BUTOVSKIY, V.O. [Butovs'kyi, V.O.] [deceased]

Peculiarities in the medical study of children and adolescents in connection with physical training. Ped., akush. i gin. 23 no.1: 10-14 '61. (MIRA 14:6)

1. Ukrainskiy nauchno-issledovatel'skiy institut okhrany materinstva i detstva (direktor - zasluzhennyy vrach USSR M.D. Burova).
(PHYSICAL EDUCATION FOR CHILDREN--HYGIENIC ASPECTS)

ALEKSANDER, I.; BUTOVSKIY, Ya.; YUDIN, Ye.

Discussion on the number of channels and sound quality of stereophonic films. Tekh.kino i telev. 4 no.10:61-67 O'60. (MIRA 13:10)

1. Kinostudiya "Lenfil'm."
(Motion pictures) (Stereophonic sound systems)

S/187/61/000/008/002/002
D053/D113

3.2100

AUTHORS: Butovskiy, Ya. L., and Gol'shteyn, L. G.

TITLE: Remote control of motion-picture cameras

PERIODICAL: Tekhnika kino i televideniya, no. 8, 1961, 30-38

TEXT: The authors review basic requirements for the design of remote-control systems for motion-picture cameras and describe the remote-control units designed by the Lenfil'm studio. This studio has been developing remote-control equipment for motion picture cameras for several years. The first scenes shot with the aid of remote-controlled cameras were filmed in 1960. Engineers I. Slutskiy, E. Drukh, and A. Pliner of the Technical Department, and engineers A. Alekseyev and L. Dukhon of the Exposure Technique Department have actively participated in the development program directed by engineer L. G. Gol'shteyn. The basic design requirements for the camera remote-control system are: (1) switching off and on of the camera motor; (2) visual monitoring of the photographed picture; (3) panning and camera tilt control within a wide range of angles and speeds; (4) lens focusing control; (5) lens aperture control; and (6) film footage control. Moreover, the remote-control

unit should be of light weight, easily transported and serviced, and contain the maximum possible number of standard parts. Three versions of remote-control units have been designed for (1) the "Ekler-studio" synchronous motion-picture camera; (2) the "Askania" motion-picture camera; and (3) the 1-КСР (1-KSR) "Konvas-Avtomat" light motion-picture camera. The visual monitoring of the photographed picture is obtained with the use of a РТУ-0М1 (PTU-0M1) industrial closed TV unit. The video receiver of this unit containing a 35ЛК2Б (35LK2B) tube is mounted on the control stand while the camera tube, an ЛИ23 (LI23) vidicon, is mounted together with the motion-picture camera on the panoramic and tilting head. This head is driven by НД-501 (ND-501) synchro generators and НС-501 (NS-501) synchro repeaters; the lens and diaphragm are driven by НД-404 (ND-404) synchro generators and НС-404 (NS-404) synchro repeaters. For the "Ekler-studio" motion-picture camera, an industrial 12ШС (12ShS) cradle head was used. The camera unit can also be mounted on a special light crane with a 9 m. jib, designed by V. Baranikov. The control stand can be dismounted, and it contains, apart from the video monitor, switches for the camera motors, synchros, and film footage counters. These counters are driven by СД-2 (SD-2) synchronous motors. The 1-KSR motion-picture camera can be synchronized by using a special

Remote control of motion-picture cameras

S/187/61/000/008/002/002
D053/D113

system with a Г-31 (G-31) synchronous motor. This system was proposed by the film operator O. Kukhovarenko and engineer A. Alekseyev. The entire remote-control unit is supplied from a 220 V industrial power network, or from the КЭС (KES) field power plant. The remote control of the motion-picture camera enables filming to be carried out in difficultly accessible places, eliminates acting hazards, and facilitates the training of film producers. It can also be used for shooting scenes from an airplane, in which case the panoramic head with cameras is suspended under the wing and the control stand placed in the cabin of the airplane. There are 9 figures.

Card 3/3

BATURO, Piotr, mgr inz.; BUTOWSKI, Jerzy, inz.; LEWANDOWSKI, Hubert, inz.

New designs in the Wood Machine Tool Factory. Przegl mech 23 no.15:441-444 10 Ag '64

1. Wood Machine Tool Factory, Bydgoszcz.

BUTOZAN, [illegible]
SURNAME (1) (2) (3) Given Names

Country: Yugoslavia

Academic Degrees: Dr.

Affiliation: /not given/

Source: Belgrade, Veterinarski glasnik, No 5, 1961, pp 417-419.

Data: Portrait: "Alija Talic, Assistant Secretary in the Secretariat for Agriculture of People's Republic of Bosnia and Herzegovina."

BUTOZAN, Vaso, dr.

The origin and development of the partisan medical services. Med. arh. 15 no.6:37-42 N-D '61.

(MILITARY MEDICINE hist)

YUGOSLAVIA

V. BUTOZAN [Affiliation not given]

"Ten Years of Activity of the Federation of Veterinarians' and Veterinary Technicians' Societies of Yugoslavia."

Belgrade, Veterinarski Glasnik, Vol 17, No 2, 1963; pp 131-135.

Abstract: Rapid review of the development of veterinary professional and organizational activity in various states and on the federal level in Yugoslavia, 1957-1962; names of principal leaders, main activities, direction of association work on the national and international level, brief summary of key laws.

1/1

L 13487-66 EWT(d) IJP(c)

ACC NR: AP6001378 SOURCE CODE: UR/0376/65/001/009/1190/1203

AUTHORS: Vasil'yeva, A. B.; Butozov, V. F.

ORG: Moscow State University im. M. V. Lomonosov, Physics Faculty (Moskovskiy gosudarstvennyy universitet, fizicheskiy fakul'tet)

TITLE: Problems on eigenvalues for integro-differential equations with small parameter for higher derivative

SOURCE: Differentsial'nyye uravneniya, v. 1, no. 9, 1965, 1190-1203

TOPIC TAGS: differential equation, integral equation

ABSTRACT: The Cauchy problem for a first order integro-differential equation is considered,

$$\mu \frac{dy}{dx} + A(x)y = \lambda \int_0^1 K(x, t)\, y(t)\, dt, \qquad (1)$$

with 0 initial condition

$$y(0) = 0. \qquad (2)$$

Here $\mu > 0$ is a small parameter, λ is a complex parameter. The relation between the eigenvalues and eigenfunctions of

$$A(x)y = \lambda \int_0^1 K(x, t)\, y(t)\, dt \qquad (3)$$

Card 1/2

L 13487-66

ACC NR: AP6001378

is investigated, and also those of (1), (2). There is an analogous study for

$$\mu^2 \frac{d^2y}{dx^2} - A^2(x)\,y = \lambda \int_0^1 K(x, t)\,y(t)\,dt, \qquad (4)$$

$$y(0) = 0, \quad y(1) = 0. \qquad (5)$$

Orig. art. has: 31 formulas.

SUB CODE: 12/ SUBM DATE: 13Apr65/ ORIG REF: 003/ OTH REF: 001

Card 2/2

J

USSR/Soil Science - General Problems.

Abs Jour : Ref Zhur Biol., No 19, 1958, 86690

Author : Butozova, O.V., Chekalova, M.I.

Inst : Central Museum of Soil Science, AS USSR

Title : Exhibition of Agricultural Districting and Reclamation of Lands in Various Zones of USSR

Orig Pub : Sb. rabot Tsentr. muzeya pochvoved. AN SSSR, 1957, vyp. 2, 11-26

Abstract : No abstract.

Card 1/1

BUTRA, A. PA 17/49T39

USSR/Engineering Jul 48
Springs, Leaf
Alloys, Nonferrous

"Procedure for Mechanical Testing of Nonferrous Alloys for Flat Springs," A. Butra, 1 p

"Zavod Lab" Vol XIV, No 7

Chief nonferrous spring alloys are bronze and German silver. Existing range is adequate but more stringent specifications are required.

[redacted] 17/49T39

BUTRA, A. P.

Dissertation: "Investigation of the Electric Strength of An Oriented Polystyrene Film." Cand Tech Sci, Leningrad Polytechnic Inst, Leningrad, 1954. Referativnyy Zhurnal--Khimiya, Moscow, No 14, Jul 54.

SO: SUM No. 356, 25 Jan 1955

BUTRA, A. P.

USSR/Physics-Electric resistance of porcelain FD-1218

Card 1/1 Pub. 153-2/22

Author : Butra, A. P.

Title : Electric resistance of porcelain

Periodical : Zhur. tekh. fiz. 24, 1561-1567, Sep 1954

Abstract : The effect of duration of applied a.c. voltage on the electric resistance of usual insulating porcelain was tested. At a prolonged potential reaching 70 to 80% of breakdown voltage a decrease of resistance of 20-30% was found. It should be ascribed to ionization within the pores. A test for resistance to high-frequency pulses showed a drop of resistance with decreasing frequency of pulses per second. Indebted to N. P. Bogoroditskiy and V. T. Renne. Three references including one German.

Institution :

Submitted : May 21, 1953

BUTRA, A.P.

USSR

621.319.4 1278

The Behaviour of Polystyrene Capacitors under Alternating Voltage.—A. P. Butra & V. T. Rem- (*Zh. tekh. Fiz.*, Nov. 1954, Vol. 24, No. 11, pp. 1974–1982.) Experiments at 50 c/s are reported. The main conclusions reached are: (*a*) heat treatment has no adverse effect on life; (*b*) for a given value of applied voltage the life is shortened if the voltage gradient is increased; (*c*) for a given ratio between applied voltage and initial ionization voltage the life is considerably shortened if ambient temperature is raised. Certain considerations regarding the impregnation of capacitors with mineral oil are discussed.

