ŠELEZNEVA, Ye. S.

"Accuracy of Humidity Measurement by Airplane Meteorograph," Met. i Gidrol., No.1, 1950

SELEZNEVA, Ye. S.

PHASE II TREASURE ISLAND BIBLIOGRAPHICAL REPORT AID 20 - II

BOOK Call No. : QC 861.T85

Authors: ZVEREV, A. S., KIRYUKHIN, B. V., KONDRAT'YEV, K. Ya., SELEZNEVA, Ye. S., TVERSKOY, P. N., YUDIN, M. I.

Full Title: COURSE OF METEOROLOGY (PHYSICS OF THE ATMOSPHERE)

Transliterated Title: Kurs meteorologii (Fizika atmosfery)

Publishing Data

Originating Agency: None

Publishing House: Hydrometeorological Publishing House (GIMIZ)

Date: 1951 No. pp.: 888 No. of copies: 10,000

Editorial Staff

Editor: Professor Tverskoy, P. N. Tech. Ed.: None

Editor-in-Chief: None Appraiser: None

Others: 1) Scientific Council and the scientific personnel of the Main Geophysical Observatory, 2) Prof. Khromov, S. P., who critically analysed the manuscript.

Text Data

Coverage: A fundamental course in the physics of the atmosphere, covering its properties, methods of investigation, application of thermodynamics, radiant energy, heat energy, water vapor, motion, weather and its forecasting, atmospheric optics, electricity, and acoustics.

SELEZNEVA, Ye. S., GRABOVSKIY, R. I., and KONDRAT'YEV, K. Ya.

"Pavel Nikolayevich Tverskoy," Meteorol. i gidrologiya, No 1, 1953, pp 59-60

On the occasion of the 60th birthday of the well known Soviet meteorologist and geophysicist, Prof P. N. Tverskoy, Doctor of Physicomathematical Sciences and head of the Chair of the Physics of the Atmosphere in Leningrad University. (RZhGeol, No 5, 1954.)

SO: Sum. No 568, 6 Jul 55

SELEZNEVA, Ye.S., kandidat fiziko-matematicheskikh nauk

Conditions determining the number of cumulus clouds. Meteor.i gidrol. no.2:8-14 F '53. (MLRA 8:9)

1. Glavnaya geofizicheskaya observatoriya im. A.I.Voyeykova, Leningrad. (Clouds)

ZAVARINA, Mariya Vasil'yevna; SELEZNEVA, Ye.S., otvetstvennyy redaktor; YASNOGORODSKAYA, M.M., redaktor; BRAYNINA, M.I., tekhnicheskiy redaktor

[The atmosphere] Atmosfera. Leningrad, Gidrometeorologicheskoe izd-vo, 1956. 127 p. (MLRA 9:9)
(Atmosphere)

SELEZNEVA, Ya.S.

Aeroclimatological research conducted in the Main Geophysical Observatory. Trudy Tashk.geofiz.obser. no.11/12:5-9 '56.
(MLRA 10:8)

1.Glavnaya Geofizicheskaya observatoriya.
(Climatology) (Meteorology)

SELEZNEVA, Ye.S.

First radiosonde. Trudy GGO no.56:7-18 '56. (MIRA 15:6)
(Radisondes)

SELEZNEVA, Ye.S.

Height of the lower boundary of stratified clouds in air masses.
Trudy GGO no.63:22-31 '56. (MLRA 10:5)
(Clouds)

KHRGIAN, A.Kh.; BOROVIKOV, A.M.; DZERDZEYEVSKIY, B.L.; DYUBYUK, A.F.; ZVEREV, A.S.; ZOLOTAREV, M.A.; KRICHAK, O.G.; KLEMIN, I.A.; PIHUS, N.Z.; SELEZNEVA, Ye.S.; YASNOGORODSKAYA, M.M., red.; VLADIMIROV, O.G., tekhn.red.

[Cloud atlas] Atlas oblakov. Leningrad, Gidrometeor.izd-vo, 1957. 45 p. (MIRA 12:9)

1. Russia (1923- U.S.S.R.) Glavnoye upravleniye gidrometeorologicheskoy sluzhby.
(Clouds)

SELEZNEVA, Yevgeniya Semenovna; TUDOROVSKAYA, Yelena Aleksandrovna; KLADO, T.N., otv.red.; SOLOVEYCHIK, A.A., tekhn.red.

[P.A.Molchanov; eminent Soviet aerologist] P.A.Molchanov vydaiushchiisia sovetskii aerolog. Leningrad, Gidrometeor. izd-vo, 1958. 101 p. (MIRA 12:2)
(Molchanov, Pavel Aleksandrovich, 1893-1941)
(Meteorology)

SELEZNEVA, Ye.S.

Origin of north winds occurring in the Sevan basin in summer.
Trudy GGO no.78:77-83 '58. (MIRA 11:12)
(Sevan region--Winds)

PHASE I BOOK EXPLOITATION SOV/3789
SOV/2-M-93

Leningrad. Glavnaya geofizicheskaya observatoriya imeni A.I. Voyeykova

Voprosy fiziki atmosfery (Problems in Physics of the Atmosphere) Leningrad, Gidrometeoizdat, 1959. 113 p. (Series: Its: Trudy, vyp. 93) 1,200 copies printed.

Sponsoring Agency: USSR. Sovet Ministrov. Glavnoye upravleniye gidrometeorologicheskoy sluzhby.

Ed. (Title page): Ye.S. Selezneva, Candidate of Physics and Mathematics; Ed. (Inside book): M.M. Yasnogorodskaya; Tech. Ed.: A.N. Sergeyev.

PURPOSE: This publication is intended for specialists in meteorology, aerology, and meteorological instrumentation.

COVERAGE: This collection of twelve articles contains the results of studies done under the auspices of the Glavnaya geofizicheskaya observatoriya imeni A.I. Voyeykova (Main Geophysical Observatory imeni A.I. Voyeykov). The first six articles give the results of aerological investigations of clouds, and the structure of anticyclones and local winds. The last six articles cover the

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Problems in Physics of the Atmosphere SOV/3789

methods of aerological investigation of atmospheric ozone, aerosols, condensation nuclei, and the chemical impurities in atmospheric precipitation. A description of new or improved instruments used in aerological investigations is also given. References are given at the end of some articles.

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Problems in Physics of the Atmosphere SOV/3789

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AVAILABLE: Library of Congress

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JA/cdw/mas
7-29-60

report submitted for the IUGG 12th General Assembly, Intl. Assn. of Meteorology and Atmospheric Physics, Helsinki, 26 July - 6 August 1960.

REMOVAL OF AEROSOL PARTICLES FROM THE ATMOSPHERE BY RAIN

by

Kenji Isono
University of Tokyo, Tokyo, Japan.

A theoretical calculation of the rate of removal of aerosol particles shows that the rate of washout of aerosol particles smaller than a few microns in diameter by raindrops is low and that processes which occur in clouds are more important or more effective for the removal of such aerosols. The processes considered to be important are condensation and sublimation of water vapour on particles which act as effective condensation nuclei and ice nuclei, and the collision of aerosol particles with cloud droplets.

Experiments on the diffusion of silver iodide and lead iodide from ground generators have been made. Further, the detection of traces of seeded silver iodide in rainwater with a novel method has been made. The results of these experiments support the idea mentioned above.

AN EXAMINATION OF CHEMICAL COMPOSITION OF ATMOSPHERIC PRECIPITATION IN THE U.S.S.R.

by

E.S. Selezneva, V.M. Drozdova and O.P. Petrenchuk
U.S.S.R.

1. In the beginning of the International Geophysical Year the Hydro-meteorological office of the U.S.S.R. organized a collection of atmospheric precipitation samples for a chemical analysis from 12 stations located in different physico-geographical conditions: inshore districts (Arkhangelsk, Leningrad, Riga, Valdai), central regions of the European part of the U.S.S.R. (Moscow, Kazan, Kiev), south-eastern rainless districts (Stalingrad, Tashkent), behind the Ural mountain chain at an enormous distance from oceans and seas (Sverdlovsk, Novosibirsk), in high-mountain conditions, far from dwelling and accidental sources of atmospheric pollution (Shatjatmas - 3075 m)

2. A very large extent of the observed space, variety of station locality, similar methods of sample collection and analyses allow of generalizing upon basic chemical components of atmospheric precipitation.

3. SO_4 is the most common precipitation contaminant over all stations; its maximum concentration has been observed in the southern district, where it attains 10-11 mg/l, while in the north it is twice lower.

HCO_3 content of precipitation is also considerable.

Industrial sources of atmospheric pollution are largely responsible for the above contaminant, although it has been also met with in marked quantities in samples from points remote from industrial points, in fresh air conditions.

SELEZNEVA, YE.S.

PHASE I BOOK EXPLOITATION

SOV/4173
SOV/2-S-102

Leningrad. Glavnaya geofizicheskaya observatoriya

Voprosy fiziki oblakov (Problems in the Physics of Clouds) Leningrad, Gidrometeoizdat, 1960. 102 p. (Series: Its: Trudy, vyp. 102). Errata slip inserted. 1,150 copies printed.

Additional Sponsoring Agency: USSR. Glavnoye upravleniya gidrometeorologicheskoy sluzhby. Ed. (Title page): N. S. Shishkin, Doctor of Physics and Mathematics; Ed.(Inside book): V. S. Protopopov; Tech. Ed.: M. I. Braynina.

PURPOSE: The publication is intended for the scientific workers in meteorology and aerology, as well as for graduate students in these fields.

COVERAGE: This is a collection of 6 articles published as No. 102 of the Transactions of the Main Geophysical Observatory imeni A. I. Voyeykov and dealing with the physics of clouds. Individual articles are concerned with convective clouds and their radar characteristics, the microstructure of supercooled clouds, radar characteristics of thunderstorms, and the problem of the optimum radio wave for detection of cloud systems and precipitation. References accompany each article.

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Problems in the Physics of Clouds SOV/4173

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VORONTSOV, P.A.; MESHCHERSKAYA, A.V.; SELEZNEVA, Ye.S.; CHESTNAYA, I.I.; AYNBUND, M.M.; KIRILLOVA, T.V.; NESINA, L.V.; OGNEVA, T.A.; SEROVA, N.V.; TIMOFEYEV, M.P., kand.fiz.-mat.nauk; ZHDANOVA, L.P., red.; BRAYNINA, M.I., tekhn.red.

[Meteorological regime of Lake Sevan] Meteorologicheskii rezhim ozera Sevan. Pod red. M.P.Timofeeva. Leningrad, Gidrometeor. izd-vo, 1960. 310 p. (MIRA 14:3)

1. Leningrad. Glavnaya geofizicheskaya observatoriya.
(Sevan Lake region--Meteorology)

VORONTSOV, Petr Alekseyevich; SELEZNEVA, Ye.S., otv.red.; YASNOGORODSKAYA, M.M., red.; BRAYNINA, M.I., tekhn.red.

