KOREN', L.I., kand.tekhn.nauk; STRUCHKOV, A.M., inzh.

Protecting the brickwork of marine combustion chambers by andesite-basalt. Sudostroenie 28 no.4:64-65 Ap '62. (MIRA 15:4)

(Boilers, Marine--Maintenance and repair) (Protective coatings)

L 25188-65 EWP(e)/EWT(m)/EWP(b) Pq-4 WH

ACCESSION NR: AR4040352 S/0081/64/000/006/M019/M019

SOURCE: Ref. zh. Khimiya, Abs. 6M138

14
12
13

AUTHOR: Koren', L. I.

TITLE: The manufacture of sintered parts

CITED SOURCE: Soobshch. Dal'nevost. fil. Sib. otd. AN SSSR, vyp. 17, 1963, 47-48

TOPIC TAGS: sintered part, cast ceramic, calcium carbonate, andesite, basalt, sintering, powdered glass, plate glass

TRANSLATION: Brief heating of a loosely packed, powdered, andesitobasalt at 1250-1300C causes it to sinter into a dense, rock-like mass with a rather regular free surface. Sintering of powdered plate glass under identical conditions takes place at 900C, i.e. about 400C lower. Addition of 40% glass to the andesito-basalt causes the resulting mixture to sinter at about 1100C, or 200C lower. The density of the melts obtained from andesitobasalt approaches that of cast stone parts. At the same time, the heating times and temperatures used during the preparation of the melts leads mainly to liquefaction of the residual glass and incomplete melting of the minerals, along with a semicrystalline structure, which

Card 1/2

L 25188-65

ACCESSION NR: AM4040352

gives the melts high physical and mechanical properties. Melts from a mixture of andesitobasalt and glass also have high density, a semicrystalline structure, and high strength, viscosity and other properties. This sets the requirements for the production of high-quality parts at a significantly lower level than in petrology (cooking, crystallization, etc. are not necessary). Dense round cakes having a diameter of up to 4 cm could be obtained by sintering in large crucibles. These specimens melt close to the material of the form. It is most suitable to prepare parts which can be floated on a ceramic shell, a form which yields a plane surface. In experiments on sintering in forms coated with chalk, mixtures of andesitobasalt and glass powders yielded specimens which did not adhere to the walls but the bottoms of which had large pores. Addition of $CaCO_3$ to the mixture improved the structure of the parts. Bibliography with 8 references. Author's summary

SUB CODE: MT ENCL: 00

Card 2/2

KOREN', L.I.; STRUCHKOV, A.M.

Use of andesite-basalt for protecting the brickworks of marine boiler combustion chambers. Soob. DVFAN SSSR no.19:83-86 '63. (MIRA 17:9)

1. Dal'nevostochnyy filial imeni Komarova Sibirskogo otdeleniya AN SSSR.

OZHIGOV, Ye.P.; KOREN', L.I.

Ore frits. Dokl. AN SSSR 149 no.5:1134-1136 Ap '63.
(MIRA 16:5)

1. Dal'nevostochnyy filial Sibirskogo otdeleniya AN SSSR.
Predstavleno akademikom S.I.Vol'fkovichem.
(Frits)

KOREN', L.I.

Two-component low-melting glazes from datolite ores. Izv. SO AN SSSR no.7 Ser. khim. nauk no.2:127-135 '64 (MIRA 18:1)

LYUDVINSKIY, A.I.; ROMANOVSKIY, L.B.; KOREN, L.N.; MISHCHENKO, V.S.; FROLOVA, A.I.; KOTIK, P.L.; KHIL'KO, M.M.; MOLCHANOVA, M.I.; VINOGRADOV, N.M.; PYLAYEV, S.V.; BEYGUL, Ye.I.; ROKHLIN, N.A.; MASYUKOV, N.T.; BONDAR', V.I.

In the country's steelmaking plants. Metallurg 9 no.9: 16-19 S '64. (MIRA 17:10)

1. Saldinskiy metallurgicheskiy zavod (for Pylayev).
2. Zavod im. Dzerzhinskogo (for Beygul, Rokhlin).
3. Yenakiyevskiy metallurgicheskiy zavod (for Masyukov, Bondar').

LYUDVINSKIY, A.I.; ROMANOVSKIY, L.B.; KOREN, L.N.; KUKURUZNYAK, I.S.; VIT', Ye.F.; KUDRINA, A.P.

Testing spinel bricks in the lining of converters with an oxygen blow. Izv. vys. ucheb. zav.; chern. met. 6 no.8: 161-163 '63. (MIRA 16:11)

1. Dnepropetrovskiy metallurgicheskiy institut.

KHIL'KO, M.M.; MOLCHANOVA, M.I.; KOTIK, P.L.; LYUDVINSKIY, A.I.; KOREN, L.N.; KHARCHENKO, I.G.

Crown firebrick of a finely ground mixture of magnesite and chromite. Ogneupory 28 no.6:256-258 '63. (MIRA 16:6)

1. Makeyevskiy metallurgicheskiy zavod im. Korova (for Khil'ko, Molchanova). 2. Nikitovskiy dolomitovyy kombinat (for Kotik). 3. Dnepropetrovskiy metallurgicheskiy institut (for Lyudvinskiy, Koren, Kharchenko).

(Firebrick)

KOREN, M.A.

AUTHOR: Ivlev, D.D. SOV/24-58-4-33/39

TITLE: Conference on Sustained Static Strength of Turbine Components Working at High Temperatures (Soveshchaniye po dlitel'noy staticheskoy prochnosti detaley turbomashin, rabotayushchikh pri vysokoy temperature)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1958, Nr 4, pp 149 - 150 (USSR)

ABSTRACT: The Commission on the Strength of Gas Turbines from the Institut mekhaniki AN SSSR (Institute of Mechanics of the Ac.Sc.USSR) (Chairman - Yu.N. Rabotnov) and the Strength Section of the Leningrad Technical Committee on Turbine Construction (Chairman - V.K. Naumov) held a conference during November 20-22, 1957 on the sustained static strength of turbine components working at high temperature. The conference was opened by an introductory speech by the chairman of the Leningrad Technical Committee on Turbine Construction, S.A. Kantor.
The paper by I.A. Oding (Institute of Metallurgy, Ac.Sc. USSR) "Structural Theory of Creep" contained an account of the author's theory.

Card1/7

V.S. Ivanova and L.K. Gordiyenko (Institut metallurgii AN SSSR - Institute of Metallurgy of the Ac.Sc.USSR) in the paper "Experimental Investigation of Some Aspects of the Theory of Structural Creep" described results corroborating aspects of Oding's theory.
L.A. Kuznetsov (Nevskiy metallicheskiy zavod im. Lenina - Nevsky Metal Factory im. Lenin) in his paper "Problems in the Field of Static Strength of Turbine Components, Working at High Temperature" dwelt on data obtained in Leningrad industrial undertakings indicating the need for further improvement in design and constructional procedure. The basic problem, in the author's opinion, is not so much the investigation of the stresses in individual components as the investigation of the limiting states of actual constructions. The author also noted the need for experimental investigation of model rotors, disks and frameworks of turbines and suggested setting before the Government the question of organising such an assembly in one of the factories with complete centralisation and co-ordination of work in this direction. The author criticised the inadmissible unplanned work taking place at the present time in extensometry, when each undertaking must itself solve problems relating to gauge, cements for them, methods of testing and appropriate apparatus.
I.A. Birger (TsIAM) presented a paper on "Standards of Strength of Components at High Temperatures"
A.P. Dinerman (TsNIITMASh) gave a paper on "Experimental Investigation of the Bearing Capacity of Disks"
M.A. Koren' (Leningradskiy metallicheskiy zavod im. Stalina - Leningrad Metal Factory imeni Stalin) in the paper "Apparatus for Testing Sustained Strength of Some Turbine Stator Components" dealt with items of equipment constructed at his factory for investigating the stress state in a number of components: diaphragms, pin connections, etc.
V.S. Nazestnikov (Moskovskiy gosudarstvennyy universitet - Moscow State University) gave a paper on "Creep of Heat-resistant Alloys at High Temperature". The author described experimental investigations on the behaviour of the steels EI-257 and EI-405 under conditions of complex stress and high steady temperature.

Card3/7

8

KOREN', M.G.

Station of communist labor. Zhel. dor. transp. 43 no. 7:62-64 Jl '61.
(MIRA 14:7)

1. Nachal'nik stantsii Makushino Yuzhno-Ural'skoy dorogi.
(Railroads--Employees)

ZIL'BERMAN, A.S., kand.tekhn.nauk, red.; KOREN', M.M., inzh., red.; MAUMOV, V.K., kand.tekhn.nauk, red.; SHIBALOV, I.N., inzh., red.; VASIL'YEVA, V.P., red.izd-va; SIMONOVSKIY, N.Ya., red.izd-va; SPERANSKAYA, O.V., tekhn.red.

