PERLIN, M. B.

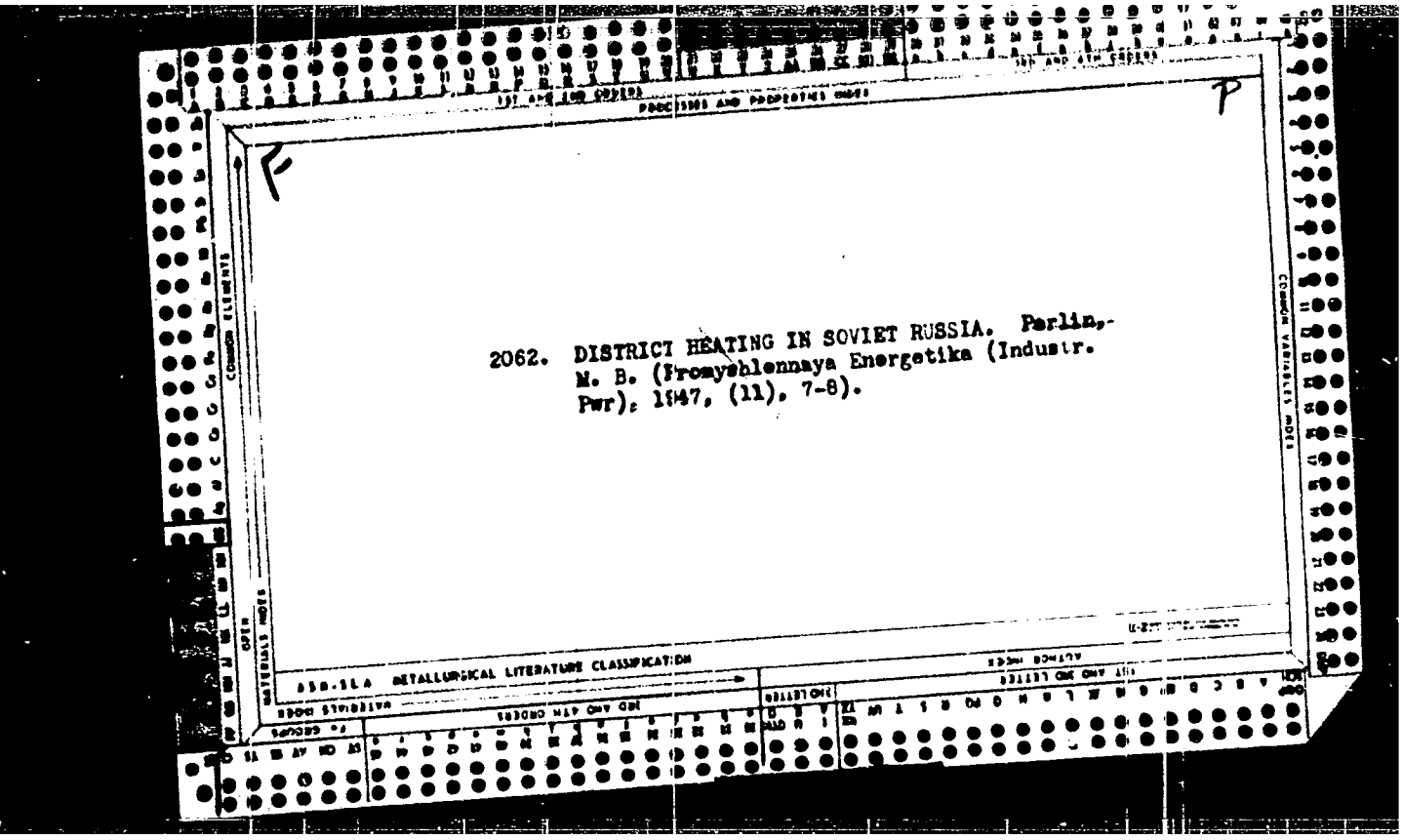
USSR/Thermal Elec Power System 4501.0102 Nov 1947

"Progress of Soviet Thermal Installation," S. F. Kop'yev, Candidate Tech Sci, M. B. Perlin, N. N. Romanov, Engineers, 7 pp

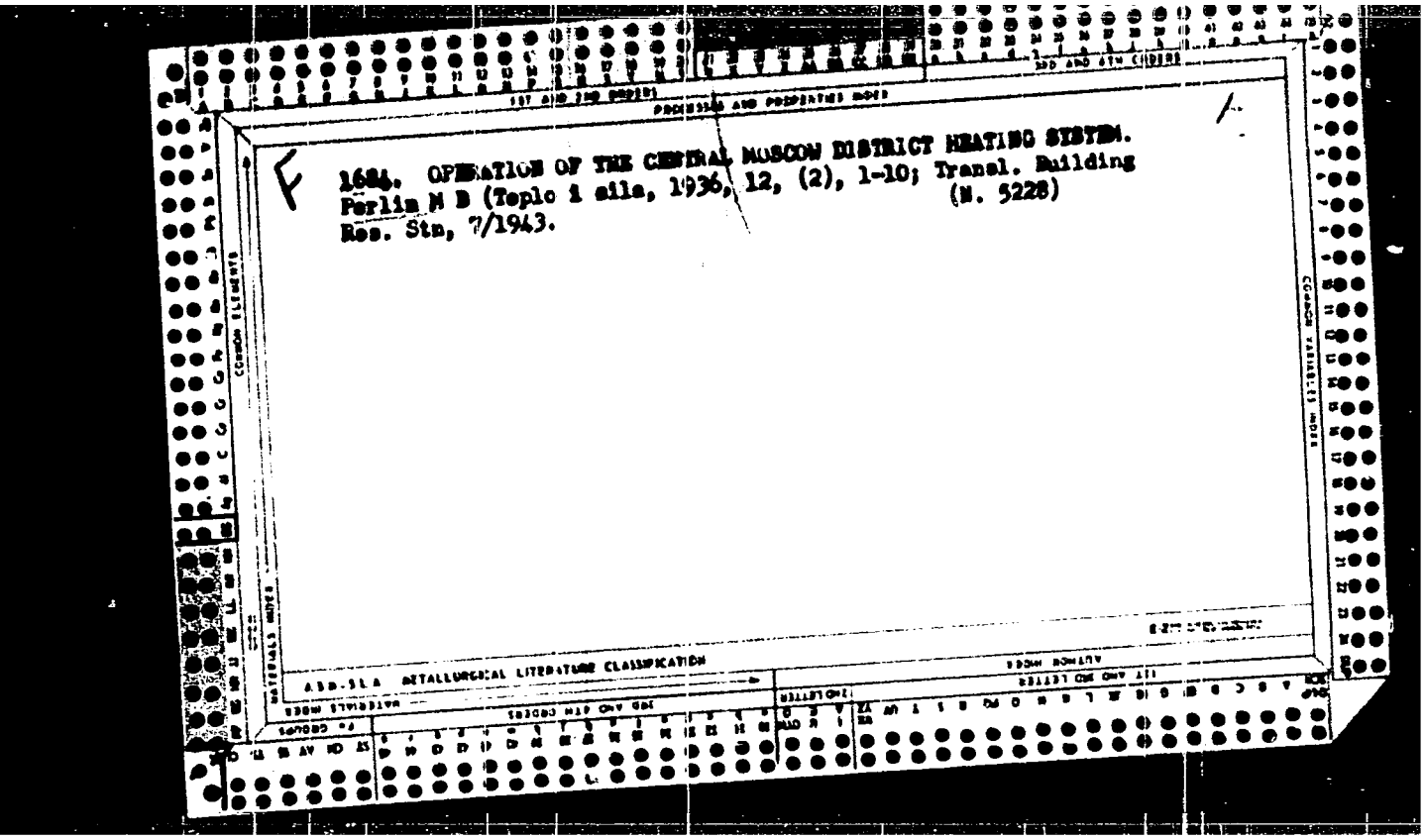
"Elek Stantsii" Vol XVIII, No 11

Discusses progress being made in construction and operation of thermal stations. Includes comprehensive statistical data and diagrams, and data on individual named plants.

LC 18G51



2062. DISTRICT HEATING IN SOVIET RUSSIA. Perlin, M. B. (Promyshlennaya Energetika (Industr. Pwr), 1947, (11), 7-8).



F

1684. OPERATION OF THE CENTRAL MOSCOW DISTRICT HEATING SYSTEM.
Perlin M B (Teplo i sila, 1936, 12, (2), 1-10; Transl. Building Res. Stn, 7/1943. (M. 5228)

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

The action of certain substances on the regeneration of bone tissue A. I. Elyashev, M. S. Perlin and E. A. Zvenlo *Kazan Med. Zhur.* 33, 170 (1937); *Chem. Zentr.* 1938, II, 988. The following substances were used for expts. on the regeneration of bone tissue in rabbits: 2% lyzate soln. from the bones of young rabbits, staphylococcus lyzate, Ossophite (Na glycine phosphate), Pankrat'ev's emulsion no. 2 (1 part bone ash in 2 parts distd. water contg. 1% gelatin and 2% glucose), blood and 5% staphylococcus vaccine. All these substances were used both with and without the addn. of bone meal. Contrary to data reported in the literature, no stimulating action on the development of bone tissue was observed for any of these prepns. with the sole exception of pure blood. Thus the addn. of bone meal had no special effect.
M. G. Moore

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

OVECHNIKOV, V.V.