[Aerological investigation of the boundary layer of the atmosphere] Aerologicheskie issledovaniia pogranichnogo sloia atmosfery. Leningrad, Gidrometeor.izd-vo, 1960. 450 p. (MIRA 13:5)
(Meteorology)

SELEZNEVA, Ye.S., otv. red.; GUSHCHIN, G.P., otv. red.; VLASOVA, Yu.V., red.; SERGEYEV, A.N., tekhn. red.

[Data on the chemical composition of atmospheric precipitation and total ozone content of the atmosphere at various points of the U.S.S.R.; materials of the International Geophysical Year and International Geophysical Cooperation for 1957-1959]Dannye po khimicheskomu sostavu atmosfernykh osadkov i obshchemu soderzhaniiu ozona v atmosfere v razlichnykh punktakh SSSR; materialy MGG i MGS za 1957-1959 gg. Leningrad, Gidrometeoizdat, 1961. 81 p. (MIRA 15:9)

1. Leningrad. Glavnaya geofizicheskaya observatoriya.
(Precipitation(Metereology)) (Air--Analysis) (Ozone)

S/169/62/000/011/019/077
D228/D307

AUTHOR: Selezneva, Ye.S.

TITLE: Investigating the chemical composition of atmospheric precipitation

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 11, 1962, 19, abstract 11B129 (Geofiz. byul., Mezhduved. geofiz. kom-t pri Prezidiume AN SSSR, no. 11, 1962, 12-15)

TEXT: During the IGY precipitation samples were gathered and analyzed at 13 stations on the Union's European territory, located in different physico-geographic and climatic environments. Determinations were chiefly made of the anions SO_4^{2-}, Cl^-, NO_3^-, and HCO_3^{2-}; the cations Na^+, K^+, NH_4^+, Mg^{2+}, and Ca^{2+}; the pH; and the conductivity. Charts of the average concentrations for the year and for the cold and warm seasons were constructed with respect to each component. Data for Finland, Scandinavia, and Czechoslovakia were also used. The main precipitation components are sulfates and

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Investigating the chemical ...

chlorides. The latter are largely of marine origin, since their concentration comprises 2-3 mg/l on coasts and about 1 mg/l inland. In some continental areas, however, the concentration of Cl^- is considerable. Human activity appears to influence the sulfate content. A high content of SO_4^{2-} is noted in the Ukraine's industrial areas (> 10 mg/l); in other regions the content of SO_4^{2-} constitutes 2-3 mg/l. Of the cations Ca^{2+} has the highest concentration (1-4 mg/l).

[Abstracter's note: Complete translation]

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SELEZNEVA, Ye.S.

Vertical distribution of condensation nuclei under different conditions of atmospheric stratification. Trudy GGO no.134: 3-13 '62. (MIRA 15:6)

(Atmospheric nucleation)

PETRENCHUK, O.P.; SELEZNEVA, Ye.S.

Variation in the concentration of principal chemical impurities in precipitation as a function of meteorological conditions. (MIRA 15:6)
Trudy GGO no.134:14-25 '62.
(Precipitation (Meteorology))

TVERSKOY, Pavel Nikolayevich. Prinimal uchastiye KIRYUKHIN, B.V.; SELEZNEVA, Ye.S., red.; VLASOVA, Yu.V., red.; BRAYNINA, M.I., tekhn. red.; VOLKOV, N.V., tekhn. red.

[Course in meteorology; the physics of the atmosphere]Kurs meteorologii; fizika atmosfery. Pod red. E.S.Seleznevoi. Leningrad, Gidrometeoizdat, 1962. 669 p. (MIRA 16:2)
(Atmosphere)

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L 12766-63 EWT(1)/BDS ASD/AFFTC/ESD-3 RB S/169/63/000/004/005/017

AUTHOR: Drozdova, V. M., Petrenchuk, O. P., Selezneva, Ye. S.

TITLE: The chemical composition of atmospheric precipitation as determined by investigations during the IGY and the International Geophysical Cooperation

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 4, 1963, abstract 4B120 (Sb. materialy konferentsiy po itogam MGG (1960) i meteorol. izuch. Antaraktidy (1959). M. Gidrometeoizdat, 1961, 187-206)

TEXT: During the IGY samples of atmospheric precipitation were taken systematically at 13 meteorological stations located in maritime, continental, and high-altitude regions of the USSR then sent to Leningrad for analysis. A total of 1,080 samples were analyzed; these included 246 summary monthly samples and 834 individual samples. SO_4^{--}, Cl^-, NO_3^-, HCO_3^- anions, Na^+, K^+, NH_4^+, Mg^{++}, Ca^{++} cations, and also the pH were determined in these analyses. Annual charts as well as seasonal charts were compiled for each component. The relative prevalence of anions in decreasing order was SO_4^{--} HCO_3^- Cl^- NO_3^-; for high-altitude and Central Asian stations

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The chemical composition of atmospheric precipitation...

HCO_3^- SO_4^{--} Cl^- NO_3^- ; for cations in samples from maritime stations Na^+ Ca^{++} K^+ Mg^{++} ; and for continental stations Ca^{++} Na^+ K^+ Mg^{++}. Differences in annual concentrations of SO_4 in precipitation were discovered in the charts: the concentration was minimal in the north and the northwest (3 mg/l), to the south it increased to 12 mg/l; the concentration was greater in the winter than in the summer. The Cl^- concentration was greater close to the sea and in the winter. The nitrogen concentration fluctuated on the average between 1 to 1.5 mg/l; the average annual pH value was 5.5 to 6.0 almost everywhere; some increase toward the south was noted in individual samples. The average amounts of these substances falling on one hectare in one year were calculated on the basis of these data. It was found that up to 10 - 15 kg/ha of sulfur fell in the south and 5 kg/ha in the north; Ca appeared in amounts of 15 - 20 kg/ha; Cl -- 5 to 7 kg/ha; nitrogen -- 3 to 5 kg/ha. The Cl^-/Na and SO_4^{--}/Cl^- ratios were also determined; it was found that the first ratio

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L 12766-63 S/169/63/000/004/005/017

The chemical composition of atmospheric precipitation...

was less than one for the entire European Part of the USSR, the second was equal to 2 at maritime stations and was larger inside the country. An analysis of all the data disclosed seasonal changes in the content of all admixtures in precipitation, the influence of continental sources for contamination of the atmosphere, and an increase in admixtures of marine origin in the maritime regions. There were 21 references.

[Abstracter's note: Complete translation.]

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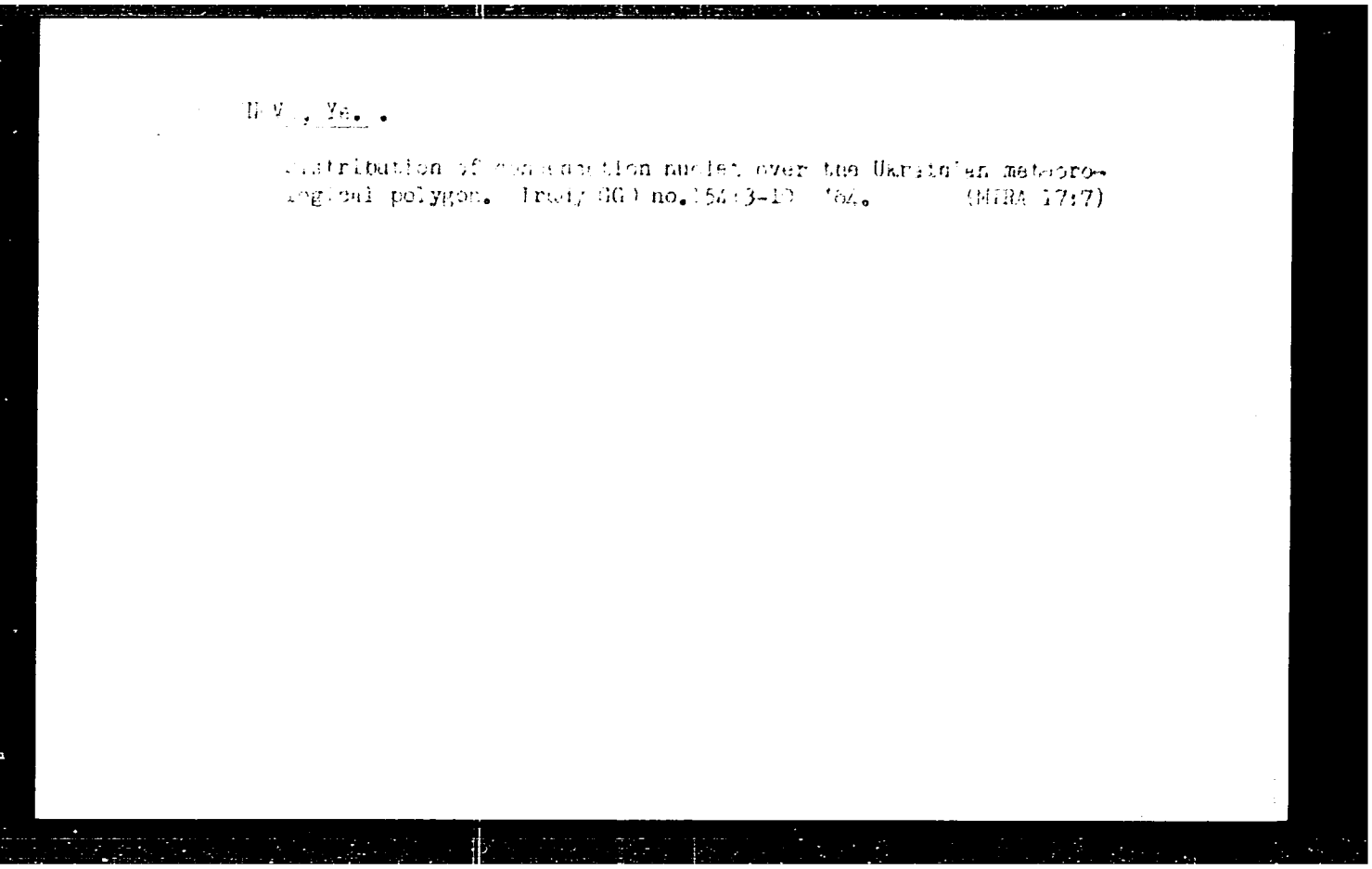
SELEZNEVA, Ye.S.