[Study of the elements of steam and gas turbines and axial compressors] Issledovaniia elementov parovykh i gazovykh turbin i osevykh kompressorov. Pod red. A.S.Zil'bermana. Moskva, Gos.nauchn-tekhn.izd-vo mashinostroit.lit-ry. Vol.6. 1960. 487 p. (MIRA 14:4)

1. Leningradskiy metallicheskiy zavod. Otdel tekhnicheskoy informatsii.
(Steam turbines) (Gas turbines) (Compressors)

Solid solutions in the system InP-GaP. N. N. Sirota, V. V. Rozov.

Investigation of solid solutions of InP-GaAs. N. N. Sirota, L. A. Makovetskaya.

Physical properties of the system ZnTe-CdTe. N. N. Sirota, V. D. Yanovich.

Physical properties of ternary alloys of the system Zn_3As_2-Cd_3As_2. N. N. Sirota, E. M. Smolyarenko.

Semiconducting properties of manganese-telluride and selenide. N. N. Sirota, G. I. Makovetskiy.

Production of films of semiconducting compounds of the type $A^{V}B^{VI}$ and $A^{II}B^{V}$ on antimony by reactive diffusion. N. N. Koren', N. N. Sirota. (25 minutes). (Presented by N. N. Sirota).

Report presented at the 3rd National Conference on Semiconductor Compounds, Kishinev, 16-21 Sept 1963

SIROTA, N.N.; KOREN', N.N.

Kinetics of the formation of films of zinc selenide on zinc single crystals in the process of reactive diffusion. Dokl. AN BSSR 6 no. 12:760-761 D '62. (MIRA 16:9)

1. Otdel fiziki tverdogo tela i poluprovodnikov AN BSSR.

SIROTA, N.N.; KOREN', N.N.

Formation of semiconducting films of zinc telluride on zinc single crystals in reactive diffusion. Dokl. AN BSSR 7 no.6:373-375 Je '63. (MIRA 16:10)

1. Otdel fiziki tverdogo tela i poluprovodnikov AN BSSR.

KOREN', N.N.; SIROTA, N.N.

Formation of Sb_2S_3, Sb_2Se_3, and Sb_2Te_3 films on antimony in the process of reactive diffusion. Dokl. AN BSSR 7 no.10:666-668 O '63. (MIRA 16:11)

1. Otdel fiziki tverdogo tela i poluprovodnikov AN BSSR.

KOREN', N.N.; FRANKFURT, U.I. (Brest)

History of physical methods in determining the speed of light.
Vop.ist.est.i tekh. no.10:59-62 '60. (MIRA 14:3)
(Light—Speed)

S/250/62/006/010/001/006
A006/A101

AUTHORS: Sirota, N. N., Koren', N. N.

TITLE: Investigating kinetics of ZnS film formation during reactive diffusion of sulfur into zinc

PERIODICAL: Akademiya nauk BSSR. Doklady. v. 6, no. 10, 1962, 626 - 628

TEXT: The authors studied the rate of ZnS film formation on various faces of a Zn single crystal during the interaction with sulfur vapors, as a function of time and temperature. Kinetics of ZnS film formation on liquid metal surfaces was also investigated. Zn single crystals were grown by zonal recrystallization. Zn of 99.99% purity was used as initial material. Diffusion annealing was performed in a glass ampoule evacuated to $5 - 10^{-5}$ mm Hg. The thickness of the films, as a function of time at temperatures ranging from 320 - 450°C was determined. The results obtained confirm the theory that the reactive diffusion obeys the parabolic law. The coefficient of diffusion as a function of temperature obeys the exponential law. To determine the process of ZnS film formation on Zn the pre-exponential factor ($D = 1.2 \cdot 10^{-2}$ cm^2/sec) and activation energy

Investigating kinetics of...

(Q = 32 ∓ 3 kcal/mole) were graphically found. The coefficient of reactive diffusion as a function of temperature for the process investigated can then be expressed by equation $D = 1.2 \cdot 20^{-2} e^{-\frac{32000 \pm 3000}{RT}}$ cm^2/sec.

The process of ZnS film formation on molten metal surfaces at 430 - 600°C also obeys the parabolic law. Values of logarithms of diffusion coefficients lie well on the straight line ln D(1/T), obtained for the reactive diffusion in Zn single-crystals. There are 2 figures.

ASSOCIATION: Otdel fiziki tverdogo tela i poluprovodnikov, AN BSSR (Division of Physics of Solids and Semiconductors, AS BSSR)

SUBMITTED: June 19, 1962

Card 2/2

S/250/63/007/003/004/006
A059/A126

AUTHORS: Sirota, N.N., Koren', N.N.

TITLE: The reactive diffusion constants and the main physical parameters of the semiconducting compounds $A^{II}B^{VI}$ and $A^{II}B^{V}$

PERIODICAL: Doklady Akademii nauk BSSR, v. 7, no. 3, 1963, 160 - 162

TEXT: The relation between parameters characterizing the interatomic interaction energy in the compounds of zinc with elements of the 5th and 6th groups of the periodic system, and the constants of reactive diffusion of these elements into zinc are established. Starting from the general expression of the reactive diffusion coefficient given as a function of temperature

$$D = D_0 e^{-Q/RT},$$

the relation between the factor D_0 and the activation energy of diffusion, on the one hand, and the characteristic temperatures, heats of formation, fusion temperatures, and lattice energies of the forming compounds on the other, is examined. Reactive diffusion is accompanied by the formation of films of the semi-

Card 1/3

The reactive diffusion constants and the ...

conducting compounds mentioned on the surface of single crystals of zinc. The activation energy of diffusion was found to depend on the position of the relative element in the periodic system, and to decrease, for the case given, in the order ZnO — ZnS — ZnSe — ZnTe — ZnSb, which also holds for the heats of formation and the lattice energies of these compounds. The activation energy depends almost linearly on the heat of formation and the lattice energy, with the greatest deviation found for the relation between Q and ΔU. The relation between the activation energies of diffusion and the fusion temperatures of the compounds forming in the reactive diffusion of the elements of the 6th group into zinc, is also almost linear. Thus, the mechanism of reactive diffusion is, without fail, connected with the diffusion of zinc and the elements of the 5th group through the semiconductor films formed, with the limiting factor being the diffusion through the compounds formed and not the formation of these compounds. The proportionality between the fusion temperature of the compounds forming in reactive diffusion and the activation energy of diffusion shows that the mean square shifts of the ions in these compounds are inversely proportional to their fusion temperature. The width of the forbidden zone of the compounds mentioned is the greater, the greater their heats of formation and the greater the activa-

S/250/63/007/003/004/006
A059/A126

The reactive diffusion constants and the ...

tion energy of reactive diffusion. There are 2 figures and 2 tables.

ASSOCIATION: Otdel fiziki tverdogo tela i poluprovodnikov AN BSSR (Department of Solid-State and Semiconductor Physics of the AS BSSR)

SUBMITTED: November 17, 1962

Card 3/3

KOREN', N.N. [Koran', M.M.]

Processes of formation of semiconducting films due to reactive diffusion in the systems Zn - S, Zn - Se, and Zn - Te. Vestsi AN BSSR. Ser. fiz.-tekh. nav. no.4:56-64 '63. (MIRA 17:12)

ACCESSION NR: AP5002538 S/0250/64/008/011/0702/0704

44
13
B

AUTHOR: Koren', N.N. Sirota, N.N.

TITLE: Reactive diffusion of cadmium from the vapor phase into antimony

SOURCE: AN BSSR. Doklady, v. 8, no. 11, 1964, 702-704

TOPIC TAGS: diffusion layer, single crystal, crystal microstructure, isotropic layer, [illegible] diffusion

ABSTRACT: Results of the diffusion impregnation of antimony single crystals by [illegible] the vapor phase are presented. Experiments were carried out by a method developed by the authors. Heating of the single crystal resulted in the formation of single-phase [illegible] polycrystalline [illegible] diffusion layers did not [illegible] ple to radiograms of polycrystalline cadmium introduced in[illegible] the average hardness [illegible] antimony system was 210 kg/mm[illegible] [illegible] nature of the measured [illegible] against time shows a linear [illegible] [illegible] of the diffusion layer growth, the antimony sample [illegible]

L 30061-65
ACCESSION NR: AP5002538

the diffusion period was timed, and the thickness of the formed layer and of the pure metal remaining was measured. A mutual diffusion of both elements was revealed, with zinc diffusion producing a greater layer thickness. An evaluation of the partial diffusion coefficient showed that this layer growth limits the interaction of the elements through the compound formed. Layer growth appeared to be isotropic. Orig. art. has: 1 table, 2 figures and 3 formulas.

ASSOCIATION: Institut fiziki tverdogo tela i poluprovodnikov AN BSSR (Solid body and semiconductor physics institute, AN BSSR)

SUBMITTED: 15Jul64 ENCL: 00 SUB CODE: SS

NO REF SOV: 006 OTHER: 001

Card 2/2

KOREN', N.N. [Koran', M.M.]; SIROTA, N.N. [Sirata, M.M.]

