\left[\mu\frac{\partial^2 W_l}{\partial y^2}\varphi_l + 2\mu\frac{\partial W_l}{\partial y}\frac{\partial \varphi_l}{\partial y} + W_l\left(\mu\frac{\partial^2 \varphi_l}{\partial y^2} + \frac{\partial^2 \varphi_l}{\partial x^2}\right)\right],\\
H_n &= (M_y - M_x)\sin\alpha\cos\alpha - H_y(\cos^2\alpha - \sin^2\alpha).
\end{aligned}\right\} \qquad (14)$$

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D251/D305

On calculating cantilever ...

The author concludes by considering some special cases of the formulae. There are 3 figures.

SUBMITTED: May 15, 1959

Card 6/6

YELPAT'YEVSKIY, A.N. (Moskva)

Natural vibrations of prismatic shells of an airplane monocoque wing in a supersonic air flow. Inzh.zhur. 1 no.2:106-111 '61. (MIRA 14:12)

1. Institut mekhaniki AN SSSR.
(Airplanes--Wings--Vibration) (Aerodynamics, Supersonic)

10.6200

S/258/62/002/001/008/013
I028/I228

AUTHOR: Yelpat'yevskiy, A. N. and Vasil'yev, V. V. (Moscow)

TITLE: On the calculation of prismatic shells in stresses

PERIODICAL: Inzhenernyy zhurnal, v. 2, no. 1, 1962, 117–129

TEXT: A variational method, based on Castellano's principle of the continuity of deformation, is developed for the calculation of thin momentless multiple connected prismatic shells. The longitudinal normal stresses are expanded in series by functions depending on the contour coordinates. The least work principle is used for the determination of the coefficients of the series. The potential energy of deformation is represented in the form

$$U = \int_L \phi dz$$

ϕ being a function of these coefficients. The differential equations expressing the conditions of minimum of the functional are determined, together with those expressing the natural boundary conditions. These equations are solved for the particular case of a simple prismatic shell. The solution obtained is identical with the solution obtained by other authors by different means, and has the advantage of being more substantiated physically. There are 5 figures.

INSTITUTION: Institut mekhaniki AN SSSR i MAI (Institute of Mechanics AS USSR and MAI)