Spatial changes in the concentration of condensation nuclei according to data gathered in horizontal flights over the European territories of the U.S.S.R. Trudy GGO no.141:3-18 '63. (MIRA 17:4)

DROZDOVA, Valentina Mikhaylovna; PETRENCHUK, Ol'ga Petrovna; ZELEZNEVA, Yevgeniya Semenovna; SVISTOV, Petr Filippovich; KAPITANETS, Ye.P., red.

[Chemical composition of the atmospheric precipitation in the European territory of the U.S.S.R.] Khimicheskii sostav atmosfernykh osadkov na Evropeiskoi territorii SSSR. [By] V.M.Drozdova i dr. Leningrad, Gidrometeoizdat, 1964. 209 p. (MIRA 17:5)

1. Otdel aerologicheskikh issledovaniy Glavnoy geofizicheskoy observatorii (for all except Kapitanets).



[illegible] V., Ye. .

[illegible]istribution of [illegible]condensation nuclei over the Ukrainian meteorological polygon. Trudy IEG no.15[illegible]:3-[illegible] '64. (MIRA 17:7)

SELEZNEVA, Ye. S.

"The main features of condensation nuclei concentration distribution in the free atmosphere over the European part of the USSR."

Paper to be presented at Symp on Atmospheric Chemistry, Circulation & Aerosols, Visby, Sweden, 18-25 Aug 1965.

Main A.I. Volikov Geophysical Observatory, Leningrad.

ACC NR: AM6033081 (A) Monograph UR/

Selezneva, Yevgeniya Semenovna

Atmospheric aerosols; condensation nuclei (Atmosfernyye aerozoli; yadra kondensatsii) Leningrad, Gidrometeoizdat, 1966. 173 p. illus., biblio., tables. 1200 copies printed.

TOPIC TAGS: atmospheric physics, atmospheric aerosol, condensation nucleus, air pollution, atmospheric particle, air pollutant, meteorologic test area

PURPOSE AND COVERAGE: This monograph is intended for the use of scientists working in several branches of atmospheric physics and related disciplines. It discusses the results of investigations of minute aerosol particles ($r \leq 10^{-4}$ cm), the so-called ordinary condensation nuclei. Data obtained between 1958 and 1964 by several investigators using Sholz counters installed in aircraft flown over various regions of the USSR have been analyzed. The results reported in this book provide considerable information on the vertical and horizontal distribution over Soviet territory of condensation nuclei in the lower troposphere. V. Ya. Nikandrov and P. A. Vorontsov (Main Geophysical Observatory) supervised and supported the work; theoretical aspects were discussed with D. L. Laykhtman and M. T. Yudin.

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ACC NR: AM6033081

SUB CODE: 04/ SUBM DATE: 13Jun66/ ORIG REF: 077/ OTH REF: 072/

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ZHIVOPISTSEV, V.P.; SELEZNEVA, Ye.A.; LIPCHINA, A.P.; BRAGINA, Z.I.

Antipyrine dyes as analytical reagents. Report No. 3: Photometric determination of zinc. Zhur. anal. khim. 21 no. 1:28-33 '66
(MIRA 19:1)

1. Permskiy gosudarstvennyy universitet imeni Gor'kogo.

ACC NR: AT6020804 (N) SOURCE CODE: UR/0000/65/000/000/0225/0232

AUTHOR: Selezov, I. T. (Kiev)

ORG: none

TITLE: The propagation of elastic waves along a cylindrical cavity filled with a flowing fluid

SOURCE: AN UkrSSR. Institut mekhaniki. Kontsentratsiya napryazheniy (Concentration of stresses), no. 1. Kiev, Naukova dumka, 1965, 225-232

TOPIC TAGS: wave propagation, magnetohydrodynamics, elastic wave, fluid mechanics, stress analysis

ABSTRACT: A study is made involving the problem of magnetohydroelasticity in the propagation of axially symmetric waves in an elastic body--flowing fluid system. The elastic body of infinite extent contains a cylindrical cavity of circular cross section which is filled with a nonviscous compressible fluid in motion. Along the axis of the cavity there exists a uniform constant magnetic field, and the elastic body is assumed to be magnetically and electrically neutral. The conventional approach to this type of problem is one of seeking a solution through the use of Bessel functions; however, the author states a more exact definition of the problem

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ACC NR: AT6020804

leading to a study of generated hypergeometric equations (see G. Sul and L. Walker. Voprosy volnovodnogo rasprostraneniya elektromagnitnykh voln v girotropnykh sredakh, M., IL, 1955). Radial stress and deformation are derived and expressed in the form of dimensionless parameters. The dynamic aspects of the problem are expressed in the form of a dispersion equation which relates the phase velocity with wavelength. Dynamic relationships make use of Whittaker-MacDonald functions expressed in the form stated by N. N. Lebedev (Spetsial'nyye funktsii i ikh prilozheniya, M. Fizmatgiz, 1963). A successive approximation method is applied to the finding of roots of the dynamic equation. Orig. art. has: 39 equations and 1 figure.

SUB CODE: 20, 13/ SUBM DATE: 11Oct65/ ORIG REF: 006/ OTH REF: 005

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L 36347-66 EWT(d)/EWT(l)/EWT(m)/EWP(k)/EWP(w)/EWP(v) IJP(c) EM/GW/WW
ACC NR: AP6007808 SOURCE CODE: UR/0021/66/000/002/0179/0182

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B

AUTHORS: Selezov, I. T.; Lazarenko, M. A.

ORG: Institute of Cybernetics, AN URSR (Instytut Kibernetyky AN URSR); Institute of Geophysics, AN URSR (Instytut geofizyky AN URSR)

TITLE: Scattering and diffraction of elastic waves in a sphere placed in a half-space

SOURCE: AN UkrRSR. Dopovidi, no. 2, 1966, 179-182

TOPIC TAGS: elastic wave, seismic wave, wave diffraction, wave scattering, seismic prospecting

ABSTRACT: The diffraction and scattering of elastic waves on a rigid sphere placed in a half-space has been investigated. The solutions for the scattered field outside the sphere and frequent reflected fields were formulated by using the method of representation. The solutions presented can be used for seismic prospecting. The paper was presented by S.I. Subbotin, Member of Academy of Sciences, Ukrainian SSR. Orig. art. has 1 figure and 24 formulas. [Based on authors' abstract] [NT]

SUB CODE: 20/ SUBM DATE: 10Sep64/ OTH REF: 003

OS/

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S/124/61/000/010/052/056
D251/D301

AUTHOR: Selezov, I.T.

TITLE: The equations of motion of flexible plates

PERIODICAL: Referativnyy zhurnal. Mekhanika, no. 10, 1961, 19, abstract 10 V128 (Prikl. mekhanika, 1959, 5, no. 4, 444-448)

TEXT: The result is given of the equations of free transverse oscillations of flexible flat rectangular plates, the effect of transverse forces and rotational inertia being considered. If terms dependent on the inertia of the displacements u and v in the plane of the plate are ignored, then it is possible to derive the stress function φ. The system obtained consists of two equations corresponding to the function of bending w and the stress function φ in stepped form with non-linear Karman equations for the rectangular plate. Similar equations are obtained for circular plates with axi-symmetric deformation. [Abstracter's note: Complete translation]

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S/021/60/000/009/004/009
D210/D303

AUTHOR: Selezov, I.T.

TITLE: On transverse vibrations of a plate

PERIODICAL: Akademiya nauk Ukrayins'koyi RSR. Dopovidi, no. 9, 1960, 1190 - 1192

TEXT: Using M.O. Kil'chevskyy's algorithm (Refs. 1 and 2: Prykl. matem. i mekh., 2, 427, 1939; 4, 83, 5, 73, 1940) the author proves and investigates the general equations for the dynamics of the plate. It enables the reduction of the three-dimensional problem to a plane problem. It is initiated by equations

$$\mu\bar{\nabla}^2 u_1 + (\lambda+\mu)\frac{\partial}{\partial x_1}\bar{\vartheta} + \rho X_1 = \rho\frac{\partial^2 u_1}{\partial t^2}, \quad (1)$$

$$\mu\bar{\nabla}^2 u_2 + (\lambda+\mu)\frac{\partial}{\partial x_2}\bar{\vartheta} + \rho X_2 = \rho\frac{\partial^2 u_2}{\partial t^2}, \quad (2)$$

$$\mu\bar{\nabla}^2 u_3 + (\lambda+\mu)\frac{\partial}{\partial x_3}\bar{\vartheta} + \rho X_3 = \rho\frac{\partial^2 u_3}{\partial t^2}, \quad (3)$$

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On transverse vibrations of a plate

with some initial conditions, where

$$\overline{\nabla}^2 = \nabla^2 + \frac{\partial^2}{\partial x_3^2}, \quad \overline{\theta} = \theta + \frac{\partial u_3}{\partial x_3}, \quad u_3 = w \tag{10}$$

and

$$\nabla^2 = \frac{\partial^2}{\partial x_1^2} + \frac{\partial^2}{\partial x_2^2}, \quad \theta = \frac{\partial u_1}{\partial x_1} + \frac{\partial u_2}{\partial x_2}$$

and by assuming that

$$\theta = \sum_{k=0}^{\infty} \theta_k x_3^k, \quad w = \sum_{k=0}^{\infty} w_k x_3^k. \tag{11}$$

the following systems of equations were obtained

$$\sum_{n=1}^{\infty} \{2(\lambda + 2\mu) 2nh^{2n-1} w_{2n} + 2\lambda h^{2n-1} \theta_{2n-1}\} = q_1 - q_2, \tag{12}$$

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On transverse vibrations of a plate ...

$$\nabla^2 w_0 + \sum_{n=1}^{\infty} \left[h^{2n} \nabla^2 w_{2n} + (2n-1) h^{2n-2} \theta_{2n-1} \right] = 0,$$

$$\left(\mu \nabla^2 - \rho \frac{\partial^2}{\partial t^2} \right) w_{2n} + (\lambda + 2\mu)(2n+1)(2n+2) w_{2n+2} + (\lambda + \mu)(2n+1) \theta_{2n+1} = 0, \quad (12)$$

$$n = 0, 1, 2, 3, \ldots, \quad (12)$$

$$(\lambda + \mu) 2n \nabla^2 w_{2n} + \left[(\lambda + 2\mu) \nabla^2 - \rho \frac{\partial^2}{\partial t^2} \right] \theta_{2n-1} + \mu 2n (2n+1) \theta_{2n+1} = 0,$$

$$n = 1, 2, 3, \ldots$$

It contains all known equations of the dynamics of the plate. Detaining all terms up to and including $(2h)^5$ one has

$$\left[\frac{\partial^2}{\partial t^{*2}} + a_1 \nabla^2 \nabla^2 - a_2 \frac{\partial^2}{\partial t^{*2}} \nabla^2 + a_3 \frac{\partial^4}{\partial t^{*4}} - b_1 \nabla^2 \nabla^2 \nabla^2 + b_2 \frac{\partial^2}{\partial t^{*2}} \nabla^2 \nabla^2 - \right. \quad (14)$$

$$\left. - b_3 \frac{\partial^4}{\partial t^{*4}} \nabla^2 + b_4 \frac{\partial^6}{\partial t^{*6}} \right] \omega^* = 0,$$