Kinetics of the growth of diffusion layers in the system niobium-tin. Vestsi AN BSSR. Ser.fiz.-mat.nav.no.2:43-46 '65. (MIRA 19:1)

L 18054-66 EWT(m)/EWP(j)/EWP(t)/ETC(m)-6 IJP(c) JD/WW/JW/GS/RM

ACC NR: AT6006173 SOURCE CODE: UR/0000/65/000/000/0142/0145

AUTHOR: Koren', N. N.; Sirota, N. N. (Academician AN BSSR)

ORG: none

TITLE: Reactive diffusion of antimony and zinc with elements of the VI group and the energy of the chemical bond

SOURCE: Khimicheskaya svyaz' v poluprovodnikakh i tverdykh telakh (Chemical bond in semiconductors and solids). Minsk, Nauka i tekhnika, 1965, 142-145

TOPIC TAGS: forbidden zone width, crystal growth, antimony, zinc, selenium compound, tellurium compound, sulfur compound, heat of formation, crystal lattice energy

ABSTRACT: The process of reactive diffusion resulting in the formation of semiconductive layers of $A^{II}B^{VI}$-, $A^{V}B^{VI}$, and $A^{II}B^{V}$ type compounds on metal surfaces was studied using antimony and zinc with sulfur, selenium, and tellurium and antimony with zinc and cadmium as model systems. It was found that the mechanism of interaction of zinc with vapor of sulfur, selenium, and tellurium (in which a semiconduc-

Card 1/3

tor layer forms) involves diffusion of zinc across this layer. A similar mechanism of growth of the $A^{V}B^{VI}$ type semiconductor layer was found in the case of the interaction of antimony with the vapors of sulfur, selenium, and tellurium. In the zinc-antimony and cadmium-antimony systems, the growth of the interface layer involves countercurrent diffusion of both interacting components. The correlation between the activation energy of diffusion and the melting temperature of various compounds is graphed. The parameters of the reactive diffusion and the principal physical characteristics of the semiconductor compounds are shown in table 1. It is concluded that the rate of the reactive diffusion is dependent upon the type and the nature of interaction between the atoms in the process of compound formation. In general, the stronger the interatomic (or interionic) interaction within the crystal lattice, the greater is the diffusion activation energy and the smaller is the coefficient of the reactive diffusion. Orig. art. has: 2 tables.

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R000824610020-8"

L 18054-66
ACC NR: AT6006173

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TABLE 1

Chemical Compound	Energy of activation diffusion, kcal/mol	Preexponential factor, cm^2/sec	Heat of formation, kcal/mol	Lattice energy, kcal/mol	Forbidden zone width, ev	Melting temperature, °K
ZnO	34	$6.2 \cdot 10^{3}$	63	977	3.2	2248
ZnS	32	$1.2 \cdot 10^{-2}$	48	912	3.7	2123
ZnSe	26	$8.3 \cdot 10^{-4}$	34	852	2.8	1513
ZnTe	25	$1.1 \cdot 10^{-4}$	28	844	2.2	1512
ZnSb	18	$(5.2\text{-}8.5) \cdot 10^{-5}$	3.6	-	0.6	819
Sb_2S_3	18	$2.6 \cdot 10^{-6}$	35.7	-	1.7	819
Sb_2Se_3	20	$3.1 \cdot 10^{-5}$	-	-	1.3	885
Sb_2Te_3	21	$1.3 \cdot 10^{-3}$	28	-	0.3	893
CdSb	11	$(2.1\text{-}4.2) \cdot 10^{-7}$	3	-	0.48	699

SUB CODE: 07,20/ SUBM DATE: 31May65/ ORIG REF: 005/ OTH REF: 001

Card 3/3 SNV

KOSHELYUK, Ye.G.; MEDUZHKO, N.Ya., dorozhnyy master (stantsiya Zachepilovka, Stalinskoy dorogi); YEGOROV, M.I., dorozhnyy master (stantsiya Kakhovka, Stalinskoy dorogi); GUTYAN, A.M., inzh.; KOREN', P.T., putevoy obkhodchik (Vil'nyus); GRISHANKOV, V.G., putevoy obkhodchik (Vil'nyus); KURSHNEVA, M.N., dezhurnaya po pereyezdu (Vil'nyus); BALAKIN, B.N.; PASECHNIK, A.I.; CHERDANTSEV, A. Ye., dorozhnyy master (stantsiya Verkh-Neyvinsk, Sverdlovskoy dorogi); STROCHKOV, A.A., inzh.

Letters to the editor. Put' i put.khoz. 4 no.2:40-42 F '60. (MIRA 13:5)

1. Mekhanik puteizmeritel'noy telezhki, stantsiya Kovel', L'vovskoy dorogi (for Koshelyuk). 2. Zamestitel' nachal'nika distantsii puti, stantsiya Galich, Severnoy dorogi (for Balakin). 3. Inzhener distantsii, stantsiya Sambor, L'vovskoy dorogi (for Pasechnik).
(Railroads)

YEVSEYEV, K.P.; KOREN', T.N.

Silurian sediments of the Lemva structural-facies zone in the Arctic Ural Mountains. Trudy VSEGEI 86:77-82 '62. (MIRA 17:11)

KOREN', T.N.

New Silurian genus Uralograptus. Paleont. zhur. no.3:136-137 '62. (MIRA 15:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy geologicheskiy institut.
(Ural Mountain region--Graptolites)

BOGODAYEV, Yu.S.; KOREN', T.N.; PETROVSKIY, A.D.

Find of graptolite in a pit of the Blyava pyritic copper deposit in the Southern Urals. Dokl. AN SSSR 150 no.5:1107-1108 Je '63. (MIRA 16:8)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova i Vsesoyuznyy nauchno-issledovatel'skiy geologicheskiy institut. Predstavleno akademikom V.I.Smirnovym.
(Blyava region--Graptolites)

KOREN', T.N.

New finds of Ludlow graptolites in the Arctic Urals. Mat. VSEGEI no.67:175-179 '61. (MIRA 15:12)
(Ural Mountains--Graptolites)

BORODINA, K. G.; [redacted], T. N.

Find of graptolites in coal-quartzite shales of the Cheremshanskoye deposit. Izv. AN SSSR Ser. geol. 27 no.10:84-86 O '62. (MIRA 15:10)

1. Vsesoyuznyy geologicheskiy nauchno-issledovatel'skiy institut, Chelyabinskiy geologorazvedochnyy trest.

(Cheremshanka region(Chelyabinsk Province)—Graptolites)

NESTOYANOVA, O.A.; KOREN', T.N.

New finds of Ludlow graptolites in the Southern Urals. Dokl. AN SSSR 151 no.2:407-410 Jl '63. (MIRA 16:7)

1. Predstavleno akademikom D.V.Nalivkinym.
(Ural Mountains--Graptolites)

KOREN', V.T.

Characteristics of some difference schemes of the numerical integration of St. Venant equations in the calculations of unsteady flow of water for the case of the confluence of rivers; based on the example of rectangular channels. Trudy TSIP no.141:35-48 '65. (MIRA 18:9)

KALININ, G.P., doktor geograf, nauk, prof.; KUCHMENT, L.S., kand. fiz.-mat. nauk; KOREN', V.I.

Numerical experiments in hydrology. Meteor. i gidrol. no.11:16-22 N '64. (MIRA 17:12)

1. Moskovskiy gosudarstvennyy universitet i TSentral'nyy institut prognozov.

KORENBAUM, S.A.

Conditions governing the formation of talc and soapstone. Geol.i geofiz. no.6:85-98 '65. (MIRA 18:8)

1. Dal'nevostochnyy geologicheskiy institut Sibirskogo otdeleniya AN SSSR, Vladivostok.

KOPENBAUM, S.A.; SHCHEKA, S.A.

Some characteristics of the distribution of magnesium-silicate deposits in the Maritime Territory. Zakonom. razm. polezn. iskop. 6:92-107 '62. (MIRA 16:6)

1. Geologicheskiy institut Dal'nevostochnogo filiala Sibirskogo otdeleniya AN SSSR.
(Maritime Territory—Magnesium silicates)

KORENBAUM, S.A.

Magnesium carbonates in containing iron in the soapstone, and listvenite deposits. Geol. i geofiz. no.11:69-81 '64.
(MIRA 18:4)

1. Dal'nevostochnyy geologicheskiy institut Sibirskogo otdeleniya AN SSSR, Vladivostok.

KOZHEMYAKIN, V.S., geolog

Zones of possible flooding in constructing hydroelectric power stations in the Ussuri and Suyfun River basins. Amur. sbor. no. 1:118-120 '59. (MIRA 14:2)

1. Primorskoye geologicheskoye upravleniye.
(Maritime Territory--Geological surveys)
(Water resources development)

GALAGAN, I.Ye.; KORENBAUM, V.S.

