"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

ZHARKOV, V.

Maritime fleet in the second year of the sixth five-year plan.
Blok.agit. vod. transp. no.1:1-10 Ja '57. (MLRA 10:2)

1. Zamestitel' ministra morskogo flota.
(Merchant marine)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

ZHARKOV, V.

Sea transportations should conform to current tasks. Mor.flot 18 no.3:1-3 Mr '58. (MIRA 11:4)

1. Zamestitel' ministra morskogo flota.
(Merchant Marine)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

ZHARKOV, V.

Under the flag of the motherland. Starsh.-serzh. no.4(7):1 Ap '61. (MIRA 14:7)

1. Ministerstvo morskogo flota SSSR.
(Merchant marine)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

21(7) SOV/20-122-2-12/42

AUTHORS: Tumanyan, V. A., Zharkov, V. A., Stolyarova, G. S.

TITLE: Allowance for Pseudotrident Process in Estimating the Cross Section for the Direct Formation of Electron-Positron Pairs by Electrons (Uchet psevdotroynykh protsessov pri otsenke secheniya neposredstvennogo obrazovaniya elektronno-pozitronnykh par elektronami)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 122, Nr 2, pp 208-210 (USSR)

ABSTRACT: In the determination of the cross section of the immediate production of electron-positron pairs by high-energy electrons ("trident" (troynik)) it is essential to know the number of the so-called "pseudotridents" produced on a given length of the electron track. These "pseudotridents" are produced by the conversion of the γ-quanta of the bremsstrahlung of the electron in the immediate neighborhood of its track. The authors calculated the number of the "pseudotridents" according to the Monte-Carlo (Monte Karlo) method. These calculations were carried out for nuclear emulsions for the following 3 initial energies of the electrons:

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SOV/20-122-2-12/42

Allowance for Pseudotrident Processes in Estimating the Cross Section for the Direct Formation of Electron-Position Pairs by Electrons

10^{10}, 10^{11}, 10^{12}, eV. According to the results of these calculations, the number of the "pseudotridents" depends slightly depends on the criteria mentioned by the authors. The results of this paper are then compared with those obtained by other authors. It is interesting to estimate the number of the immediate pair-productions by electrons on the basis of the number of the "pseudotridents". The results of this estimation are given in a table. Finally, the authors in some lines report on the results of other papers. They thank Professor I. I. Gurevich for his interest in this paper, B. A. Nikol'skiy for useful advice, and A. P. Sobolev for his help in the calculations. There are 2 figures, 2 tables, and 9 references, 3 of which are Soviet.

PRESENTED: May 13, 1958, by L. A. Artsimovich, Academician

SUBMITTED: February 5, 1958

Card 2/2

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

ZHAROV, V.G., kand.veter. nauk

Disinfection of swine houses in the case of infectious atrophic rhinitis. Veterinariia 40 no.2:64-67 F '63. (MIRA 17:2)

1. Kuybyshevskaya nauchno-issledovatel'skaya veterinarnaya stantsiya.

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

ZHARKOV, V.I.; GULIDOV, A.M.

Fungicidal effect of the esters of 2,4-D. Zashch.rast.ot vred. i bol. 7 no.4:58 Ap '62. (MIRA 15:12)

1. Laboratoriya gerbitsidov Grakovskogo opytnogo polya Nauchno-issledovatel'skogo instituta po udobreniyam i insektofungisidam imeni Ya.V. Samoylova, Khar'kovskaya obl.
(2,4-D)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

ZHARKOV, V. I.

24171 ZHARKOV, V. I. Ispol'zovaniye pastbishch v sovkhoze "Kenimekh". (Uzbek. SSR). Karakulevodstvo i zverovodstvo, 1949, No. 4, S. 17-19.

SO: Letopis, No. 32, 1949.

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

ZHARKOV, V. I.

24172 ZHARKOV, V. I. Orazrezhennom vodopoye ovets. Karakulevodstvo i zverovodstvo, 1949, No. 4, S. 69-70.

SO: Letopis, No. 32, 1949.

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

DOROKHIN, Ye.I.; ZHARKOV, V.M.

Emery wheel equipment for the cleaning of ingots. Metallurg 9 no.7:30 Jl '64. (MIRA 17:8)

1. Magnitogorskiy gornometallurgicheskiy institut.

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

ZHAROV, V.O.

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

ZHARKOV, V. ...

Dissertation: "The Theory of the Kimetic Coefficients of Weak Solutions of He^3 in Helium II." Cand Phys-Math Sci, Khar'kov State U, Khar'kov, 1954.
Referativnyy Zhurnal--Khimiya, Moscow, No 7 Apr 54.

SO: SUM 284, 26 Nov 1954

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

ZHARKOV, V. N.

56-5-22/55

AUTHOR KHALATNIKOV, I.M., ZHARKOV, V.N.

TITLE The Theory of Diffusion and of Heat Conductance of the Weak Solutions of He^3 in Helium II.
(Teoriya diffuzii i teploprovodnosti slabykh rastvorov He^3 v geliii II - Russian)

PERIODICAL Zhurnal Eksperim.i Teoret.Fiziki,1957,Vol 32,Nr 5,pp 1108-1125 (U.S.S.R.)

ABSTRACT The paper under review employs Landau's theory of the superfluidity of Helium II. In order to determine the dependence of the kinetic coefficients of the solution upon the temperature and upon the concentration, it is necessary to determine the distribution functions which describe the behavior of gases of the elementary excitations in presence of zero different temperature gradients, of a concentration c, and of a velocity $\vec{v}_n$. The distribution functions are defined as solutions of a kinetic equation. At nonvanishing temperature gradients and concentrations there originates in the solution a motion of the normal and of the superfluid part of helium II, and this leads to additional terms in the left side of the kinetic equation. The kinetic equation as obtained by taking into account the additional terms- for the admixture excitations in a weak solution of He^3 in helium II is written in its explicit form in the paper under review. Then in this equation those terms are left aside which are connected with the first and the second viscosity of the solution. The next chap-

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

The Theory of Diffusion andof Heat Conductance of 56-5-22/55
the Weak Solutions of He^3 in Helium II.

ter deals with the collisions between the elementary excitations, namely with the scattering of the admixture by a roton(?),the scattering of an admixture by an admixture,and the scattering of a phonon by an admixture.Then the temperature dependence of the coefficient of diffusion is computed, and this for the following four boundary cases:in the range of high temperatures:(1) the relative amount of the admixture particles is much smaller than the number of excitations,(2) there exists more admixtures than thermal excitations(rotons);in the range of low temperatures:(1)the number of photons is small as compared to the number of admixtures,(2) there are much less admixtures than phonons.The subsequent chapters of the paper under review deal with thermodiffusion,with heat conductance, and with the effective heat conductivity of the solutions. The results obtained during the course of these investigations are accurate in the temperature range $T \leqslant 1.6$ to $1.8^{\circ}K$ where the rotons may be considered as an ideal gas.
(2 reproductions).

ASSOCIATION Institute for Physical Problems, Academy of Science of the USSR
PRESENTED BY
SUBMITTED 8.6.1956
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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

ZHARKOV, V. N.

56-4-16/54

AUTHOR: Zharkov, V.N.

TITLE: The Influence of an Admixture of He^3 on the Viscosity of Helium II (Vliyaniye primesi He^3 na vyazkost' geliya II)

PERIODICAL: Zhurnal Eksperim. i Teoret. Fiziki, 1957, Vol. 33, Nr 4, pp. 929 - 932 (USSR)

ABSTRACT: An admixture of He^3 in helium II can be considered as a mixture of three gases of elementary excitation, namely:

1.) Gas of rotons $\rightarrow \varepsilon_p = \Delta_p + (p - p_o)^2 2m$

2.) Gas of phonons $\rightarrow \varepsilon = sp$

3.) Gas of the additional excitation

$$\varepsilon_i = \Delta_i + p^2/2\mu$$

Accordingly the viscosity is composed of 3 partial viscosities:

a) viscosity of rotons (η_R)

b) viscosity of phonons (η_{PH})

c) viscosity of the addition (η_Z)

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

The Influence of an Admixture of He^3 on the Viscosity of Helium II 56-4-16/54

The temperature dependence and the concentration dependence of the total viscosity are theoretically determined. It may be seen from the resulting curves that above $\sim 1,1^{\circ}K$ the presence of admixtures does not possess any considerable influence on the viscosity of helium II. Below $1,1^{\circ}K$, however, strong influence occurs. There are 1 figure and 5 Slavic references.