"Heating systems." M.A.Aksenov, M.B.Perlin. Reviewed by V.V.Ovechnikov. Energetik 3 no.11:39-40 N '55. (MLRA 9:1)
(Heating from central stations) (Aksenov, M.A.) (Perlin, M.B.)

PERLIN, M.

USSR/Human and Animal Physiology - Internal Secretion. V-7

Abs Jour : Ref Zhur - Biol., No 4, 1958, 18421

Author : M.S. Perlin, Yu.L. Dozorets and L.I. Popova

Inst :

Title : Treatment of Thyrotoxicosis with Radioactive Iodine.

Orig Pub : Zdravookhr. Belorussii, 1956, No 8, 25-27

Abstract : No abstract.

Card 1/1

PERLIN, M.S., dotsent; DOZORETS, Yu.L., dotsent; POPOVA, L.I., assistent

Comparative evaluation of methods of treating thyrotoxicosis with radioactive iodine. Zdrav. Bel. 7 no. 2:22-26 F '61.
(MIRA 14:2)

1. Iz kafedry rentgenologii i meditsinskoy radiologii (zaveduyushchiy-dotsent M.S. Perlin) i kafedry gospital'noy terapii (ispolnyayushchiy obyazannosti zaveduyushchego - dotsent Yu.L. Dozorets) Vitebskogo meditsinskogo instituta (direktor I.I. Bogdanovich).
(THYROID GLAND--DISEASES) (IODINE--ISOTOPES)

PERLIN O.L.,

PERLIN, O.L., prof.

Using Siebel's formula in netting circular cylinders. Vest. mash. 38 no.2:44-45 F '58. (MIRA 11:1)
(Elastic plates and shells)

PERLIN, P. D.

"The Effects of Phytotoxin in the Blood and Cerebrospinal Fluid in Patients Afflicted with Meningitis," Nevropatol. i. Psikhiat., 17, No. 3, 1948.

PERLIN, P.I., inzh.

Calculation of contact stresses in dye beds. Vest. mash. 38 no.3:17-20 Mr '58. (MIRA 11:2)

(Dies (Metalworking))

SHOFMAN, L.A.; PERLIN, P.I.

Theoretical analysis of the processes of shaping a rigid-plastic body by pressure. Kuz.-shtam.proizv. 1 no.4:4-10 Ap '59.
(MIRA 12:10)

(Deformations (Mechanics)) (Forming)

PERLIN, P.I. (Moscow)

"On a method of solving basic three-dimensional problems of the theory of potential and the theory of elasticity for regions bounded by two surfaces"

Report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow 29 Jan - 5 Feb 64.

PERLIN, P.I. (Moskva)

Method for the solution of basic three-dimensional problems in the theory of potential and elasticity for areas limited by two closed surfaces. Inzh.zhur. 4 no.1:79-89 '64. (MIRA 17:4)

1. Institut mekhaniki AN SSSR.

ACCESSION NR: AP4006484 S/0020/63/153/005/1033/1036

AUTHOR: Perlin, P. I.

TITLE: Extension of the method of solving plane problems of the potential and elasticity theories to the three-dimensional case

SOURCE: AN SSSR. Doklady*, v. 153, no. 5, 1963, 1033-1036

TOPIC TAGS: elasticity theory, potential theory, three dimensional elasticity problem, three dimensional potential problem, Lyapunov surface, Dirichlet problem, harmonic function, regular integral equation, equation solvability, Neumann problem, Lyapunov Lauber theorem, auxiliary function, Fredholm equation, plane problem, three dimensional problem

ABSTRACT: The method for solution of two-dimenstional problems of the potential theory of doubly-connected regions, given by D. I. Sherman (DAN 63, 35, 1948), has been extended in the present study to three-dimensional problems of the potential and elasticity theory for regions between two surfaces, specifically, Lyapunov surfaces

Card 1/2

ACCESSION NR: AP4006434

located one inside the other. The Dirichlet problem was solved, by determining the integral equation for the harmonic function which is continuous up to the boundaries and which has prescribed values at the surfaces. The Neumann problem was also treated. "The author expresses his deep appreciation to Prof. D. I. Sherman for interest and valuable suggestions."
Orig. art. has: 16 equations

ASSOCIATION: Institute mikhaniki Akedimie Nauk SSSR. (Institute of Mechanics AN SSSR).

SUBMITTED: 05Jul63 DATE ACQ: 09Jan64 ENCL: 00

SUB CODE: MM NR REF SOV: 004 OTHER: 002

Card 2/2

PERLIN, P.I.

Generalization to the three-dimensional case of a method for solving the fundamental two-dimensional problems in the theory of the potential and the theory of elasticity. Dokl. AN SSSR 153 no.5:1033-1036 D '63. (MIRA 17:1)

1. Institut mekhaniki AN SSSR. Predstavleno akademikom A.Yu. Ishlinskim.

PERLIN, P.I. (Moskva)

On plasticity equations in the case of a limiting condition. Prikl. mat. i mekh. 26 no.3:580-582 My-Je '62. (MIRA 16:5)
(Plasticity) (Differential equations)

PERLIN, P.I. (Moskva)

Elastic plastic torsion of oval bars. Inzh.sbor. 31:202-205 '61.
(MIRA 14:6)

(Torsion)

PERLIN, P.I.

GOROZHANKIN, A.N., kand.tekhn.nauk; NOVITSKIY, V.V., kand.tekhn.nauk; KRYANIN, I.R., doktor tekhn.nauk; IODKOVSKIY, S.A., kand.tekhn. nauk; LADYZHENSKIY, B.N., kand.tekhn.nauk; MIL'MAN, B.S., kand.tekhn. nauk; KLOCHNEV, N.I., kand.tekhn.nauk; TSYPIN, I.O., kand.tekhn. nauk; LEVIN, M.M., kand.tekhn.nauk; BALDOV, A.L., inzh.; LYASS, A.M., kand.tekhn.nauk; CHERNYAK, B.Z., kand.tekhn.nauk; ASTAF'YEV, A.A., kand.tekhn.nauk; YERMAKOV, K.A., inzh.; GRIBOYEDOV, Yu.N., kand.tekhn.nauk; MYASOYEDOV, A.N., inzh.; BOGATYREV, Yu.M., kand. tekhn.nauk; UNESOV, Ye.P., doktor.tekhn.nauk, prof.; SHOFMAN, L.A., kand.tekhn.nauk; PERLIN, P.I., inzh.; MOSHNIN, Ye.N., kand.tekhn. nauk; PROZOROV, L.V., doktor tekhn.nauk; CHERNOVA, Z.I., tekhn. red.

[Some technological problems in the manufacture of heavy machinery] Nekotorye voprosy tekhnologii tiazhelogo mashinostroeniia. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit. lit-ry. Part 1. [Steel smelting and casting, founding, heat treatment, shaping metals by pressure] Vyplavka i razlivka stali, liteinoe proizvodstvo, termicheskaia obrabotka, obrabotka metallov davleniem. 1960. 266 p. (Moscow. Tsentral'nyi nauchno-issledovatel'skii institut tekhnologii i mashinostroeniia. [Trudy] no. 98). (MIRA 13:7)
(Steel) (Founding) (Forging)

PERLIN, P.I. (Moskva)

Solution of plane elastoplastic problems for doubly connected areas.
Inzh.zhur. 1 no.4:68-75 '61. (MIRA 15:4)
(Elasticity)

PERLIN, P. I.

report presented at the 1st All-Union Congress of Theoretical and Applied Mechanics, Moscow, 27 Jan - 3 Feb '60.

201. N. Ia. Mikhailov (Moscow): An experimental study of the load carrying capacity of thin-walled nickel tubes subjected to various combinations of tension, torsion, and internal pressure.

202. S. G. Mikhlin (Leningrad): Variational methods in the theory of elasticity.

203. A. A. Movchan (Moscow): The stability of motions of solids — Lagrange's theorem for solids and its inversion.

204. A. A. Movchan (Moscow): Axisymmetric hypersonic flutter of a circular cylindrical shell.

205. N. F. Morozov (Leningrad): On the uniqueness of the solution of the problem of large deflections of a circular plate under rotationally symmetric loading.

206. G. N. Mukhadze (Tbilisi): The determination of the deformation of trusses without diagonals.

207. Kh. M. Mushtari, I. G. Teregulov (Kazan): A theory of moderately thick plates and shells.

208. A. G. Nazarov (Erevan): Some problems in the theory of unisome stability.

209. U. K. Nigul (Tallin): Vibrations of an elastic circular cylindrical shell under concentrated impact loading.

210. U. K. Nigul (Tallin): More accurate equations of motion for circular cylindrical shells.

211. V. A. Nikitin (Leningrad): Approximate treatment of cylindrical shells under concentrated loads.

212. S. V. Nikiforov (Moscow): Redistribution of reactions at the edge of a simply supported rectangular plate under gradually increasing loading.

213. W. Nowacki (Warsaw): Some dynamical problems of thermoelasticity.

214. A. K. Noskov (Moscow): Investigation of the viscous behavior of elastic, visco-plastic materials in vibrations.

215. Ia. L. Nudelman, I. A. Klavtsov (Odessa): Problems of the nonlinear theory of elasticity.

216. I. F. Obraztsov (Moscow): Application of the variational method to the design of [illegible] structures.

217. K. I. Ogurtsov (Leningrad): Complete computation of a wave field in homogeneous elastic media with parallel plane boundaries.