BUTRA, B.

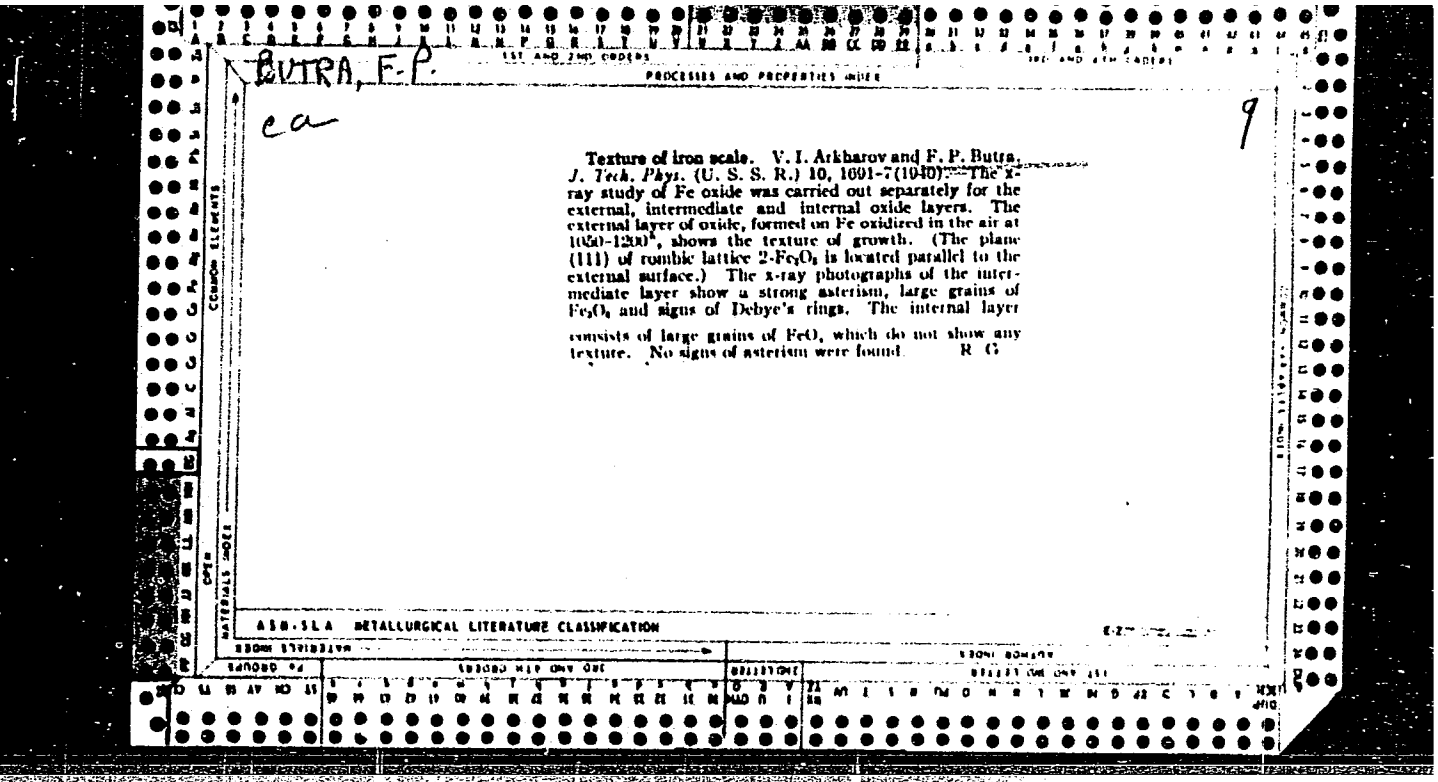
Polish Technical Abst.
No, 1 1954
Agriculture, Food Processing.
Industry, Forestry, Fisheries

2883 674.031.739.12 : 634.983.7 : 620.17

Janiczek M., Butra B. Locust Wood Pitprop Resistance Tests.

„Badania wytrzymałości kopalniaków z grochodrzewu". (Prace Inst. Bad. Leśn. No. 93), Warszawa, 1953, PWRIL, 39 pp., 27 figs., 6 tabs.

The work is a survey of studies over the usefulness of locust-wood (Robinia pseudoacacia L.) for the production of pitprops. Supports from locust-wood are characterised by; a) a markedly greater curvature — locust-wood up to 2.5 cm/m, pinewood 1 cm/m; b) a markedly greater tapering — locust-wood up to 3.0 cm/m, pine up to 1 cm/m. c) a greater slenderness — locust-wood up to 133, pine up to 101. Supports from locust-wood showed a higher maximum resistance to deviation, 2.5% of the results falling within the 250—275 kg/cm² division while the strength of pine-wood supports fell short of this limit. The greatest frequency as regards resistance of locust-wood supports falls within the 125—150 kg/cm² division and reaches 23% of the total number of results, as against 44% for pine-wood. This frequency within one division as regards the resistance of pine-wood supports constitutes their great advantage from the point of view of statics and safety.



BUTRA, F.P.

ca

9

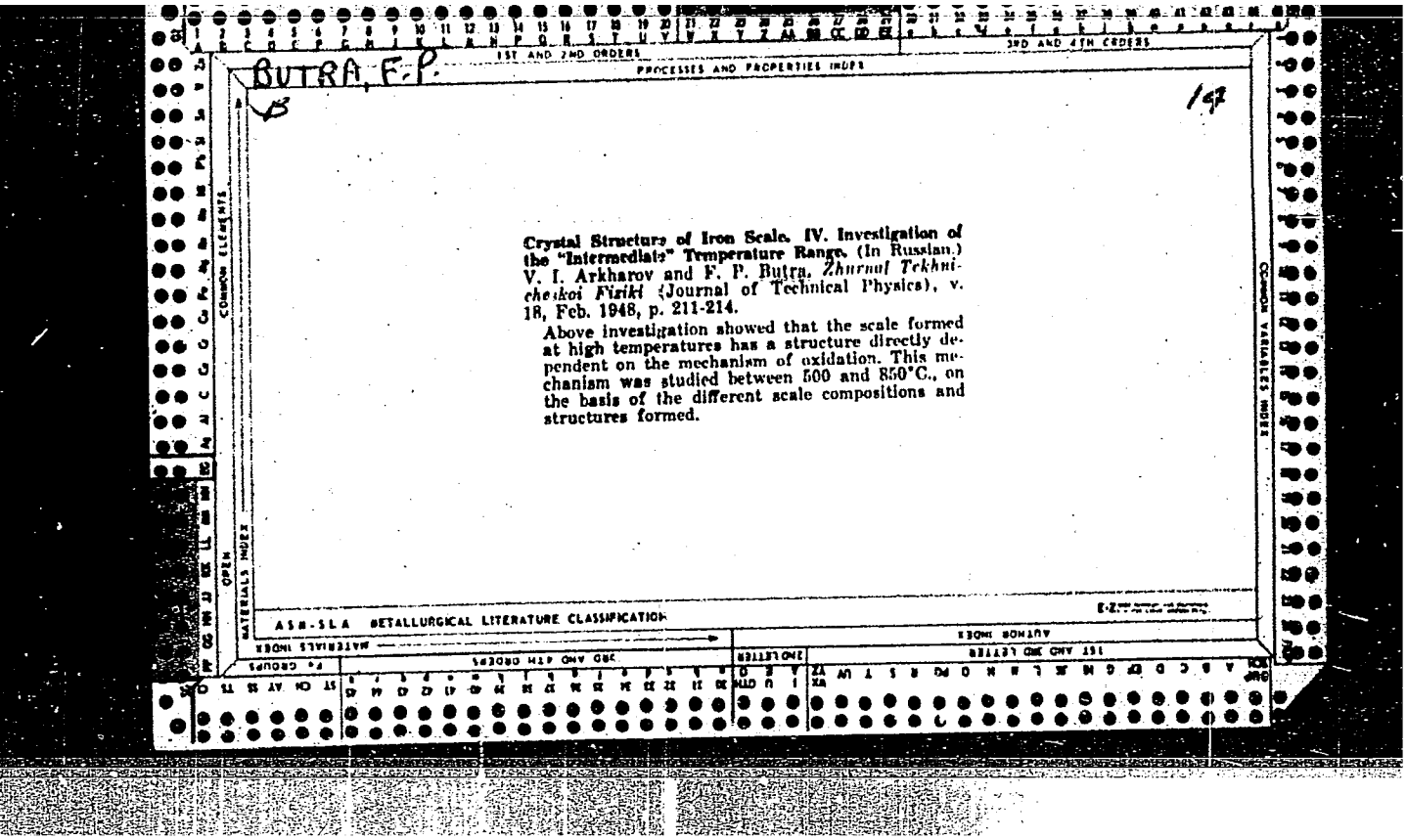
Texture of iron scale. V. I. Arkharov and F. P. Butra. *J. Tech. Phys.* (U. S. S. R.) 10, 1691-7(1940). The x-ray study of Fe oxide was carried out separately for the external, intermediate and internal oxide layers. The external layer of oxide, formed on Fe oxidized in the air at 1050-1200°, shows the texture of growth. (The plane (111) of rombic lattice 2-Fe_2O_3 is located parallel to the external surface.) The x-ray photographs of the intermediate layer show a strong asterism, large grains of Fe_2O_3 and signs of Debye's rings. The internal layer consists of large grains of FeO, which do not show any texture. No signs of asterism were found. R. G.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

BUTRA, F.P., Mbr., Inst. Physics of Metals, Ural Affil. Acad Sci.
Physics, Mbr., Molotov State Univ., im. A.M. Gorkiy

"The Texture of the Oxide Layer of Iron," Zhur. Tekh. Fis., Vol 18, No. 2, 1948.