ASSOCIATION: Institute for Physics of the Earth AN USSR (Institut fiziki zemli Akademii nauk SSSR)

SUBMITTED: April 11, 1957

AVAILABLE: Library of Congress

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APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

49-58-4-4/18

AUTHOR: Zharkov, V. N.

TITLE: The Electrical Conductivity and Temperature of the Earth's Crust (Ob elektroprovodnosti i temperature obolochki zemli)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Geofizicheskaya, 1958, Nr 4, pp 458-470 (USSR)

ABSTRACT: The Western data on the conductivities of rocks, as affected by high temperatures and pressures and Western estimates of melting-point gradients are used in conjunction with concepts derived from modern solid-state physics (impurity semiconductors) to derive valves and formulae for the conductivity of the Earth's crust. It is stated that in contrast to earlier published treatments, the dependence of compressibility on the pressure has been taken into consideration. A formula is derived for determining the dependence of the fusion temperature on the pressure, assuming that fusion occurs when the concentration of the defects in the crystalline substance reaches a certain value. The assumption is expressed that a sharp increase of the electric resistance in the transient layer, at a depth of 400-700 km, is linked with the transition to admixture type semiconductor activity.

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

The Electrical Conductivity and Temperature of the Earth's Crust. 49-58-4-4/18

Acknowledgements are made to B. I. Davidov and V. A. Magnitskiy for valuable information given in discussing the subject matter. There are 2 tables, 2 figures and 14 references, of which 4 are Soviet and 9 English.

ASSOCIATION: Akademiya nauk SSSR, Institut Fiziki Zemli (Academy of Sciences, USSR, Institute for Studying the Physics of the Earth)

SUBMITTED: April 3, 1957.

1. Earth—Electrical properties 2. Earth—Temperature factors

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APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

SOV/ 49-58-11-7/18

AUTHOR: Zharkov, V. N.

TITLE: Conductivity of the Earth Mantle
(O koeffitsiyente teploprovodnosti obolochki zemli)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Geofizicheskaya, 1958, Nr 11, pp 1342-1350 (USSR)

ABSTRACT: The coefficient of thermal cor tivity of a crystalline solid, e.g. granite, may be sel ated into two parts: a 'lattice' part, say $\varkappa_L$, and a radiation' part, say $\varkappa_R$. At the temperatures and pressures encountered in soils at great depths both parts contribute significantly to the total coefficient $\varkappa = \varkappa_L + \varkappa_R$.

The first part of this paper discusses $\varkappa_L$ and its temperature and pressure dependence. Two formulae for $\varkappa_L$ are compared; the first is:

$$\varkappa_L = \frac{A\, V^{1/3}\, \Theta^3}{\gamma^2 T} \qquad (2)$$

and is obtained empirically.
Here A is a normalisation constant;
V is the volume of a unit lattice cell;

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Conductivity of the Earth Mantle

Θ is the Debye temperature for the lattice in question;
$\gamma = -\partial(\ln \Theta)/\partial(\ln V)$, the so-called Gruneisen parameter;
T is absolute temperature.

The second formula is:

$$\varkappa_L \approx \frac{1}{3} \sum_j \int c_{fj}\, l_{fj}\, v_{fj} \frac{d\,f}{(2\pi)^3} \qquad (3)$$

and is derived from a theoretical analysis of the lattice vibrations. This is an approximate formula which may be used if the Debye temperature is not given explicitly. Here the summation is over all modes of vibration j. C_{fj}, l_{fj}, v_{fj} are respectively the specific heat, free vibration amplitude and group velocity appropriate to the wave vector $\underline{f}$. The relation between optical and acoustical vibrations for a crystalline solid are discussed in terms of these formulae, and Brillouin zones for both types of

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vibration in granite are depicted. From a knowledge of the temperature and pressure dependence predicted by the formulae the variation of $\varkappa_L$ with depth can be calculated. The second part of the paper discusses the following formula for $\varkappa_R$:

$$\varkappa_R = \frac{1}{3} \int c_f \, l_f \, v_f \, \frac{m \, \Phi(f) \, d \, f}{(2\pi)^3} \qquad (8)$$

Here C_f is the photon gas 'specific heat' associated with the infrared radiation of wavelength $\approx 1\mu$, which will be present at temperatures of a few thousand degrees K.

$$C_f = \frac{d}{dT} \frac{\hbar w_f}{\exp\left(\frac{\hbar w_f}{kT}\right) - 1}$$

w_f is the frequency associated with the photon wave vector $\underline{f}$;

l_f is a function of w and is the reciprocal of the absorption coefficient α_f;

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Conductivity of the Earth Mantle

v_f is the photon group velocity ($v_f = c/n$ where c is the velocity in vacuo and n is refractive index); m is the number of independent photon polarisation directions;

$$\Phi(f) = \frac{4\pi w^2 n^3(w)}{c^3}$$

The temperature and pressure variations in $\varkappa_R$ are calculated and are used to express $\varkappa_R$ as a function of depth. Variations in $\varkappa_L$, $\varkappa_R$ and $\varkappa = \varkappa_L + \varkappa_R$ are presented graphically for depths ranging from 200 kilometres to 2700 kilometres. At 200 km $\varkappa_R \approx 1 \times 10^{-3}$ c.g.s. unit and $\varkappa_L \approx 2 \times 10^{-3}$ c.g.s. unit, both increase initially with depth, but $\varkappa_L$ levels off at around 2000 km, and is overtaken by $\varkappa_R$ at 2600 km at which point $\varkappa_L = \varkappa_R \approx 16 \times 10^{-3}$ c.g.s. unit.

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

SOV/ 49-58-11-7/18

Conductivity of the Earth Mantle

There are 5 figures, 1 table and 17 references, 6 of which are Soviet, 8 English, 3 German.

ASSOCIATION: Akademiya nauk SSSR, Institut fiziki Zemli (Institute of Physics of the Earth, Ac.Sc. USSR)

SUBMITTED: May 28, 1957

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APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

66014

S/049/59/000/03/013/019

3.9000

AUTHOR: Zharkov, V. N.

TITLE: The Melting Point of the Earth's Mantle and of Iron at High Pressures

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya geofizicheskaya, 1959, Nr 3, pp 465-470 (USSR)

ABSTRACT: Recently the author (Ref 3) described a method of determining $T_m = f(p)$, where T_m is the melting point and p is the pressure, using density of thermal defects of the crystal lattice: melting occurs when this density reaches a critical value. This method was applied to the earth's mantle and to iron. The melting point of the earth's mantle was found to be 1000°K lower than Uffen's value (Ref 1) for depths greater than 1000 km. The $T_m = f(p)$ dependence of iron was found using the standard

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

66014

S/049/59/000/03/013/019

The Melting Point of the Earth's Mantle and of Iron at High Pressures

Lindemann's method and the present author's critical defect density method: both gave practically identical results. For pressures at the boundary between the earth's mantle and the core ($\sim 1.4 \times 10^6$ atm) T_m of iron was found to be $\sim 4100^\circ K$, which is much greater than the values reported by Simon (Ref 4) and Bullard (Ref 5). Acknowledgment is made to B. I. Davydov for his advice. There are 2 figures and 12 references, 5 of which are Soviet and 7 English.