Card 3/5

On transverse vibrations of a plate ...

where

$$w^* = \frac{w_o}{2h}, \quad (x_1^*, x_2^*) = \frac{1}{2h}(x_1, x_2), \quad t^* = \frac{c_s t}{2h}, \quad q^* = \frac{q}{\rho c_s^2},$$

$c^* = \frac{c}{c_s}$ - phase velocity, $l^* = \frac{l}{2h}$ - wave length, $c_s^2 = \frac{\mu}{\rho}$ and a_p, b_q depends on Poisson's coefficient σ. Detaining all terms up to $(2h)^3$ the equation was obtained which corresponded to the equation of Ya. S. Uflyand (Ref. 8: Prykl. matem. i mekh. 12, 287, 1948)

$$\left\{\frac{\partial^2}{\partial t^{*2}} + a_1 \nabla^2\nabla^2 - a_2 \frac{\partial^2}{\partial t^{*2}}\nabla^2 + a_3 \frac{\partial^4}{\partial t^{*4}}\right. \quad w^* = 0. \quad (15)$$

From these K could be determined by formula

$$k^2 = \frac{2}{2 - \sigma + \sqrt{0.5 + \sigma^2}}. \quad (16)$$

Card 4/5

29171
S/021/60/000/009/004/009
On transverse vibrations of a plate ... D210/D303

There are 1 figure and 8 references: 4 Soviet-bloc and 4 non-Soviet -bloc. The references to the English-language publications read as follows: H. Laub, Prog. Royal. Soc. London, Ser. A, 93, 114, 1917; S.P. Timoshenko, Phil. Mag. ser. 6, 41, 744, 1921; R.D. Mindlin, J. Appl. Mech. 18, 131, 1951.

ASSOCIATION: Instytut budivel'noyi mekahniky AN URSR (Institute of Building Mechanics, AS UkrSSR)

PRESENTED: by Academician G.M. Savin, AS UkrSSR

SUBMITTED: Ocotber 30, 1959

Card 5/5

SELEZOV, I.T. (Kiyev)

Investigating lateral vibrations of a plate. Pryl.mekh. 6 no.3:319-327 '60. (MIRA 13:8)

1. Institut stroitel'noy mekhaniki AN USSR.
(Elastic plates and shells--Vibration)

S/081/61/000/021/059/094
B138/B101

AUTHORS: Selezney, A. K., Prigornev, I. G.

TITLE: Selection of reactors and conditions for the production of β chloro ethers from petroleum cracking olefins

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 21, 1961, 318, abstract 21L20 (Tr. Groznensk. neft. in-t, sb. 24, 1960, 45 - 51)

TEXT: Continuous coil reactors and an intermittent reactor of bubbling type have been tried out for the production of β chloroisopropyl ethyl ether (I) from cracking gas propylene. With coil reactors the optimum propylene : CL_2 : alcohol ratio is 2 : 1 : 5 and the volumetric rate of the propylene is 7.8 liter/liter.min (yield of I 30 %). The best results in a tower reactor are obtained at a temperature of 2°C (yield of I 36 %). Coil reactors have high capacity and are very suitable for commercial use.
[Abstracter's note: Complete translation.]

Card 1/1

24.4200

S/198/61/007/005/010/015
D/274/D303

AUTHOR: Selezov, I.T. (Kyyiv)

TITLE: On the hypotheses underlying the more exact equations of transverse oscillations of plates; certain peculiar features of these equations

PERIODICAL: Prykladna mekhanika, v. 7, no. 5, 1961, 538 - 545

TEXT: The generalized equations for transverse oscillations of plates are

$$L_0 w_0 = L_1(q_1 - q_2). \qquad (1.1)$$

The form of these operators and the notations adopted are given in an earlier work by the author (Ref. 5: Prykladna mekhanika, v. 6, no. 5, 1960). L_0 and L_1 were obtained by solving an infinite system of differential equations. If Eq. (1.1) is written in expanded form and only the terms of an order not higher than $(2h)^{2m-1}$ retained, then the more accurate equation for transverse oscillations, with an accuracy of $(2h)^{2m-1}$, is obtained:

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24.4200

S/198/61/007/005/010/015
D/274/D303

AUTHOR: Selezov, I.T. (Kyyiv)

TITLE: On the hypotheses underlying the more exact equations of transverse oscillations of plates; certain peculiar features of these equations

PERIODICAL: Prykladna mekhanika, v. 7, no. 5, 1961, 538 - 545

TEXT: The generalized equations for transverse oscillations of plates are

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On the hypotheses underlying ...

$$w = \sum_{2n} w_{2n} x_3^{2n}, \qquad n = 0, 1, 2, \ldots, m \tag{1.4}$$

$$u_\nu = \sum_{2n-1} u_{\nu(2n-1)} x_3^{2n-1}, \quad n = 1, 2, 3, \ldots, m \tag{1.5}$$

in the series for w and u_ν ($\nu = 1, 2$), w and u denoting the transverse- and longitudinal displacements, and x_3 - a coordinate normal to the middle surface. From (1.4), (1.5) follows that w is given by parabola of degree 2m, and u - by a parabola of degree 2m-1. In Ref. 5 (Op.cit.) it was shown that the retaining, in L_0, of the terms not higher than $(2h)^3$, leads to an equation corresponding to Uflyand's equation which takes into account inertia of rotation and shear. To that equation corresponds m = 2:

$$w = w_0(x_1, x_2, t) + w_2(x_1, x_2, t)\, x_3^2 + w_4(x_1, x_2, t)\, x_3^4, \tag{1.6}$$

$$u_\nu = u_{\nu 1}(x_1, x_2, t)\, x_3 + u_{\nu 3}(x_1, x_2, t)\, x_3^3 \tag{1.7}$$

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From (1.6), (1.7) it follows that the Uflyand-Timoshenko equations are based on more general assumptions as to the character of the deformation than those of Timoshenko's shear model. The equation for transverse oscillations to an accuracy of $(2h)^5$, is based on Eqs. (1.4), (1.5) for m = 3. The minimum velocity of the wavefront (the shear factor), corresponding to that equation, is shown in a graph. This graph shows that the equation with an accuracy of $(2h)^5$ can be used for higher frequencies of asymmetric shear-oscillations than the equation with an accuracy of $(2h)^3$. It is noted that by expanding the stress tensor into powers of 2h, instead of the displacement vector P. Epshteyn's (Petrashen's) equation is obtained instead of that of Uflyand-Timoshenko and Eq. (1.2). The solution of more accurate differential equation for the case of a beam subjected to a concentrated force is examined. An infinite strip, singled out from the plate, is loaded by the concentrated force $q_1^* - q_2^* = F\sigma_1(t^*)$, where σ is the Heaviside function. The boundary conditions are set up, as well as the initial conditions. By Eq. (1.2) for m = 3, and with an accuracy of $(2h)^5$, one obtains:

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On the hypotheses underlying ...

$$\left\{\frac{\partial^2}{\partial t^{*2}} + a_1 \frac{\partial^4}{\partial x_1^{*4}} - a_2 \frac{\partial^4}{\partial t^{*2} \partial x_1^{*2}} + a_3 \frac{\partial^4}{\partial t^{*4}} - b_1 \frac{\partial^6}{\partial x_1^{*6}} + b_2 \frac{\partial^6}{\partial t^{*2} \partial x_1^{*4}} - \right.$$

$$\left. - b_3 \frac{\partial^6}{\partial t^{*4} \partial x_1^{*2}} + b_4 \frac{\partial^6}{\partial t^{*6}} \right\} w_0^* = \left\{1 - d_1 \frac{\partial^2}{\partial x_1^{*2}} + d_2 \frac{\partial^2}{\partial t^{*2}} + \right. \tag{2.23}$$

$$\left. + d_3 \frac{\partial^4}{\partial x_1^{*4}} - d_4 \frac{\partial^4}{\partial t^{*2} \partial x_1^{*2}} + d_5 \frac{\partial^4}{\partial t^{*4}} \right\} (q_1^* - q_2^*).$$

The solution of this equation reduces to finding the functions

$$w^* = w_0^* + w_2^* x_3^{*2} + w_4^* x_3^{*4} \tag{2.24}$$

$$u_1^* = u_{11}^* x_3^* + u_{13}^* x_3^{*3} + u_{15}^* x_3^{*5}. \tag{2.25}$$

The functions on the right-hand sides can be expressed (by means of recursion formulas) in terms of the two functions w_0^* and u_{11}^*. The solution of (2.23) is expressed, in the space of Laplace transforms

Card 5/9

On the hypotheses underlying ...

by
$$W_o(x_1^*, p) = \chi F \sum_{s=1,2,3} \frac{B_s(p)}{pA(p)} e^{-n_s/x_1^*/}, \qquad (2.29)$$

where A and B are given by formulas involving n, and n_s is the solution of the characteristic equation. The solution can be expressed in the form of contour integrals

$$w_o^* = \sum_{s=1,2,3} w_{os}^*; \; w_{os}^*(x_1^*, t^*) = \frac{\chi F}{2\pi i} \int_L \frac{B_s(p)}{pA(p)} \exp(pt^* - n_s/x_1^*/)dp, \qquad (2.31)$$

where L is the Riemann-Mellin contour. The approximate solution is obtained by expansion in series

$$\frac{n_s}{p} = g_s(0) + \frac{g_s'(0)}{1!}\frac{1}{p^2} + \frac{g_s''(0)}{2!}\frac{1}{p^4} + \ldots \qquad (2.32)$$

By (2.32):

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On the hypotheses underlying ...

$$W_0(x_1^*, p) = \chi F \sum_{s=1,2,3} e^{-pg_s(0)|x_1^*|} \Phi_s(x_1^*, p), \qquad (2.33)$$

where

$$\Phi_s(x_1^*, p) = \frac{B_s(p)}{pA(p)} \exp -|x_1^*| \sum_{\eta=1}^{\infty} \frac{g_s^{(\eta)}(0)}{\eta!} \left(\frac{1}{p}\right)^{2\eta-1}.$$

From (2.33) follows

$$w_0^*(x_1^*, t^*) = \chi F \sum_{s=1,2,3} f_s(x_1^*, t^* - g_s(0)/x_1^*/), \qquad (2.34)$$

where $I_s \longrightarrow f_s$. Retaining the first term only, one obtains the solutions which holds for small t^*, viz.