Texture of Iron Slag; IV. Research at 'Intermediate' Zone of Temperature," ibid.



BUTRA, F. P.

1/7

Crystal Structure of Iron Scale. IV. Investigation of the "Intermediate" Temperature Range. (In Russian.) V. I. Arkharov and F. P. Butra. *Zhurnal Tekhnicheskoi Fiziki* (Journal of Technical Physics), v. 18, Feb. 1948, p. 211-214.

Above investigation showed that the scale formed at high temperatures has a structure directly dependent on the mechanism of oxidation. This mechanism was studied between 500 and 850°C., on the basis of the different scale compositions and structures formed.

24(2)

AUTHORS: Konobeyevskiy, S. T., Butra, F. P.

SOV/89-5-5-15/27

TITLE: The Diffuse Scattering of X-Rays on Irradiated Crystals of Diamonds, Corundum, Silicon, and Germanium (Diffuznoye rasseyaniye rentgenovykh luchey v obluchennykh kristallakh almaza, korunda, kremniya i germaniya)

PERIODICAL: Atomnaya energiya, 1958, Vol 5, Nr 5, pp 572-573 (USSR)

ABSTRACT: The crystals were subjected to the action of a fast neutron flux of $5,5 \cdot 10^{19}$ n/cm^2 in the reactor RFT at a temperature of up to 80°C ($E_n > 1$ MeV). The Laue diagrams were made with the same orientation of the irradiated and non-irradiated crystals with Mo-radiation.
The X-ray pictures of an irradiated diamond which was cooled by means of liquid nitrogen showed no noticeable modification of the intensity of scattering maxima.
The Laue-diagrams of irradiated and non-irradiated silicon showed diffuse scattering maxima of the same intensity.
If a not irradiated crystal is cooled with liquid nitrogen, the maxima vanish, which was not found to be the case with

Card 1/3

The Diffuse Scattering of X-Rays on Irradiated Crystals of Diamonds, Corundum, Silicon, and Germanium

irradiated crystals.
The lattice spacing of the diamond increased after irradiation from 3,559 kX to 3,592 kX, i.e. by 0,9 %.
The lattice spacing of silicon and germanium is modified by not more than 0,1 %.
The modification of the lattice spacing in the case of a diamond causes the double scattering in the X-ray picture to vanish. In order to find out whether this vanishing is of permanent duration the crystals were annealed. The following results were obtained:
Diamond: After annealing at 500°C for 7,5 h, the lattice spacing decreased from 3,592 kX to 3,574 kX. The intensity of the diffuse scattering maxima did not change noticeably. After further annealing at 900°C for 1 hour: 3,566 kX; the intensity of the maxima becomes noticeably lower. In the course of a further treatment at 1200°C for 1 hour the lattice spacing decreased still more. The initial value was, however, not attained.
In corundum the diffuse scattering caused by irradiation vanishes after four hours of annealing at 1200°.

In the case of silicon the corresponding values are 1000°C - 1/2 hour.
In germanium no modification of the lattice spacing and no diffuse scattering was observed.
Irradiation of the crystals was carried out by K. P. Dubrovin.
There are 3 figures and 5 references, 0 of which is Soviet.

SUBMITTED: July 12, 1958

Card 3/3

S/126/60/009/03/017/033
E091/E435

18.1130

AUTHORS: Agapova, N.P., Butra, F.P. and Votinov, S.N.

TITLE: On the Nature of Excess Phases in a Chromium-Nickel-Molybdenum-Niobium Stainless Steel

PERIODICAL: Fizika metallov i metallovedeniye, 1960, Vol 9, Nr 3, pp 422-425 (USSR)

ABSTRACT: The steel investigated by the authors, the chemical composition of which is shown in the Table on p 422, belongs to the group of stainless steels having a stable austenite structure which does not undergo a $\gamma \rightarrow \alpha$ change even at considerable degrees of cold compression and prolonged soaking at temperatures of up to 750°C. However, it exhibits excess phases in its structure, the quantity of which varies in relation to the heat treatment given. The authors have investigated the nature of these phases. Specimens of steel were austenitized at 950 to 1300°C, followed by water-quenching and subsequent soaking for 100, 400 and 1000 hours at temperatures of 500, 600 and 750°C. Fig 1 shows the change of impact resistance, specific electrical resistance, hardness and grain size with quenching

69694
S/126/60/009/03/017/033
E091/E435

On the Nature of Excess Phases in a Chromium-Nickel-Molybdenum-Niobium Stainless Steel

temperature; Fig 2 shows the change in UTS, % elongation, impact resistance and hardness in relation to annealing temperature (ageing temperature) in 1000 hours. After heat treatment, the specimens were dissolved electrolytically and the excess phases liberated; the latter were investigated by chemical and X-ray analysis (Ref 1). In Fig 3 and 4, from the results of chemical analysis, the change of alloy element content in the electrolytic deposit and the total weight of the deposit in relation to the quenching and ageing temperatures is shown. By means of X-ray structural analysis it was found that the electrolytic deposit of the excess phases obtained from specimens quenched from 1200°C and above, consists primarily of NbC (Fig 5a), having a lattice parameter of 4.42 kX. As the quenching temperature is lowered, the % carbide in the deposit decreases (Fig 3) and the quantity of the intermetallic compound $(MoNb)Fe_2$ increases (Ref 2); the latter has a $MgZn_2$ type of structure with lattice

Card 2/4

4

69694
S/126/60/009/03/017/033
E091/E435

On the Nature of Excess Phases in a Chromium-Nickel-Molybdenum-Niobium Stainless Steel

parameters of a = 4.77 kX and c = 7.80 kX. An inflection in the "total weight" curves for the % element content in the electrolytic deposit can be observed at 1050 to 1150°C. This is evidently associated with solution of the intermetallic compound at these temperatures. The transition of the alloying elements from the dispersed phases to the solid solution in this temperature interval is accompanied by some decrease in hardness and increase in specific electrical conductivity and specific impact resistance of the metal. The electrolytic precipitate of specimens, quenched from 1150°C and subsequently annealed for 100, 500 and 1000 hours at 750°C and for 1000 hours at 600°C, consists primarily of an intermetallic compound of the same structural type but the lattice parameters decrease to a = 4.755 kX and c = 7.738 kX; in the X-ray photographs of such specimens, lines corresponding to large reflection angles are widened considerably due to changes in the unit cell dimensions (Fig 5b). The X-ray

69694

S/126/60/009/03/017/033
E091/E435

On the Nature of Excess Phases in a Chromium-Nickel-Molybdenum-Niobium Stainless Steel

photographs were taken in K-Cr rays. Lengthy annealing at 500°C does not lead to separation of excess phases; at 600°C the process proceeds much more slowly than at 750°C. The chemical analysis shows a sharp decrease in Nb and an increase in Mo, Cr and Fe in the precipitate. These results enable one to assume that the intermetallic compound must correspond to the composition $Mo(Fe,Cr)_2$. The molybdenides thus separating cause some change in hardness, UTS, % elongation and impact resistance of the steel (see Fig 2). There are 5 figures, 1 table and 2 Soviet references.

This is a slightly abridged translation.

SUBMITTED: November 9, 1959

Card 4/4

BUTRA, F.P.

82637

21.6200

S/126/60/010/02/007/020
E111/E352

AUTHOR: Butra, F.P.

TITLE: Effect of Neutron Irradiation on the Structure of Molybdenum

PERIODICAL: Fizika metallov i metallovedeniye, 1960, Vol. 10, No. 2, pp. 223 - 225

TEXT: Changes in properties of molybdenum have been reported to be produced by neutron irradiation (Refs. 1-4). In the present work, molybdenum lamellar single crystals 0.03 mm thick and polycrystalline wires, 0.2 mm in diameter, were irradiated in a type RFT reactor. Irradiation was effected at up to 100 °C with 1.23×10^{20} neutrons/cm^2, of which 35% were fast. A great increase in diffuse scattering of X-rays was produced by irradiation (Fig. 1b compared with 1a). Laue patterns were obtained with a molybdenum anode. The lattice spacing increased from 3.1404 to 3.1414 $\pm$ 0.0003 kX during irradiation. Specimens were subjected to stepwise annealing at 100, 200, 300, 350, 400, 450, 500, 600 and 830 °C with holding times of 5-1 hours. Laue patterns of single crystals and Debye patterns of the wires

Card 1/2

Effect of Neutron Irradiation on the Structure of Molybdenum

were obtained for each stage. Measures were taken to ensure that the diffuse maxima and Laue spots were on the straight-line part of the film-darkening curve. For photometry a type MF-4 microphotometer was used. Fig. 2 gives photometric curves for spots from the (200) plane and the corresponding diffuse maxima for various annealing temperatures, without annealing and without irradiation. Lattice disturbances were removed by annealing at 830 °C but not below. Fig. 3 shows Laue patterns of an irradiated single crystal annealed at 830 °C taken at room temperature and with cooling to liquid-nitrogen temperature. The author concludes from this work and from his previous work with Konobeyevskiy (Ref. 5) that the effects observed in the irradiated crystals are due to the same combination of defects that produce hardening and embrittlement. Acknowledgments are made to S.T. Konobeyevskiy for discussion of the work and to K.P. Dubrovin for irradiation of specimens. There are 3 figures and 5 references: 2 Soviet and 3 English.

SUBMITTED: February 29, 1960

Card 2/2

HUTRA, F. P.

90

PHASE I BOOK EXPLOITATION SOV/6176

Konobeyevskiy, S. T., Corresponding Member, Academy of Sciences USSR, Resp. Ed.