218. K. Okuba (Nagoia): The method of electroplating and its applications.

219. W. Olszak (Warsaw): Two-dimensional problems in the theory of plasticity of non-homogeneous and anisotropic media.

220. Y. G. Orlov (Moscow): The state of stress in a deformed curved bar.

221. V. Ia. Pavilainen (Leningrad): A membrane theory for a toroidal shell.

222. V. P. Pavlov (Moscow): Creep, elastic properties and anisotropy of plastic lubricants.

223. G. V. Palchinskii (Kharkov): A practical method of designing reinforced concrete structures with reference to creep.

224. Ia. G. Panovko (Riga): The problem of structural damping.

225. P. I. Perlin (Moscow): An approximate method for solving elastic-plastic problems.

226. P. I. Perlin, L. A. Shofman (Moscow): Application of the theory of rigid, plastic solids to problems of metal forming.

227. A. N. Polozhii (Kiev): On the axisymmetric problem on the theory of elasticity.

228. B. S. Polshin (Moscow): A method for studying the plane field of relative volume strains in soils.

229. G. Ia. Popov (Novosibirsk): The application of some new methods of the theory of integral equations to the solution of contact problems of the theory of elasticity.

230. [illegible]: Free and forced vibrations of frames taking into account shear deformations and energy dissipation.

231. V. K. Potураев (Dnepropetrovsk): Investigation and calculation of internal friction in elastic members of vibrating machines.

232. W. Prager (Providence): An elementary discussion of definitions of stress rate.

233. N. I. Prigorovskii (Moscow): Photoelastic investigation of stresses in three-dimensional layered models.

SOV/122-59-5-19/32

AUTHOR: Perlin, P.I., Engineer

TITLE: A Method for the Stress Analysis of Die Chambers for Extruding from a Flat Billet (Metod rascheta konteynerov dlya pressovaniya iz ploskogo slitka)

PERIODICAL: Vestnik mashinostroyeniya, 1959, Nr 5, pp 57-58 (USSR)

ABSTRACT: The extrusion of panels with integral stringers from a flat billet requires high extrusion pressures. To achieve a maximum panel width, the die chamber stress analysis must be thorough. The chamber is made with several concentric sleeves. Following D.I.Sherman (Doklady AN SSSR, 1940, Vol 27, Nr 9), the composite chamber is stressed as a solid body. The stress analysis is carried out on the assumption of a plane stress. Using the conception of the complex potential, a special combination of the two potential functions is expanded in a series, in which four terms are retained. The outline of an analytical procedure is given by which the potential functions and the stress distribution are found for chambers with a round external profile. A further increase in the width of extruded panels can be achieved with die chambers

Card 1/2

A Method for the Stress Analysis of Die Chamb rs for Extruding from a Flat Billet

of oval external shape. The meth d of stressing is extended to cover this case. The panel width can be further increased if limited regions of plastic stress can be accepted. The stressing of a plate with a slot having small plastic regions at the ends is discussed. The methods described were verified at the TsNIITMASh by deflection measurements. There are 4 figures and 4 Soviet references.

Card 2/2

PERLIN, S.I.

Peat resources of Moscow Provnice and their economic significance.
Vop.geog. no.51:76-84 '61. (MIRA 14:6)
(Moscow Province—Peat bogs)

Perlin, S. I.

"The Type of Friction Coefficient When Working Metals by Pressure and the Areas of Their Application", Tsvetnyye Metally, 1956, Nr 2, p 75.

1. PERLIN, S. I.

2. USSR (600)

4. Geology and Geography

7. The Study of the Zones of Nature, V. V. Dokuchayev. (Moscow, Geography Press, 19[illegible]) Reviewed by S. I. Perlin, Sov. Kniga No. 3, 19[illegible].

9. [redacted] Report U-3091, 16 Jan. 1953. Unclassified.

1. PERLIN, S. I.

2. USSR (600)

4. Geology and Geography

7. Types of Marshlands in the USSR and in Western Europe and Their Geographical Distribution, N. Ya. Kats. (Moscow, Geography Press, 1948) Reviewed by S. I. Perlin, Sov. Knika, No. 9, 1949.

9. [redacted] Report U-3081, 16 Jan. 1953. Unclassified.

1. PERLIN, S. I.

2. USSR (600)

4. Geology and Geography

7. Improvement of Mineral, Swamped Lands for Using Them for Powland., D. P. Yunevich. (Moscow, Agricultural Press, 19[illegible])
Reviewed by S. I. Perlin, Sov. Kniga, No. [illegible], 1949.

9. [redacted] Report U-3081, 16 Jan. 1953. Unclassified.

1. PERLIN, S. I.; BOGOYAVLENSKIY, G. P.

2. USSR (600)

4. Geology and Geography

7. Literature on Stalin's Plan for Transformation of Nature. (Symposium of 10 books). Reviewed by S. I. Perlin and G. P. Bogoyavlenskiy, Sov. Kniga No. 6, 1951.

9. [redacted] Report U-3081, 16 Jan. 1953, Unclassified.

PERLIN, S.I.; RUBINSHTEYN, Ye.

One hundredth anniversary of V.V.Dokuchaev's birth. Geog. v shkole no.3:73-74 My-Je '47. (MLRA 9:6)
(Dokuchaev, Vasilii Vasil'evich, 1846-1903)

PERLIN, S. I.

25029. PERLIN, S. I. Sravnitel'nyye Nablyudeniya Had Proyavleniyem Oernouogo Protsessa Na Yuge Lesolugovoy Zony. V Sb: Voprosy Kormodobyvaniya. Vyp. 2. M., 1949, S. 32-36

SO: Letopis' No. 33, 1949

FERLIN, S. I.

Sadovnikov, I.F.

"Soil cartography." I.F. Sadovnikov. Reviewed by S.I. Ferlin. Sov. Kniga [illegible], [illegible].

Monthly List of Russian Accessions, Library of Congress June 1953. UNCL.

LEVIN, A.N.; PERLIN, S.M.

Pressure casting of thermoplastics in the USA and Great Britain.
Khim.prom.no.4:246-253 Je '56.
(Plastics) (MLRA 9:10)

AFANAS'YEV, A.N., kand.tekhn.nauk; BASOV, N.I., kand.tekhn.nauk; BELOVITSKIY, A.A., inzh.; VESELOVSKIY, V.S., doktor tekhn.nauk, prof.; GORELIK, B.I., kand.tekhn.nauk; DORONENKOV, I.M., inzh.; ZAK, D.L., inzh.; IVONIN, V.I., inzh. [deceased]; KLINOV, I.Ya., doktor tekhn. nauk, prof.; LEVIN, A.N., doktor tekhn.nauk, prof.; LEVIN, S.N., kand.tekhn.nauk; LEPETOV, V.A., kand.tekhn.nauk; LEONT'YEV, N.L., doktor tekhn.nauk, prof.; LOKHINA, P.I., kand.tekhn.nauk; MATVEYEVA, L.V., inzh.; MIKHAYLOV, A.N., doktor tekhn.nauk, prof.; MUDRIK, Kh.I., kand.tekhn.nauk; PERLIN, S.M., inzh.; SALAZKIN, K.A., kand.tekhn.nauk; SIL'VESTROVICH, S.I., kand.tekhn.nauk; SOKOLOVSKAYA, S.I., kand. tekhn.nauk; KHENKIN, A.A., inzh.; KHUKHRYANSKIY, P.N., doktor tekhn. nauk, prof.; SHEYDEMAN, I.Yu., kand.tekhn.nauk; YASHUNSKAYA, F.I., kand.tekhn.nauk; POGODIN-ALEKSEYEV, G.I., doktor tekhn.nauk, prof., red.; RYBAKOVA, V.I., inzh., red.izd-va; SOKOLOVA, T.F., tekhn.red.

[Handbook on materials used in the manufacture of machinery] Spravochnik po mashinostroitel'nym materialam; v chetyrekh tomakh. Pod red.G.I.Pogodina-Alekseeva. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry. Vol.4. [Nonmetallic materials] Nemetallicheskie materialy. Red.toma A.N.Levin. 1960. 723 p.
(MIRA 13:7)

(Machinery industry) (Nonmetallic materials)

PERLIN, S.M.; GIL'MAN, T.P.; LEYTES, A.Z.

Investigation of the degree of hardening of unsatured polyester resins by the dilatometric method. Plast.massy no.10:64-68 '60. (MIRA 13:12)

(Resins, Synthetic—Testing)

83416

S/191/60/000/006/008/015
B004/B054

15.8300

AUTHORS: Perlin, S. M., Turok, M. M., Grinblat, V. N.