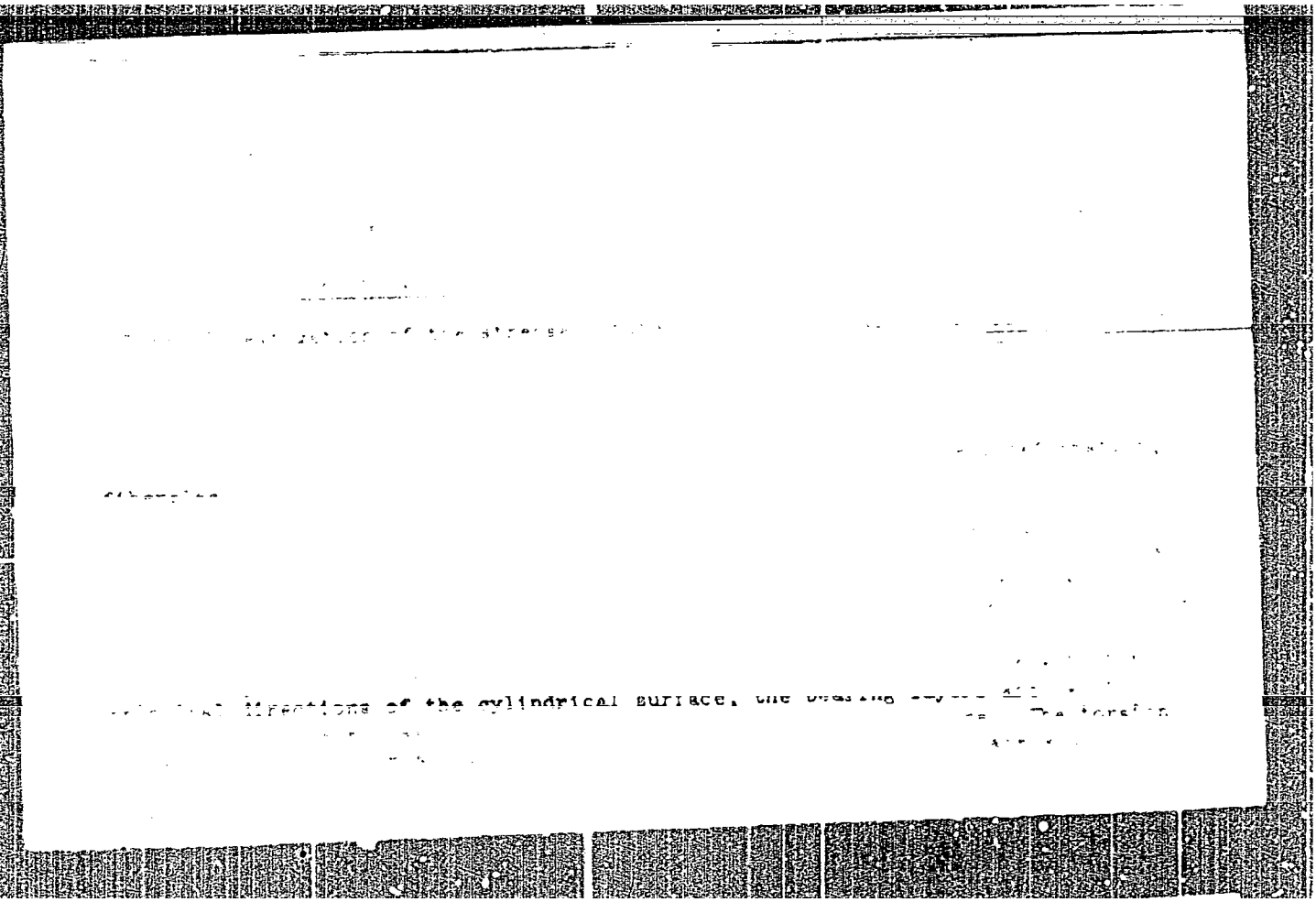
SUBMITTED: April 27, 1961

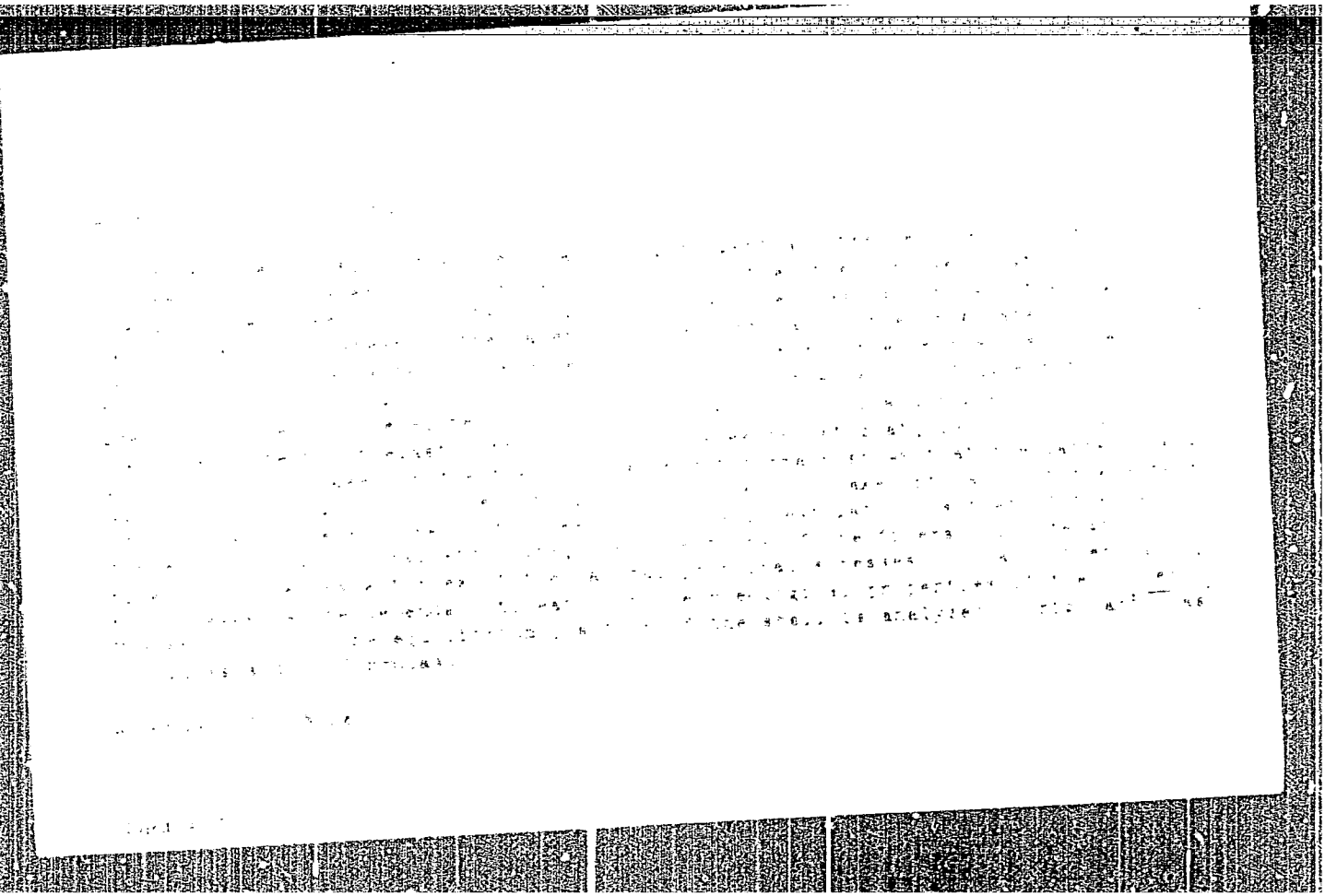
Card 1/1

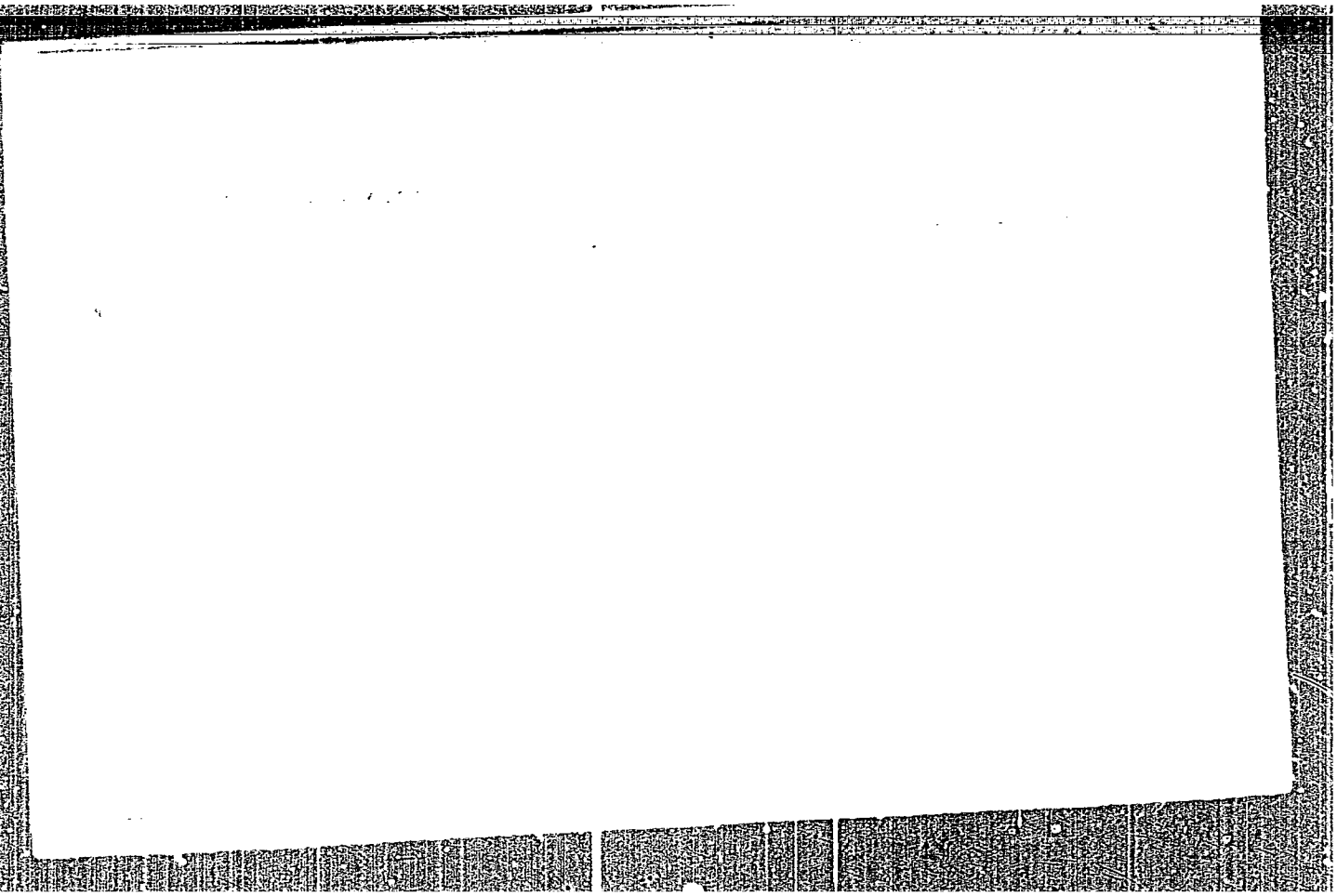
YELPAT'YEVSKIY, A.N. (Moskva)

Investigating the stressed state of a two-layer cylindrical shell. Inzh.zhur. 2 no.3:141-149 '62. (MIRA 15:8)

1. Institut mekhaniki AN SSSR.
(Elastic plates and shells)







APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001962610019-6"

YELPATYEVSKIY, D.V.

The feeding and pasturing of farm animals. Saratov. Saratovskoe obl. gos. izd-vo, 1950. 46 p.

DA

YELPAT'YEVSKIY, D.V., prof.

Generalized protein rations for farm animals. Trudy SZVI 11: 5-16 '62. (MIRA 16:7)

(Proteins) (Feeding--Tables, calculations, etc.)

YELPAT'YEVSKIY, D.Y.

Generalized calcium, phosphorus and salt rations for farm animals. Trudy SZVI 11:17-27 '62. (MIRA 16:7)

(Minerals in food)
(Feeding--Tables, calculations, etc.)

YELPAT'YEVSKIY, D.V.

Rationing microelements for farm animals. Trudy SZVI 11:29-41 '62. (MIRA 16:7)

(Trace elements)
(Feeding—Tables, calculations, etc.)

YELPAT'EVSKIY, M. P.

23473 MELIORATSIYA ZABOLOCHENNYKH EL'NIKOV. V. SB: ISSLEDOVANIYA PO LES. KHOZ-VU., 1948 (MA OBL: 1949) C. 281-301

SO: LETOPIS' NO. 31, 1949

YELPAT'YEVSKIY, M. P., ALB'YAKOV, M. P.