Deystviye yadernykh izlucheniy na materialy (The Effect of Nuclear Radiation on Materials). Moscow, Izd-vo AN SSSR, 1962. 383 p. Errata slip inserted. 4000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Otdeleniye tekhnicheskikh nauk; Otdeleniye fiziko-matematicheskikh nauk.

Resp. Ed.: S. T. Konobeyevskiy; Deputy Resp. Ed.: S. A. Adasinskiy; Editorial Board: P. L. Gruzin, G. V. Kurdyumov, B. M. Levitskiy, V. S. Lyashenko (Deceased), Yu. A. Martynyuk, Yu. I. Pokrovskiy, and N. P. Pravdyuk; Ed. of Publishing House: M. G. Makarenko; Tech. Eds: T. V. Polyakova and I. N. Dorokhina.

Card 1/14

The Effect of Nuclear Radiation (Cont.) SOV/6176

PURPOSE: This book is intended for personnel concerned with nuclear materials.

COVERAGE: This is a collection of papers presented at the Moscow Conference on the Effect of Nuclear Radiation on Materials, held December 6-10, 1960. The material reflects certain trends in the work being conducted in the Soviet scientific research orginization. Some of the papers are devoted to the experimental study of the effect of neutron irradiation on reactor materials (steel, ferrous alloys, molybdenum, avial, graphite, and nichromes). Others deal with the theory of neutron irradiation effects (physico-chemical transformations, relaxation of internal stresses, internal friction) and changes in the structure and properties of various crystals. Special attention is given to the effect of intense γ-radiation on the electrical, magnetic, and optical properties of metals, dielectrics, and semiconductors.

Card 2/14

The Effects of Nuclear Radiation (Cont.) SOV/6176

Card 10/14

L 2731-66 EWP(e)/EPA(s)-2/EWT(m)/EPF(c)/EWP(i)/EPF(n)-2 GG/GS/WH
ACCESSION NR: AT5023804 UR/0000/62/000/000/0251/0256

AUTHOR: Konobeyevskiy, S. T. (Corresponding member AN SSSR); Butra, F. P.

TITLE: X-ray diffraction effects in neutron-irradiated crystals

SOURCE: Soveshchaniye po probleme Deystviye yadernykh izlucheniy na materialy. Moscow, 1960. Deystviye yadernykh izlucheniy na materialy (The effect of nuclear radiation on materials); doklady soveshchaniya. Moscow, Izd-vo AN SSSR, 1962, 251-256

TOPIC TAGS: x ray diffraction analysis, diamond, molybdenum, corundum, silicon, germanium, aluminum, fast neutron, irradiation effect, x ray scattering, neutron irradiation

ABSTRACT: The effect of fast neutron irradiation in fluxes of (0.5-1.23) 10^{20} n/cm^2 was studied in diamond, corundum, silicon, germanium, aluminum, and molybdenum bombarded at temperatures up to 100C. Diffuse scattering of x rays was studied on single crystals, and changes in lattice spacing were followed in polycrystals. It was found that neutron irradiation increases the lattice spacing and causes the appearance of a temperature-independent diffuse scattering on the radiograms of the irradiated crystals. Annealing leads to a smaller increase in the lattice parameter and to a gradual attenuation of the diffuse

Card 1/2

L 2731-66
ACCESSION NR: AT5023804

scattering effect. In many cases, however (diamond, corundum, molybdenum), diffuse scattering remains stable up to high temperatures. A comparison of experimental data on the temperature dependence of diffuse scattering and changes in mechanical properties and electrical resistance induced by neutron bombardment of molybdenum leads to the conclusion that all these phenomena are caused by groups of defects which cause the formation of prismatic or annular dislocations that are stable up to temperatures close to the recrystallization point. An explanation of the abnormally high increase in the unit cell of neutron-irradiated diamond is proposed: because of the rupture of the bonds in the lattice and a change from tetrahedral to trigonal coordination of the atom, the cells of diamond are converted to graphitelike cells. Orig. art. has: 5 figures and 1 table.

ASSOCIATION: none

SUBMITTED: 18Aug62 ENCL: 00 SUB CODE: SS, OP

NO REF SOV: 004 OTHER: 006

Card 2/2

L 18048-63 EPF(n)-2/EWP(q)/EWT(m)/BDS AFFTC/ASD/SSD Pu-4 WW/JD/JG

ACCESSION NR: AP3002846 S/0126/63/015/006/0873/0879

AUTHORS: Butra, F. P.; Yevkina, Z. F.; Fufayeva, O. L.

TITLE: Structural variation in alpha-uranium monocrystals deformed by stretching to the rupture point

SOURCE: Fizika metallov i metallovedeniye, v. 15, no. 6, 1963, 873-879

TOPIC TAGS: stretching effect, alpha-uranium, structural variation

ABSTRACT: The α-uranium monocrystals obtained by the phase transition $\beta \rightarrow \alpha$ and recrystallization in the α-phase were deformed by stretching at room temperature. X-ray photographs showed structural variations in monocrystals with respect to deformation degree. Small deformations caused extension of all the spots on the Laue diffraction patterns. Further stretching caused the disappearance of the Laue spots and the appearance of separate maxima of the characteristic radiation located irregularly on the Debye rings. Still further deformation caused an orderly arrangement of the maxima. The maximum deformation (close to the rupture point) produced the appearance of an axial texture with [001] axis.

Card 1/2

L 18048-63
ACCESSION NR: AP3002146

Because all the experiments showed only the texture with the [001] axis, it was assumed that plastic deformation of α-uranium at room temperature proceeds mainly by gliding along (010) - [100] and by twinning {130} - <310>. Orig. art. has: 8 figures.

ASSOCIATION: none

SUBMITTED: 16Nov62 DATE ACQ: 23Jul63 ENCL: 00

SUB CODE: ML, PH NO REF SOV: 001 OTHER: 006

Card 2/2

L 3466-66 EWT(m)/EPF(n)-2/T/EWP(t)/EWP(b)/EWA(c) IJP(c) ES/JD/JG/WW

ACCESSION NR: AP5016929 UR/0089/65/018/006/0601/0608
621.039.542.32

AUTHORS: Bochvar, A. A.; Kuznetsova, V. G.; Sergeyev, V. S.; Butra, F. P. 47 B

TITLE: Self diffusion in the alpha and beta phases of uranium 27

SOURCE: Atomnaya energiya, v. 18, no. 6, 1965, 601-608

TOPIC TAGS: metal diffusion, uranium, metal phase system, activation energy

ABSTRACT: This is paper no. 333 presented by the SSSR at the Third Geneva Conference in 1964. The authors investigated by an autoradiography method the dependence of the rate of self-diffusion on the crystallographic direction in the two low-temperature phases of uranium. Earlier data on the self-diffusion in these phases are contradictory. Apparatus was developed in which the self-diffusion coefficient was calculated from the rate of change of the α activity on the surface of the sample during the course of annealing, as well

Card 1/3

L 3466-66
ACCESSION NR: AP5016929

as by autoradiography of the surface of the sample. The investigations were made on single crystals, polycrystalline samples with large perfect grains, and polycrystalline samples with imperfect grains. The test procedure and the method of calculating the self-diffusion coefficients from the change of α activity and from the autoradiograms are described. The results for α-uranium are listed in Table 1 of the Enclosure. The results for β-uranium are similar to those for α-uranium, but the experimental conditions did not make it possible to establish the directions with the maximum and minimum self diffusion coefficients. The coefficient obtained for the temperature range 700--750C from the variation of the α activity lies in the range (2--6) x 10^{-11} cm^2sec. The results demonstrate convincingly the presence of anisotropy of self-diffusion in the α and β phases of uranium. Orig. art. has: 7 figures, 4 formulas, and 1 table.

ASSOCIATION: None

SUBMITTED: 00 ENCL: 01 SUB CODE: NP, MM

NR REF SOV: 001 OTHER: 010

Card 2/3

L 3466-66
ACCESSION NR: AP5016929 ENCLOSURE: 01

0

Table 1. Values of the self-diffusion coefficients in different crystallgraphic directions in alpha-uranium.

Grain number	Crystallogr. direction	Self diffusion coeff. cm^2/sec
2	[010]	$\leq 10^{-14}$
8	[010]	$\leq 10^{-14}$
1	[021]	$6,3 \cdot 10^{-14}$
5	[240]	$6,4 \cdot 10^{-14}$
7	[130]	10^{-13}
6	[153]	$1,6 \cdot 10^{-13}$
4	[111]	$1,8 \cdot 10^{-13}$
3	[001]	$2,1 \cdot 10^{-13}$

Card 3/3 DP

L 9558-66 EWT(m)/EPF(n)-2/EWP(t)/EWP(b) LJP(c) ES/JD/WW/JG/GG

ACC NR: AP5026444 SOURCE CODE: UR/0089/65/019/004/0372/0380

AUTHOR: Butra, F. P.; Yevkina, Z. F.; Fufayeva, O. L.; Korobeynikov, I. A.; Lebedev, L. M.