TITLE: Processing of Polyvinyl Chloride Into Pressure-casting Products

PERIODICAL: Plasticheskiye massy, 1960, No. 6, pp. 26 - 30

TEXT: The authors discuss Western papers on the casting of polyvinyl chloride (PVC) and indicate the difficulties: low thermostability, low heat conductivity, position of the softening point near the decomposition temperature. Fig. 1 shows the diagram of a heating cylinder according to data by G. Wick, H. König (Ref. 1). The authors then report on their experiments carried out at the laboratoriya plastmass i reziny VNII burovoy tekhniki (Laboratory of Plastics and Rubber of the All-Union Scientific Research Institute of Drilling Techniques). Parts of turbine drills and other components used in the drilling technique were cast (Fig. 2). For this purpose, two heating cylinders (No.1 - Fig. 3, No.2 - Fig. 4) were constructed, the data of which are given in Table 1. The heating cylinders were used in a Ziegler casting machine of the

Card 1/2

Processing of Polyvinyl Chloride Into Pressure-casting Products

S/191/60/000/006/008/015
B004/B054

type ЛМ-7сб (LM-7sb). The following differences between the two cylinders are indicated: cylinder No.1: volume 80 cm^3, smallest clearance between cylinder wall and torpedo 4 mm, maximum pressure on the plunger 2000 kg/cm^2; cylinder No.2: volume 120 cm^3, clearance 6 mm, maximum pressure 1350 kg/cm^2. The substances cast were emulsion-PVC of the type ПФ-4 (PF-4), and the composition of the type УПИ-2 (UPI-2) (Table 2). Lead silicate was used as stabilizer. By means of cylinder No.2 it was only possible to cast a PVC plasticized by 10% of dibutyl phthalate at a cylinder temperature of 170°C. Table 3 compares the mechanical characteristics of these castings with such of viniplast of the type ТУ 3823-53 (TU 3823-53). By means of cylinder No.1 it was possible to cast non-plasticized PVC at temperatures of 160-165°C. The smaller clearance effected higher friction and, thus, an additional temperature increase in the mass itself. For better plastification, a metal mesh was introduced in the nozzle. Better results, however, were attained with a valve shown in Fig. 5. The authors mention papers by E. I. Barg (Ref. 4) and V. A. Kargin, T. A. Sogolova (Ref. 5). There are 5 figures, 3 tables, and 7 references: 2 Soviet, 3 US, 1 British, and 1 German.

Card 2/2

S/653/61/000/000/034/051
I007/I207

AUTHORS: Perlin, S.M., Gil'man, T.P., and Leytes, A.Z.

TITLE: Determination of hardening degree of unsaturated polyester resins by the dilatometric method

SOURCE: Plastmassy v mashinostroyenii i priborostroyenii. Pervaya resp. nauch.-tekh. konfer. po vopr. prim. plastmass v mashinostr. i priborostr., Kiev, 1959. Kiev, Gostekhizdat, 1961, 367-375

TEXT: The paper presents results of dilatometric determinations of series of physicomechanical properties of polyester resins by means of the differential dilatometer of the Chevenard system which yields much better results than conventional dilatometers. As was found, hardness, water-absorption and bending strength depend on the hardening degree of the resin. The dilatometric method permits suit-

Card 1/2

S/653/61/000/000/034/051
I007/I207

Determination of hardening degree...

able evaluation of the hardening degree of the above resins; it makes it also possible to distinguish between the temporary incomplete hardening and the constant incomplete hardening. The above method may also be successfully used for the determination of the hardening degree of glass-reinforced plastics, of their dimensional stability and heat resistance. There are 7 figures.

Card 2/2

PERKIN, S.M.

PHASE I BOOK EXPLOITATION SOV/4419

Spravochnik po mashinostroitel'nym materialam, tom 4: Nemetallicheskiye materialy (Handbook on Machine-Building Materials, Vol. 4: Nonmetallic Materials) Moscow, Mashgiz, 1960. 723 p. Errata slip inserted. 26,000 copies printed.

Ed.: G.I. Pogodin-Alekseyev, Doctor of Technical Sciences, Professor; Ed. of this Vol.: A.N. Levin, Doctor of Technical Sciences, Professor; Ed. of Publishing House: V.I. Rybakova, Engineer; Tech. Ed.: T.F. Sokolova; Managing Ed. for Information Literature (Mashgiz): I.M. Monastyrskiy, Engineer.

PURPOSE: This book is intended for machine-building and construction engineers, architects, and other persons interested in the properties of building materials.

COVERAGE: This is the fourth of a 4-volume Handbook on Machine-Building Materials. Volume 4 discusses nonmetallic materials suitable for use in machine building and in other constructional applications. Textile, wood, plastic, ceramic, rubber, and glass materials and laminates of these materials are reviewed and data on their physical and mechanical properties are listed. No personalities are mentioned. References follow individual chapters.

Card [illegible]

L 10370-66 EWT(d)/EWT(m)/EWP(j)/EWP(k)/T/EWP(w)/EWP(v) IJP(c) EM/RM/WW
ACC NR: AP6027286 (N) SOURCE CODE: UR/0191/66/000/008/0062/0065

AUTHOR: Perlin, S. M.

ORG: none

TITLE: Effect of certain media on the mechanical properties of filament-wound glass-reinforced plastics

SOURCE: Plasticheskiye massy, no. 8, 1966, 62-65

TOPIC TAGS: glass, reinforced plastic, ~~filament wound glass reinforced plastic~~, tensile strength, fatigue strength, petroleum, water, natural gas, mechanical property, FILAMENT WOUND CONSTRUCTION, GLASS FIBER

ABSTRACT: A study has been made of the effect of dry petroleum (sulfur content, 3.18%), dry natural gas (methane content, 96—98 vol%; H_2S content, 3.7 vol%), and distilled water on the tensile and fatigue strength of filament-wound glass-reinforced plastics. The experiments were conducted with tubular specimens made by winding 30-strand glass rovings (fibers 10—12 μ in diameter) lubricated with poly(vinyl acetate). 28.4% PN-1 resin was used as the binder. The specimens had an orthogonal structure and contained the same amount of glass fiber in the axial and circumferential directions. The tensile strength and the flex life were determined in special containers (duration of tests, up to 2 months). The results of the study, given in graphic form in the source, indicate deterioration of mechanical properties in petroleum, natural gas and water. This deterioration was attributed to

Card 1/2 UDC: 678.674'448'42.06-462.3:677.521]:539.412/.413

L 40370-66
ACC NR: AP6027286

the failure of the glass fiber-plastic bond owing to the penetration of the medium between the contact surfaces. Water has the additional effect of attacking the fiber. Orig. art. has: 6 figures. [BO]

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 006/ OTH REF: 007/ ATD PRESS: 5152

Card 2/2 hs

PERLIN, S.M.

Using glass-reinforced plastics in manufacturing pipes for the petroleum industry. Mash. i neft. obor. no. 11:3-7 '65.
(MIRA 18:12)

1. Moskovskiy ordena Trudovogo Krasnogo Znameni institut neftekhimicheskoy i gazovoy promyshlennosti imeni akademika I.M. Gubkina.

SHREYBER, Gennadiy Konstantinovich, dots., kand.tekhn.nauk;
SHIBAYAYEV, Boris Filippovich, dots. kand. tekhn. nauk;
POLFEROV, Aleksandr Pavlovich, dots.; PERLIN, Samuil
Mendeleyevich, inzh.; RASTOVA, G.V., ved. red.; VORONOVA,
V.V., tekhn. red.

[Building materials in the petroleum, petrochemical, and gas industries]Konstruktsionnye materialy v neftianoi, neftekhimicheskoi i gazovoi promyshlennosti; spravochnoe rukovodstvo. [By]G.K.Shreiber i dr. Moskva, Gostoptekhizdat, 1962. 381 p. (MIRA 16:3)
(Building materials) (Chemicals industry)
(Petroleum industry)

41353

15.8120

S/081/62/000/017/081/102
B177/B186

AUTHORS: Berlin, S. M., Gil'man, T. P., Leytes, A. Z.

TITLE: Dilatometric checking of the degree of curing of unsaturated polyether resins

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 17, 1962 , 537, abstract 17I8 (In collection: Plastmassy v mashinostr. i priborostr. Kiyev, Gostekhizdat USSR, 1961, 367 - 375)

TEXT: The standard tests (for hardness, bending strength and water absorption) are shown to be unsuitable for quantitatively estimating the degree of hardening of resins, and a method is proposed for determining the degree of curing of polyether resins by using a Chevenard differential dilatometer. The method consists of comparing the elongations of a test-piece of polyether resin with those of a standard made from chrome-cobalt-nickel alloy, whilst simultaneously heating to a given temperature (rate of heating, 10.25 and 50°/hour). Dilatometric curves were plotted for specimens of the following polyether resins: 1) containing 1 - 3% cobalt

Card 1/2

naphthenate and 6% cumene hydroperoxide, 2) 2 - 8% Co naphthenate and 3% cumene hydroperoxide, 3) 1.5% benzoyl peroxide and 0.6% dimethylaniline, and curves for a number of vitreous plastics. It was found that the dilatometric method is applicable for determining the degree of curing of resins; it enables one to distinguish a temporary incomplete curing of the resin (the discontinuity on the dilatometric curve disappears with repeated heating) from permanent incomplete curing (the dilatometric curve does not vary on repeated heating). It can also be used to check vitreous plastics, the stability of their dimensions and their heat resistance at elevated temperatures. [Abstracter's note: Complete translation.]

Card 2/2

14(5) SOV/93-58-12-3/16

AUTHOR: Gusman, M.T. and Perlin, S.M.