Forestry Engineering

Mechanizing forest drainage work, Les. khoz., 5 No. 3(42), 1952

Monthly List of Russian Accessions, Library of Congress, July 1952. Unclassified.

GURVICH, I. YA.: YELPAT'YEVSKIY, M. P.

Drainage

Planning forest improvement through drainage. Les. khoz. 5 no. 9, 1952.

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

1. ALBYAKOV, M. P.: YELPAT'YEVSKIY, M. P.

2. USSR (600)

4. Excavating Machinery

7. Forest ditching machine. Les. khoz. 5 No. 10, 1952.

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

YELPAT'YEVSKIY, Mikhail Petrovich; PORETSKIY, M.A., red.; NIKOLAYEVA, I.I., red.izd-va; BRATISHKO, L.V., tekhn.red.

[Draining woodlands] Lesnaia osushitel'naia melioratsiia. Moskva, Goslesbumizdat, 1957. 121 p. (MIRA 11:2)
(Drainage)

BUSH, Kaspar Krishevich;[Buš, Kaspars]; KLYAVIN'SH, Yanis Yanovich [Klaviņš, Jānis]; MAYKE, Pavel Martynovich; SABO, Yevgeniy Dyul'yevich; YELPAT'YEVSKIY, M.P., retsenzent; PORETSKIY, M.A., red.; TIKHONOVA, N.V., red.izd-va; KUZNETSOVA, A.I., tekhn.red.

[Practices of the Latvian S.S.R. in the drainage of forest soils] Osushenie lesnykh zemel'; iz opyta raboty v Latviiskoi SSR. Moskva, Goslesbumizdat, 1960. 159 p. (MIRA 14:1)
(Latvia--Forest soils) (Latvia--Drainage)

PISAR'KOV, Khariton Alekseyevich; TIMOFEYEV, Aleksandr Filippovich; BUDYKA, S.Kh., prof., retsenzent; YELPAT'YEVSKIY, M.P., red.

[Hydraulic engeneering in the improvement of forest soils] Gidrotekhnicheskie melioratsii lesnykh zemel'. Izd.2., isp. i dop. Moskva, Izd-vo "Lesnaia promyshlennost'," 274 p. (MIRA 17:4)

1. Belorusskiy tekhnologicheskiy institut im. S.M.Kirova (for Budyka).

YELPIDIN, B.P.

Seminar on press forging. Kuz.-shtam.proizv. 5 no.8:47-48 Ag '63.
(MIRA 16:9)

YELPIDIN, B.

Dreams and deeds. IUn. tekh. 7 no.8:60-61 Ag '63.
(MIRA 16:10)

L 18546-63 EWP(k)/EWP(q)/EWT(m)/BDS AFFTC/ASD Pf-4 JD/
HW/JXT(IJP)

ACCESSION NR: AP3006052 S/0182/63/000/008/0047/0048

AUTHOR: Yelpidin, B. P.

TITLE: Seminar on the forging and pressing industry

SOURCE: Kuznechno-shtampovochnoye proizvodstvo, no. 8, 1963, 47-48

TOPIC TAGS: forging, pressing

ABSTRACT: A seminar on the mechanization and new techniques in forging and pressing industry was held in May 1963 in Petropavlovsk. It was organized by the Tsentralny*y institut nauchno-tekhnicheskoy informatsii (Central Institute of Scientific and Engineering Information) jointly with TsBTI (Central Office of Technical Information) of Tselinny*y Sovnarkhoz, and with NTO Mashprom (Scientific and Technical Society of the Machine-Building Industry). It was attended by 30 representatives of local plants and institutes. Modern methods of stamping and forging were described by I. I. Sotnikov (Tselinny*y Sovnarkhoz) and T. I. Trutenko, Chimkentskiy zavod presov-avtomatov (Chimkent Factory of Automatic Presses). Other reports dealt with gang-stamping, profile rolling, sheet rolling,

Card 1/2