ORG: none

TITLE: The effect of temperature and neutron irradiation on plastic deformation of alpha uranium monocrystals

SOURCE: Atomnaya energiya, v. 19, no. 4, 1965, 372-380

TOPIC TAGS: radiation defect, radiation damage, neutron bombardment, uranium

ABSTRACT: The effect of temperature, crystal orientation, and neutron irradiation on the plastic deformation of alpha uranium monocrystals was investigated. The shape of the stress-strain curves of unirradiated samples was explained in terms of the plastic deformation modes. The effect of neutron irradiation on plastic deformation was investigated on 9 x 1.5 x 0.4—0.5 mm monocrystalline samples grown by $\beta \rightarrow \alpha$ recrystallization. The samples were exposed to integrated fluxes (nvt) up to 10^{17} n/cm^2 and to 4×10^{20} n/cm^2 at temperatures not exceeding 100C and subjected to tensile tests. X-rays and metallographic investigations have shown that exposure to nvt up to 1.6×10^{15} n/cm^2 does not change the plastic deformation mode. In crystals in which initial deformation occurred by slip along the plane (010) the yield point increased rapidly at small nvt, reaching saturation at 10^{17} n/cm^2. Irradiation caused a 3—5-fold increase in

Card 1/2

UDC: 621.039.553

L 9558-66

ACC NR: AP5026444

the critical shear stress and decreased elongation from ~65% to ~40%. Annealing at 450C of crystals exposed up to 5.5×10^{17} n/cm^2 restored the mechanical properties of the samples. Orig. art. has: 14 figures. [CS]

SUB CODE: SS/ SUBM DATE: 22Feb65/ ORIG REF: 006/ OTH REF: 012/ ATD PRESS: 4151

Card 2/2

L 29797-66 EWT(l)/EWT(m)/T/EWP(t)/ETI IJP(c) JD/JG/GG
ACC NR: AP6015064 (A) SOURCE CODE: UR/0363/66/002/005/0829/0832

AUTHOR: Budnikov, P. P.; Kushakovskiy, V. I.; Sandulov, D. B.; Butra, F. P. 46 B

ORG: Moscow Chemical Engineering Institute im. D. I. Mendeleyev (Moskovskiy khimiko-tekhnologicheskiy institut)

TITLE: Growing of beryllium oxide single crystals 46

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 2, no. 5, 1966, 829-832

TOPIC TAGS: beryllium compound, single crystal growing, crystallization

ABSTRACT: Beryllium oxide single crystals were grown by the vaporization-condensation method in a stream of moist air at 1400-1600°C. The crystals obtained had various forms (prisms, whiskers, plates). X-ray analysis revealed that the direction of growth of prismatic and filamentary crystals coincides with the direction of crystallographic axis c. High-temperature thermal tests showed that single crystals heated up to 1970, 2000, and 2100°C retained their form and transparency. X-ray diffraction showed that crystals heated to 2200°C lost their transparency and cracked due to the presence of discrete disoriented blocks in place of the single

Card 1/2

UDC: 556.45:548.55

L 29797-66

ACC NR: AP6015064

crystal. Crystallization of fused beryllium oxide from 2450-2500°C produced coarse (2 × 2 × 2 mm), transparent grains which x-ray diffraction data identify as pseudo-crystals. The disorientation of the blocks in the crystals is apparently due to a polymorphic transformation of beryllium oxide taking place during cooling of the single crystals. Orig. art. has: 3 figures and 1 table.

SUB CODE: 20,11 / SUBM DATE: 02Aug65/ ORIG REF: 001/ OTH REF: 004

Card 2/2

6(6) 05204
SOV/142-2-3-12/27

AUTHORS: Budov, A.F., Butrim, Yu.I., Kovtun, P.S., Ryazantsev, V.Yu., Yanovskiy, V.[illegible]

TITLE: Experimental Industrial Television Devices

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiotekhnika, 1959, Vol 2, Nr 3, pp 361-363 (USSR)

ABSTRACT: The authors describe briefly the experimental industrial television equipment "Ekran-1", "Ekran-2" and "Ekran-3" which were developed at the Kafedra radiotekhnicheskikh ustroystv Khar'kovskogo politekhnicheskogo instituta imeni V.I. Lenina (Chair of Radio Engineering Equipment of the Khar'kov Polytechnic Institute imeni V.I. Lenin). The device "Ekran-1" was developed in 1956 for the visual control of the work of cutting tools on heavy boring and turning mills with two tool rests. The cameras have the dimensions 170x159x355 mm and a weight of 7 kg. They are mounted directly at the tool rests. The camera commutator unit, the control panel with the TV screen are mounted at the master control panel of the machine tool. During 1957 and 1958 the experimental industrial TV devices "Ekran-2" and "Ekran-3" were developed. These devices are

Card 1/3

Experimental Industrial Television Devices

more universal and produce high-quality images at a distance of 100-150 m. Additional conventional TV sets may be used at distances of up to 1 km from the control unit. The "Ekran-2" may be used for televizing surgical operations. Fig.1 shows the TV camera used for the "Ekran-2" and "Ekran-3". It has the dimensions 110 x 120 x 300 mm and a weight of 3.5 kg. A vidicon pick-up tube is used. A 500 watt light source provides the necessary illumination of 500-1000 lux. With such an illumination the inertia of the vidicon tube is very low and even high-speed production processes may be observed clearly. All TV devices have interlaced image scanning of 600-626 lines. The receiver units of "Ekran-2" and "Ekran-3" are shown by photographs in figs.2 and 3. The interlacing parameters correspond to the USSR TV standard. The synchrogenerator of the industrial TV devices produces a simplified TV signal required for the synchronization of the additional TV sets connected to these devices. The synchrogenerator is composed of ten 6N1P tubes (including cathode followers). The number of bulky parts in the camera units was reduced to a minimum. The focussing of the pick-up tube is achieved by an electric motor operated from the control

Card 2/3

Experimental Industrial Television Devices

panel. The conventional TV sets which may be connected to the "Ekran-2" and "Ekran-3" are fed from a transmitter, consisting of a master oscillator-multiplier (6Zh3P) and an output stage (6Zh2P). The "Ekran-2" device contains provisions for transmitting audio frequencies to the conventional TV sets connected to it. All TV devices receive power from the AC mains. In the "Ekran-1" and "Ekran-2" the feed units contain heater transformers and kenotron rectifiers with electronic stabilization which feed all anode circuits. In the "Ekran-3" germanium and selenium rectifiers are used. Electronic stabilization is used only for feeding the synchronization unit and the camera amplifier. A ferro-resonance voltage stabilizer feeds the entire device. All "Ekran" devices contain only four or five control knobs. The publication of this article was recommended by the Kafedra radiotekhnicheskikh ustroystv Khar'kovskogo instituta imeni V.I. Lenina (Chair of Radio Engineering of the Khar'kov Polytechnic Institute imeni V.I. Lenin). There are 4 photographs.

Card 3/3

SUBMITTED: July 24, 1958

L 12132-65

AUTHOR: Butrimenko, A. V. (Moscow)

TITLE: Searching the shortest routes in a varying graph

SOURCE: AN SSSR. Izvestiya. Tekhnicheskaya kibernetika

TOPIC TAGS: graph, flow graph

ABSTRACT: Algorithms are set up for searching the

Card 1/2

L 32132-65

possible applications. "The author wishes to thank

BUTRIMENKO, A.V.; LAZAREV, V.G.

Stochastic systems to get optimum routes. Probl. pered. inform. 1 no.1: 80-87 '65. (MIRA 18:7)

L 34852-66 EWT(1)
ACC NR: AP6015149 SOURCE CODE: UR/0142/66/009/002/0214/0223

AUTHOR: Yakovlev, V. N.; Butrimenko, F. N. 11 B

ORG: none

TITLE: Repetition frequency dividers with square timing voltage

SOURCE: IVUZ. Radiotekhnika, v. 9, no. 2, 1966, 214-223

TOPIC TAGS: frequency divider, repetition frequency divider, frequency division

ABSTRACT: Heretofore, repetition frequency dividers have had a rather low division ratio (10—15 tube types, 5—10 transistorized), and a low division-ratio stability caused by the exponential shape of the timing voltage and ambient-temperature variations. A new repetition-frequency divider is suggested in which the timing voltage is combined from a synchronized-generator voltage and a pulse-generator voltage; the resulting voltage is much closer to the perfect rectangular

Card 1/2 UDC: 621.374.44

L 34801-66

ACC NR: AT6014783

of the system are self-oscillations in the neighborhood of the maximum. Using z-transforms, the dynamic behavior of the system is described by a (n + 1)-th order difference equation, which is transformed to a system of first-order equations in standard form. These equations describe a piece-wise affine mapping of the phase-space into itself. There is a switching hyperplane separating the half-spaces with positive and negative step width. Simple oscillations of period 2 l T (l integer, T sampling period) are given in closed form. The necessary and sufficient existence conditions of these oscillations take the form of l inequalities, into which only the values of the z-transfer function of the linear unit in points of the unit circle enter. In second-order systems there are always oscillations with periods 4 T and 6 T, whereas oscillations with longer periods can exist only if the dynamic lag of the plant is large enough. All these oscillations are stable. Orig. art. has: 4 figures and 80 formulas. [Authors's abstract.] [KS]

SUB CODE: 20/ SUBM DATE: none/ ORIG REF: 001/ OTH REF: 003/ SOV REF: 007

Card 2/2

BUTRIMENKO, V.

For exemplary technical preparations of grain receiving stations for the procurement of grain in the 3d year of the seven-year plan. Muk.-elev. prom. 27 no.4:8-10 Ap '61. (MIRA 14:7)

1. Upravleniye elevatorno-skladskogo khozyaystva Ministerstva zagotovok RSFSR.

(Grain elevators)

BUTRIMENKO, V.

Set an outstanding example in preparing the technological basis of the granaries of the Russian Federation for receiving the new grain of the seven-year plan. Muk.-elev. prom. 28 no.2:3-5 F '62. (MIRA 15:3)

1. Upravleniye elevatorno-skladskogo khozyaystva Ministerstva zagotovok RSFSR.

(Grain--Storage)

BUTRIMENKO, V.

Prepare the technological basis for the storage of 2.6 billion poods of grain in the Russian Federation. Muk.-elev. prom. 29 no.2:3-5 F '63. (MIRA 16:8)

1. Nachal'nik upravleniya elevatorno-skladskogo khozyaystva Vsesoyuznogo ob"yedineniya khleboproduktov.
(Grain elevators)

BUTRIMENKO, V.P.