$$\omega_0^* \simeq \frac{\chi F}{v_1^1(v_3^2 - v_2^2) + v_2^1(v_1^2 - v_3^2) + v_3^1(v_2^2 - v_1^2)} \frac{1}{5!} \left\{ \frac{v_3^2 - v_2^2}{v_1} (t^* - v_1|x_1^*|)^5 + \right.$$

$$\left. + \frac{v_1^2 - v_3^2}{v_2} (t^* - v_2|x_1^*|)^5 + \frac{v_2^2 - v_1^2}{v_3} (t^* - v_3|x_1^*|)^5 \right\}, \qquad (2.35)$$

Card 7/9

On the hypotheses underlying ...

where $\gamma_s = \frac{1}{k_{5s}}$ (s = 1, 2, 3). For small t^*, the displacement w_o^*, found by Eq. (2.23) for $x_1^* = +0$, is of the order of t^{*5}, whereas Uflyand's equation yields a displacement of order t^{*3}, and the classical equation - of order $t^{*3/2}$. Further, the solution which does not include the point of application of the concentrated force, is found. From the above follows that by solving the problem by Uflyand-Timoshenko's equations, the condition of smoothness of the bending function w_o in the neighborhood of the point of application of the force, cannot be satisfied. In this case an incompatible system of equations and boundary conditions is obtained. This applies also to the more exact Eq. (1.2), with any degree of accuracy $(2h)^{2m-1}$. There are 2 figures, and 12 references: 8 Soviet-bloc and 4 non-Soviet-bloc. The references to the English-language publications read as follows: H.N. Abramson, H.J. Plass and E.A. Ripperger, Stress wave propagation in rods and beams, Advances in

Card 8/9

On the hypotheses underlying ...

Applied Mechanics, v. [redacted] 1958; A. Barr, Cross-section distortion and the Timoshenko beam equation, J. Appl. Mech. v. 26, ser. E, 1959, pp. 143-144; W. Flügge and E.E. Zajac, Bending impact waves in beams, Ing.-Arch., v. 28, 1959, 59-70; E.H. Kennard, The new approach to shell theory: circular cylinders, JAM, 20, no. 1, 1953.

ASSOCIATION: Instytut mekhaniky AN USSR (Institute of Mechanics AS UkrSSR)

SUBMITTED: March 9, 1961

Card 9/9

SELEZOV, I. T.

Cand Phys-Math Sci - (diss) "Investigation of the propagation of elastic waves in plates and spheres." Kiev, 1961. 9 pp; (Ministry of Higher and Secondary Specialist Education Ukrainian SSR, Kiev Order of Lenin Polytechnical Inst); 160 copies; price not given; (KL, 5-61 sup, 174)

Sokolov, I. I.

BOROVSKIY, P. V.

PHASE I BOOK EXPLOITATION SOV/6206 75

Konferentsiya po teorii plastin i obolochek. Kazan', 1960.

Trudy Konferentsii po teorii plastin i obolochek, 24-29 oktyabrya 1960. (Transactions of the Conference on the Theory of Plates and Shells Held in Kazan', 24 to 29 October 1960). Kazan', [Izd-vo Kazanskogo gosudarstvennogo universiteta] 1961. 426 p. 1000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Kazanskiy filial. Kazanskiy gosudarstvennyy universitet im. V. I. Ul'yanova-Lenina.

Editorial Board: Kh. M. Mushtari, Editor; F. S. Isanbayeva, Secretary; N. A. Alumyae, V. V. Bolotin, A. S. Vol'mir, N. S. Ganiyev, A. L. Gol'denveyzer, N. A. Kil'chevskiy, M. S. Kornishin, A. I. Lur'ye, G. N. Savin, A. V. Sachenkov, I. V. Svirskiy, R. G. Surkin, and A. P. Filippov. Ed.: V. I. Aleksagin; Tech. Ed.: Yu. P. Semenov.

PURPOSE: The collection of articles is intended for scientists and engineers who are interested in the analysis of strength and stability of shells.

Card 1/14

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Transactions of the Conference (Cont.) SOV/6206

COVERAGE: The book is a collection of articles delivered at the Conference on Plates and Shells held in Kazan' from 24 to 29 October 1960. The articles deal with the mathematical theory of plates and shells and its application to the solution, in both linear and nonlinear formulations, of problems of bending, static and dynamic stability, and vibration of regular and sandwich plates and shells of various shapes under various loadings in the elastic and plastic regions. Analysis is made of the behavior of plates and shells in fluids, and the effect of creep of the material is considered. A number of papers discuss problems associated with the development of effective mathematical methods for solving problems in the theory of shells. Some of the reports propose algorithms for the solution of problems with the aid of electronic computers. A total of one hundred reports and notes were presented and discussed during the conference. The reports are arranged alphabetically (Russian) by the author's name.

Card 12/14

SELEZOV, I.T. (Kiyev)

Hypotheses forming the basis of specified equations of lateral vibrations of plates and some characteristics of these equations. Prykl.mekh. 7 no.5:538-545 '61. (MIRA 14:10)

1. Institut mekhaniki AN USSR.
(Elastic plates and shells--Vibration)

KIL'CHEVSKIY, M. A. [Kil'chevs'kyi, M.O.]; SELEZOV, I.T.; NIKULINSKAYA, S.N. [Nikulins'ka, S.M.]; PAL'KO, L.S.

Water hammer in an elastic pipeline. Dop. AN URSR no.2:165-168 '62. (MIRA 15:2)

1. Institut mekhaniki AN USSR. 2. Chlen-korrespondent AN USSR (for Kil'chevskiy, N.A.).
(Water hammer)

SELEZOV, I. T.

(12)

S/198/62/008/005/008/009
D234/D308

AUTHOR: Botte, O. V.

TITLE: Dissertations defended in 1961 at the Institutes of the Division of Technical Sciences, AS UkrSSR, in the field of mechanics

PERIODICAL: Akademiya nauk Ukrayins'koyi RSR. Instytut mekhaniky. Prikladna mekhanika, v..8, no. 5, 1962, 571-575

TEXT: The following dissertations were presented by the collaborators of the above section and approved: For the degree of Candidate of Technical Sciences: Instytut mekhaniky (Institute of Mechanics): Vasyl' Mykolayovych Buyvol, Aspirant: 'Plane problems of the theory of elasticity for multiply-connected regions with cyclic symmetry', on March 16, 1961, at Dnipropetrovsk Universty. Yaroslav Mykhaylovich Hryhorenko, Junior Scientific Collaborator: 'Stressed state of round plates and conical shells of linearly varying thickness under asymmetric loads', on April 6, at Dnipropetrovsk University. Igor Tymofiyovych Selezov, Aspirant, 'Investigation of the propa-

Card 1/3

Dissertations defended in ... S/198/62/008/005/008/009
D234/D308

6:tion of elastic waves in plates and shells', on June 19, at Kyyivs'kyy politekhnichnyy instytut (Kiev Politechnic Institute), Andriy Feofanovych Ulitko, Aspirant, 'Solution of 3-dimensional problems of the theory of elasticity by the method of vector eigenfunctions', on September 26, at Kiev University. Mikhaylo Petrovych Petrenko, Junior Scientific Collaborator, 'Transverse and longitudinal vibrations in short rods of constant and variable thickness, due to impacts', on October 24, at Kiev University. Mariya Dmytrivna Synyavs'ka, Junior Scientific Collaborator, 'Increase of wear resistance of piston rings of integral combustion engines with the aid of galvanic coating', on October 24, at Kyyivs'kyy avtomobil'no dorozhnyy instytut (Kiev Institute of Automobiles and Highways). Heorkiy Ivanovych Dybenko, Engineer, 'Change of strength and deformability of ДСП (DSP) plastics in time at increased temperatures', on November 28, at Kiev Institute of Automobiles and Highways. For the degree of Doctor of Technical Sciences: Instytut elektrozvaryuvannya im. Ye. O. Patona (Institute of Electric Welding imeni Ye. O. Paton): Boris Oleksiyovych Movchan, Senior Scientific Collaborator, Candidate of Technical Sciences, 'Microscopic

Card 2/3

Dissertations defended in ...

inhomogeneities in cast alloys', on May 16, at the Siberian sections of AS USSR. For the degree of Candidate of Technical Sciences: Instytut mashynoznavstva ta avtomatyky (Institute of Machine Science and Automation): Hryhoriy Semenovyen Kit, Junior Scientific Collaborator, 'Approximate solution of the problem of free torsion', on March 16, at Dnipropetrovsk University. Hryhoriy Vasyl'ovych Plyatsko, Junior Scientific Collaborator, 'Nonstationary problems of heat conduction and thermoelasticity', on April 20, at the Institute of Mechanics of AS UkrSSR. Mykola Yuriyovych Shvayko, Aspirant, 'Some problems of elastoplastic torsion of prismatic rods', on December 25, at L'viv University. Instytut metalokeramiky i spetsial'nykh splaviv (Institute of Metal Ceramics and Special Alloys): Volodymyr Ivanovych Kovpak, Aspirant: 'Investigation of durable strength during programmed change of load and temperature', on October 23, at Kiev Polytechnic Institute.

Card 3/3

S/879/62/000/000/038/088
D234/D308

AUTHOR: Selezov, I. T. (Kiev)

TITLE: Waves in cylindrical shells

SOURCE: Teoriya plastin i obolochek; trudy II Vsesoyuznoy konferentsii, L'vov, 15-21 sentyabrya 1961 g. Kiev, Izd-vo AN USSR, 1962, 249-253

TEXT: The author deduces equations of hyperbolic type for axially symmetric vibrations of a cylindrical shell. The displacements are represented as series and terms of 4th and higher order in $2h/r_o$ are neglected. Dispersion curves are given. There are four possible types of waves. There is 1 figure.

Card 1/1

SELEZOV, I.T. (Kiyev)

Study of wave processes in a cylindrical shell based on the generalized theory. Prykh.mekh. 9 no.5:480-486 '63. (MIRA 16:10)

1. Institut mekhaniki AN UkrSSR.

ACCESSION NR: AP4012586 S/0021/64/000/002/0185/0188

AUTHOR: Selezov, I. T.

TITLE: Reduction of the nonlinear problem of hydroelasticity to the solution of a system of linear differential equations

SOURCE: AN UkrRSR. Dopovidi, no. 2, 1964, 185-188

TOPIC TAGS: flow, motion, hydroelasticity, Mach number

ABSTRACT: The dynamic interaction of a liquid with an elastic shell of arbitrary curvature is considered. The solution of the nonlinear problem of hydroelasticity is sought in the form of expansion according to a small parameter representing the Mach number in the case when the velocity of the liquid is lower than that of sound in the liquid. As a result the problem is reduced to a series of linear approximations. The first approximation is acoustic while the following ones take into account the nonlinear hydrodynamic effects. Orig. art. has 25 formulas.