ASSOCIATION: Akademiya nauk SSSR, Institut fiziki Zemli (Ac. Sc. USSR, Institute of Physics of the Earth)

SUBMITTED: December 26, 1957

Card 2/2

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

SOV/49-59-9-17/25

AUTHOR: Zharkov, V. N

TITLE: Thermodynamics of the Earth's Mantle

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya geofizicheskaya, 1959, Nr 9, pp 1414-1419 (USSR)

ABSTRACT: The calculations are made for the Bullen Earth's model with adiabatic compressibility $\beta_s = 1/K_s$ determined by means of velocities V_p and V_s and distribution of density ρ. That part of the free energy F_T which depends on the temperature is defined by Eq (1) where N - number of simple nuclei, ν - number of atoms in a nucleous. The values of N and ν are related to the number of molecules $\bar{N}$ and number of atoms in a molecule $\bar{\nu}$ as shown in Eq (2). $\theta_0 = \hbar\omega_0/k$ in Eq (1) defines the mean optical temperature and D (x) is the Debye function (Eq (3)). The thermal pressure P_T can be expressed by Eq (4) where γ_a - acoustic parameter (Eq (5)) and γ_0 - optical parameter (Eq (6)). The distribution with depth of γ_a (curve 1) and θ (curve 2) is shown in Fig 1. The numerical calculations were performed for $\nu = 28$, $\theta_{01} = 1520$ K, $\theta_{02} = 1250°$K,

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$\theta_{03} = 900^{\circ}K$. The results obtained from Eq (8) are illustrated in Fig 2 where the thermal pressure P_T (1 - high temperature, 2 - low temperature) and the pressure P (curve 3) in the mantle are given and in Fig 3 where the ratio dP/dT in the mantle is shown (1 - high temperature, 2 - low temperature). The values of β_T for different depths, as determined from Eq (9) (where C_V - thermal capacity) are shown in Tab 1. Tab 2 gives some results obtained by the author (2 to 5 columns) and by the Affen as quoted by Jacobs in Ref 3 (last 4 columns). Tab 3 gives the thermodynamic values in relation to the adiabatic gradient T_l/T_{100} (Eq (13)). The distribution of density as calculated from Eq (14) is given in Fig 4. Thanks are given by B. I. Davydov and M. S. Molodenskiy for advice. There are 4 figures, 3 tables and 10 references, 3 of which are Soviet, 6 English and 1 Italian.

ASSOCIATION: Akademiya nauk SSSR. Institut fiziki Zemli (AS USSR. Institute of Physics of Earth)

SUBMITTED: June 4, 1958

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APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

24(8) SOV/56-37-1-23/64

AUTHORS: Zharkov, V. N., Silin, V. P.

TITLE: The Theory of Weak Solutions of He^4 in Liquid He^3 (Teoriya slabykh rastvorov He^4 v zhidkom He^3)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 37, Nr 1(7), pp 143-153 (USSR)

ABSTRACT: The present paper is concerned with the thermodynamics and the kinetic phenomena in weak solutions of He^4 in liquid He^3. In the case of such a solution, 2 kinetic coefficients are to be considered in addition to the viscosity coefficient η and the heat-conduction coefficient $\varkappa$, i.e. the diffusion coefficient D and the coefficient of thermodiffusion Dk_T, k_T denoting the thermodiffusion ratio. These coefficients are determined by the equations $\vec{i} = -\varrho D(\nabla c + \frac{k_T}{T}\nabla T)$ at $\vec{g} = \vec{g}_{imp} + \vec{g}_{Fermi} = 0$, $\vec{Q} = -\varkappa \nabla T$ at $\vec{i} = 0$. $\vec{i}$ denotes the current of impurities, Q the heat flow, $\vec{g}$ the total current of the momentum in the solution; the latter is composed of the momentum transferred by the impurity excitations $\vec{g}_{imp}$, and of the momentum $\vec{g}_F$ transferred by the Fermi

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

excitations. Instead of the usual deviation of the distribution function of the Fermi excitations from the equilibrium value δn_Φ, a certain effective expression

$\overline{\delta n}_\Phi = \delta n_\Phi - \frac{\partial n}{\partial \varepsilon}\int \delta n_\Phi f(\vec{p},\vec{p}')d\tau'$ enters the collision integrals caused by the scattering of the Fermi excitations. But the same expression appears, instead of the usual δn_Φ, in the formulas for the various currents determined by Fermi excitations. This is why the form of δn_Φ is not observable in the calculations. The first part of the present paper deals with the thermodynamics of weak solutions of He^3 in liquid He^4. The authors investigate the conditions under which the dissolved He^4 atoms can be described by Boltzmann's statistics. The deviations from classical statistics occur at those temperatures at which only the interaction of the impurity excitations between each other, or the quantumlike degeneration of the impurity gas, are essential. The spin of the atoms is equal to zero, and the temperature T_0 of the degeneration of the impurity gas is therefore equal to $T_0 = \hbar^2 n_0^{2/3} c^{-2/3}/kM)(3^{2/3}\pi/2)$. $n_0 = 0/m^3$ denotes the number of atoms

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of pure He^3 in 1 cm^3, m_3 the mass of the He^3 atom, $\bar{c}$ the concentration of He^3. The authors then compare T_0 with those temperatures at which the interaction of the impurities between each other plays a certain role. The second part deals with the kinetic equation. This equation determines the distribution function of the elementary excitations in the solution of He^4 in liquid He^3, and has the form: $\mu_\Phi = \mu_0 - kT\bar{c}$. The authors derive the kinetic equation for the Fermi excitations and also for the impurities, the collision integrals in the standard form as well as the effective cross sections for the scattering of the impurities on the Fermi excitations and impurities. The third part deals with the diffusion of the impurities. As this problem can hardly be solved accurately, the two limiting cases of high (range of validity of the Pomeranchuk law) and low temperatures are investigated; the results in the intermediate range can then be determined by interpolation. The corresponding diffusion coefficients are explicitly written down. The thermodiffusion ratio is calculated in a similar manner as the diffusion coefficient. The thermodiffusion coefficient is

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

The Theory of Weak Solutions of He^4 in Liquid He^3 SOV/56-37-1-23/64

small as compared with the diffusion coefficient. The viscosity and the thermal conductivity are calculated in the last two parts. The authors thank B. I. Davydov for a useful discussion. There are 14 Soviet references.

ASSOCIATION: Institut fiziki Zemli Akademii nauk SSSR (Institute for the Physics of the Earth of the Academy of Sciences, USSR)

SUBMITTED: January 23, 1959

Card 4/4

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

3(10) SOV/20-125-4-22/74

AUTHOR: Zharkov, V. N.

TITLE: On the Physical Nature of Wave Guides (Layers of Reduced Velocity) in the Upper Regions of the Shell at Depths of 50 - 200 km (O fizicheskoy prirode volnovodov (sloyev s ponizhennoy skorost'yu) v verkhnikh oblastyakh obolochki na glubinakh 50 - 200 km)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 125, Nr 4, pp 771-774 (USSR)

ABSTRACT: According to V. A. Magnitskiy (Ref 5) the physical nature of a wave guide can be due to three classes of phenomena at depths of 50 - 200 km: 1) To the effect of temperature. The increase of temperature leads to a linear decrease of the elasticity moduli and of density. An increase of pressure increases the elasticity moduli and density. Certain authors are of the opinion that a Gutenberg wave guide causes the following: 2) the effect of phase transitions, 3) the effect of the variable composition. The author then raises several objections against these possibilities of explaining the problem. In his opinion it is necessary to develop a physical theory which leads to the actual frequency dependence of the

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On the Physical Nature of [illegible] Wave Guides (Layers of [illegible] Reduced Velocity) in the Upper Regions of the Shell at Depths of 50 - 200 km SOV/20-125-4-22/74

effect and to the actual type of the seismic waves. The present paper endeavors to develop such a theory. For this purpose, the crust of the earth is considered to be polycrystalline. Calculation steps in connection with this theory are outlined. These calculations lead, among others, to the following conclusions: At a given frequency the decrease of the transversal velocity of seismic waves becomes apparent in observation sooner than the reduction of the velocity of longitudinal waves. According to the author's opinion, the lower and upper boundary of the wave guide is lower (or higher respectively) in the case of S-waves than in that of P-waves. Thus, the wave guide is broader in the case of S-waves than in that of P-waves. Moreover, the width of the wave guide, its velocity profile, and the intensity of the absorption of P- and S-waves in it depend on frequency. Furthermore, the theory facilitates determination of the approximated temperature course in the wave guide from the temperature at the point of reference in a depth of 50 km.