BUTRIMENKO, V.P., kand.sel'skokhozyaystvennykh nauk; FILIPPOVA, V.S., red.; MAKSAYEV, A.V., tekhn.red.

[Clubs of young stockbreeders] Kruzhki iunykh zhivotnovodov. Moskva, Gos.uchebno-pedagog. izd-vo M-va prosv. RSFSR, 1957. 85 p. (MIRA 11:2)

1. Russia (1917- R.S.F.S.R.) Glavnoye upravleniye shkol. (Stock and stockbreeding)

BUTRIMENKO, V.P.

SABODA, V.M.; BUTRIMENKO, V.P., kandidat sel'skokhozyaystvennykh nauk.

Training agricultural specialists. Nauka i pered.op.v sel'khoz.7 no.1:9-11 Ja '57. (MLRA 10:2)

1. Nachal'nik upravleniya podgotovki kadrov Ministerstva sel'skogo khozyaystva (for Butrimenko).
(Agriculture--Study and reaching)

USSR/Farm Animals. Swine. Q-2

Abs Jour: Ref Zhur - Biol., No. 22, 1958, 101175

Author : Butrimenko, V.P.

Inst : -

Title : The Interdependence of Fodder Utilization and Productivity Level in Fattened Immature Sows.

Orig Pub: Zhivotnovodstvo, 1957, No. 9, 67-70

Abstract: Thirty hybrid piglets of Large White breed sows and Livny breed boars were divided into 2 groups. The 1st group consisted of highly productive animals with average fodder expenditures amounting to 510.4 feed units and to 46.88 kg of proteins. The second group included animals of medium productivity with feed expenditures amounting to 399.9 feed

Card 1/2

BUTRIMENKO, V.P.

Short account of the work of a pig tender. Politekh. obuch. no.8: 30-32 Ag '58. (MIRA 11:9)
(Swine)

KLIMOV, N.M.; BUTRIMENKO, V.P.; VSYAKIKH, A.S., prof.; LITOVCHENKO, G.R.; KOLOBOV, G.M.; KOZHEVNIKOV, Ye.V.; ALIKAYEV, V.A.; KRASNOV, V.S.; MAKAROV, A.P.; GRIGOR'YEV, Ye.P., red.; ROZIN, M.A., red.; GUREVICH, M.M., tekhn. red.

[Animal husbandry] Zhivotnovodstvo. Moskva, Sel'khozgiz, 1959. 477 p. (MIRA 16:3)
(Stock and stockbreeding)

BUTRIMOVA, N.P.; MAKASHEV, K.K.

Effect of sodium salicylate on the development of experimental silicosis in white rats. Trudy Inst.kraev.pat. AN Kazakh. SSR 10:78-94 '62. (MIRA 16:5)
(LUNGS--DUST DISEASES) (SODIUM SALICYLATE--THERAPEUTIC USE)

BUTRIMOVICH, V.I.

PHASE I BOOK EXPLOITATION SOV/4580

Minsk. Belorusskiy politekhnicheskiy institut

Detali mashin (Machine Parts) Minsk, Red.-izd. otdel BPI imeni I.V. Stalina, 1959. 69 p. (Series: Its: Sbornik nauchnykh trudov, vyp. 75) 1,500 copies printed.

Sponsoring Agencies: Ministerstvo vysshego, srednego spetsial'nogo i professional'nogo obrazovaniya BSSR; Belorusskiy politekhnicheskiy institut imeni I.V. Stalina.

Editorial Board: V.N. Treyyer (Resp. Ed.), Doctor of Technical Sciences, Professor; V.I. Butrimovich, Candidate of Technical Sciences, Docent; L.M. Zubenchik, Candidate of Technical Sciences, Docent, and A.I. Zheltonoga, Candidate of Technical Sciences, Docent; Resp. Ed. for this vol.: A.A. Murnis, Engineer; Ed.: N. Kapranova; Tech. Ed.: Ye. Konchits.

PURPOSE: This collection of articles is intended for technical personnel and scientific workers.

COVERAGE: This is the 75th issue of a series published by the Belorussian Polytechnic Institute imeni I.V. Stalin. The collection contains eleven articles, ten of which are devoted to studies and work related to the life of certain machines parts. The remaining article deals with the power of the lighting installation in a cinematographic apparatus. No personalities are mentioned. References accompany most of the articles. There are 32 references: 30 Soviets, 1 English and 1 German. A short appendix is also included.

AVAILABLE: Library of Congress

BUTRIN, V., trener po plavaniyu

"Teaching servicement to swim" by A.A.Van'kov, N.I.Plekhanov. Reviewed by V.Butrin. Voen.znan. 37 no.7:39 Jl '61. (MIRA 14:6)
(Swimming)
(Van'kov, A.A.) (Plekhanov, N.I.)

BUTRIN, V., sud'ya vsesoyuznoy kategorii

For health, for life. Voen. znan. 39 no.6:29-30 Je '63.
(MIRA 16:8)
(Lifesaving)

BUTROMEYEV, N.F.

TSYBIN, I.S., inzhener; BUTROMEYEV,N.F.; IVASHKO, V.N., redaktor

[Work of tractor driver V.M.Kolesnikov with a power scraper] Rabota traktorista V.M.Kolesnikova na traktornoi lopate. Moskva, Izd-vo dorozhno-tekhn. lit-ry, 1952. 28 p. [Microfilm] (MLRA 7:10)

1. TSentral'naya normativno-issledovatel'skaya stantsiya (for TSybin)

(Excavation)

BUTROV M.V.

109-1-6/18

AUTHOR: Butrov, M.V.

TITLE: Symmetrical Iris of an Arbitrary Thickness in a Circular Waveguide (Simmetrichnaya diafragma proizvol'noy tolshchiny v kruglom volnovode)

PERIODICAL: Radiotekhnika i Elektronika, 1958, Vol.III, Nr 1, pp.56-60 (USSR)

ABSTRACT: The system considered (see Fig.1) is a circular waveguide with a diaphragm (iris) having a thickness d. An incident wave of the H_{01} type having a unit amplitude, propagates in the direction z, that is, from the left-hand side of the structure. The dimensions of the waveguide are such that the H_{01} wave is attenuated in the narrow part of the structure. It is also assumed that the walls of the waveguide and the diaphragm (iris) have an infinite conductivity. The solution of the problem is divided into three parts: (1) the region to the left of the iris, (2) the region inside the iris, and (3) the region to the right of the iris. The propagation constant in the regions(1)and(3)is α and that of the region (2) is β. The solution of the wave

Card 1/3

Symmetrical Iris of an Arbitrary Thickness in a Circular Waveguide

equation for the three regions for the E_φ component is expressed by Eqs.(1), where λ is the wavelength in free space, λ_μ is the wavelength in the waveguide, ν_n is the n^{th} root of the Bessel function J_1, R is the voltage reflection coefficient of the obstacle (iris), and T is the transmission coefficient. The radial components of the magnetic field vector can be found from Eq.(2). By considering the boundary conditions at the edges of the iris ($z = \pm d/2$), the constants of Eqs.(1) are expressed by Eqs.(3) where ρ is the coordinate of a point in the edge plane of the iris and the integrals are taken over an interval 0 to r_2 (r_2 is the radius of the iris). The analysis of the boundary conditions for the magnetic field components leads to a system of integral equqtions which, when combined with the coefficients of Eqs.(3), lead to two independent integral equations, having two unknown functions $\mathcal{E}_1(r)$ and $\mathcal{E}_2(r)$. The equations can be transformed into the so-called stationary form and are then expressed by Eqs.(11) and (12). The field in the planes $z = \pm d/2$ can be approximated

Symmetrical Iris of an Arbitrary Thickness in a Circular Waveguide

quasi-statically, as shown by Eqs.(13), where $P_{1,2}$ are the constants to be determined and $F_{1,2}$ is a function of d. By substituting Eqs.(13) into Eqs.(11) and (12) and carrying out the necessary integration, the desired solutions are in the form of Eqs.(14) and (15) while the constants $P_{1,2}$ are expressed by Eq.(16). From the above expressions it is found that the equivalent circuit of the iris, as referred to the cross-section $z = 0$, can be represented as shown in Fig.2, where z, T and R are expressed by Eq.(19), in which Φ is equal to the right-hand side of Eq.(14) and ϕ is equal to the right-hand side of Eq.(15). There are 2 figures and 1 Russian and 1 English reference.

SUBMITTED: September 5, 1956

AVAILABLE: Library of Congress

9.1300

77790
SOV/109-5-2-23/26

AUTHOR: Butrov, M. V.

TITLE: On the Theory of Concentric Nonhomogeneities of a Finite Thickness in a Coaxial Waveguide (Brief Communication)

PERIODICAL: Radiotekhnika i elektronika, 1960, Vol 5, Nr 2, pp 341-345 (USSR)

ABSTRACT: In a previous paper (this Journal, 1958, 3, 1, 56, "Symmetrical Diaphragm of Arbitrary Thickness in a Round Waveguide") the author demonstrated the application of the well-known variation method of Schwinger to the calculation of characteristics of nonhomogeneities in waveguides, which is applicable only to obstructions symmetrical with respect to a plane normal to the direction of wave propagation, and gives simple formulas of satisfactory precision, permitting calculation of all parameters of equivalent

Card 1/10

On the Theory of Concentric Nonhomogeneities of a Finite Thickness in a Coaxial Waveguide (Brief Communication)

77790
SOV/109-5-2-23/26

quadrupoles. The present communication gives formulas for calculating basic parameters of a group of concentric obstructions of finite t thickness in a coaxial waveguide.

