GOLUBTSEV, N.A., red.

[Comprehensive geographical studies in the Zaraysk region Moscow Province] Kompleksnye geograficheskie issledovaniia v Zaraiskom raione Moskovskoi oblasti. Moskva, Mosk. gos. univ. im. M.V.Lomonosova, 1961. 329 p. (MIRA 17:8)

SOLNTSEV, N.A.

Organizing landform expeditions and calculating field work norms. Vest. Mosk. un. Ser.5: Geog. no.2:69-71 Mr-Ap '61. (MIRA 14:4)

(Landforms)(Physical geography--Research)

VIDINA, A.A.; SOLNTSEV, N.A.; TSESEL'CHUK, Yu.N.

The Kasimov "opol'e." Vest. Mosk. un. Ser. 5:71-74 My-Je '61. (MIRA 14:5)

(Kasimov District—Physical geography)

SOLNTSEV, N. A. [Solntsev, N. A.]

Some additional and more precise elucidations in the problem of landscape morphology. Analele geol geogr 15 no.4:82-87 O-D '61.

(Physical geography)

SOLNTSEV, N.A.

Some supplements and more precise definitions in the field of landform morphology. Vest. Mosk. un. Ser. 5: Geog. 16 no.3:53-57 My-Je '61. (MIRA 14:5)

1. Laboratoriya landshaftovedeniya Moskovskogo gosudarstvennogo universiteta.

(Landforms)

SOLNTSEV, N.A.

Natural-geographical regions of Moscow Province. Vop.geog. no.51: 5-19 '61. (MIRA 14:6)
(Moscow Province—Physical geography)

BAUSHKIN, Yu.; SOLNTSEV, N.; SOLOV'YEV, A.

Soviet geographers-hydrologists are asked a question. Izv. Vses. geog. ob-va 93 no.4:375-376 Jl - Ag '61. (MIRA 14:7)
(Hydrology)

VIDINA, A.A.; SOLNTSEV, N.A., red.

[Methodological instructions for large-scale field studies of land characteristics for agricultural purposes in the central part of the East European Plain]Metodicheskie ukazaniia po polevym krupnomasshtabnym landshaftnym issledovaniiam; dlia tselei sel'skokhoziaistvennogo proizvodstva v srednei polose Russkoi ravniny. Pod red. N.A.Solntseva. Moskva, Mosk. gos.univ., 1962. 119 p. (MIRA 16:2)
(East European Plain--Agriculture--Maps)

SOLNTSEV, N.A.

Main problems of Soviet landform studies. Izv. Vses. geog. ob-va 94 no.1:3-14 Ja-F '62. (MIRA 15:3)
(Landforms)

SOLNTSEV, N.A.

Amplitudes of the rhythm of natural phenomena in a landform.
Vest. Mosk. un. Ser. 5: Geog. 17 no.6:63-67 N-D '62. (MIRA 16:1)

1. Laboratoriya landshaftovedeniya, geograficheskiy fakul'tet Moskovskogo gosudarstvennogo universiteta.
(Landforms)

GVOZDETSKIY, N.A., prof.; ZHUCHKOVA, V.K., dots.; ALISOV, B.P., prof.; VASIL'YEVA, I.V., dots.; VARLAMOVA, M.N., tekhnik-kartograf; DOLGOVA, L.S., dots.; ZVORYKIN, K.V., st. nauchnyy sotr.; ZEMTSOVA, A.I., assistent; IVANOVA, T.N.; LEBEDEV, N.P., st. prepodavatel'; LYUBUSHKINA, S.G.; NESMEYANOVA, G.Ya., mlad. nauchnyy sotr.; PASHKANG, K.V., st. prepod.; POLTARAUS,B.V., dots.; RYCHAGOV, G.I., st. prepod.; SPIRIDONOV, A.I., dots.; SMIRNOVA, Ye.D., mlad. nauchnyy sotr.; SOLNTSEV, N.A., dots.; FEDOROVA, I.S., mlad. nauchnyy sotr.; TSESEL'CHUK, Yu.N., mlad. nauchnyy sotr.; SHOST'INA, A.A., mlad. nauchnyy sotr.; Prinimali uchastiye: BELOUSOVA, N.I.; GOLOVINA, N.N.; KALASHNIKOVA, V.I.; KOZLOVA, L.V.; KARTASHOVA, T.N.; PAN'KOVA, L.I.; URKIKHO, V.; PETROVA, K.A., red.; LOPATINA, L.I., red.; YERMAKOV, M.S., tekhn. red.