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

On the Physical Nature of the Wave Guides (Layers of Reduced Velocity) in the Upper Regions of the Shell at Depths of 50 - 200 km SOV/20-125-4-22/74

The author thanks B. I. Davydov, V. I. Keylis-Borok, V. A. Magnitskiy, and M. S. Molodenskiy for discussing the present paper. There are 2 figures and 9 references, 3 of which are Soviet.

ASSOCIATION: Institut fiziki Zemli im. O. Yu. Shmidta (Institute for the Physics of the Earth imeni O. Yu. Shmidt)

PRESENTED: December 16, 1958, by M. A. Leontovich, Academician

SUBMITTED: December 2, 1958

Card 3/3

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

ZHARKOV, V.N.

Physics of the earth's core. Thermodynamic properties. Pt.1.
Izv.AN SSSR.Ser.geofiz. no.10:1417-1425 O '60. (MIRA 13:9)

1. Akademiya nauk SSSR, Institut fiziki Zemli.
(Earth--Internal structure) (Thermodynamics)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

27754
S/058/61/000/007/049/086
A001/A101

18.7500 also 2108

AUTHOR: Zharkov, V.N.

TITLE: Effect of pressure on diffusion coefficient in solid bodies

PERIODICAL: Referativnyy zhurnal. Fizika, no. 7, 1961, 231, abstract 7E79 ("Tr. In-ta fiz. Zemli. AN SSSR", 1960, no. 11 (178), 14 - 35)

TEXT: The author attempts to derive semiempirical relations for quantities determining diffusion, which would make it possible to extrapolate reliably up to pressures of $\sim 10^6$ atm. The dependence of energies of defect formation according to Frenkel and Schottky defects, W_F and W_S, and also energies of activation of defect diffusion, U_F and U_S, on p is expressed in terms of a comparatively slowly varying quantity $\partial \ln W_{op}/\partial \ln V$ which is determined from the relation:

$$W_{op} = W_{oo} \exp \left\{ \frac{\partial \ln W_{op}}{\partial \ln V} \right\} \chi_T dp$$

where W_{oo} is energy at $T = 0^oK$ and $p = p_o$, χ is isothermal compressibility, v is volume. The following realtion is derived for dependence of self-diffusion coefficient D_p on p and T:

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A001/A101

Effect of pressure ...

$$D_p = D_0 \exp\left\{-\frac{1}{kT}\left[\frac{W_{00}}{2}\exp\left(-\int_{p_0}^{p}\frac{\partial \ln W_{0p}}{\partial \ln V}\chi_T dp\right) + U_{00}\exp\left(-\int_{p_0}^{p}\frac{\partial \ln U_{0p}}{\partial \ln V}\chi_T dp\right)\right]\right\}.$$

Expressions are derived for ionic molecular crystals and metals. For self-diffusion of Na at p = 8,400 atm and 1 atm it was obtained $D_{0p}:D_0 = 0.88$. The experimental value of this quantity amounts to 0.73. It is shown that the energy of activation of self-diffusion process for Na at $p = 10^5$ atm amounts to ~0.25 of activation energy at atmospheric pressure.

S. Gertsrikem

[Abstracter's note: Complete translation]

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

S/169/61/000/010/005/053
D228/D304

AUTHOR: Zharkov, V. N.

TITLE: The earth's viscosity. Diffusion processes and the diffusion viscosity of the mantle

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 10, 1961, 6, abstract 10A65 (Tr. In-ta fiz. Zemli AN SSSR, no. 11, 1960, 36-60)

TEXT: A review of the results for the diffusion viscosity of solid bodies is given in Part 1. Experimental and theoretical work on the viscosity behavior of grain boundaries in hemicrystalline solid bodies is stated in Part 2. The question of the dependence of the elasticity moduli on the temperature is examined in Part 3. Part 4 contains a summary of the data on self-diffusion in metals and in ionic and valence crystals at high temperatures. The coefficient of self-diffusion $D = D_0 \exp\{Q/RT\}$, where D_0 is a constant, Q is the energy of activation, R is the gas

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constant, and T is the absolute temperature. The following conclusions are drawn from the experimental data collected at this point: (1) $D_0 \sim 0.3$ cm^2/sec. and $Q/RT_m \sim 14$ (T_m is the fusion temperature) for Na-type alkali metals; (2) $D_0 \sim 0.1 - 1$ cm^2/sec. and $Q/RT_m \sim 17 - 19$ for densely-packed metals with filled shells of the Cu type; (3) $D_0 \sim 1$ cm^2/sec. and $Q/RT_m \sim 23$ for Pb-type metals in which valence forces exist; (4) $D_0 \sim 10$ cm^2/sec. and $Q/RT_m \sim 28$ for Ge-type valence crystals; (5) in ionic crystals $D_0 \sim 10^{-2} - 0.5$ cm^2/sec. and $Q/RT_m \sim 14 - 19$ for the diffusion of metallic ions, being equal to about $10^{-2} - 10^2$ cm^2/sec. and 16 - 24 respectively for the diffusion of negative ions. At the same time, there is in every case a correlation: the smaller

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value of Q/RT_m corresponds to the smaller values of D_0 and vice versa. The application of the above-stated notions to questions of the physics of the earth's interior is given in Part 5. The self-diffusion coefficients of the positive D_p^+ and negative D_p^- ions are calculated for the silicate materials of which the mantle is probably composed:

$$D_p^+ \sim 0.1 \exp\left\{-\frac{2900}{T}\exp\left[2.5(\overline{\chi \cdot p})\right]\right\} \text{ cm}^2 \cdot \text{sec.}^{-1} ,$$

$$D_p^- \sim 10 \exp\left\{-\frac{43000}{T}\exp\left[2.5(\overline{\chi \cdot p})\right]\right\} \text{ cm}^2 \cdot \text{sec.}^{-1} ,$$

as functions of the temperature and pressure p, where $(\chi p) = \int_0^p \chi_T dp$ and

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χ_T is the isothermal compressibility. The corresponding diffusion lengths l^+ and l^- are also calculated. Thus, l^+ characterizes the distance over which the silicate-constituent cations might have diffused during the approximate time of existence of the earth. In particular, the chemical reactions of ion-exchange in the mantle might have only occurred on lengths not exceeding $\sim l^+$. These lengths were found to be of the order of several hundred meters. The mantle's diffusion viscosity η is determined, i.e., the viscosity which hemicrystalline bodies possess at high temperatures $\left(T \gtrsim \frac{1}{2} T_m\right)$ under as low a stress as is desired. After substitution of the numerical values $\eta \sim 1.5\ (1 \div 10^2) \cdot T/D_p$ pauses. It is shown that throughout the mantle η may vary within the limits of $\sim 10^{16}$ to 10^{23} pauses. A new mechanism is proposed for the formation of primary volcanic foci; this proceeds from the fact that, in the region of

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depths of 60 - 80 km, the equipotential surfaces of the gravitational potential are not isothermal surfaces. In this region, temperatures under oceanic areas should be greater than those beneath continental areas at the same equipotential surface of the gravitational potential. The viscosity depends exponentially on the temperature; hence, the movement of supernatant readily-fusible inclusions (gravitational differentiation) will occur on an inclined path--and not on a radial one--in a direction towards regions with relatively low viscosities. 27 references. [Abstracter's note: Complete translation.]