Prospects for finding ores of agricultural importance in the Maritime Territory. Soob.DVFAN SSSR no. 15:3-7 '62. (MIRA 17:9)

1. Primorskoye geologicheskoye upravleniye.

FIN'KO, V.I.; KORENBAUM, V.S.; KOLBIN, M.F.

Ancient weathering surfaces in the Maritime Territory.
Kora vyvetr. no.6:195-202 '60. (MIRA 17:9)

1. Institut geologii rudnykh mestorozhdeniy, petrografii, mineralogii i geokhimii AN SSSR, Moskva (for Fin'ko). 2. Primorskoye geologicheskoye upravleniye, Vladivostok (for Korenbaum). 3. Geologicheskiy institut Dal'ne-Vostochnogo filiala Sibirskogo otdeleniya AN SSSR, Vladivostok (for Kolbin).

KOIGENBAUM, V.S.

Weathering surface of micaceous slate, a new genetic type of vermiculite deposits. Soob. DVFAN SSSR no.18:9-10 '63.
(MIRA 17:11)

1. Primorskoye geologicheskoye upravleniye.

Korenberg, E.I.

KARASEVA, Ye.V.; GERMAN, A.L.; KORENBERG, E.I.

The nutrition of the hen harrier and its effect on the course of epizooty of leptospirosis among field voles. Biul.MOIP. Otd. biol.60 no.4:126 Jl-Ag'55. (MLRA 8:12)
(HARRIERS) (FIELD MICE) (LEPTOSPIROSIS)

KORENBERG, E.I.

KARASEVA, Ye.V.; GERMAN, A.L.; KORENBERG, E.I.

Feeding habits of the hen harrier and its influence on the populations of the field vole Microtus oeconomus during an epizooty of nonicterogenic leptospirosis [with summary in English]. Biul. MOIP. Otd.biol. 62 no.1:11-18 Ja -F '57. (MLRA 10:6)
(ROSTOV DISTRICT--HARRIERS) (LEPTOSPIROSIS)
(FIELD MICE)

KORENBERG, E. I., KARASEVA, E. V.

"The results of the serological examination of the blood serum of rodents in Central Yakutiya." p. 148

Desyatoye Soveshchaniye po parazitologicheskim problemam i prirodnoochagovym boleznyam. 22-29 Oktyabrya 1959 g. (Tenth Conference on Parasitological Problems and Diseases with Natural Foci 22-29 October 1959), Moscow-Leningrad, 1959 , Academy of Medical Sciences USSR and Academy of Sciences USSR, No. 1 454pp.

Inst. of Epidemiology and Microbiology, AMS USSR/ Moscow

30(1) SOV/26-59-2-40/53

AUTHOR: Korenberg, E.I.

TITLE: About the Birds of the Central Vilyuy (O ptitsakh srednego Vilyuya)

PERIODICAL: Priroda, 1959, Nr 2, p 112 (USSR)

ABSTRACT: The author points out that at present little is known about the birds of the remote districts of the Yakutskaya Oblast'. This is also true with respect to the birds of the territory of the Central Vilyuy and makes even individual observation results worth while. B. N. Andreyev [Ref 1] notices that Passer domesticus which for the first time was seen in this area in 1853 has spread over several large settlements. This fact supports the conclusion that the appearance of Passer domesticus depends on suitable nesting prerequisites rather than on trophic or climatic factors. On July 30, 1956, the author recorded a colony of several dozens of pairs of Apus pacificus with their young for the first time on the rocky bank of the

Card 1/2

About the Birds of the Central Vilyuy SOV/26-59-2-40/53

Vilyuy river. Among the birds seen more frequently in the areas bordering the larch-tree taiga, there are Emberiza aureola and Erythrina erythrina. There are 2 Soviet references.

ASSOCIATION: Moskovskiy oblastnoy pedagogicheskiy institut im. N.K. Krupskoy (Moscow Oblast' Pedagogic Institute imeni N.K. Krupskaya)

Card 2/2

KARASEVA, Ye.V.; KORENBERG, E.I.; MERKOVA, M.A.

Small mammals of central Yakutia and their role as natural reservoirs of some human diseases. Zool. zhur. 39 no.11:1690-1699 N '60. (MIRA 14:1)

1. Department of Infections of Natural Nidality, Institute of Epidemiology and Microbiology, U.S.S.R. Academy of Medical Sciences, Moscow.

(Vilyuy Valley--Rodents as carriers of disease)

KORENBERG, E.I.; SEMENOVA, L.P.

Epizootiology of leptospirosis among insectivores. Zool. zhur. 40 no.6:942-945 Je '61. (MIRA 14:6)

1. Instute of Epidemiology and Microbiology, U.S.S.R. Academy of Medical Sciences, Moscow.
(Nero Lake region—Leptospirosis)
(Insectivores as carriers of disease)

ZEMSKAYA, A.A.; KORENBERG, E.I.

Parasitic gamasid mites of rodents in the central Yakut Lowland. Zool. zhur. 41 no.6:939-943 Je '62. (MIRA 15:7)

1. Department of Infections of Natural Nidality, Institute of Epidemiology and Microbiology, Academy of Medical Sciences of the U.S.S.R., Moscow.
(Yakutia--Mites) (Yakutia--Parasites --Field mice)

KORENBERG, E.I.

Role of birds as hosts of ixodid ticks in the natural nidi of eneephalitis in the forest zone. Zool.zhur. 41 no.8:1220-1225 Ag '62. (MIRA 15:9)

1. The Department of Natural Nidi Control, Institute of Epidemiology and Microbiology, Academy of Medical Sciences of the U.S.S.R., Moscow.
(Ticks--Host animals) (Birds as carriers of disease) (Encephalitis)

KORENBERG, E.I.; STAVROV, N.N.

Effect of the amount and distribution of precipitation during the summer months on the population of Microtus oeconomus. Biul.MOIP. Otd.biol. 67 no.3:13-17 My-Je '62. (MIRA 15:11)
(Nero Lake region--Field mice)

KORENBERG, E.I.

Observations on birds in the depression of Lake Nero (Yaroslavl Province). Ornitologiia no.5:105-107 '62. (MIRA 16:2)
(Nero Lake region—Birds)

KORENBERG, E.I.; SEMENOVA, L.P.; SOLOSHENKO, I.Z.

Epizootology and epidemiology of leptospirosis in Yaroslavl Province. Zhur. mikrobiol., epid. i immun., 33 no.12:36-41 D '62. (MIRA 16:5)

1. Iz Instituta epidemiologii i mikrobiologii imeni Gamaleia AMN SSSR.
(YAROSLAVL PROVINCE--ZOONOSES)
(YAROSLAVL PROVINCE--LEPTOSPIROSIS)

KUZNETSOV, V.I.; KORENBERG, E.I.

Biology of grouse, hazel grouse and capercaillie in the southern part of Kirov Province. Ornitologiia no.6:117-125 '63. (MIRA 17:6)

KORENBERG, E.I.; KUZNETSOV, V.I.

Evaluation of the abundance of grouses by recording their occurrence. Ornitologiia no.6:387-393 '63.
(MIRA 17:6)

KORENBERG, E.I.; ZHMAYEVA, Z.M.

Interrelations between the yellowhammer and the tick Ixodes persulcatus. Zool. zhur. 43 no.2:282-284 '64. (MIRA 17:6)

1. Otdel bolezney s prirodnoy ochagovost'yu Instituta epidemiologii i mikrobiologii Akademii meditsinskikh nauk SSR (Moskva).

KORENBERG, E.I.

Main features of the effect of concentrated felling on birds of the European southern taiga forests. Zool. zhur. 43 no.5: 735-743 '64 (MIRA 17:7)

1. Otdel bolezney s prirodnoy ochagovost'yu Instituta epidemiologii i mikrobiologii AMN SSSR, Moskva.

KORENBERG, E.I.; SUVOROVA, L.G.; KOVALEVSKIY, Yu.V.; TUPIKOVA, N.V.

Birds as tick hosts in European southern taiga forests. Biul. MOIP. Otd. biol. 69 no.5:16-29 S-O '64. (MIRA 17:11)

KORENBERG, E.I.

Evaluation of the epizootic situation by pathological anatomical changes in field mice in leptospirosis. Zhur.mikrobiol.,epid. i immun. 41 no.5:87-92 My '64. (MIRA 18:2)

1. Institut epidemiologii i mikrobiologii imeni Gamalei AMN SSSR.

KORENBERG, E.I.; PCHELKINA, A.A.; KOVALEVSKIY, Yu.V.; SUVOROVA, L.G.

Characteristics of immunogenesis in tetraonid birds in a natural focus of tick-borne encephalitis. Med. paraz. i paraz. bol. 33 no.6:711-717 N-D '64. (MIRA 18:6)

1. Otdel bolezney s prirodnoy ochagovost'yu Instituta epidemiologii i mikrobiologii imeni Gamalei AMN SSSR, Moskva.

KORENBERG, E.I.; KOVALEVSKIY, Yu.V.; KUZNETSOV, V.I.