ASSOCIATION: Insty*tut Mekhaniky* AN UkrSSR (Institute of Mechanics, AN UkrSSR)

Card 1/2

L 52545-65 EWT(d)/EWT(l)/EWP(m)/EWT(m)/EWP(w)/EWA(d)/EWP(v)/EWP(k)/FCS(k)/EWA(h)/EWA(l) Pd-1/Pf-4/Peb WW/EM/RM

ACCESSION NR: AP5010197 UR/0373/65/000/001/0173/0175

AUTHORS: Selezov, I. T. (Kiev); Nikulinskaya, S. N. (Kiev)

TITLE: Propagation of small disturbances in a fluid flowing in an elastic cylindrical shell

SOURCE: AN SSSR. Izvestiya. Mekhanika, no. 1, 1965, 173-175

TOPIC TAGS: fluid flow, elastic shell, compressible fluid, Laplace transformation

ABSTRACT: The results of a theoretical study of the propagation of small disturbances in a fluid flowing through an elastic circular cylinder are presented. The fluid was assumed to be nonviscous and compressible, and the flow velocity was assumed to be small compared to the velocity of sound. An approximate solution was obtained for the problem, using the method of K. Lantsosh (Prakticheskiye metody prikladnogo analiza. Fizmatgiz, 1961). The hydroelastic equations for this problem are

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L 52545-65

ACCESSION NR: AP5010197

$$\frac{\partial v^*}{\partial \tau} = -\frac{p_0}{\rho_0 v_0 c}\frac{\partial p^*}{\partial x^*}$$

$$\frac{\partial p^*}{\partial \tau} = -\frac{k v_0}{p_0 c}\frac{\partial v^*}{\partial x^*} - \frac{2hk}{p_0 R_0}\frac{\partial w^*}{\partial \tau}$$

$$\frac{Dh}{p_0 l^4}\frac{\partial^4 w^*}{\partial x^{*4}} + \frac{Eh^2}{p_0 R_0^2} w^* + \frac{\rho_1 h^2 c^2}{p_0 l^4}\frac{\partial^2 w^*}{\partial \tau^2} = p^*$$

with the boundary conditions

$$p^*(\tau, x^*)|_{x^*=0} = w^*(\tau, x^*)|_{x^*=0} = \left.\frac{\partial^2 w^*}{\partial x^{*2}}\right|_{x^*=0} = 0$$

$$w^*(\tau, x^*)|_{x^*=1} = \left.\frac{\partial^2 w^*}{\partial x^{*2}}\right|_{x^*=1} = 0$$

$$v^*(\tau, x^*)|_{x^*=1} = \psi(\tau)$$

All the quantities appearing here are dimensionless. The solution for p* was obtained in the Laplace transformed space, in the form

$$P(r, x^*) = \sum_{j=1}^{3} C_j (e^{k_j x^*} - e^{-k_j x^*})$$

$$C_1 = \frac{1}{a_0}\frac{(k_3^2 - k_2^2)(e^{-k_2} - e^{k_2})(e^{-k_3} - e^{k_3})}{D_1 + D_2 + D_3}\left(\frac{k_2^2}{r^2} - 1\right)\left(\frac{k_3^2}{r^2} - 1\right)$$

$$D_1 = k_3(k_3^2 - k_1^2)(e^{-k_1} - e^{k_1})(e^{-k_2} - e^{k_2})(e^{-k_3} + e^{k_3})\left(\frac{k_1^2}{r^2} - 1\right)\left(\frac{k_2^2}{r^2} - 1\right)$$

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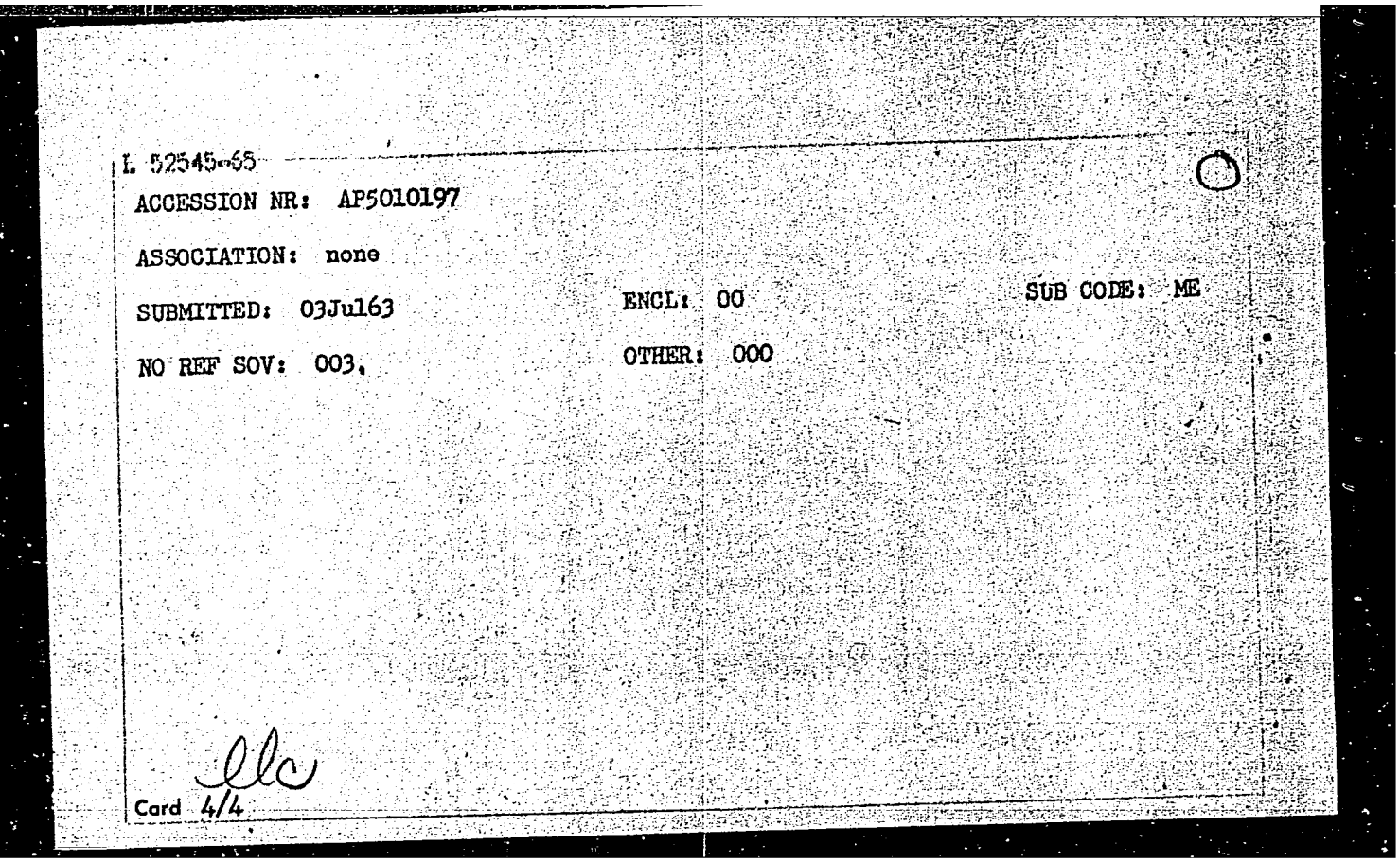
ACCESSION NR: AP5010197

Here r is the transformed variable, k_j the root of the characteristic equation, C_2 and C_3 are obtained by cyclical permutation of the indices. Results are presented for a specific example of a material with a Poisson ratio of 0.3, ratio of the elastic modulus of water to that of the material 1/36, ratio of the density of the material to that of water 2.86, $\xi = 0.02$, $1^* = 20$, $p_0 = 98000$ n/m^2, $\rho_0 \approx 980$ kg/m^3, $v_0 = 0.1$ m/sec, $c \approx 1410$ m/sec. For this case the pressure at various points is given by

$$p^*(\tau, 1) = 0.1794 - 15.31e^{-\tau} + 81.56e^{-2\tau} - 185.6e^{-3\tau} + 188.9e^{-4\tau} - 70.63e^{-5\tau}$$
$$p^*(\tau, 0.9) = 0.2618 - 18.03e^{-\tau} + 102.9e^{-2\tau} - 247.1e^{-3\tau} + 260.3e^{-4\tau} - 98.27e^{-5\tau}$$
$$p^*(\tau, 0.75) = 0.3422 - 10.63e^{-\tau} + 46.25e^{-2\tau} - 96.65e^{-3\tau} + 98.58e^{-4\tau} - 39.86e^{-5\tau}$$
$$p^*(\tau, 0.5) = 0.4202 - 18.16e^{-\tau} + 85.96e^{-2\tau} - 156.2e^{-3\tau} + 124.8e^{-4\tau} - 36.76e^{-5\tau}$$
$$p^*(\tau, 0.25) = 0.4637 - 18.52e^{-\tau} + 108.9e^{-2\tau} - 245.9e^{-3\tau} + 241.1e^{-4\tau} - 86.24e^{-5\tau}$$

The author thanks N. A. Kil'chevskiy for his constant interest in this work.
Orig. art. has: 20 equations and 1 figure.