[Physicogeographical regionalization of the non-Chernozem center] Fiziko-geograficheskoe raionirovanie nechernozemnogo tsentra. Pod red. N.A.Gvozdetskogo i V.K.Zhuchkovoi. Moskva, Izd-vo Mosk. univ., 1963. 450 p. (MIRA 16:5)
(Physical geography)

SOLNTSEV, N.A.

Some theoretical problems in land[illegible] dynamics. Vest. Mosk. un. Ser. 5:Geog. 18 no.2:50-55 Mr-Ap '63. (MIRA 16:3)

1. Laboratoriya landshaftovedeniya Moskovskogo gosudarstvennogo universiteta.

(Landforms)

SOLNTSEV, N.A.

Aleksandr Aleksandrovich Borzov's theoretical views. Vest. Mosk. un. Ser. 5: Geog. 19 no.2:12-16 Mr-Ap '64. (MIRA 17:4)

1. Kafedra fizicheskoy geografii SSSR Moskovskogo universiteta.

ISACHENKO, A.G.; KOLESNEV, N.A.

Viktor Borisovich Sochava, 1905- ; on his 60th birthday.
Vest.Mosk.un.Ser.5: Geog. 20 no.4:87 Jl-Ag '65.
(MIRA 18:12)

RYABCHIKOV A.M., prof.; SHCHUKIN, I.S.; SAUSHKIN, Yu.G., prof.; GVOZDETSKIY, N.A.; MARKOV, K.K.; ANUCHIN, V.A.; SOLNTSEV, N.A., doktor geogr. nauk

Senior Soviet Geographer; 1875- ; 90th birthday of Aleksandr Nikolaevich Dzhavakhishvili. Vest. Mosk. un. Ser. 5: Geog. 20 no.5:82 S-O '65. (MIRA 18:12)

SOLNTSEV, N. I.

3290. **Polarographic determination of cadmium in copper-containing zinc production materials; the separation of copper by means of thiosulphate and thiocyanate.** N. I. Solntsev, F. M. Tal', Z. P. Lopatina and E. I. Dubovitskaya. *Sbornik Nauch. Trudy, Gos. Nauch. Inst. Tsvet. Met.*, 1955, (10), 325–330; *Ref. Zhur., Khim.*, 1956, Abstr. No. 7092. —The polarographic determination of Cd in samples of copper-containing materials from zinc production is described with various methods of separation of Cu after decomposition by aqua regia and H_2SO_4. It was found that polarographic determination of Cd can be carried out with a sufficient degree of accuracy by separating Cu by means of thiosulphate and thiocyanate.

R. Lord

SOV/137-57-1-1619

Translation from: Referativnyy zhurnal. Metallurgiya, 1957, Nr 1, p 215 (USSR)

AUTHORS: Troitskaya, M. I., Polyakova, V. V., Solntsev, N. I., Filippova, N.A.

TITLE: Organization of Analytical Work at the Gintsvetmet [State Institute for Nonferrous Metals]. Results of Work During the Last Five Years (Organizatsiya analiticheskoy raboty v Gintsvetmete. Itogi raboty za posledneye pyatiletiye)

PERIODICAL: Sb. nauch. tr. Gos.n-i. in-t tsvet. met., 1956, Nr 12, pp 5-13

ABSTRACT: The Gintsvetmet [State Institute for Nonferrous Metals] has three laboratories: One for chemical analysis, one for physical methods of investigation, and one for the study of the material composition. An account is made of the nature of the work of these laboratories in the analysis of raw ores, the middlings, and pure metals.

N. G.

Card 1/1

SOLVENTS EV, N.I

Determination of antimony compounds in ores, concentrates, dusts, and cinders. N. I. Solntsev and E. I. Dubovitskaya. *Analiz Rud Tsvetnykh Metal. i Produktov Ikh Pererabotki* 1956, No. 13, 24-35.—Existing phase analyses are based on selectivity of solvents. Antimonite (I), valentinite (II), hydrocervantite (III), and hydromeite (IV) were investigated. The best selective solvents found were 1.6*N* tartaric acid (V) and 0.8*N* Na_2S solns. V dissolved only II, Na_2S dissolved III but not IV, and I is detd. indirectly through S in sulfides. N. Charmandarian

SOLNTSEV, N. I.