Large-scale map drawing of the distribution of tetraonid birds.
Ornitologiia no.7:371-379 '65.

(MIRA 18:10)

ACC NR: AT6031460 SOURCE CODE: UR/0000/65/000/000/0187/0196

AUTHOR: Korenberg, E. I.; Kovalevskiy, Yu. V.; Suvorova, L. G.

ORG: Institute of Epidemiology and Microbiology im. N. F. Gamaleya, AMN SSSR, Moscow (Institut epidemiologii i mikrobiologii AMN SSSR)

TITLE: Large-scale mapping in the study of the role of birds in natural tick-borne encephalitis foci

SOURCE: Konferentsiya po metodam mediko-geograficheskikh issledovaniy. Moscow, 1965. Metody mediko-geograficheskikh issledovaniy (Methods of medicogeographical research); materialy konferentsii. Moscow, 1965, 187-196

TOPIC TAGS: medical geography, epidemiology, bird study, disease vector, encephalitis, BIOLOGIC ECOLOGY, ANIMAL PARASITE, MAPPING

ABSTRACT: Simultaneous surveys of bird and tick populations were made and correlated with forest types over a large area in the Kirov oblast. In heavily forested areas, the number of ticks per bird was greater than in lightly forested areas or in places where the trees had recently been cut. Immunity studies were also

Card 1/2

ACC NR: AT6031460

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R000824610020-8

conducted and the results plotted. The nymph-to-adult distribution among the ticks was also studied. The advantages and disadvantages of standard field methods were discussed.

[WA-50; CBE No. 12]

SUB CODE: 06,08/ SUBM DATE: 17Sep65/ ORIG REF: 011/

Card 2/2

ACC NR: AT6031460

conducted and the results plotted. The nymph-to-adult distribution among the ticks was also studied. The advantages and disadvantages of standard field methods were discussed.

[WA-50; CBE No. 12]

SUB CODE: 06,08/ SUBM DATE: 17Sep65/ ORIG REF: 011/

Card 2/2

ACC NR: AP7001078 (A,N) SOURCE CODE: UR/0439/66/045/002/0245/0260

AUTHOR: Korenberg, E. I.

ORG: Medical Zoology Laboratory, Institute of Epidemiology and Microbiology, Academy of Medical Sciences, SSSR (Laboratoriya meditsinskoy zoologii Instituta epidemiologii i mikrobiologii Akademii meditsinskikh nauk SSSR)

TITLE: Birds and the problem of natural tick-borne encephalitis foci

SOURCE: Zoologicheskiy zhurnal, v. 45, no. 2, 1966, 245-260

TOPIC TAGS: epidemiology, ~~tick-borne~~ encephalitis, disease vector, tick, bird, ~~epidemic focus~~, immunology, EPIZOOTIOLOGY, DISEASE INCIDENCE

ABSTRACT: The role of avian hosts of the ticks *I. persulcatus* and *I. ricinus* in maintaining foci of tickborne encephalitis was studied. The present work was in two parts: a general survey of avian tick infestation, and an experimental study of the effects of the infection of some birds with tick-borne encephalitis in the distribution of the virus and maintenance of an experimental focus. It has long been known that birds play a significant role in the maintenance of epidemic foci in their role as epizootics, and most

Card 1/4 UDC: 598.2+616.988.25-0.22.935.4

specialists believe that as hosts to ticks the birds also are an important link in the chain of virus circulation and distribution of vectors. Studies of birds in regions where the disease is endemic reveal the two tick species in all three principal stages of development are found on local birds.

Larvae and nymphs are generally found on birds in a focal region. The ticks most frequently parasitize birds that spend a good deal of time on the ground in feeding or nesting activity. Of 180 bird species which are hosts to these two tick species, the most commonly infested birds are grouse and related types, buntings, and thrushes. The degree of infestation decreases from west to east in the Soviet Union, with variations related to climate, altitude, and other geographical factors. Seasonality is also a factor. In Asiatic regions of the SSSR, extremely heavy infestation occurs in the second half of the summer. Because the virus of tickborne spring-summer encephalitis remains in the brain tissues up to 25 days, this virus was used to infect birds for a study of the distribution of the virus in an experimental focus. Various birds of prey were fed food contaminated with the virus from moribund mice; other birds were infected intracerebrally. The virus remained in the brain up to 25 days. Crossbills and Lesser

ACC NR: AP7001078

Redpolls (*Acanthis flammea*) were more sensitive to the virus. Especially interesting was the role birds played in the circulation of the virus after they were bitten by infected larvae and nymphs of *I. persulcatus* and *I. ricinus*. The concentration of virus in the blood was used to evaluate the role of a bird or tick as a disseminator of virus since subinfective doses produced strong antibody reactions in pheasants without making them carriers. Further investigation of birds as carriers of tickborne spring-summer encephalitis is planned, since in-depth studies of specific sensitivity to the virus have not been made. Thus far, 140 species of birds that carry tickborne encephalitis virus or react positively to serological tests are known. The presence of virus in the brain is taken to indicate

Card 3/4

ACC NR: AP7001078

that the bird has the disease, and on this basis it has been found that birds from the eastern parts of the SSSR are more heavily infected with the disease than birds in any other part of the country. Studies in comparative biology of virus strains, avian serology, standardization of immunological tests for the disease in birds, virological studies, and more thorough investigation of the means of distribution of the virus among ticks, birds, mammals, and man are being planned. Orig. art. has: 2 tables. [LP]

[WA-50; CBE No. 14]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 056/ OTH REF: 012

Card 4/4

KOTEL'NIKOV, V.A., akademik; DUBROVIN, V.M.; KISLIK, M.D.; KORENBERG, Ye.B.; MINASHIN, V.P.; MOROZOV, V.A.; NIKITSKIY, N.I.; PETROV, G.M.; RZHIGA, O.N.; SHAKHOVSKOY, A.M.

Radar observation of Venus. Dokl.AN SSSR 145 no.5:1035-1038 '62. (MIRA 15:8)

1. Institut radiotekhniki i elektroniki AN SSSR.
(Radio astronomy) (Venus (Planet))

POKRAS, Aleksandr Mikhaylovich; FORENBERG, Ye.B., otv. red.; NOSOVA, M.N, red.

[Antenna systems of foreign telecommunication lines using artificial satellites] Antennye ustroistva zarubezhnykh linii sviazi cherez iskusstvennye sputniki Zemli. Moskva, Sviaz', 1965. 167 p. (MIRA 18:8)

L 10218-66 EWT(d)/FSS-2 RB

ACC NR: AP5028464 SOURCE CODE: UR/0286/65/000/020/0030/0030

AUTHORS: Rzhevskiy, V. V.; Kop'yev, V. Ya.; Korenberg, Ye. B.; Orlovskaya, E. D. 44,55 44,55 44,55 44,55

ORG: none 63 B

TITLE: A method for angular-traverse radio communications in branching underground mining excavations. Class 21, No. 175536 [announced by Moscow Institute of Electronics and Mining Electromechanics (Moskovskiy institut radioelektroniki i gornoy elektromekhaniki)] 44,55

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 20, 1965, 30

TOPIC TAGS: microwave communication, radio relay, centimeter wave, electromagnetic energy 44,55

ABSTRACT: This Author Certificate presents a method for angular-traverse radio communications in branching underground mining excavations. It employs the channeling properties of the excavations. To increase the range of radio communications, electromagnetic energy of the centimeter range is radiated at small glancing angles at the places where the traverses bend. This results in

Card 1/2 UDC: 621.396.4

L 10218-66
ACC NR: AP5028464

plane passive radio relays.

SUB CODE: 17 SUBM DATE: 12Jun64/

Card 2/2

KOTEL'NIKOV, V.A.; APRAKSIN, L.V.; VOYTOV, V.O.; GOLUBTSOV, M.G.; DUBROVIN, V.M.; ZAYTSEV, N.M.; KORENBERG, Ya.B.; MINASHIN, V.P.; MOROZOV, V.A.; NIKITSKIY, N.I.; PETROV, G.M.; RZHIGA, O.N.; SHAKHOVSKOY, A.M.

Radar system used in the Venus probe of 1961. Radiotekh. i elektron. 7 no.11:1851-1859 N '62. (MIRA 15:11)

1. Institut radiotekhniki i elektroniki AN SSSR.
(Radar)
(Venus probes)

KOTEL'NIKOV, V. A., akademik; GUS'KOV, G. Ya.; DUBROVIN, V. M.; DUBINSKIY, B. A.; KISLIK, M. D.; KORENBERG, Ye. B.; MINASHIN, V. P.; MOROZOV, V. A.; NIKITSKIY, N. I.; PETROV, G. M.; PODOPRIGORA, G. A.; RZHIGA, O. N.; FRANTSESSON, A. V.; SHAKHOVSKOY, A. M.