TITLE: About Plastic Turbines for Turbodrills (O plastmassovykh turbinakh turbobura)

PERIODICAL: Neftyanoye khozyaystvo, 1958, Nr 12, pp 14-19 (USSR)

ABSTRACT: The vanes of turbines for the first turbodrills were simplified and executed in the form of so-called grids (Fig 1). In 1940 turbine disks were cast in one-piece from wrought iron. In 1943 the Yugo-Kamskiy Plant learned to cast steel rotors and stators and in 1944-45 plants in the Perm' Oblast began casting one-piece turbine disks from steel. Currently turbines are cast from 35 LB steel in earthen molds. The ends of these turbines were cut in 2-3 hours and consequently the turbodrill fails after 150-350 hours of operation. The Verkhne-Serginskiy Plant produced an experimental lot of turbines by precision casting but they proved economically unacceptable as the cast turbines with inserted vanes. Nevertheless, it is still possible to cast a turbine of higher efficiency, smoother vanes, and improved profile. But this will not decrease the production cost nor increase the quantity of turbines since these factors depend on the

Card 1/2

material used in turbine production. The selection of material is determined by the operating conditions of the turbine parts (Fig.2). But the operating conditions of the flow area of the rotor, stator, and hubs vary and, therefore, solid cast turbines are unjustified and merely complicate the production of the parts and raise the cost. In 1956, the VNIIBT Institute began developing turbines with plastic flow areas and steel hubs. The design was prepared by R.A. Ioannesyan, M.T. Gusman, G.A. Lyubimov, S.N. Perlin, B.D. Malkin, and M.M. Turok (patent No. 12172). The test materials included caprone, tar 68, polyethylene, and polyvinylchloride (Table 1). The experimental model (Fig 3) in conjunction with a TS4-5" turbodrill was tested at the Kandry Oilpool of the Bashzapadneftеrazvedka Trust and in conjunction with a TS4MP-5" turbodrill in wells of the Oktyabr'skiy Exploration Drilling Department of the Trust. The test results are given in Tables 2-3. The tests showed that plastic turbines can be employed with turbodrills. They conclude that extensive employment of plastic turbines will enable them to reduce the cost of turbine production by more than half and considerably increase the output of turbodrills and spare turbines without substantially extending the industrial sites or increasing the investments in equipment. There are 3 figures and 3 tables.

YUSHKO, S.A.; PERLIN, S.S., redaktor; POPOV, N.D., tekhnicheskiy redaktor.

[New methods in the mineralogical study of oxidized ores] Novye metody mineralogicheskogo issledovaniia okislennykh rud. Izd.2-oe. Moskva, Ges.nauchno-tekhn. izd-vo lit-ry po geol. i okhrane nedr, 1955. 52 p. (MLRA 9:6)

(Mineralogy, Determinative)

BETEKHTIN, Anatoliy Georgiyevich; PERLIN, S.S., redaktor; GUROVA, O.A., tekhnicheskiy redaktor.

[Course in mineralogy] Kurs mineralogii. Izd. 2-oe, ispr. Moskva, Ges. nauchno-tekhn. izd-vo lit-ry po geol. i okhrane nedr, 1956. 557 p. (Mineralogy) (MLRA 9:4)

SOV/91-58-2-19/31

AUTHOR: Perlin, S.S., Engineer

TITLE: The Direct Transition from One Transformer to Another at Asynphased Voltages (Perekhod bez pogasheniya s odnogo transformatora na drugoy pri nesinfaznykh napryazheniyakh)

PERIODICAL: Energetik, 1958, Nr 2, p 26-27 (USSR)

ABSTRACT: To effect the transition from a transformer having an even group of contacts, to another transformer equipped with an uneven group of contacts, without cutting out feeding, the author proposes to use a system (described and illustrated in the present article) which consists of applying the maximum pro-

Card 1/2

The Direct Transition from One Transformer to Another at Asynphased Voltages

tection available for the transformers.
There is 1 circuit diagram.

PERLIN, S.S.

PERLIN, S.S., inzh.

Switching from one transformer to another without cutting off the power when voltages are out of phase. Energetik 6 no.2:26-27 F '58. (Electric transformers) (MIRA 11:1)

AGRANOVSKAYA, I.A.; ASATKINA, Ye.F.; BOYTSOVA, Ye.P.; BOCHARNIKOVA, A.D.; BOYTSEL', Z.A.; IVANOVA, Ye.A.; KALASHNIKOVA, V.A.; KLIMKO, S.A.; KRUCHININA, N.V.; MALYASOVA, Ye.S.; MARKOVA, L.G.; MARTYNOVA, Z.I.; POKROVSKAYA, I.M.; POLUKHINA, V.A.; ROMANOVSKAYA, G.M.; SAMIGULINA, Ye.P.; SEDOVA, M.A.; SIGOVA, N.N.; STEL'MAK, N.K.; PERLIN, S.S., redaktor izdatel'stva; GUROVA, O.A., tekhnicheskiy redaktor.

[Atlas of Oligocene spore and pollen complexes in various regions of the U.S.S.R] Atlas oligotsenovykh sporovo-pyl'tsevykh kompleksov razlichnykh raionov SSSR. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po gologii i okhrane nedr. 1956. 312 p. (Leningrad, Vsesoiuznyi geologicheskii institut. Materialy, no.16) (MLRA 10:3)

1. Vsesoyuznyy nauchno-issledovatel'skiy geologicheskiy institut Ministerstva geologii i okhrany nedr SSSR.(for Asatkina, Boytsova, Kalashnikova, Kruchinina, Pokrovskaya, Romanovskaya, Sedova, Stel'-mak). 2. Yuzhno-Ural'skoye geologicheskoye upravleniye (for Sigova) 3. Ural'skoye goelogicheskoye upravleniye (for Agranovskaya, Bocharnikova, Martynova, Polukhina, Samigulina). 4. Trest "Zapsibneftegeologiya" (for Boytsel', Ivanova, Klimko, Markova). 5.Geograficheskiy fakul'tet Leningradskogo gosudarstvennogo universiteta(for Malyasova) (Pollen, Fossil) (Spores (Botany), Fossil)

PERLIN, S.S.

VYCHEGZHANIN, Arkadiy Leont'yevich; PERLIN, S.S., redaktor; POPOV, N.D., tekhnicheskiy redaktor

[Tables for more effective laboratory work in geology and calculation of reserves of mineral deposits] Tablitsy dlia ratsionalizatsii kameral'nykh geologicheskikh rabot i podscheta zapasov poleznykh iskopaemykh. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po geol. i okhrane nedr, 1957. 207 p. (MLRA 10:8)
(Ore deposits)

PERLIN, S.S., otv. za vypusk; POPOV, N.D., tekhn. red.

[Uniform standards for test boring; hand-sinking and hand-operated combination drilling] Edinye normy vyrabotki na geologo-razvedochnye raboty (E.N.B.); prokhodka gorno-razvedochnykh vyrabotok vruchnuiu i ruchnoe udarno-vrashchatel'noe burenie. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po geol. i okhrane nedr, 1955. 43 p. (MIRA 15:3)

1. Russia (1923- U.S.S.R.) Ministerstvo geologii i okhrany nedr.
(Boring--Standards)

PERLIN, - -

VITOSHINSKAYA, M.I., bibliograf; GEKKER, I.F., bibliograf; SHNEYDER, R.A., bibliograf; SOLOV'YEV, S.P., doktor geologicheskikh nauk, redaktor; KULIKOV, M.V., kandidat biologicheskikh nauk, redaktor; PERLIN, S.S., redaktor izdatel'stva; GUROVA, O.A., tekhnicheskiy redaktor

[Geological literature of the U.S.S.R.; a bibliographical annual for 1951] Geologicheskaia literatura SSSR; bibliograficheskii ezhegodnik za 1951 g. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po geol. i okhrane nedr, 1956. 146 p. (MLRA 10:2)

1. Moscow. Vsesoyuznaya geologicheskaya biblioteka. 2. Vsesoyuznaya geologicheskaya biblioteka Vsesoyuznogo Nauchno-issledovatel'skogo geologicheskogo instituta Ministerstva geologii (for Vitoshinskaya, Gekker, Shneyder, Solov'yev, Kulikov)
(Bibliography--Geology)

MIGACHEV, G., podpolkovnik; PERLIN, V., kapitan.

How to check the technical condition and maintenance of an automobile. Voen.vest. no.14:45-53 '51. (MLRA 6:12)
(Automobiles--Inspection)

PERLIN, V.

Radio club in the institute. Radio no.7:8 Jl '56. (MLRA 9:9)

1.Rukovoditel' radiokruzhka v Ivanovskom gosudarstvennom pedagogicheskom institute.
(Radio clubs)

PERLIN, V.

USSR
Architect
"On Industrial Architecture, "1950
Current Digest of the Soviet Press, Vol. 2, No. 31, 1950, page 32
(In CIA Library)

PERLIN, V. M.

USSR
On "Water Conduct Canal Along the Moscow-Volga Canal"
On "Canal Locks Nos. 3, 4, 5 of Moscow-Volga Canal"
On "Canal Locks Nos. 7 and 8 of the Moscow-Volga Canal in Moskva-Khimk:
M: Arkhitektura Kanala Moskva-Volga

SOURCE: Moscow 1939 Abstracted in USAF "Treasure Island", Report No._____, on file in Library of Congress, Air Information Division. T. I. 41357, 41358, 41360

PERLIN, V. M.