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001547720007-8"



L 52545-65

ACCESSION NR: AP5010197

ASSOCIATION: none

SUBMITTED: 03Jul63 ENCL: 00 SUB CODE: ME

NO REF SOV: 003, OTHER: 000

Card 4/4

L 52293-65 EWT(d)/EWT(l)/EWT(m)/EWP(w)/EPF(n)-2/EWG(v)/EWA(d)/EWP(v)/EPR/EWA(h)/
EWP(k) Pe-5/Pf-4/Ps-4/Peb/Pu-4 WVH/WW/EM/GG

ACCESSION NR: AP5011585 UR/0198/65/001/003/0010/0016

55
54

AUTHOR: Selezov, I. T. (Kiev) 26 B

TITLE: Propagation of small perturbations in an elastic cylindrical shell filled with liquid 21

SOURCE: Prikladnaya mekhanika, v. 1, no. 3, 1965, 10-16

TOPIC TAGS: shell theory, cylindrical shell, perturbation theory, equation of motion, elastic shell, acoustic wave, sound speed, compressible fluid 21

ABSTRACT: Wave propagation in cylindrical shells filled with inviscid compressible fluid was studied analytically. The dynamic equations of hydro-elasticity for the shell-fluid system are written in cylindrical coordinates. The wave equation in the fluid and the fluid-solid boundary condition are expressed by

$$\frac{\partial^2\varphi^*}{\partial r^{*2}}+\frac{1}{r^*}\frac{\partial\varphi^*}{\partial r^*}+\frac{\partial^2\varphi^*}{\partial x^{*2}}=\frac{1}{c_0^{*2}}\frac{\partial^2\varphi^*}{\partial t^{*2}};$$

$$\frac{\partial w_0^*}{\partial t^*}=-\frac{\partial p^*}{\partial r^*}\Big|_{r^*=1}.$$

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For small perturbations, the phase velocity and the wavelength are shown to be related by

$$c^{*3} - A_3 c^{*2} + A_2 c^{*2} - A_1 c^{*1} + A_0 + \frac{\gamma_0}{2Q} l^{*2} \frac{J_0\left[\frac{2\pi}{l^*}\sqrt{\left(\frac{c}{c_0}\right)^2 - 1}\right]}{\frac{2\pi}{l^*}\sqrt{\left(\frac{c}{c_0}\right)^2 - 1}\, J_1\left[\frac{2\pi}{l^*}\sqrt{\left(\frac{c}{c_0}\right)^2 - 1}\right]} \times \frac{1}{\xi}\left(-B_3 c^{*3} + B_2 c^{*2} - B_1 c^{*1} + B_0\right) = 0,$$

which is a solution of the above hydro-elastic equations. An asymptotic expansion of this solution for $l \to \infty$ leads to a quadratic expression in the velocity c, one of which describes the motion of the fluid (including the elasticity of the wall) and the other describes the elastic oscillations of the shell. The asymptotic limit $l \to 0$, leads to the equation

$$\left(\frac{c}{c_0}\right)^2 = 1 - \frac{1}{4\pi^2}\left(\frac{1}{2E} + \sqrt{\frac{1}{4E^2} + \frac{1}{8E}}\right) l^{*2} + O(l^{*4}).$$

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L 52293-65
ACCESSION NR: AP5011585

where $c^* = c_0^*$ corresponds to a wave, propagating perpendicularly to the shell axis. It is shown that the fluid particles move and force a displacement in the shell skin where waves propagate at higher speeds than the speed of sound in the fluid. Orig. art. has: 26 equations and 1 figure.

ASSOCIATION: Institut mekhaniki AN UkrSSR (Institute of Mechanics, AN UkrSSR)

SUBMITTED: 31May64 ENCL: 00 SUB CODE: AS

NO REF SOV: 007 OTHER: 005

Card 3/3

L 02438-67 EWP(k)/EWP(h)/EWT(d)/EWT(m)/EWP(l)/EWP(w)/EWP(v) IJP(c) EM/WW

ACC NR: AP6026744 SOURCE CODE: UR/0198/66/002/005/0090/0094

AUTHOR: Merkulov, V. I. (Kiev); Selezov, I. T. (Kiev)

40
B

ORG: Institute of Cybernetics, AN UkrSSR (Institut kibernetiki AN UkrSSR)

TITLE: Increasing the dynamic rigidity of an elastic structural element by means of automatic control 14

SOURCE: Prikladnaya mekhanika, v. 2, no. 5, 1966, 90-94

TOPIC TAGS: structure dynamic stability, dynamic stress, THIN SHELL STRUCTURE 24

ABSTRACT: While the rigidity of elastic structural elements increased by increasing the number of cross sections, the useful weight of the element is substantially decreased. A model consisting of a hinged beam in parametric resonance with a velocity transducer placed at the middle of the beam was analyzed. The purpose of the study was to find new means of increasing the rigidity of thin-walled constructions without any notable increase in their weight. By placing tie-rods connected with elastic membranes inside the system, forces can be produced on the tie-rods which, in turn, generate controlling moments on the membranes. Mathematical analysis showed that such a method may offer a possibility for improving the dynamic rigidity of a flying apparatus where the external aerodynamic forces would be generated by the deflection of automatically-controlled carrying surfaces. The restriction parameters for damping and

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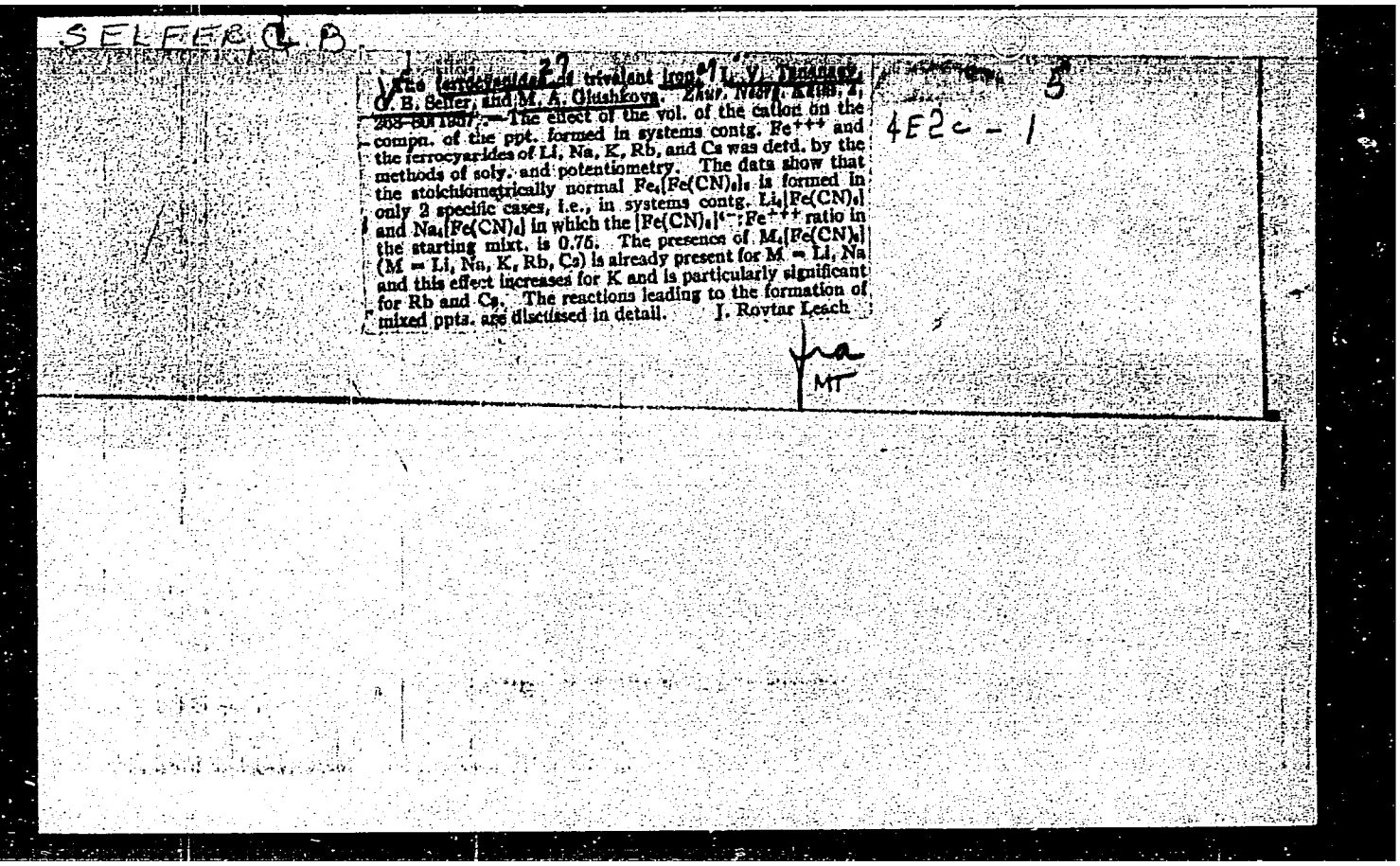
L 02438-67

ACC NR: AP6026744

attenuation of the vibrations are developed. Orig. art. has: 17 formulas, 2 figures.

SUB CODE: 20,01/ SUBM DATE: 29Apr65/ ORIG REF: 003

Card 2/2



SELFEB

22

The ferrocyanides of trivalent iron. I. V. Dmitrieva, O. B. Seifer, and M. A. Glushkova. Zhur. Neorg. Khim., 2, 263–80 (1957).—The effect of the vol. of the calon on the compn. of the ppt. formed in systems contg. Fe^{+++} and the ferrocyanides of Li, Na, K, Rb, and Cs was detd. by the methods of soly. and potentiometry. The data show that the stoichiometrically normal $Fe_4[Fe(CN)_6]_3$ is formed in only 2 specific cases, i.e., in systems contg. $Li_4[Fe(CN)_6]$ and $Na_4[Fe(CN)_6]$ in which the $[Fe(CN)_6]^{4-}:Fe^{+++}$ ratio in the starting mixt. is 0.75. The presence of $M_4[Fe(CN)_6]$ (M = Li, Na, K, Rb, Cs) is already present for M = Li, Na and this effect increases for K and is particularly significant for Rb and Cs. The reactions leading to the formation of mixed ppts. are discussed in detail. J. Rovtar Leach

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MT

SELFERT, J.

Nitrification in forest soils. p. 1

(Transactions on mathematics and the natural sciences - Czechoslovak Academy of Science) Vol. 68, No. 3, 1958