Radar tracking of the planet Mercury. Dokl. AN SSSR 147 no.6: 1320-1323 D '62. (MIRA 16:1)

1. Institut radiotekhniki i elektroniki AN SSSR.

(Mercury(Planet)) (Radar in astronomy)

USSR/Pharmacy
Statistics

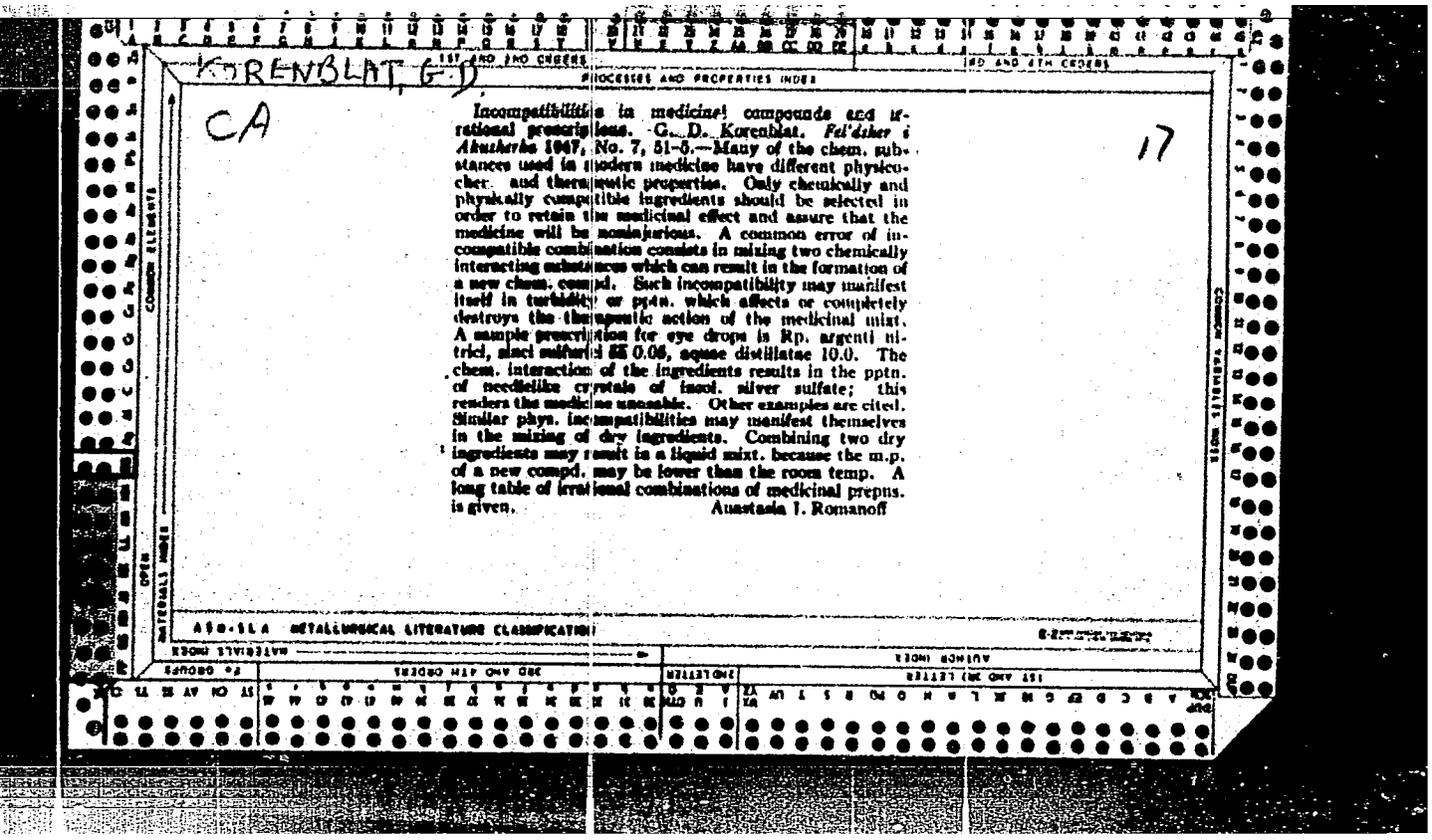
Feb 1947

"Standardization of Apothecary Staffs," G D Korenblat, 6 pp

"Farmatsiya" No 2

Statistical review of man-hours spent on various phases of apothecary work

1T69



KORENBLAT, G. D.

CA

17

PROCESSES AND PROPERTIES INDEX

Incompatibilities in medicinal compounds and irrational prescriptions. G. D. Korenblat. *Fel'dsher i Akusherka* 1947, No. 7, 51–6.—Many of the chem. substances used in modern medicine have different physicochem. and therapeutic properties. Only chemically and physically compatible ingredients should be selected in order to retain the medicinal effect and assure that the medicine will be noninjurious. A common error of incompatible combination consists in mixing two chemically interacting substances which can result in the formation of a new chem. compd. Such incompatibility may manifest itself in turbidity or pptn. which affects or completely destroys the therapeutic action of the medicinal mixt. A sample prescription for eye drops is Rp. argenti nitrici, zinci sulfuris aa 0.06, aquae distillatae 10.0. The chem. interaction of the ingredients results in the pptn. of needlelike crystals of insol. silver sulfate; this renders the medicine unusable. Other examples are cited. Similar phys. incompatibilities may manifest themselves in the mixing of dry ingredients. Combining two dry ingredients may result in a liquid mixt. because the m.p. of a new compd. may be lower than the room temp. A long table of irrational combinations of medicinal preps. is given.

Anastasia I. Romanoff

A50-51A METALLURGICAL LITERATURE CLASSIFICATION

KORENBLAT, G. D.

The organization of the pharmaceutical business 1943. 194 p.

DAFM

1. Drug trade - Russia

KORENBLAT, G. D.

FA 6/49T64

USSR/Medicine - Pharmacology May/Jun 48
Medicine - Drugs

"Results of All-Union Conference of Leaders in the Pharmaceutical Field," G. D. Korenblat, Moscow, 4 pp

"Sov Zdravookhran" No 3

Reports speeches made at above conference. Points made include: production deficiencies in medical industry, poor distribution of medical equipment, and importance of correct budgeting.

[redacted]

6/49T64

KORENBLAT, L.

From the biography of irons. Un.tekh. 5 no.10:41-44 O '60.
(MIRA 13:12)
(Electric irons)

KORENBLAT, L.

Performance and types of washing machines. IUn.tekh. 5 no.6: 53-54 Je '61. (MIRA 14:9)

(Washing machines)

KORENBLAT, L.

Pumps. IUn.tekh. 6 no.4:63-65 Ap '62. (MIRA 15:6)
(Pumping machinery)

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S/181/60/002/012/014/018
B006/B063

AUTHOR: Korenblit, I. Ya.

TITLE: Galvànomagnetic Effects in Bi_2Te_3 on Anisotropic Scattering

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 12, pp. 3083-3091

TEXT: The present paper deals with a theoretical study of galvanomagnetic effects (solution to the kinetic equation) in consideration of anisotropic scattering. Galvanomagnetic phenomena in crystals, in which scattering can be described by the tensor of the relaxation time τ_{ii}, were studied by Herring and Vogt (Ref. 1) who have shown that, if the principal axes of the mass ellipsoid coincide with the principal axes of the tensor τ_{ii}, and if the anisotropy in scattering is neglected, it is only necessary to substitute $m_i\tau_{ii}^{-1}$ for m_i in the formulas for the galvanomagnetic coefficients. m_i symbolizes the components of the mass tensor. In view of these results, anisotropic scattering is taken into account and the variation of the collision term in the kinetic equation is investigated for the case

Card 1/5

where scattering is described by a tensor of the relaxation time, the components of which are independent of the direction of the wave vector of the electron (hole). Using the expression derived for the collision term, the galvanomagnetic coefficients in Bi_2Te_3 are calculated for the case of weak fields, and the resulting formulas are then analyzed. For the galvanomagnetic coefficients one obtains:

$$\left.\begin{aligned}
\sigma_{11} &= 3p_1(c_1^2x_1 + s_1^2x_3 + x_2 - 2c_1s_1x_4);\\
\sigma_{33} &= 6p_1(s_1^2x_1 + c_1^2x_3 + 2c_1s_1x_4),\\
\sigma_{123} &= 6p_2x_2\left(\frac{\sigma_{11}}{3p_1} - x_2^2\right);\\
\sigma_{231} &= 3p_2\left(\frac{\sigma_{33}}{6p_1}x_2 + \zeta_1^2\right),\\
\sigma_{1111} &= -\frac{3p_3}{4}\left[3x_2\zeta_2^2 + \frac{\sigma_{33}}{6p_1}x_2^2 + \zeta_1^2\left(\frac{\sigma_{11}}{3p_1} - 3x_2\right)\right],\\
\sigma_{1122} &= -\frac{3p_3}{4}\left[x_2\zeta_2^2 + \frac{\sigma_{33}}{2p_1}x_2^2 + \zeta_1^2\left(\frac{\sigma_{11}}{p_1} - x_2\right)\right],
\end{aligned}\right\} \quad (3\ell)$$