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3,1550 (1041,1057,1559)
3,2500

29493
S/035/61/000/009/018/036
A001/A101

AUTHORS: Zharkov, V.N., Ulinich, F.R.

TITLE: On the possibility of existence of the lunar magnetic field, maintained by hydromagnetic amplification

PERIODICAL: Referativnyy zhurnal. Astronomiya i Geodeziya, no. 9, 1961, 34, abstract 9A266 ("Tr. In-ta fiz. Zemli. AN SSSR", 1960, no. 11 (178), 61 - 66)

TEXT: The authors show that the adiabatic gradient of temperature inside the Moon is of the same order as the gradient of melting temperature ($\sim 10^{-4}$ T km^{-1}). In case of $\Delta T_m > (\Delta T)_{ad}$, a finite temperature discontinuity should exist between the liquid core and the solid crust. The liquid core smelts, its radius increases, and temperature drops. Solidification time amounts to $\sim 10^3$ years. In case of $\Delta T_m < (\Delta T)_{ad}$, convection is absent and distribution of temperature is continuous. To maintain liquid core during 10^{17} sec, radiogenic heat sources with heat liberation of 10^{-15} - 10^{-16} cal/sec,cm^3 are sufficient. In a solid Moon the origination and maintenance of a magnetic field due to hydromagnetic amplification is impossible because of high viscosity of the substance.

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29493
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A001/A101

On the possibility of existence ...

In a liquid core the condition for the possibility of hydromagnetic amplification mechanism is that the value of Reynolds' magnetic number $R_m \gg 1$. In case of silicate composition, characteristic speed $v \geqslant 1$ cm/sec is necessary. Energy estimates lead the authors to the conclusion that the Moon could have a magnetic field of ~ 1 gauss, if it had a liquid core. The absence of the lunar magnetic field is an indirect indication of the absence of the liquid core. There are 12 references.

V. Safronov

[Abstracter's note: Complete translation]

Card 2/2

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

ZHARKOV, V.N.

Physics of the earth's core. Mechanical properties and viscosity. Report No.2. Izv. AN SSSR. Ser.geofiz. no.11:1553-1562 N'60. (MIRA 13:11)

1. AN SSSR, Institut fiziki Zemli.
(Earth--Internal structure)

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

89019

S/020/60/135/004/012/037
B019/B077

16.7500 (2108)

AUTHOR: Zharkov, V. N., and Kalinin, V. A.

TITLE: The Equation of State of Iron at Pressures of up to Several Million Atmospheres

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 135, No. 4, pp. 811 - 814

TEXT: A new method for determining the equation of state for metals has been developed by using the experimental Hugoniot adiabatic curve. This method is especially applied to the equation of state of iron. The Hugoniot adiabatic curve of iron is drawn by using experimental data of L. V. Al'tshuler et al. (Ref. 3) and shown in Fig. 1. A pressure of about $1.31 \cdot 10^5$ atm is pointed out where a polymorphous transition exists and where a shock wave becomes instable and is divided into two waves. Above $3.5 \cdot 10^5$ atm there are again stable shock waves. The contribution of thermally excited conduction electrons to pressure and energy is negligibly small

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

89019

The Equation of State of Iron at Pressures of up to Several Million Atmospheres

S/020/60/135/004/012/037
B019/B077

at low temperatures. Pressure and energy can be represented as sums of potential and thermal parts. The following equation are given for energy and pressure:

$$E = \Phi(x) + \frac{9}{8}\frac{R\Theta}{\mu} + \frac{3RT}{\mu}D(\Theta/T), \quad \Phi(x) = \frac{3}{\rho_0}(b^{-1}\Sigma - k_2 x^{-1/3}) \qquad (2)$$

$$P = P_0(x) + \frac{\rho_0\gamma}{x}\left\{\frac{9}{8}\frac{R\Theta}{\mu} + \frac{3RT}{\mu}D(\Theta/T)\right\}, \quad P_0(x) = \Sigma x^{-2/3} - k_2 x^{-4/3} \qquad (3)$$

with $\Sigma \equiv k_1 e^{-bx^{1/3}} \equiv Ae^{b(1-x^{1/3})}$, $D(z) = \frac{3}{z^3}\int_0^z \frac{y^3 dy}{e^y - 1}$; k_1, k_2, and b are found experimentally. The determination of A, b, and k_2 from experimental data for phases with high pressures is discussed in detail. For high pressure and high temperature, the portion of thermally excited conduction electrons cannot be neglected, and the following expression

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

89019

The Equation of State of Iron at Pressures of up to Several Million Atmospheres

S/020/60/135/004/012/037
B019/B077

is obtained for the Hugoniot adiabatic curve

$$p_E = \frac{n_2 - \sqrt{n_2^2 - 4n_1 n_3}}{2n_1} \qquad (11).$$

The temperature in the shock adiabatic curve (11) is determined from the expression:

$$T = \left\{E_H - \bar{\Phi}(x) - (x/\rho_0 g)\,(p_H - p_0(x))\right\} \left\{(3R/\mu)\,(1-\gamma/g)\right\}^{-1} \qquad (12)$$

The results of this calculation are represented graphically in Fig. 1. There are 1 figure, 1 table, and 9 references: 6 Soviet and 3 US.

ASSOCIATION: Institut fiziki Zemli im. O. Yu. Shmidta Akademii nauk SSSR (Institute of Physics of the Earth imeni O. Yu. Shmidt, Academy of Sciences USSR)

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APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

87402

S/020/60/135/006/017/037
B019/B056

3,9000 (1041,1109,1327)

AUTHOR: Zharkov, V. N.

TITLE: The Problem Concerning the Iron Core of the Earth

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 135, No. 6, pp. 1378 - 1381

TEXT: According to an older hypothesis, the core of the Earth is considered to consist of iron, and according to a later one by Lodochnikov and Ramsey, it is believed to consist of metallized silicates. In an effort to prove that the older hypothesis is correct, the author proceeds from the equation of state previously derived for iron at high pressure, from the adiabatic temperature gradient and the isochoric thermal capacity, and makes a comparison with experimental data. A formula is determined for the temperature in the interior of the Earth and for the propagation velocity of seismic waves. The author believes that on the basis of the theoretical relations developed here, the experimental data do not contradict the hypothesis of an iron core. Difficulties are presented solely by the fact that the propagation velocity,

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

The Problem Concerning the Iron Core of the Earth

87402

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B019/B056

v_p, of seismic waves in the core increases somewhat more quickly toward the center than has been expected so far and that also temperature increases somewhat more quickly. These circumstances are related to the fact that the rise of pressure with a decrease of volume along the zero isothermal line of iron, as found by laboratory experiments, proceeds more slowly than in the Earth's core. M. S. Molodenskiy and L. V. Al'tshuler are mentioned. The author thanks B. I. Davydov for valuable discussions, and N. V. Vasil'yeva for numerical computations. There are 1 figure and 9 references: 8 Soviet and 1 British.

ASSOCIATION: Institut fiziki Zemli im. O. Yu. Shmidta Akademii nauk SSSR (Institute of Physics of the Earth imeni O. Yu. Shmidt of the Academy of Sciences USSR)

PRESENTED: July 11, 1960, by M. A. Leontovich, Academician

SUBMITTED: June 27, 1960

Card 2/2

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

ZHARKOV, V.N.

Free oscillations of the earth; attenuation. Izv. AN SSSR. Ser. geofiz. no.2:159-170 F '62. (MIRA 15:2)

1. Institut fiziki Zemli AN SSSR.
(Geophysics)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

ZHARKOV, V.N.; KALININ, V.A.

Equation of state for gabbro and dunite at high pressures.
Izv. AN SSSR. Ser. geofiz. no.3:298-306 Mr '62. (MIRA 15:2)

1. AN SSSR, Institut fiziki Zemli.
(Equation of state)
(Gabbro) (Dunite)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

ZHARKOV, V.N.; KALININ, V.A.