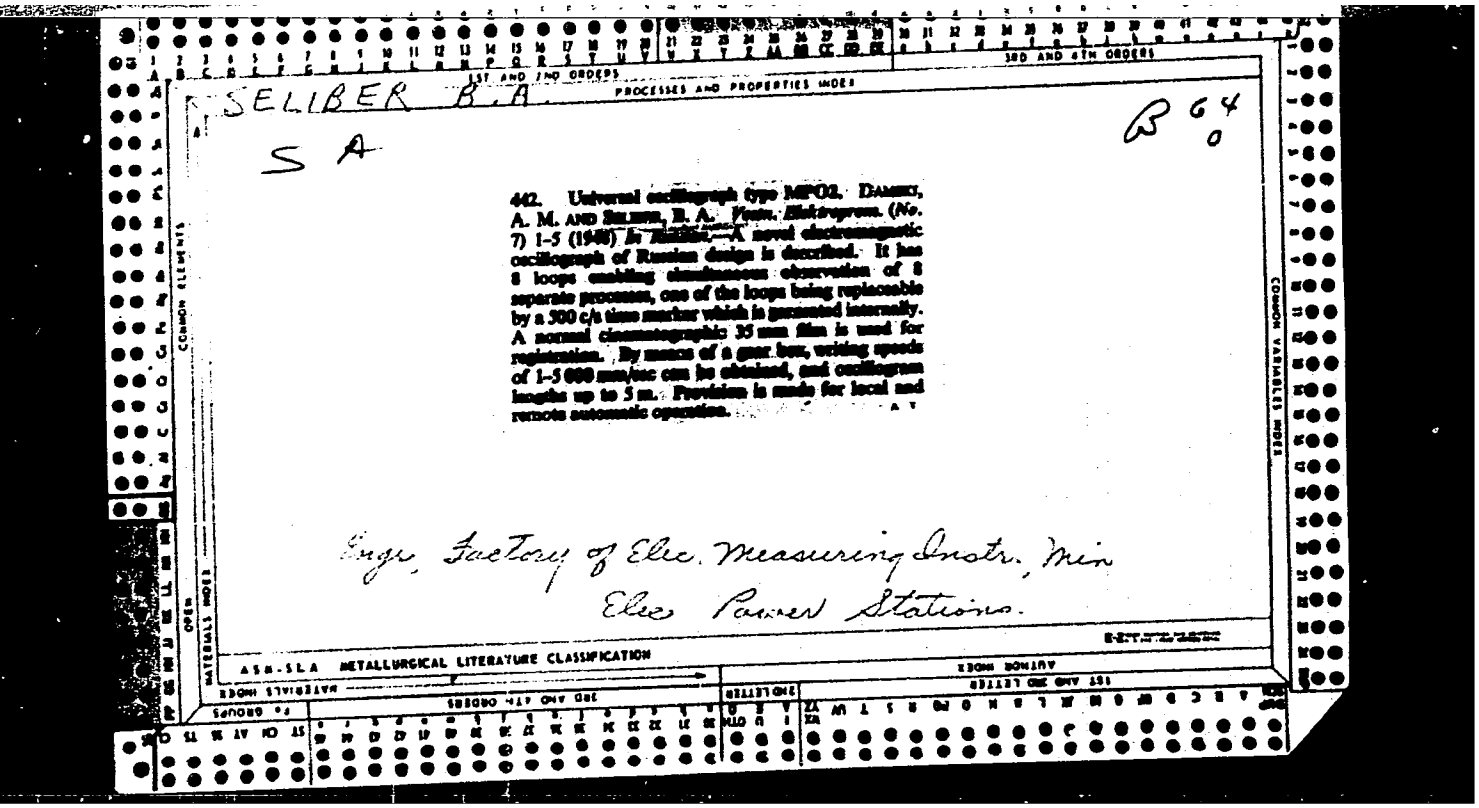
SO: Monthly Index of East European Accessions (EEAI) LC, Vol. 7, No. 5 May 1958

SELFERT, V., and others

"Apparatus for investigating corrosion in flowing liquids and highly aggressive media."

p. 986 (Institute of Applied Physics - Czechoslovak Academy of Science) Vol. 51, No. 5, May 1957

SO: Monthly Index of East European Accession (EEAI) LC, Vol. 7, No. 5, May 1958



SELIBER B.A.

S A

B 64 0

442. Universal oscillograph (type MPO2. Danilov, A. M. and Seliber, B. A. *Vestn. Elektroprom.* (*No.* 7) 1-5 (1948) *In Russian.*—A novel electromagnetic oscillograph of Russian design is described. It has 8 loops enabling simultaneous observation of 8 separate processes, one of the loops being replaceable by a 500 c/s time marker which is generated internally. A normal cinematographic 35 mm film is used for registration. By means of a gear box, writing speeds of 1–5 000 mm/sec can be obtained, and oscillograms lengths up to 5 m. Provision is made for local and remote automatic operation.

Engr, Factory of Elec. Measuring Instr., Min Elec Power Stations.

Seliber, B.A.

AID P - 1034

Subject : USSR/Electricity

Card 1/1 Pub. 27 - 11/23

Authors : Seliber, B. A., Eng. and Rabinovich, S. G., Eng., Leningrad

Title : Semi-automatic d-c potentiometers

Periodical : Elektrichestvo, 11, 63-68, N 1954

Abstract : Possibilities of improvement of precision d-c potentiometers are discussed. A precise, laboratory type, universal semi-automatic potentiometer with a photo-compensation amplifier is described. Possibilities of further application of photo-compensating amplifiers for precision potentiometers are examined. Five diagrams, 1 photograph, 4 references (1935, 1940, 1943 and 1953).

Institution : None

Submitted : Ap 6, 1954

Category : USSR/Radiophysics - Radio-wave Reception I-7

Abs Jour : Ref Zhur - Fizika, No 2, 1957, No 4586

Author : Seliber, B.A., Rabinovich, S.G.
Title : DC Photo-Compensation Amplifiers

Orig Pub : Avtomatika i telemekhanika, 1956, 17, No 8, 728-745

Abstract : The theory of photo-compensation amplifiers is considered. The basic versions of the circuits are given. The errors of amplifiers and methods for eliminating such errors are investigated. The operation of a photocell is analyzed and recommendations are given concerning the choice of type and of operating mode. By way of illustration, a new photo-compensation automatic-recording amplifier with a sensitivity 2×10^{-8} v/mm is described. Ways of further application of photo-compensation amplifiers are indicated.

Card : 1/1

AUTHOR: Seliber, B.A. SOV-115-58-4-34/45

TITLE: The Magneto-inductive Damping of High-Frequency Oscillograph Vibrators (Magnitoinduktsionnoye uspokoyeniye vysokochastotnykh ostsillograficheskikh vibratorov)

PERIODICAL: Izmeritel'naya tekhnika, 1958, Nr 4, pp 77-81 (USSR)

ABSTRACT: The author demonstrates the extent to which the degree of damping affects the natural frequency range of an oscillograph vibrator. The defects of a liquid damping system in this respect are illustrated and contrasted to the advantages of the magneto-inductive method of damping. Some problems inherent in this system are discussed, and the characteristics of some actual oscillograph vibrators with magnetoinductive damping are given. The author advocates the general replacement of the liquid by the magneto-inductive damping method. There are 4 graphs, 5 diagrams, 1 table and 5 references, 2 of which are German and 3 Soviet.

1. Vibrographs--Performance

Card 1/1

SOV/115-59-7-18/33

9(3)

AUTHOR: Seliber, B.A., Rabinovich, S.G., Mints, M.B.

TITLE: Universal Direct-Current Percentage Bridges

PERIODICAL: Izmeritel'naya tekhnika, 1959, Nr 7, pp 35-38 (USSR)

ABSTRACT: The authors discuss theoretical aspects of a universal direct-current percentage bridge. Based on these considerations, they describe the R-19 percentage bridge disigned and manufactured at the plant "Vibrator". The bridge is designed for measuring resistances in the range of 1 ohm to 1 megohm and has 3 measuring ranges of percentage error ±0.25; ±2.5 and ±25%. The graduation value of the indicating instrument is 0.01, 0.1 and 1% accordingly. For routine engineering measurements, when an accuracy of 0.1-0.3% is adequate, an ordinary resistance box, for example, KMS-6, may be used in the comparison arm of the bridge. A somewhat simplified circuit diagram of the bridge is shown in fig.2, while fig.3 shows a photograph of the bridge. The overall dimensions are 410x300x 180mm. The weight is 12 kg. The power required from the network does not exceed 50 watts. There are 2 circuit diagrams, 1 photo - graph and 5 references, 3 of which are Soviet and 2 German.

Card 1/1

NESTERENKO, A.D., otv.red.; LEVIN, M.I., doktor tekhn.nauk, red.; ORNATSKIY, P.P., kand.tekhn.nauk, red.; PETROCHENKO, V.F., kand.tekhn.nauk, red.; GORODOVSKIY, A.F., inzh., red.; ZASLAVSKIY, S.Sh., inzh., red.; SELIBER, B.A., inzh., red.; KAZANTSEV, B.A., red.izd-va; YEFIMOVA, M.I., tekhn.red.

[Problems in the manufacture of general electrical instruments] Voprosy obshchego elektropriborostroeniia. Kiev, 1960. 262 p. (MIRA 13:6)

1. Akademiya nauk USSR, Kiyev. Institut elektrotekhniki.
2. Chlen-korrespondent AN USSR (for Nesterenko).

(Electric instruments)

MINTS, M.B.; RABINOVICH, S.G.; SELIBER, B.A.; TKACHENKO, A.N.

Designing photoelectric compensation devices. Izm.tekh. no.9:31-34 S '61. (MIRA 14:8)
(Photoelectric measurements)

MINTS, M. B.; RABINOVICH, S. G.; SELIBER, B. A.; TKACHENKO, A. N.

New set of photocompensation devices. Priborostroenie no.11:24-26 N '61. (MIRA 14:10)
(Photoelectric measurements)

SELIBER, B. A.

"The problem of improving coil instruments."

report submitted for the 3rd Intl. Measurement Conf & 6th Intl Instruments & Measurements Conf, Stockholm, 14-19 Sep 64.

SELIBER, B. A.

"The problem of improving moving coil instruments."

report submitted for Intl Fed of Automatic Control & of Information Processing Conf, Stockholm, 21-23 Sep 64.

KULIKOVSKIY, Longin Frantsevich; MELIK-SHAKHNAZAROV, Aleksandr Mikhaylovich; RABINOVICH, Semen Girshevich; SELIBER, Boris Abelevich; MAMIKONOV, A.G., red.; BORUNOV, N.I., tekhn. red.

[Galvanometric compensators] Gal'vanometricheskie kompensatory. Moskva, Izd-vo "Energiia," 1964. 279 p. (MIRA 17:3)

SELIBER, G. L.

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C. '62

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SPLIC, MIODRAG.

Gornji stroj Jugoslaverskih zeleznica. Osnovi gornjeg stroja. Beograd, Izd. Glavne direkcije Jugoslovenskih zeleznica, 1953. 572 p.

SO: FEAL, Vol. 5, No. 7 July 1956

SELIS, I.

"Railroad tie of the Future." (To be contd.) p. 161, (ZELEZNICE, Vol. 13, No. 5, May 1958, Beograd, Yugoslavia)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 8, No. 12, Dec. 1959, Uncl.

[illegible], [illegible].

Railroad ties of the future. ([illegible]) p. 200. ([illegible], Vol. 10, no. 1, June, 1954, Beograd, Yugoslavia)

SO: Monthly List of East European Accessions, (LEEA), LC, Vol. 4, no. 1 Jan. 1955, Uncl.

SELIC, M

SELIC, M. Characteristics of the ballast of modern tracks and track work. p. 289

Vol. 10, No. 8, Aug. 1954
ZELEZNICE
TECHNOLOGY
Beograd

So: MONTHLY LIST OF EAST EUROPEAN ACCESSIONS, (EEAL), Vol, 4, No. 9,
Sept. 1955

KURSHAKOV, N.A.; KIRILLOV, S.A.; SELIDOVKINA, A.A. (Moskva)

Cardiac contractions in hypertensive and rheumatic patients.
Kardiologiia no.3:12-16 '65. (MIRA 18:10)

1. Chlen-korrespondent AMN SSSR (for Kurshakov).