Galvanomagnetic Effects in Bi_2Te_3 on Anisotropic Scattering

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B006/B063

$$
\begin{aligned}
&\sigma_{3333} = -6p_3 x_2 \zeta_2^2;\\
&\sigma_{2323} = 3p_3 x_2 (\zeta_1^2 + \zeta_2^2),\\
&\sigma_{1133} = -\frac{p_3}{p_1} x_2 \sigma_{11}\left(\frac{c_{11}}{3p_1} - x_2\right);\\
&\sigma_{3311} = -\frac{p_3}{2p_1}\left(x_2 \frac{\sigma_{33}}{6p_1} + \zeta_1^2\right)\sigma_{33},\\
&\sigma_{3111} = -\frac{3p_3}{2}\left(\frac{\sigma_{33}}{6p_1} x_2 - \zeta_1^2\right)\zeta_2;\\
&\sigma_{1113} = \frac{3p_3}{2} x_2 \left(\frac{\sigma_{11}}{3p_1} - 2x_2\right)\zeta_2.
\end{aligned}
\qquad (36)
$$

where $c_1 = \cos\Theta$; $s_1 = \sin\Theta$; Θ is the angle of rotation of the ellipsoid relative to the OY axis of the crystal, and

$$
\begin{aligned}
&x_i = \frac{a_{ii}}{m_i}, \quad i = 1, 2, 3; \quad x_4 = \frac{a_{13}}{m_1} = \frac{a_{31}}{m_3},\\
&\zeta_1^2 = x_1 x_3 - x_4^2; \quad \zeta_2 = (c_1^2 - s_1^2) x_4 + s_1 c_1 (x_1 - x_3).
\end{aligned}
\qquad (37)
$$

Card 3/5

Galvanomagnetic Effects in Bi_2Te_3 on Anisotropic Scattering

S/181/60/002/012/014/018
B006/B063

The symbols are as usual. Putting $a_{13}=a_{31}=0$ and $a_{11}=a_{22}=a_{33}$, one obtains the formulas derived by Drabble and Wolfe (Ref. 2). In the case of scattering by phonons and if $\varphi(\varepsilon) = \varepsilon^{-1/2}$, the following relation is obtained for p_i:

$$\left.\begin{aligned} p_1 &= \frac{2e^2\sqrt{2m_1m_2m_3}}{3\pi^2\hbar^3\beta}\ln(1+e^{\mu^*}),\\ p_2 &= \frac{e^3\sqrt{2m_1m_2m_3}}{3\pi^2\hbar^3\sqrt{\beta c}}F_{-\frac{1}{2}}(\mu^*),\\ p_3 &= \frac{2e^4\sqrt{2m_1m_2m_3}}{3\pi^2\hbar^3\mu^3}(1+e^{-\mu^*})^{-1}. \end{aligned}\right\} \quad (38)$$

$\beta = 1/kT$; μ^* - reduced chemical potential; $F_{-1/2}$ - Fermi integral of the degree -1/2. It is evident that the two relations $3\sigma_{1111}-\sigma_{1122}-2(\sigma_{2323}+\sigma_{3333}) = 0$ and $\sigma_{1133}\sigma_{231}\sigma_{33}/\sigma_{3311}\sigma_{123}\sigma_{11} = 1$ between the galvanomagnetic coefficients are obtained from (36), no matter whether or not p_i has a concrete form, i.e., irrespective of the type of the function $\varphi(\varepsilon)$ and of the statistics of the electron gas. These relations may be experimentally verified, and may give valuable information on the energy spectrum and

28093
S/181/61/003/009/027/039
B104/B102

24,7600 (1043,1160,1537)

AUTHORS: Yefimova, B. A., Korenblit, I. Ya., Novikov, V. I., and Ostroumov, A. G.

TITLE: Anisotropy of galvanomagnetic properties of p-type Bi_2Te_3

PERIODICAL: Fizika tverdogo tela, v. 3, no. 9, 1961, 2746-2760

TEXT: The galvanomagnetic effects of p-type bismuth telluride have been studied between 4-290°K. This material is well suited for the production of thermocouples. The results were analyzed using the model suggested by J. R. Drabble et al. (Refs. 1-4, 17, see below). The single crystals were grown by Chokhral'skiy's method and that of G. I. Shmelev and S. V. Ayrapetyants (FTT, II, 4, 1960). Two types of samples have been used; the third-order axis of one sample coincided with its longitudinal axis and the third-order axis of the other was vertical to its longitudinal axis. The electrical conductivity σ_{ij}, the Hall coefficient ϱ_{ijk}, and the reluctance ϱ_{ijkl} were measured by a d-c compensation method in a constant magnetic field. The temperature of the samples was measured with copper-constantan

Card 1/4

thermocouples. Their sensitivity at helium temperature was 4-5 $\mu v/^{o}K$ and at room temperature 40 $\mu v/^{o}K$. Measurements and results are discussed in detail. The galvanomagnetic properties of p-type Bi_2Te_3 indicate that the model suggested by Drabble et al. for the isoenergetic surfaces is correct between 4 and 290°K. In the range where only one scattering mechanism of the carriers predominates (scattering from acoustic phonons or impurities), the tensor of the relaxation time can be written as $\tau_{ij} = a_{ij}\varphi(\mathcal{E})$. The coefficients a_{ij} are functions of temperature. For the whole temperature interval it can be assumed that $\tau_{13} \approx 0$. The anomaly of the Hall effect is caused by the change of a_{ij} when the scattering of the carriers by acoustic phonons changes over to scattering by impurities. The temperature dependences of the carrier mobility μ_o, which have been determined from the "isotropic" electrical conductivity and the "isotropic" magnetic conductivity, are in agreement. At room temperature $u_o \sim T^{-1.7}$; at lower temperatures, the slope of the straight line $\ln u_o = f(\log T)$ decreases considerably. The changes of the anisotropy parameters $w_1 = m_2\tau_{11}/m_1\tau_{22}$ and $w_2 = m_2\tau_{33}/m_3\tau_{22}$ are explained by the transition of scattering from

4

Anisotropy of galvanomagnetic ...

phonons to scattering from impurities. The temperature dependence of the anisotropy parameters confirms that the model is valid for all temperatures. An estimation of the anisotropy of the relaxation time for scattering from impurities shows that it is not very large. This fact is explained by the lack of anisotropy in the thermo-emf for mixed scattering. The galvanomagnetic coefficients of p-type Bi_2Te_3 can be calculated by using empirical parameters and equations published by I. Ya. Korenblit, in FTT, II, 12, 3083, 1960. Two variants of the energy spectrum are determined therefrom. The test results obtained are not sufficient to decide which is the correct variant. The authors thank A. G. Samoylovich, L. S. Stil'bans, and S. S. Shalyt for interest and advice. There are 10 figures, 2 tables, and 22 references: 8 Soviet and 14 non-Soviet. The five most important references to English-language publications read as follows: J. R. Drabble et al., Ref. 1: Proc. Phys. Soc., 69, 1101, 1956; Ref. 2: Proc. Phys. Soc., 71, 3, 1958; Ref. 3: Proc. Phys. Soc., 72, 380, 1958; Ref. 4: J. Phys. Chem. Soc., 8, 428, 1959; Ref. 17: J. Electr. a. Contr., 3, 3, 1957.

Card 3/4

28093
S/181/61/003/009/027/039
B104/B102

Anisotropy of galvanomagnetic ...

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

SUBMITTED: April 29, 1961

Card 4/4

29684
S/181/61/003/010/006/036
B102/B108

24,7200 (1144, 1153, 1160)

AUTHORS: Samoylovich, A. G., Korenblit, I. Ya., Dakhovskiy, I. V., and Iskra, V. D.

TITLE: Solution of the kinetic equation for anisotropic electron scattering

PERIODICAL: Fizika tverdogo tela, v. 3, no. 10, 1961, 2939-2952

TEXT: Elastic electron scattering is studied theoretically under the following assumptions: The considered system is under the influence of an external electric field and a temperature gradient. The electron energy spectrum is given by $\varepsilon = \sum_{i=1}^{3} \frac{\hbar^2 k_i^2}{2m_i}$. Electric field and temperature gradient are weak, no magnetic field exists. The kinetic equation is given as

$$-\hat{D}n_{\mathbf{k}}^{(0)} + \hat{R}n'_{\mathbf{k}} = 0. \qquad (1.2)$$

$$\hat{R}n'_{\mathbf{k}} = \sum_{\mathbf{k}'} W_{\mathbf{k}\mathbf{k}'}(n'_{\mathbf{k}'} - n'_{\mathbf{k}}), \qquad (1.3).$$

Card 1/5

Solution of the kinetic equation...