Reflection of seismic waves at the earth's shell-core boundary.
Izv. AN SSSR. Ser. geofiz. no.4:449-455 Ap '62. (MIRA 15:4)

1. Institut fiziki Zemli AN SSSR.
(Seismic waves)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

ZHARKOV, V.N.

Free oscillations of the earth. No.2: Inverse problem in the theory of torsional oscillations. Izv.AN SSSR.Ser.geofiz. no.8: 997-998 Ag '62. (MIRA 15:8)

1. Institut fiziki Zemli AN SSSR.
(Geophysics)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

ZHARKOV, V.N.

Free oscillations of the earth. No.3: Theory of attenuation of radial oscillations. Izv.AN SSSR.Ser.geofiz. no.8:999-1008 Ag '62. (MIRA 15:8)

1. Institut fiziki Zemli AN SSSR.
(Geophysics)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

ZHARKOV, V.N.

Physics of the earth's core. Trudy Inst. fiz. Zem. no.20:3-50 '62. (MIRA 15:8)

(Earth--Internal structure)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

ZHARKOV, V.N.; KALININ, V.A.

Grüneisen's constant for NaCl at high pressures. Dokl.AN SSSR 145 no.3:551-554 Jl '62. (MIRA 15:7)

1. Institut fiziki Zemli imeni O.Yu.Shmidta AN SSSR. Predstavleno akademikom M.A.Leontovichem.
(Shock (Mechanics)) (Salt)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

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L 17413-63 EWT(1)/BDS/ES(v) AFFTC/AFWL Pg-4/Po-4/Pe-4/Pq-4 TF

ACCESSION NR: AP3005550 S/0009/63/000/007/0989/0999

AUTHOR: Zharkov, V. N.

TITLE: Thermoelastic stresses in the earth (presented by N. V. Zvolinskiy, member of editorial staff)

SOURCE: AN SSSR. Izvestiya, ser. geofiz., no. 7, 1963, 989-999

TOPIC TAGS: thermoelastic stress, gravity, earth, anomaly, secular change, thermal conductivity, temperature equilibrium

ABSTRACT: The author has set up problems on the thermoelastic stresses in a gravitational sphere with arbitrary temperature distribution in order to demonstrate a relationship between such stresses and gravity anomalies. He has found that temperature variations of a few degrees are sufficient to give rise to observed gravity anomalies, but he does not hold that all gravity anomalies are so caused. He concludes that his method of investigating thermoelastic stresses together with disturbances in the gravity field of the earth has the advantage that known gravity anomalies superimpose definite limits to the integral values of thermoelastic stresses and that, assuming the deviation in temperature from

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ACCESSION NR: AP3005550

equilibrium to be a definite function of time, one may obtain a representation for the value of secular changes in gravity. On the other hand, should one succeed in determining experimentally the secular changes in gravity, be sets limits to the function of time. Orig. art. has: 1 figure and 84 formulas.

ASSOCIATION: Akademiya nauk SSSR Institut fiziki Zemli (Institute of Physics of the Earth, Academy of Sciences, SSSR)

SUBMITTED: 01Dec62

DATE ACQ: 20Aug63

SUB CODE: PH, AS

NO REF SOV: 007

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OTHER: 001

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Solarization by electrons. K. S. Bogomolov and V. N. Zharkov. *Doklady Akad. Nauk S.S.S.R.* 92, [illegible] (1953).—The characteristic curves of pos. film exposed to electrons and to light (λ = 4358 A.) were compared. The energy of the electron beam was 4.6 × 10^4 e.v. An electron microscope with special attachments for introducing and exposing film and for measuring the current (~10^{-8} amp.) was used. The current was measured before and after each exposure. The exposed film was cut into 5 strips which were developed for 0.5, 1, 2, 6, and 12 min., resp., fixed, and measured in a photometer. $E_0 \sim (n_{el}E_{el}C)/N$ where E_0 = av. energy absorbed by 1 grain at the beginning of solarization, n_{el} = no. of electrons on unit of area on which solarization begins, E_{el} = energy of electrons, C = wt. % AgBr in emulsion, and N = no. of emulsion grains in 1 sq. cm.

Eurilla Mayerle

(1)

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

ZHARKOV, V.N.

Physical defects in silver halides and the block structure of emulsion grains. Zhur.nauch.i prikl.fot. i kin.1 no.3:230-233 My-Je '56. (Photographic emulsions) (MLRA 9:9)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

BOGOMOLOV, K.S.; DOBROSMERDOVA, Ye.P.; ZHARKOV, V.N.

Quantitative investigation of the photographic action of electrons with varying energy. Part 1. Experimental study of electron sensitivity in emulsions digested to a varying degree. Zhur.nauch. i prikl.fot. i kin. 1 no.1:19-22 Ja-F '56. (MIRA 9:10)

1.Vsesoyuznyy nauchno-issledovatel'skiy kino-foteinstitut.
(Photographic sensitometry)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

ZHARKOV, V.N.

Category : USSR/Optics - Scientific photography K-11

Abs Jour : Ref Zhur - Fizika, No 1, 1957 No 2660

Author : Bogomolov, K.S., Dobroserdova, Ye.P., Zharkov, V.N.
Inst : Sci. Res. Inst. for Motion Picture Photography
Title : Quantitative Investigation of the Photographic Action of Electrons of Various Energies. II. Dependence of the Electron Sensitivity of the Photographic Emulsion on the Dimensions of the Emulsion Microcrystals.

Orig Pub : Zh. nauch. i prikl. fotografii i kinematogr., 1956, 1, No 2, 84-88

Abstract : An investigation was made of the sensitivity S to electrons with energies 20-90 kev of two series of emulsions of high sensitivity to particles: low-dispersed (average grain radius r in individual emulsions 0.8 -- 0.245 μ) with a AgHal concentration 40% by weight, and a high-dispersion (r 0.0151 - - 0.073 μ) with AgHal cencentration 93% by weight. The exposure was made in an electronmicroscope. After reducing the results to a single concentration, it was observed that S (density of blackening, referred to charge-density unit) is proportional to r for low-dispersion emulsions. This is interpreted as the presence of photographic effectiveness only in those secondary electrons that are produced under the influence of the primary particles in the thin

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Category : USSR/Optics - Scientific photography

K-11

Abs Jour : Ref Zhur - Fizika, No 1, 1957 No 2660

surface layer of the emulsion crystal. In the high-dispersion emulsion S increases with r faster than linearly, this being attributed to the commensurability of the thickness of the effective layer with the dimensions of the entire crystal.

Card : 2/2

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

ZHARKOV, V.N.; DOBROSERDOVA, Ye.P.

Crystallization of silver halides in photographic emulsions. Part 2. Electron microscopic study of nonammoniacal silver bromide emulsions. Zhur. nauch. i prikl. fot. i kin. 1 no.4: 250-253 Jl-Ag '56. (MLRA 9:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy kino-fotoinstitut.
(Photographic emulsions)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

[illegible] with and without [illegible], ripened for periods from [illegible] sec. to 2 hrs. at temps. from 35 to 70°, and studied with an electron microscope as described earlier (C.A. 51, 2481g). AgD emulsions are purely [illegible] nonammoniated AgCl or AgBr-type ones prepd. with excess $AgNO_3$. Coalescence is observed in all AgI emulsions. In nonammoniated emulsions ripened one hr. at 70° grain growth by recrystn. is negligible, but with an excess of either KI or $AgNO_3$ Ostwald ripening [illegible]

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

BOGOMOLOV, K.S.; MASLENNIKOVA, N.V.; RAZORENOVA, I.F.; ANOSOVA, N.V.; ZHARKOV, V.N.

Determining the energy loss caused by ionizing radiation during the formation of silver of the latent image. Zhur.nauch.i prikl.fot.i kin. 2 no.6:408-412 N-D '57. (MIRA 10:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy kino-fotoinstitut.
(Photography--Developing and developers)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

ZHARKOV, V.N.