USSR
Dmitrov, Moskovskaya O., RSFSR
"Moscow-Volga Canal. Dmitrovskiy boat landing" Dmitrov, Moskovskayao, RSFSR
SOURCE: M: Arkhitecktura Kanala Moskwa-Volga (1939) Moscow
Abstracted in USAF "Treasure Island", on file in Library of Congress, Air Information Division, Report No. 37203

PERLIN, V. M.

USSR
On-Moscow-Volga-canal, water supply, etc; RSFSR
M: Arkhitektura Kanala Moskva-Volga '39, Moscow

SOURCE: Abstracted in USAF "Treasure Island" Report No. 35880, on file in Library of Congress, Air Information Division.

PERLIN, V. M.

USSR

ON: Central River Station

SO: M: Arkhitektura Kanala Moskva--Volga 1939, Moscow.

Abstracted in USAF "Treasure Island" Report No. 41634, on file in Library of Congress, Air Information Division.

PERLIN. V. M.

USSR
"Moscow-Volga Canal, The Volga Waterway Intersection and Control Point" at the beginning of the Moscow-Volga Canal.
M: Arkhitektura Kanala Moskva-Volga, Moscow, 1939

SOURCE: M: Abstracted in USAF "Treasure Island" Report No. 41369, on file in Library of Congress, Air Information Division.

PERLIN, V. M.

USSR
On-Water Stadium Dynamo in Khimki
M: Arkhitektura Kanala Moskva-Volga, 1939, Moscow
Abstracted in USAF "Treasure Island", Report No. 41238, on file in Library of Congress, Air Information Division.

1. PERLIN, V. M., Architect

2. USSR (600)

4. Hydroelectric Power Stations

7. Use of large blocks for walls of hydro-electric power stations. Biul.stroi.tekh. No. 1 1953.

9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.

1. PERLIN, V. N., Architect

2. USSR (600)

4. Walls

7. User of large blocks for walls of hydro-electric power stations, Biul. stroi. tekh., 10, No. 1, 1953.

9. Monthly List of Russian Accessions, Library of Congress, April, 1953, Uncl.

ARESHKIN, Grigoriy Ivanovich; GORYACHEV, Vladimir Trifonovich; YEVTYUKHIN, Ivan Yegorovich; KONSTANTINOV, Sergey Leonidovich; LAVROV, Oleg Mikhaylovich; PERLIN, Vladimir Sergeyevich; SEREBRYAKOV, Yuriy Fedorovich; KOSOROTOV, B.V., inzh.-polkovnik zapasa, red.; ZUDINA, M.P., tekhn. red.

[Training manual for motor vehicle drivers] Posobie dlia podgotovki voditelia avtomobilia. Moskva, Voen.izd-vo M-va obor. SSSR, 1962. 501 p. (MIRA 15:4)
(Automobile drivers) (Vehicles, Military)

Perlin, V.S.

PA - 2383

AUTHOR: PERLIN, V.S.,

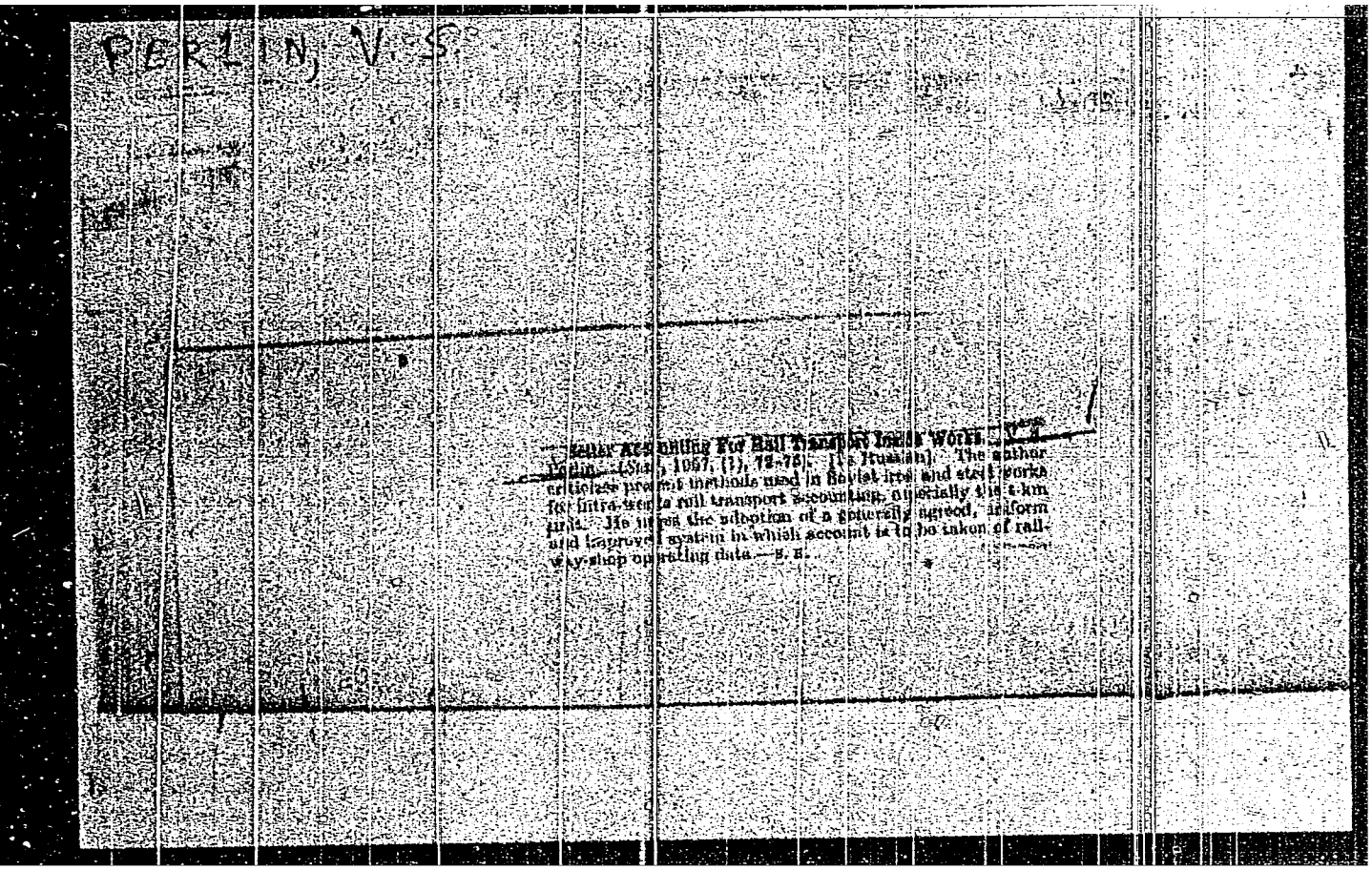
TITLE: Planning of the Railway-Transportation System within the Premises of the Work must be Organized. (Uporyadochit' planirovaniye na vnutrizavodskom zheleznodorozhnom transporte, Russian).

PERIODICAL: Stal', 1957, Vol 17, Nr 1, pp 72 - 75 (U.S.S.R.).

Received: 5 / 1957 Reviewed: 5 / 1957

ABSTRACT: Organisation and economics of a railroad transport system within the area of a factory [illegible] is mostly on a low level of development even in the case of a plant such as Magnitogorsk Metallurgical Combine. It would be necessary to know exact measuring values and technical as well as economic indices which could be compared with one another in order to be able to convey a good idea of existing conditions. Such data are, however, not available. Though the announcement issued by the Transport Department of the Ministryfor Iron Production sets up official indices, they do not represent conditions as they really are. Thus, transports of hot material, which represent 50 % of all transports carried out within the plant, and although 35 - 40 % of the entire locomotive park is used for this purpose, are mentioned neither in the plan nor in the report. For these transports the Ministry of Traffic hires railroad engines, which makes the situation even more unclear. The fines charged for waiting times have neither reduced waiting times nor have they contributed towards clarifying the

Card 1/2



Better Accounting For Rail Transport Iron & Steel Works

Moskva. (Stal', 1957, (1), 72-75). [In Russian]. The author criticizes present methods used in Soviet iron and steel works for intra-works rail transport accounting, especially the skimping funds. He urges the adoption of a generally agreed, uniform and improved system in which account is to be taken of railway-shop operating data.—S. S.

PERLIN, V.S.

Regulate planning of haulage by industrial railroads at the plant. Stal' 17 no.1:72-75 Ja '57. (MLRA 10:3)

1. Magnitogorskiy metallurgicheskiy kombinat.
(Railroads, Industrial) (Materials handling)

PERLIN, YA, S.

"A Cerebrospinal Puncture Technique," Khirurgiya, No. 5, 1948. Maj., Med. Sv., Nerve Dept., Tomsk Mil. Hosp. -c1948-.

PSHLIN, Yakov Samoylovich

[Galvano- and galvanoionotherapy; technique and practice]
Gal'vano- i gal'vanoionoterapiia; tekhnika i metodika. Moskva, Medgiz, 1958. 71 p. (MIRA 12:3)
(ELECTROTHERAPEUTICS)

[illegible], Yu.Sh.