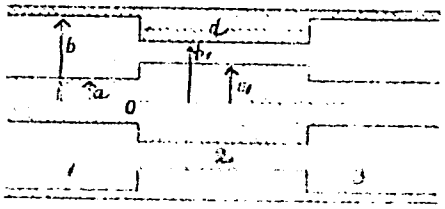


Fig. 1

Dimensions a_1, b_1 may be greater or smaller than a, b. In all three sections of the waveguide may exist basic TEM waves, and the waveguide may be of the propagating

Card 2/10

or attenuating type. A dependence of components $\bar{E}$ and $\bar{H}$ on the angular velocity is excluded. The solutions of the wave equation satisfying the limit and radiation conditions can be written as:

Section 1:

$$E_\rho = \frac{1}{\rho}\left(e^{-ikz} - Re^{ikz}\right) + \frac{1}{k}\sum_{n=1}^{\infty} A_n \alpha_n Z_0'(\mu_n \rho) e^{\alpha_n z},$$

$$H_\varphi = \frac{1}{\rho}\left(e^{-ikz} + Re^{ikz}\right) + \sum_{n=1}^{\infty} A_n Z_0'(\mu_n \rho)\, e^{\alpha_n z};$$

Section 2:

$$E = \left(D_0 e^{-ikz} - C_0 e^{ikz}\right)\frac{1}{\rho} + \frac{i}{k}\sum_{n=1}^{\infty} Z_0'(\nu_n \rho)\,\beta_n \left(C_n e^{\beta_n z} - D_n e^{-\beta_n z}\right),$$

$$H_\varphi = \left(C_0 e^{ikz} + D_0 e^{-ikz}\right)\frac{1}{\rho} + \sum_{n=1}^{\infty} Z_0'(\nu_n \rho)\left(C_n e^{\beta_n z} + D_n e^{-\beta_n z}\right).$$

Section 3:

$$E_\rho = \frac{1}{\rho} Te^{-ik(z-d)} - \frac{i}{k} \sum_{n=1}^{\infty} B_n \alpha_n Z_0'(\mu_n \rho) e^{-\alpha_n (z-d)},$$

$$H_\varphi = \frac{1}{\rho} Te^{-ik(z-d)} + \sum_{n=1}^{\infty} B_n Z_0'(\mu_n \rho) e^{-\alpha_n (z-d)},$$

where

$$\alpha_n = \sqrt{\mu_n^2 - k^2}; \quad \beta_n = \sqrt{\nu_n^2 - k^2}; \quad \gamma_n' = \sqrt{(\lambda_n / b_1)^2 - k^2}; \quad k = 2\pi/\lambda;$$

Here, $Z_0'(\mu_n \rho)$, $Z_0'(\nu_n \rho)$ are eigenfunctions of bicylinders in sections 1, 3, 2; J_0 is Bessel's function of the 1st order; μ_n are roots of the transcendental equation:

Card 4/10

$$J_0(\mu_n' b) N_0(\mu_n a) = J_0(\mu_n a) N_0(\mu_n b);$$

ν_n are roots of the analogous equation for Section 2:

$$J_0(\nu_n b_1) N_0(\nu_n a_1) = J_0(\nu_n a_1) N_0(\nu_n b_1);$$

λ_n are zeros of function J_0; N_0 is Bessel's function of the 2nd order; R, T are coefficients of reflection and passage for the nonhomogeneity, respectively. Using the orthogonality of eigenfunctions, all coefficients of expressions of the tangential components of the electric and magnetic fields in Sections 1, 2, 3 can be expressed in terms of the tangential components of the electric field $\mathcal{E}_1(\rho)$ and $\mathcal{E}_2(\rho)$ in planes

z = 0 and z = d, respectively. They may be expressed through the magnetic field components as well. Introducing combinations $\mathcal{E}_0 = \mathcal{E}_1 + \mathcal{E}_2$, $\mathcal{E}_e = \mathcal{E}_1 - \mathcal{E}_2$ and following the procedure outlined in the above-mentioned work of the author, the following equations are derived:

$a_1 > a$

$$\frac{1-R-T}{1+R+T} = \frac{P_e \ln \frac{b_1}{a_1}}{\ln \frac{b_1}{a_1} \sum_{n=1}^{\infty} \left(S_{ne} + \operatorname{cth} \frac{\beta_n d}{2} L_{ne} \right) - iP_e \ln \frac{b}{a} \operatorname{ctg} \frac{kd}{2}}; \quad (1)$$

$$\frac{1-R+T}{1+R-T} = \frac{P_0 \ln \frac{b_1}{a_1}}{\ln \frac{b_1}{a_1} \sum_{n=1}^{\infty} \left(S_{n_0} + \operatorname{th} \frac{\beta_n d}{2} L_{n0} \right) + iP_0 \ln \frac{b}{a} \operatorname{tg} \frac{kd}{2}}; \quad (2)$$

Card 6/10

$$\frac{1-R-T}{1+R+T}=\frac{P_e}{\sum\limits_{n=1}^{\infty}\left(S_{ne}+M_{ne}\operatorname{cth}\frac{\gamma_n d}{2}\right)}; \qquad (3)$$

$$\frac{1-R+T}{1+R-T}=\frac{P_0}{\sum\limits_{n=1}^{\infty}\left(S_{n0}+M_{n0}\operatorname{th}\frac{\gamma_n d}{2}\right)}. \qquad (4)$$

The following notations are used above:

$$P_{0,e}=-\frac{i}{\ln\frac{b}{a}}\left[\int\mathcal{E}_{0,e}\,d\rho\right]^2;\ S_{0,e}=\frac{k}{\varepsilon_n\alpha_n}\left[\int\mathcal{E}_{0,e}\,\rho Z_0'(\mu_n\rho)\,d\rho\right]^2;$$

$$I_{0,e}=\frac{k}{\beta_n P_n}\left[\int\mathcal{E}_{0,e}\,\rho Z_0'(\nu_n\rho)\,d\rho\right]^2;\ M_{0,e}=\frac{k}{\gamma_n r_n}\left[\int\mathcal{E}_{0,e}\,\rho J_0'\left(\frac{\lambda_n\rho}{b_1}\right)d\rho\right],$$

where

Card 7/10

On the Theory of Concentric Nonhomogeneities of a Finite Thickness in a Coaxial Waveguide (Brief Communication)

77790
SOV/109-5-2-23/26

$$p_n = \frac{1}{2}\left[b_1^2 Z_1^2(\nu_n b_1) - a_1^2 Z_1^2(\nu_n a_n)\right]; \quad r_n = \frac{1}{2} b_1^2 J_1^2(\lambda_n);$$

$$s_n = \frac{1}{2}\left[b^2 Z_1^2(\mu_n b) - a^2 Z_1^2(\mu_n a)\right]$$

The integrals of (1) to (4) are taken in the tangential plane z = 0 (z = d) in the "clearance area" (where $\mathfrak{S}_{0e}(\rho)$ are different from zero). As an example for $b = b_1$, $a_1 > a$, inserting selected values of $\mathfrak{S}_{0e}$ into (1) and (2) and integrating between limits a_1 to b, it is found that the equivalent scheme of the obstruction is a shunt resistance:

$$Z_L = 2i \ln\frac{b}{a} \frac{A^2 + \ln^2 \frac{b}{a_1}}{A \ln^2 \frac{b}{a_1}}.$$

Card 8/10

On the Theory of Concentric Nonhomogeneities of a Finite Thickness in a Coaxial Waveguide (Brief Communication)

77790
SOV/109-5-2-23/26

for d satisfying requirement:

$$\ln\frac{b}{a_1}\operatorname{tg}\frac{kd}{2}=-k\sum_{n=1}^{\infty}\frac{1}{\varepsilon_n a_n \mu_n^2}\left[Z_0(\mu_n b)-Y_0(\mu_n a_1)\right]^2=-A.$$

For arbitrary d values the equivalent scheme is a Π-type or T-type quadrupole, whose elements can be found for given values of R and T. As another example, it is assumed that $a_1 = 0$, $b = b_1$, with waves in Section 2 being attenuated. Substituting $\varepsilon_{0,e} = a_0/\rho$ into (3) and (4), it is found that:

$$\frac{1-R-T}{1+R+T}=-\frac{i}{k}\frac{\ln\frac{b}{a}}{\sum_{n=1}^{\infty}b^2\frac{\operatorname{cth}\frac{\gamma_n d}{2}}{\gamma_n r_n \lambda_n^2}J_0^2\left(\lambda_n\frac{a}{b}\right)}\qquad \frac{1-R+T}{1+R-T}=-\frac{i}{k}\frac{\ln\frac{b}{a}}{\sum_{n=1}^{\infty}b^2\frac{\operatorname{th}\frac{\gamma_n d}{2}}{\gamma_n r_n \lambda_n^2}J_0^2\left(\lambda_n\frac{a}{b}\right)}.$$

Card 9/10

On the Theory of Concentric Nonhomogeneities of a Finite Thickness in a Coaxial Waveguide (Brief Communication)

77790
SOV/109-5-2-23/26

The equivalent scheme in this case is T-type quadrupole with inductance elements. There are 2 figures; and 4 references, 3 Soviet, 1 German.

SUBMITTED: April 9, 1959

Card 10/10

81370
S/046/60/006/01/02/033
B008/B011

24.1200

AUTHOR: Butrov, M. V.