ZHARKOV, V.N.

The crystallization of silver halides in photographic emulsion. Part 6: The qualitative theory of physical ripening. Zhur. nauch. i prikl. fot. i kin. 2 no.5:330-339 S-O '57. (MIRA 10:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy kino-fotoinstitut.
(Photographic emulsions)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

SOV 77-3-4-10/23

AUTHOR: ~~Zharkov, V.N.~~

TITLE: The Dislocation Pattern of Silver Halide Grains in Photographic Emulsions and the Role of Iodide (Dislokatsionnaya model' galoidnoserebryanykh zeren v fotograficheskikh emul'siyakh i rol' yodida)

PERIODICAL: Zhurnal nauchnoy i prikladnoy fotografii i kinematografii, 1958, Vol 3, Nr 4, pp 282-284 (USSR)

ABSTRACT: An electron-microscopic study of emulsion grains reveals that they consists of a nucleus of structural disturbances with a size ranging from 0.05-0.3μ followed by a transient layer 0.1μ thick and a quasi-monocristalline envelope of mosaic structure consisting of several monocrystalline areas inclined at slight angles to each other. The whole can be considered as an area (nucleus) with a large concentration of marginal dislocations. The density of these dislocations is discussed. The addition of iode to the potassium bromide solution was found to decrease the "grain nucleus" but increase the quasi-crystalline envelope, which tends to contradict the former assumption that iodide acts by increasing the number of dislocationary disturbances. There are 6 references, 4 of which are Soviet and 2 English.

Card 1/2

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

SOV 77-3-4-10/23

The Dislocation Pattern of Silver Halide Grains in Photographic Emulsions and the Role of Iodide

ASSOCIATION: Institut fiziki zemli imeni O.Yu. Shmidta Akademii nauk SSSR (The Institute of the Physics of the Earth imeni O.Yu. Shmidt, Academy of Sciences, USSR)

SUBMITTED: March 12, 1958

1. Photographic emulsions--Microanalysis 2. Silver halides--Performance 3. Iodides--Performance 4. Electron microscopes--Applications

Card 2/2

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

ZHARKOV, V.N.; MOSHKOVSKIY, Yu.Sh.

Nature and formation of the latent image; based on works by Mitchell and Mott. Zhur. nauch. i prikl. fot. i kin. 3 no.2: 141-146 Mr-Ap '58. (MIRA 11:5)

(Photography--Developing and developers)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

SOV-77-3-5-11/21

AUTHOR: Zharkov, V.N.

TITLE: On the Mechanism of the Photographic Process (K voprosu o mekhanizme fotograficheskogo protsessa)

PERIODICAL: Zhurnal nauchnoy i prikladnoy fotografii i kinematografii, 1958, Vol 3, Nr 5, pp 379-380 (USSR)

ABSTRACT: The author shows that there are grounds for supposing that equilibrial interstitial $Ag_0^{\bullet}$ ions are practically lacking in actual emulsion grains and that, in fact, a considerable number of vacant $Ag_{\square}^{\bullet}$ are present, in the order of 10^2- 10^4 per grain. From this he draws 3 conclusions: 1) $Ag_0^{\bullet}$ can have no essential part in the development process or photolytic decomposition of AgBr (AgCl); 3). The silver ions formed during exposure or by some other means will disappear along with the $Ag_{\square}^{\bullet}$ in the reaction:

$$Ag_0^{\bullet} + Ag_{\square}^{\bullet} \rightarrow Ag^{+} \quad \text{(in the lattice).}$$

The author concludes that the formation of a center of development and self-development depends more essentially on the movement of the vacant $Br_{\square}^{\bullet}$ and $Ag_{\square}^{\bullet}$ than had been previously assumed.

Card 1/2

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

On the Mechanism of the Photographic Process SOV-77-3-5-11/21

There are 7 references, 2 of which are Soviet, 1 German and 4 American.

SUBMITTED: May 14, 1958

1. Photographic emulsions--Chemical reactions 2. Photographic emulsions--Properties

Card 2/2

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

ZHARKOV, V.N.

Thermoelectric stresses in the earth. Izv. AN SSSR. Ser. geofiz. no.7:989-999 Jl '63. (MIRA 16:8)

1. Institut fiziki Zemli AN SSSR. Predstavleno chlenom redaktsionnoy kollegii Izvestiy AN SSSR, Seriya geofizicheskaya.
(Earth temperature) (Gravity)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

ZHARKOV, V.N.

New method and theory of the free oscillations of the earth.
Biul.Sov. po seism. no.15:25-46 '63. (MIRA 17:4)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

ZHARKOV, V.N., otv. red.

[Solids under the pressure and temperature conditions of the earth's interior] Tverdye tela v usloviiakh davlenii i temperatur zemnykh nedr. Moskva, Nauka, 1964. 194 p. (MIRA 17:9)

1. Akademiya nauk SSSR. Institut fiziki Zemli.

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

ZHARKOV, V. N.

Gravity anomalies and temperature-dependent deformations of the earth. Izv. AN SSSR. Ser. geofiz. no. 4:441-455 Ap '64. (MIRA 17:5)

1. Institut fiziki Zemli AN SSSR.

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

ACCESSION NR: AP4045782 S/0049/64/000/009/1281/1291

AUTHOR: Zharkov, V.N.

TITLE: The low-velocity layer and adiabatic temperature gradient in the earth's mantle

SOURCE: AN SSSR. Izvestiya. Seriya geofizicheskaya, no. 9, 1964, 1281-1291

TOPIC TAGS: geophysics, earth mantle, seismic velocity, terrestrial temperature gradient

ABSTRACT: The author postulated earlier (Doklady* AN SSSR, 125, No. 4, 1959) that the decreased velocity in the earth's mantle can be caused by relaxation processes at the depths considered. The determined temperature gradient was 1-1.5 c/km. In this new paper, the author derives certain formulas which apply to this case in greater detail and discusses the adiabatic temperature gradient in the upper regions of the mantle. The basis for the author's hypothesis is that in the case of polycrystals at high temperatures, having oscillations with periods of ~1 sec, a relaxation of stresses appears due to the "viscous flow" along the surfaces of grains. The author accepts the conclusion that a continuous zone of magma does not exist and that primary magma chambers are localized and small. It is assumed that there is a layer of matter in an amorphous state with quite

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APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

ACCESSION NR: AP4045782

high viscosities. This hypothesis also indicates a temperature gradient of 1-1.5 C/km, since the functional dependence of relaxation time on temperature and pressure has the same character, regardless of which relaxation process is considered. An expression is given for the dependence of relaxation time on temperature and pressure (with a change in p by several tens of thousands of atmospheres). According to the author's postulated relaxation explanation of the low-velocity layer, the B layer should be dependent on frequency. In particular, the low-velocity layer for surface waves and natural oscillations should be more clearly expressed than for body waves with periods of 1-10 sec. If further investigations reveal that the distribution of velocities is dependent on wave period, this will indicate a relaxation mechanism. However, if such a dependence is not discovered, it is most probable that the nature of the layer is caused by an ordinary temperature effect and the corresponding gradients in it are ~7-10 C/km. The problem of the specific physical mechanism for explaining the low-velocity layer remains open and it may be that several different physical factors operate simultaneously. It is shown that a change in the concentration of matter by 2%/100 km is sufficient to double the adiabatic gradient in the low-velocity zone. In order to increase it to ~7.5C/km it would be necessary to have a change of concentration of ~10% in 100 km. Orig art.

Card 2/3

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

ACCESSION NR: AP4045782

has: 71 formulas.

ASSOCIATION: Institut fiziki Zemli, Akademiya nauk SSSR (Institute of Geophysics, Academy of Sciences, SSSR)

SUBMITTED: 15Aug63 ENCL: 00 SUB CODE: ES

NO REF SOV: 008 OTHER: 004

Card 3/3

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

EWT(1)/EWA(h) Peb

ACCESSION NR. AP5001[illegible]

AUTHOR: Zharkov, V.N.