Electric motor for rail joints. Biul.tekh.-ekon.inform. [illegible].
nauch.-issl.inst.nauch.-tekh.inform. 17 no. 5:39-41 My '[illegible].
(MIRA 17:5)

PERLIN, Yu.Ye.; CHEBAN, A.G.

Theory of the decomposition of excited color centers in an electric field. Trudy po fiz. poluprov. no.1:3-14 '62.
(MIRA 16:11)

155T63

PERLIN, Yu. Ye.

USSR/Physics - Electrons, Conduction Mar 50
Luminescence

"Recombination of Conduction Electrons on Color Centers in Crystals," S. I. Pekar, Yu. Ye. Perlin, Phys Inst, Acad Sci Ukrainian SSR, 3 pp

"Zhur Eksper i Teoret Fiz" Vol XX, No 3 pp. 271-3

Applies theory of recombination to colored alkali-haloid crystals. Calculates displacement of photoelectron, i.e., average path traversed by electron in direction of electrical field up to moment of its recombination on color center. Compares calculated displacement with experimental measurements. Submitted 31 Oct 49.

155T63

155T84

PERLIN, Yu. Ye.

USSR/Physics - Polarization
Luminescence

Mar 50

"Polarizability of the Color Center," Yu. Ye. Perlin, Phys Inst, Acad Sci Ukrainian SSR, 5 pp

"Zhur Eksper i Teoret Fiz" Vol XX, No 3 pp.274-8

Calculates polarizability of the color center (F-center) in rapidly varying and slowly varying electric fields, using Pekar's model of the F-center as basis for calculations. Submitted 31 Oct 49.

155T84

CA PERLIN, Yu. E.

Electronic Phenomena
3

Scattering of polaron waves by the acoustic vibrations of the crystal lattice. Yu. E. Perlin (Phys. Inst. Acad. Sci. Ukrain. S.S.R., Kiev). *Zhur. Eksptl. Teoret. Fiz.* 21, 547–54(1951); *cf. C.A.* 46, 8507g.—The existing theory of elec. cond. of ionic crystals rests on the unjustified treatment of the interaction between the zonal electrons and the longitudinal polarization waves as a negligible perturbation. Actually, this interaction must be taken into account even in the zeroth approximation, as it gives rise to polaron levels in the forbidden zone, and electrons at such levels can be carriers of current. Scattering of polaron waves is considered as a result of the perturbation of the periodic potential in an ionic crystal by the acoustic vibrations of the lattice. The mobility u of polarons is calcd. on the assumption of the interaction between the cond. electron and the acoustic waves as the only cause of transitions in the polaron zone. Below the characteristic temp. θ_1, the majority of the polarons have a velocity smaller than the velocity of sound, and scattering occurs only with absorption of an acoustic quantum; the scattering probability d, is independent of the scattering angle and of the velocity of the polaron. At a temp. close to θ_1, u has a min., and then increases proportionally to $\sqrt{T}$. Polarons with velocities close to the velocity of sound interact most intensely with the acoustic waves. For alkali halide crystals, u is calcd. to be of the order of 1–2 sq. cm./sec., considerably less than calcd. by Pekar (*C.A.* 46, 8507g) for the same temp. range. This is attributed to the scattering of polaron waves in alkali halide crystals being due mainly to interaction with acoustic waves. In contrast, in Cu_2O, this interaction results in no significant scattering.

N. Thon

KIRAKOVSKIY, N.F., dotsent; GLAGOLEV, N.M., professor, doktor tekhnicheskikh nauk; retsenzent; PERLIN, Ya.Ye., kandidat fiziko-matematicheskikh nauk, retsenzent; LEVCHENKO, Ye.T., inzhener, redaktor; HUDENSKIY, Ya.V., tekhnicheskiy redaktor.

[Stationary gas engines; calculations and construction] Statsionarnye gazovye dvigateli; raschet i konstruktsii. Kiev, Gos. nauchno-tekhn. izd-vo Mashinostroit. lit-ry, 1953. 277 p. (MLRA 8:2)
(Gas and oil engines)

PERLIN, Yu. Ye.

USSR/ Physical Chemistry - Crystals B-5

Abs Jour : Referat Zhur - Khimiya, No 4, 19571 11011

Author : Perlin Yu.Ye.
Inst : Kishinev University
Title : Capture of Electrons by Coulomb Admixture Centers

Orig Pub : Uch. zap. Kishinevsk. un-ta, 1955, 17, 91-102

Abstract : See RZhFiz., 1956, 13718

Card 1/1

AUTHOR: Perlin, Yu. Ye. 51-4-5/26

TITLE: On the Problem of Quantum Yield of F-fluorescence. (K voprosu o kvantovom vykhode F-flyuorestsentsii).

PERIODICAL: Optika i Spektroskopiya, 1957, Vol.III, Nr.4, pp. 328-333. (USSR)

ABSTRACT: S. I. Pekar showed in Ref.2 that at low temperatures the F-centres of alkali halide crystals should exhibit fluorescence in the infrared region. Klick (Ref.3) did not find at 4°K any F-fluorescence in coloured KCl and LiF crystals which would exceed the experimental error. More exact measurements of Botden, van Doorn and Haven (Ref.4) showed that in coloured crystals of NaCl, KCl, KBr, KI and RbCl, at 20 and 77°K, infrared fluorescence bands appear. The table on page 328 lists the positions of maxima of these bands. It is found that the values predicted from Pekar's theory agree well

Card 1/5

with the experimental values. According to the authors of Ref.4, in agreement with Klick (Ref.3), the quantum yield of F-fluorescence is of the order of 1%. This contradicts a theoretical value of about 100% obtained on the basis of a "continuous" model of the F-centre (Refs.5-7). Dexter, Klick and Russel (Refs.8, 9), on the other hand, use a very simple "configurational", single-coordinate model of the impurity centre to explain the low quantum yield value obtained experimentally. In the present paper the author shows that the low intensity of F-fluorescence may be explained on the "continuous" model, preserving the usual assumption that thermal equilibrium between an excited F-centre and the crystal lattice is established before an optical or a radiationless transition from the excited to the ground state occurs. The first excited state of the F-centre consists of four levels (Ref.10), very close together. The present author assumes that the 2s level lies somewhat lower than the 2p level. Due to the narrowness of the energy gap between these two levels, the probability of a

radiationless transition from the 2p to the 2s level is high even at very low temperatures. Since the dipole optical transition 2s-1s is forbidden, therefore radiationless transitions to the 2s level may decrease considerably the quantum yield of luminescence. Considering the F-band fluorescence kinetics under steady illumination, the author calculates the quantum yield of infrared fluorescence of the F-centres, allowing for the two-step radiationless transition 2p-2s-1s. The electron wave-functions of the 1s, 2s and 2p states of the F-centre were taken from Refs. 12, 13. As a numerical example the author discusses an F-centre in a KCl crystal, whose parameters are given in Pekar's work on the F-centres (Ref.1). It is found that the probability of a radiationless transition 2s-1s at low temperatures is 10^6 times higher than the probability of a radiationless transition 2p-1s. If the effect of inertialess polarization of the surrounding ions (due to the light-wave) on the F-centre electron is neglected, then, according to Ref.2, the probability of a spontaneous optical

On the Problem of Quantum Yield of F-fluorescence.

transition 2p-1s for a KCl crystal is about 1.7×10^6 sec^{-1}. At 20°K and when the difference of the minimum adiabatic potentials of the 2p and 2s states of the F-centre is about 0.01 eV, we find that the quantum yield for KCl is 1.3% approximately. The latter value is not very accurate since the formulae used for the probabilities of radiationless transitions are correct only in their order of magnitude. Nevertheless it is possible to explain the small quantum yield of F-fluorescence by the two-step radiationless transition 2p-2s-1s. Correctness of this explanation may be decided by a direct measurement of the adiabatic potential difference referred to earlier. A decrease of the fluorescence intensity with increase of temperature, reported in Ref.4, is due to increase in the probability of the 2s-1s radiationless transition in the F-centre of KCl. This probability starts to increase rapidly at comparatively low temperatures (less than 100°K). At higher temperatures thermal ionization of the excited F-centres destroys fluorescence completely. The author thanks S.I. Pekar for his interest in this work.

Card 4/5 There are 12 references, 7 of which are Slavic, and 1 table.

Perlin Yu E

AUTHOR: PERLIN, YU.E. PA - 2346

TITLE: On the Theory of the Recombinations of Electrons with Admixture Centers of Ion Crystals. (K teorii rekombinatsiy elektronov s primesnymi tsentrami ionnykh kristallov, Russian)

PERIODICAL: Izvestiia Akad.Nauk SSSR, Ser.Fiz. 1957, Vol 21, Nr 1, pp 69-69 (U.S.S.R.)

Received: 4 / 1957 Reviewed: 4 / 1957

ABSTRACT: The following is the literal translation of the short table of contents of the lecture:

The highly excited states in an admixture center are considered to be the motion of a polaron in COULOMB'S field of a defect. The operator with one-quantum scattering transfers the polarons with an energy of less than $\hbar\omega$ from the state of the continuous spectrum to the high levels of the discrete spectrum. Furthermore, a multi-quantum transition into the ground state takes place.