TITLE: Diffraction of a Scalar Wave in a Slit and in a Round Opening of a Screen of Arbitrary Thickness

PERIODICAL: Akusticheskiy zhurnal, 1960, Vol. 6, No. 1, pp. 16 - 22

TEXT: By means of the well-known method devised by Levine-Schwinger, steady-state formulas were set up for the transmission coefficient through a slit and through a round opening in a screen of arbitrary thickness (Fig. 1). The transmission coefficient through a slit in a screen of finite thickness has the form (17') : $t = -\frac{k}{2a} \operatorname{Im} (P + S)$. P and S are the complicated fractions appearing in formulas (13) and (14) (the right-hand sides, divided by 2ik). By introducing formulas for P and S on the assumption of d = 0, one obtains the formula for the transmission coefficient through a slit in an infinitely thin screen:

Card 1/3

81370
S/046/60/006/01/02/033
B008/B011

Diffraction of a Scalar Wave in a Slit and in a Round Opening of a Screen of Arbitrary Thickness

$$t = -\frac{k}{4a}\,\mathrm{Im}\,\frac{\left[\int_{-a}^{a}\psi^{(+)}dy\right]^2}{\int_{-a}^{a}\int\psi^{(+)}\left[\frac{\partial^2 G}{\partial z'\partial z}\right]\psi'^{(+)}dydy'}$$

This formula fits the one obtained for infinitely thin screens with the aid of the variation method (e. g., Ref. 3). In a general case of finite d, the transmission coefficient t at a round opening has the form (24): $t = -\frac{k}{\pi a^2}\,\mathrm{Im}\,(M + N)$. M and N are the right sides of formulas (21) and (22) divided by 2ik. Fig. 2 shows curves for the dependence of the transmission coefficient on the thickness of the screen and on the diameter

Card 2/3

81370

Diffraction of a Scalar Wave in a Slit and in a Round Opening of a Screen of Arbitrary Thickness

S/046/60/006/01/02/033
B008/B011

of the opening for the case of a comparative function for a field in the opening plane. There are 2 figures and 6 references: 2 Soviet, 1 German, 2 American, and 1 Italian.

ASSOCIATION: Ryazanskiy radiotekhnicheskiy institut
(Ryazan' Radiotechnical Institute)

SUBMITTED: April 10, 1959

Card 3/3

BUTROV, M.V.; VOLGOV, V.A.; SUSLONOV, S.A.

Problem concerning the training of radio engineers. Izv. vys. ucheb. zav.; radiotekh. 4 no.4:503-504 Jl-Ag '61. (MIRA 14:11)

1. Ryazanskiy radiotekhnicheskiy institut.
(Radio)

34042
S/109/62/007/001/021/027
D266/D301

9,3700 (1057,1482)

AUTHOR: Butrov, M.V.

TITLE: Scattering of electromagnetic waves by intersecting cylinders

PERIODICAL: Radiotekhnika i elektronika, v. 7, no. 1, 1962, 167 - 168

TEXT: The purpose of the paper is to generalize Row's solution to intersecting cylinders. The solution is restricted to two dimensions (both the cylinders and the line source are assumed infinitely long) and identical perfectly conducting cylinders. The author's starting point is Row's equation

$$\Psi(\vec{r}) = \Psi^{inc}(\vec{r}) + \frac{1}{2\pi} \sum_{n} \int_{C_n} I_n(\varphi_n) G(\vec{r}, \vec{r}') d\varphi_n, \qquad (1)$$

where $\Psi(\vec{r})$ - z component of the electric intensity at the point r, $\Psi^{inc}(\vec{r})$ - the field that would exist at the point r if no obstacles

Card 1/2

Scattering of electromagnetic ...

were present, I_n - surface current on the n-th cylinder, $G(\vec{r}, \vec{r}')$ - the appropriate Green function, C_n - the open part of the circumference of the n-th cylinder. Following Row's method the surface current on each cylinder is expanded into a complex Fourier series and after lengthy and laborious manipulations, a linear equation system is obtained from which the Fourier coefficients can be determined [Abstractor's note: Nothing is mentioned about the actual numerical evaluation]. It is shown that the author's formulas yield those of Row in the case when the cylinders are separated. There are 1 figure and 1 non-Soviet-bloc reference. The reference to the English-language publication reads as follows: R.W. Row, Theoretical and experimental study of electromagnetic scattering by two identical conducting cylinders, J. Appl. Phys., 1955, 26, 6, 666.

SUBMITTED: May 22, 1960

Card 2/2

BUTROVSKI, D.

"Tumours of testicle in the dog." Inst. for Patho-anatomy, Vet. Fac., Univ. of Zagreb.

Vet. Archiv. 23 : 173-183, 1953

BUTRUK, Eugeniusz; KROTKIEWSKI, Marcin

Role of the adrenal cortex in the pathogenesis of obesity.
Pol. arch. med. wewnet. 34 no.8:1031-1035 '64.

1. Z II Kliniki Chorob Wewnetrznych Studii Dokształcania Lekarzy Akademii Medycznej w Warszawie (Kierownik: prof. dr. med. E. Ruzylo).

BUTRYAKOV, A.G. (g. Kovrov Vladimirskoy oblasti)

Gloxinia as a subject for the study of vegetative propagation. Biol. v shkole no.1:85-86 Ja-F '63. (MIRA 16:6)

(Gloxinias) (Plant propagation)

MEL'NIKOV, N.N.; GALASHINA, M.L.; BUTRYAKOVA, Z.V.

Synthesis of some bis-(alkyl xanthogen)-tri- and tetrasulfides as experimental defoliants and desiccants. [Trudy] NIUIF no.171:138-142 '61. (MIRA 15:7)
(Defoliation) (Drying agents) (Sulfides)

BUTRYM, Bozena

Statistical data concerning the incidence of epizootics in
bulls of the Katowice region in 1956-1960. [illegible] 10
no.4:295 '61.

1. Wojewodzki Zaklad Higieny Weterynaryjnej, Katowice.

BUTS, M.A.

Scientific achievements must be utilized in practice. NTO 3 no.4:5 Ap '61. (MIRA 14:3)

1. Chlen soveta pervichnoy organizatsii Nauchno-tekhnicheskogo obshchestva sovkhoza "Kiyevskaya ovoshchnaya fabrika".
(Kiev Province--State farms)

ANSBERG, Ye.A., assistent; BOROVITSKIY, V.P., dots.; BUTS, Sh.F., dots.; Prinimali uchastiye: SERGEYEV, V.A., dots.; SAMARINA, V.S., st. nauchn. sotr.; SKORYNINA, N.P., red.

[Practice in general hydrogeology] Praktikum po obshchei gidrogeologii. Leningrad, Izd-vo Leningr. univ., 1965. 231 p. (MIRA 18:4)

1. Kafedra gidrogeologii Leningradskogo gosudarstvennogo universiteta im. A.A.Zhdanova (for Buts, Ansberg, Sergeyev). 2. Institut Zemnoy kory, Leningrad (for Samarina). 3. Gornyy institut, Leningrad (for Borovitskiy).

ANDREYEV, N., prof.; BUTS, V., agronom

Ammonia as fertilizer. Zemledelie 27 no.6:73 Je '65. (MIRA 18:9)

BUTS, V.D.

Further development of automatic control, telemechanics, and communication systems. Zhel.dor.transp. 37 no.1:63-67 Ja '56. (MLRA 9:3)

1. Nachal'nik Glavnogo upravleniya signalizatsii i svyazi Ministerstva putey soobshcheniya.
(Railroads--Signaling) (Railroads--Communication systems)

BUTS, V.D.

For wider use of new equipment. Avtom., telem. i sviaz' no.1:1-3 Ja '57. (MLRA 10:4)

1. Nachal'nik Glavnogo upravleniya signalizatsii i svyazi Ministerstva putey soobshcheniya.
(Railroads--Signaling)

BUTS, V.D., inzhener.

Communications and signaling on the railroads of the German Democratic Republic. Avtom.,telem.i sviaz' no.6:44-47 Je '57. (MIRA 10:7)

(Germany, East--Railroads--Signaling)

BUTS, V.D.

Mechanization of communication line work. Avtom., telem. i sviaz' 2 no.3:38 Mr '58. (MIRA 13:1)

1.Zamestitel' nachal'nika Glavnogo upravleniya signalizatsii i svyazi.
(Railroads--Electric equipment)

BUTS, V.D.

Bring the preparations for the winter to a successful end. Avtom., telem. i sviaz' 2 no.10:4-5 O '58. (MIRA 11:10)

1.Zamestitel' nachal'nika Glavnogo upravleniya signalizatsii i svyazi.
(Railroads--Signaling)

BUTS, V.D.

Brigade method of overall servicing of signaling and communication devices. Avtom., telem.i sviaz 3 no.9:20 S '59.
(MIRA 13:2)

1. Zamestitel' nachal'nika Glavnogo upravleniya signalizatsii i svyazi.
(Railroads--Signaling)
(Railroads--Communication systems)

BUTS, V.D., inzh.

Further development of radio relay communication systems.
Zhel.dor.transp. 41 no.3:47-50 Mr '59. (MIRA 12:6)
(Radio relay systems)
(Railroads--Communication systems)

BUTS, V.D.

Mechanization of repair operations and continuous maintenance of signaling and communication lines. Avtom., telem.i sviaz' 4 no.4:6-8 Ap '60. (MIRA 13:6)

1. Zamestitel' nachal'nika Glavnogo upravleniya signalizatsii i svyazi Ministerstva putey soobshcheniya.
(Railroads--Signaling)
(Railroads--Communication systems)

BUTS, V.D.

Intensive attention should be given to winter preparations. Avtom. telem. i sviaz' 4 no.9:1-2 S '60. (MIRA 13:9)

1. Zamestitel' nachal'nika Glavnogo upravleniya signalizatsii i svyazi Ministerstwa putey soobshcheniya.
(Railroads--Cold weather operations)