$n_{\vec{k}}^{(0)}$ denotes the equilibrium distribution function, $n_{\vec{k}}'$ the nonequilibrium correction to it, $\hat{D}n_{\vec{k}}^{(0)}$ the free term

$$\hat{D}n_{\vec{k}}^{(0)} = \frac{1}{\hbar}\frac{\partial n_{\vec{k}}^{(0)}}{\partial \varepsilon}\left[\sum_i \frac{\partial \mu}{\partial x_i}\frac{\partial \varepsilon}{\partial k_i} + \frac{\varepsilon-\mu}{T}\sum_i \frac{\partial T}{\partial x_i}\frac{\partial \varepsilon}{\partial k_i} - e\sum_i \frac{\partial \varepsilon}{\partial k_i}\mathcal{E}_i\right], \quad (1,4)$$

of the kinetic equation, μ the chemical potential, $\mathcal{E}$ the external electric field, $\hat{R}$ the collision operator: $\hat{R}n_{\vec{k}}' = \sum_{ij}\chi_i(\varepsilon)\nu_{ij}k_j$, with $n_{\vec{k}}' = \sum_i \chi_i(\varepsilon)k_i$ (1.5) and

$$\sum_{\vec{k}'} W_{\vec{k}\vec{k}'}(k_i' - k_i) = \sum_j \nu_{ij}(\varepsilon)k_j; \quad (1,7)$$

Since (1.5) and (1.7) are not valid in every case, the authors tried to establish a method which makes it possible to find out in which cases (1.5) and (1.7) hold true and to solve the kinetic equation also when the aforementioned conditions are not valid. First, "deformed" coordinates are introduced in the quasimomentum space and the free term

Card 2/5

Solution of the kinetic equation...

(1.4) is transformed into $\hat{D}n_{\vec{k}}^{(0)} = \sum_m D_m Y_{1m}(\vartheta_0 \varphi_0)$ so that the kinetic equation goes over into an infinite system of linear algebraic equations. The solution has to be sought as an expansion into spherical harmonics $n_{\vec{k}} = \sum_{km} X_{km}(\varepsilon) \cdot Y_{km}(\vartheta_0 \varphi_0)$. The collision operator is then given by

$$\hat{R}n_k = -\sum_{jkmp} X_{km}(\varepsilon) B_{jk}(mp) Y_{jp}(\vartheta_0 \varphi_0), \qquad (2,8)$$

$$-\sum_{jp} B_{jp}(mp) Y_{jp}(\vartheta_0 \varphi_0) = \hat{R} Y_{km}(\vartheta_0 \varphi_0). \qquad (2,9)$$

and $\sum_{km} B_{jk}(pm) X_{km} = D_p \delta_{j_1}$, or, for $B_{jk}(pm) = B_{jk}(m)\delta_{mp}$, $\sum_k B_{jk}(m) X_{km} = D_m \delta_{j_1}$ (2.11). The coefficients $B_{jk}(pm)$ are found to be

Card 3/5

Solution of the kinetic equation...

$$B_{ln}(pm)=\frac{4\pi\sqrt{2m_1m_2m_3^2}}{(2\pi\hbar)^3}p^{n-p}\sum_{\text{perm.}}\sqrt{\frac{(2j+1)(2k+1)(j-s)!(k-s)!}{(j+s)!(k+s)!}}\times$$

$$\times\int d\Omega\int_0^{\frac{\pi}{2}}d\vartheta\sin\vartheta\cos\vartheta W'(\vartheta\varphi)P_j^s(\cos\vartheta)P_k^s(\cos\vartheta)P_{l_1}^{l_2}(\cos\vartheta)\times \qquad (3.33)$$

$$\times P_{l_3}^{l_4}(\cos\vartheta)e^{i(m-p)\varphi};$$

$d\Omega=\sin\vartheta d\vartheta d\varphi$.

where j and k are odd numbers. An iteration method is employed for the determination of X_{1m} in the system (2.11). The quickly converging series

$$X_{1m}=D_m\sum_l\frac{Z_{l-1}^2}{\Delta_l(m)\,\Delta_{l-1}(m)}, \qquad (4,6)$$

$$Z_{l-1}(m)=\begin{vmatrix} B_{31}(m) & B_{33}(m)\ldots\ldots B_{3,2l-3}(m) \\ \cdot\cdot\cdot\cdot\cdot\cdot\cdot\cdot\cdot\cdot\cdot\cdot\cdot\cdot\cdot\cdot\cdot \\ \cdot\cdot\cdot\cdot\cdot\cdot\cdot\cdot\cdot\cdot\cdot\cdot\cdot\cdot\cdot\cdot\cdot \\ B_{2l-1,1}(m) & B_{2l-1,3}(m)\ldots B_{2l-1,2l-3}(m) \end{vmatrix};\ Z_0=1. \qquad (4,7)$$

is derived. The authors have used this method before to investigate electron scattering from impurity ions and acoustic phonons (results published elsewhere). Finally, a method of solving the kinetic equation,

Card 4/5

Solution of the kinetic equation...

which is based on the use of eigenfunctions of R is discussed in brief. There are 12 references: 9 Soviet and 3 non-Soviet. The reference to the English-language publication reads as follows: J. M. Ziman, Canad. Journ. Phys., 34, 1256, 1956.

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

SUBMITTED: March 31, 1961

Card 5/5

30774
S/181/61/003/011/006/056
B102/B138

24.7200 (1144,1153,1160)

AUTHORS: Samoylovich, A. G., Korenblit, I. Ya., Dakhovskiy, I. V., and Iskra, V. D.

TITLE: Anisotropic scattering of electrons from ionized impurities and acoustic phonons

PERIODICAL: Fizika tverdogo tela, v. 3, no. 11, 1961, 3285-3298

TEXT: In continuation of two previous papers (Ref. 1: FTT, 3, 10, 1961 and Ref. 2: DAN SSSR, 139, 355, 1961) the authors theoretically investigated inelastic electron scattering from impurity ions and acoustic phonons in cubic crystals. First the probability of scattering from impurity ions in a cubic crystal with isotropic dielectric constant is calculated in Born's approximation:

$$W(\theta\varphi)=\frac{2\pi}{\hbar}N|V_{kk'}|^2=\frac{\pi^2 e_0^4 N\hbar^3}{2\varepsilon^2 m_3^2 v^3\left[\left(\cos^2\theta+\frac{m_1}{m_3}\sin^2\theta\right)\cos^2\theta+\gamma^2\right]^2}. \qquad (1.6)$$

ε is the dielectric constant, $\gamma=\hbar^2/8a^2m_3\varepsilon$, a - shielding radius,

Card 1/8

N - number of impurity ions per cm^3, $V_{kk'}$ - transition matrix element

[Abstracter's note: Denotations and basic equations are taken from Ref. 1. It is impossible to follow the calculations if Ref. 1 is not available.]

In the next section the coefficients $B_{jk}(m)$ and the first terms of the X_{1m} series are determined approximately. The following results were obtained:

$$B_{jk}(0)=\frac{\pi C}{4}\ln\frac{1}{\gamma^2}\frac{m_3^2}{m_1^2\beta^2}\sqrt{(2j+1)(2k+1)}\times$$

$$\times\sum_{s=0}^{\min}\frac{(j+s)!!\,(k+s)!!\,(j-s)!!\,(k-s)!!}{(k+s-1)!!\,(j+s-1)!!\,(k-s-1)!!\,(j-s-1)!!}\cdot \qquad (2.8)$$

with

$$C=\frac{\pi N e_0^4 m_1}{\sqrt{2}\,\pi^2 m_3^{3/2}\varepsilon^{3/2}}\cdot \qquad (2.2);$$

The approximate value $\tilde{B}_{jk}(0)\approx B_{jk}(0)$.

Card 2/8

$$X_{10}=\frac{D_0}{B_{11}(0)}(1+0.72+0.015+0.00018+\ldots). \qquad (2.9),$$

$$X_{11}=\frac{D_1}{B_{11}(1)}(1+0.72+0.015+\ldots). \qquad (2.12)$$

The third section deals with the relaxation time tensor for scattering from impurity ions. Relaxation time is assumed to be isotropic:

$$\tau^{-1}=\frac{N\pi e_0^4}{x^3\sqrt{2m^*\varepsilon^3}}\left(\ln\frac{1+\gamma^2}{\gamma^2}-\frac{1}{1+\gamma^2}\right). \qquad (3.9).$$

The non-vanishing components of the τ-tensor are given by

$$\left.\begin{aligned}\tau_{33}=\chi_0=\frac{1}{B_{11}(0)}(1+g_0),\\ \tau_{11}=\tau_{22}=\chi_1=\frac{1}{B_{11}(1)}(1+g_1).\end{aligned}\right\} \qquad (3.7)$$

Card 3/8