TITLE: Reflection of SH waves on the boundary of the earth's mantle and core

SOURCE: AN SSSR Izvestiya. Seriya geofizicheskaya, no. 11, 1964, 1685-1687

TOPIC TAGS: seismology

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

L 21748-65

ACCESSION NR: AP5001048

reflection occurs at the mantle - core discontinuity [illegible]

ASSOCIATION: Institut fiziki Zemli Akademii nauk SSSR [illegible]

SUBMITTED: 17Sep63 ENCL: [illegible]

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

ACCESSION NR: AP4010756 S/0020/64/154/001/0088/0090

AUTHOR: Zharkov, V. N.

TITLE: Adiabatic temperature gradient in the earth's mantle

SOURCE: AN SSSR, Doklady*, v. 154, no. 1, 1964, 88-90

TOPIC TAGS: earth mantle, thermodynamics, adiabatic temperature gradient

ABSTRACT: Formulas are proposed to solve the problem of small changes in concentration which affect the adiabatic temperature gradient and the lowering of seismic velocities in zone B of the earth's crust. These changes are studied by determining the mechanism of adiabatic exchange between two adjacent elements of the crust considered here as media V (r) and V (r + ζ) i.e., without change in entropy. In this case r is equal to the radius of the earth and ζ is a relatively small distance between the volumetric elements considered. Other assumptions include a condition whereby the concentration in volumetric elements remains constant, and the latter is based on an estimate of the dimension of the diffusion zone of the earth's crust which is

Card 1/2

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

ACCESSION NR: AP4010756

relatively small. Finally, two methods are proposed by which the two entropy terms involved can be computed. Orig. art. has: 16 formulas.

ASSOCIATION: Institut fiziki zemli im. O Yu. Shmidta Akademii nauk SSSR (Institute of Earth Physics of the Academy of Sciences SSSR)

SUBMITTED: 03Aug63 ATD PRESS: 3047 ENCL: 00

SUB CODE: ES NO REF SOV: 005 OTHER: 001

Card 2/2

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

ACCESSION NR: AP4012079 S/0020/64/154/002/0302/0305

AUTHOR: Zharkov, V.N.

TITLE: Influence of pressure on anharmonicity

SOURCE: AN SSSR. Doklady*, v.154, no.2, 1964, 302-305

TOPIC TAGS: Van der Waals force, Gruneisen constant, Gruneisen gamma, solid state physics, crystal, crystallography, crystal anharmonicity, impact adiabate, earth physics

ABSTRACT: The behavior of thermodynamic parameters of crystals under conditions of increasing pressure and temperature has been investigated. A high frequency formulation of Gruneisen constant γ is developed in connection with the calculation of Van der Waals forces between oppositely charged ions. Employment of impact adiabates of noble metals in high pressure zones is suggested for the purpose of experimental studies of γ. Anharmonicity of crystals with exponential repulsion is found to be rapidly decreasing with the decrease of volume. Orig. art. has: 1 figure and 16 equations.

Card 1/2

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

ACCESSION NR: AP4012079

ASSOCIATION: Institut fiziki zemli im. O. Yu. Ahmidta Akademii nauk SSSR (Institute of Earth physics, Academy of sciences SSSR)

SUBMITTED: 14Aug63 DATE ACQ: 14Feb64 ENCL: 00

SUB CODE: AS, PH NR REF SOV: 003 OTHER: 002

Card 2/2

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

TITLE. Seismic-wave velocity profiles

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

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condition being violated

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

ACC NR: AP6032416 SOURCE CODE: UR/0387/66/000/009/0003/0011

AUTHOR: Zharkov, V. N.

ORG: Institute of Earth Physics, Academy of Sciences SSSR (Akademiya nauk, Institut fiziki Zemli)

TITLE: Electric conductivity of the lower mantle

SOURCE: AN SSSR. Izvestiya. Fizika Zemli, no. 9, 1966, 3-11

TOPIC TAGS: earth crust, lower mantle, D layer, geophysics

ABSTRACT: A physical approach to the problem of estimating electrical conductivity in subcrustal strata is described. At depths below 1000 km. geophysical methods fail since it is impossible to describe the behavior of the D layer by analyzing electromagnetic variations. The physical approach, presented in this paper, assumes the material of the D layer to be a semiconductor. Conductivity is calculated for various layers of this semiconductor for different values of temperature and pressure. The fundamental formula expressing the coefficient of electrical conductivity of a semiconductor is derived as a function of the numbers of electrons and holes and their mobilities. An expression is derived for the deformational potential of semiconductors. Since this cannot be determined precisely for the material at that depth, the author selects a value of 7.5 ev, after examining the deformational potentials of diamond, silicon, germanium

UDC: 550.371

Card 1/2

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

ACC NR: AP6032416

and tellurium. Starting with the depth of 1000 km and the temperature of 1900°K, he assumes the atomic mass of the silicates to be 21 and the ionic charge in those silicates, Z = 2. The energy slits of a semiconductor vary with temperature and pressure, as shown in the tabulated experimental data. Because of the uncertainty of the distribution of temperatures within the D layer, the author completes three sets of calculations: 1) using adiabatic temperatures, 2) using the melting curve obtained by the method of concentration of heat effects, and 3) using the Lindeman melting curve. It is concluded that the conductivity of the D layer increases with depth by about two orders of magnitude, which is greater than McDonald's estimate of only one order. Orig. art. has: 2 figures, 27 formulas.

SUB CODE: 08/ SUBM DATE: 14Nov65/ ORIG REF: 006/ OTH REF: 014

Card 2/2

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

L 29561-66 EWT(1)/FSS-2 IT/GW

ACC NR: AP6019675 SOURCE CODE: UR/0033/66/043/003/0622/0646

AUTHOR: Zharkov, V. N.; Berikashvili, V. Sh.; Osnach, A. I.

ORG: Institute of Geophysics, Academy of Sciences SSSR (Institut fiziki Zemli Akademii nauk SSSR)

15
14
B

TITLE: Geophysical problems and lunar investigations

SOURCE: Astronomicheskiy zhurnal, v. 43, no. 3, 1966, 622-646

TOPIC TAGS: lunar seismology, selenology, lunar magnetic field, lunar tide, moon probe

ABSTRACT: Various geophysical methods used in lunar investigations as well as proposed lunar seismic experiments are reviewed. The first lunar seismic experiments will attempt to determine seismic activity on the Moon, establish velocity profiles, and locate seismic sources. Owing to weight restrictions imposed by the lunar vehicle, the first seismic instrument will probably be a single-component vertical seismograph. It is expected that a seismograph on the Moon, operating for a period of 30—60 days, will record numerous lunar tremors from different parts of the Moon, resulting in seismograms at different epicentral distances. The velocities of seismic waves in the Moon are estimated theoretically on the basis of terrestrial seismic data and experimental data on the behavior of rocks under different pressures and temperatures. It is believed that a layer of reduced seismic velocities exists on the Moon and that it

Card 1/2 UDC: 523.36

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

ZHAROV, V.G., kand. veterin. nauk

Disinfection of eggs from poultry with pasteurellosis. Veterinariia 39 no.5:79-80 My '62 (MIRA 18:1)

1. Kuybyshevskaya nauchno-issledovatel'skaya veterinarnaya stantsiya.

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

ZHARKOV, V.N.

Adiabatic temperature gradient in the mantle of the earth. Dokl. AN SSSR 154 no.1:88-90 Ja'64. (MIRA 17:2)

1. Institut fiziki Zemli im. O.Yu. Shmidta AN SSSR. Predstavleno akademikom M.A. Leontovichem.

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0

ZHARKOV, V.P.

Treatment of warts with acrichine. Zdrav. Kazakh. 22 no.10: 68-69 '62. (MIRA 17:5)

1. Iz Kazakhskogo meditsinskogo instituta.

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610002-0"