Capture probability is computed and the dependence on temperature of the life of the polaron is determined. The question as to the applicability of the diffusion theory of recombinations to the capture by COULOMB'S centers of admixture are explained. (No illustrations).

ASSOCIATION: Professorial Chair for Theoretical Physics at KISHINEV University.

PRESENTED BY:

SUBMITTED:

AVAILABLE: Library of Congress

Card 1/1

PA - 2065

AUTHOR: PERLIN, Yu.E.

TITLE: Capture of Conduction Electrons by Charged Defects in Ionic Crystals. (Zachvat elektronov provodimosti zarjazennymi defektami ionnych kristallov, Russian).

PERIODICAL: Zhurnal Eksperimental'noi i Teoret.Fiziki, 1957, Vol 32, Nr 1, pp 105-114 (U.S.S.R.)

Received: 3/1957 Reviewed: 4 / 1957

ABSTRACT: The present work attempts the quantum-mechanical computation of the probability of computing an electron by a positively charged defect in the grid of an ionic crystal (e.g. by vacancy of a negative ion). Such processes occur in connection with the dying of ionic crystals by x-ray irradiation. The captured ions form F-centers. Only the case of the strong coupling of the electron with the field of the longitudinal is here dealt with and one proceeds from the HAMILTONIAN of PEKAR'S theory of polarons. The adiabatic method can then be used, i.e. the approximative eigenfunction of the HAMILTON operator is set up in form of a product. In the present case of highly excited states the electron moves along a quasi-classical orbit with large radius. The present work is restricted to the consideration of single-quantum transitions between the steady states of zero-th approximation, which are due to a perturbation. The mechanism of the one-phonon capture pro-

Card 1/3

PA - 2065

Capture of Conduction Electrons by Charged Defects in Ionic Crystals.

closely: a) Relatively fast electrons, b) Slow electrons.

The temperature dependence upon the probability of capture can be calculated by statistical averaging of the formulae obtained here. The probability of capture is very small at low temperatures and attains its maximum at T ~ 120° K.

ASSOCIATION: State University KIŠINEV
PRESENTED BY:
SUBMITTED:
AVAILABLE: Library of Congress

Card 3/3

PERLIN, Yu.E.

Control of the electric contact of rail joints in mines. Nauch. trudy PermNIU no.6:155-160 '[illegible]. (MIRA 18:2)

24(2), 24(7) SOV/48-22-11-13/33

AUTHOR: Perlin, Yu. Ye.

TITLE: Impurity Scattering of Light in Crystals at Low Temperatures (Primesnoye rasseyaniye sveta v kristallakh pri nizkikh temperaturakh)

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya fizicheskaya, 1958, Vol 22, Nr 11, pp 1337-1340 (USSR)

ABSTRACT: Impurity centers in crystals are not only effective as light absorption centers and as luminescence centers, but also as scattering centers. This paper covers the light scattering on an impurity center of an ionic crystal. In such crystals the criterion of a strong interaction of the optical electrons with the lattice oscillations is satisfied. It is assumed that the frequency of the primary radiation Ω_0 lies within the band of impurity absorption. If only the ground state and the first excited level are taken from the totality of the discrete electron levels, the generalization of the Veyskopf method (Ref 1) leads to the following formula for the scattering probability amplitude:

Card 1/4

Impurity Scattering of Light in Crystals at Low Temperatures

$$c\left[n_K^0,\ n_K^1\right] = \frac{V_{s_1 s_2}(\Omega)\ V_{s_2 s_1}(\Omega_0)}{\hbar^2\left[(\Omega - \Omega_0 + 1\omega) + \frac{i\Gamma}{2}\right]}\ S\left[n_K^0,\ n_K^1\right] \qquad (11)$$

A detailed derivation of formula (1) can be found in the paper cited by reference 2. A similar formula for liquids was previously found by Ovander (Ref 3). The scattering probability is computed from equation (1) according to the formula

$$w(\Omega) = \sum_{\ldots n_K^0 \ldots} \sum_{\ldots n_K^1 \ldots} p\left[n_K^0\right] \left| c\left[n_K^0,\ n_K^1\right] \right|^2 \qquad (12)$$

This formula incorporates a statistical averaging with respect to the ground states and a summation according to the final states of the lattice oscillators. The spectral distribution of the intensity of the diffuse light is, as usual, dependent upon the nature of primary radiation and can be specified by $I(\Omega) = N_0 \hbar\Omega_0(\Omega) \int I_0(f) w(\Omega) df$, where $I_0(f)df$ denotes the intensity of primary radiation and N_0 the number of scattering centers. It is furthermore assumed that the primary radiation

Card 2/4

Impurity Scattering of Light in Crystals at Low Temperatures

exhibits a pronounced maximum at $r = f_m$, there is obtained

$$I(\Omega) \sim \frac{\left(\frac{a}{2}\right)^{r+f_m} \Gamma(r + f_m + 1)}{(\pi^2 x^2 + \sin^2 \pi f_m) \left| \Gamma(f_m + 1) \Gamma(r + 1) \right|^2} \left| F\left(-f_m, r+1, \frac{a}{2}\right)^2 \right| \quad (26)$$

A further simplification of formula (26) is rendered impracticable by the circumstance that in actual cases (large a and large r) the well-known asymptotic representations of the degenerated hypergeometric functions do not apply. In the general case ($f_m \neq 0$) the spectral distribution (26) is endowed with an even more complicated nature and hence requires a numerical investigation. The author expresses his gratitude to S. I. Pekar for valuable discussion of the subject. There are 6 references. 4 of which are Soviet.

ASSOCIATION: Kishinevskiy gos. universitet (Kishinev State University)
Moldavskiy filial Akademii nauk SSSR (Moldavian Branch, AS USSR)

Card 3/4

S/058/60/000/004/016/016
A003/A001

Translation from: Referativnyy zhurnal. Fizika, 1960, No. 4, p. 316, # 9802

AUTHOR: Perlin, Yu.Ye.

TITLE: The Theory of Resonance Fluorescence of Admixture Centers in Crystals

PERIODICAL: Uch. zap. Kishinevsk. un-t,1959, Vol. 39, pp. 3-16

TEXT: The scattering of light by a one-electron admixture center in an ionic crystal is considered, in which the photon $h\Omega_0$ is absorbed in the region of admixture absorption and the photon $h\Omega$ is emitted. The excited state is considered as an intermediate state. Weisskopf's method of considering the resonance fluorescence of the atom is generalized for the case of the admixture center of crystal. A formula was derived for the probability of scattering, investigated further in the case of low temperatures. The spectral distribution of the intensity of the scattered light was derived. At Ω_0 being equal to

Card 1/2

S/058/60/000/004/016/016
A003/A001

The Theory of Resonance Fluorescence of Admixture Centers in Crystals

the frequency of a purely-electronic transition, the scattering band coincides with the curve of equilibrium admixture luminescence.

ASSOCIATION: Kishinevskiy universitet (Kishinev University)

N.N. Kristofel'

Translator's note: This is the full translation of the original Russian abstract.

Card 2/2

24.3500

S/058/62/000/003/048/092
A061/A101

AUTHORS: Marinchuk, A. Ye., Perlin, Yu. Ye.

TITLE: Theory of thermoluminescence of impurities in crystals

PERIODICAL: Referativnyy zhurnal, Fizika, no. 3, 1962, 47, abstract 3V349 ("Izv. Mold. fil. AN SSSR", 1960, no. 3, (69), 57-69, Mold. summary)

TEXT: The authors presuppose that low-temperature thermoluminescence cannot be the consequence of thermionic emission, not even from shallow traps, owing to the little probability of this process, but is due to the tunnel-type transition of electrons from shallow traps to the excited levels of deep traps with the subsequent radiative transition to the ground levels of the latter. A formula is obtained for the temperature dependence of the rate of "tunnel-type" luminescence, from which it follows that the dependence has an exponential character at both low and high temperatures, while in the intermediate range, the exponential dependence is not precise. In this way, a set of activation energy values is obtained for thermoluminescence in KCl. The lowest of these values was found to equal 0.29 ev (at 125°K) which is almost by one order less than the ionization energy of F centers (2 ev). It is concluded that the

Card 1/2

S/058/62/000/003/049/092
A061/A101

AUTHORS: Marinchuk, A. Ye., Perlin, Yu. Ye.

TITLE: Spectral distribution of the thermoluminescence of impurities

PERIODICAL: Referativnyy zhurnal, Fizika, no. 3, 1962, 47, abstract 3V251 ("Izv. Mold. fil. AN SSSR", 1960, no. 3 (69), 71-77, Mold. summary)

TEXT: A theoretical investigation was conducted on the spectral distribution of thermoluminescence resulting from tunnel-type radiationless electron transition from the color center to the excited level of the deep trap situated nearby and of the subsequent luminous radiation. In an approximation, where the frequency dispersion of the optical range of the crystal vibrations is neglected, the emission spectrum consists of equidistant lines. The established spectral dependence fits the equilibrium phosphorescence band of the impurity obtained by Pekar (Pekar, S. I., "Zh. eksperim. i teor. fiz.", 1952, v. 22, 641), which indicates that the shape and position of the maximum of the impurity luminescence band do not depend on the mode of excitation of the luminescence center.

M. Elango

[Abstracter's note: Complete translation]

Card 1/1