7

The simple variation of separation of arsenic as arsenic chloride and determination of antimony by a volumetric bromate method. N. I. Solntsev. *Analiz Rud i Metallov Metall i Produktov* 4956, No. 12, 36-44.—Place 0.1 g. of dust contg. 60–60% Sb and 2% As into a 250-ml. volumetric flask, add 2 g. anhyd. Na_2SO_4 and 15 ml. H_2SO_4 (1.84), and heat gradually to fumes of SO_3. Then cover the flask with a funnel and heat until decoloration of the mixt. To the colorless soln. after cooling, add 30 ml. H_2O and heat 10 min. to remove SO_2. Then to the cool soln. contg. 12*N* H_2SO_4, add 3 g. tartaric acid, 3 g. NaCl, and 15 ml. HCl (1.19). Put the flask on a sand bath at 55–60° and heat for 3 hrs. After adding 60–70 ml. H_2O, heat to 70° and titrate with 0.5*N* $KBrO_3$ (indicator methyl orange). The method is based on the evolution of As as $AsCl_3$ at 55–60°. Curves of the rate of evolution of $AsCl_3$ at different conditions are presented.

N. C.

1 5

RM MT

SOV/137-58-8-18101

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 8, p 270 (USSR)

AUTHORS: Solntsev, N. I., Chudina, R. I.

TITLE: Application of Polarography in the Phase Analysis of Ores and Their Concentrates for Lead Compounds (Primeneniye polyarografii pri fazovom analize rud i produktov ikh obogashcheniya na soyedineniya svintsa)

PERIODICAL: Sb. nauchn. tr. Gos. n.-i. in-t tsvetn. met., 1958, Nr 14, pp 80-92

ABSTRACT: In the phase analysis of ores and their concentrates, 15 - 25% solutions of various salts are used as selective solvents. Taking into account the volume of the solvent and the wash waters, the optimum conditions for the polarographic determination of all forms of Pb are created directly in the solution obtained. The records are adduced of the determination of the total contents of Pb and of the determination of Pb in the form of anglesite, cerussite, galenite, and also Pb in the case of the presence of crocoite and wulfenite, pyromorphite, and vanadinite; pyromorphite, mimetisite, crocoite and wulfenite; plumbojarosite, bieberite, and bedanite. The results of the

Card 1/2

Application of Polarography in the Phase Analysis (cont.)

determinations of various forms of Pb are added up and compared to the total Pb contents. The discrepancy should not exceed 10%.

N. G.

1. Ores--Analysis 2. Lead--Determination
3. Polarographic analysis

SOV/137-58-8-18108

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 8, p 271 (USSR)

AUTHOR: Solntsev, N. I., Chudina, R. I.

TITLE: Employment of Amperometry in the Phase Analysis of Ores and Concentrates for Zinc Compounds (Primeneniye amperometrii pri fazovom analize rud i produktov obogashcheniya na soyedineniya tsinka)

PERIODICAL: Sb. nauchn. tr. Gos. n.-i. tsvetn. met., 1958, Nr 14, pp 103-111

ABSTRACT: The possibility is indicated of the determination of Zn compounds in the products of phase analysis with the aid of the amperometric titration of Zn with a solution of ferrocyanide with a Pt anode. The titration is carried out in an ammonium-acetate medium in the presence of Pb, Cu, and small quantities of Fe. Cu is combined into an ammoniacal and Pb into an acetate compound. Fe oxide is quantitatively precipitated in the form of the hydroxide (basic salt) which does not react with the ferrocyanide. If Fe is present in large amounts, the titration is carried out in an ammonium citrate medium wherein Fe is combined into a stable citrate compound. The anodic polarization of the indicator

Card 1/2

Employment of Amperometry in the Phase Analysis of Ores (cont.)

electrode during amperometric titration permits the determination of Zn in the presence of a vanadate ion which does not produce any anodic reaction. Cr likewise does not produce any electrode reaction on the anode and does not impede the titration of Zn. The amperometric determination of Zn in ores reduces the duration of a phase analysis considerably. Methods are adduced for the determination of the total Zn content and for the Zn contents of adamine and calamine, of smithsonite, descloizite, sphalerite, calamine and smithsonite and Zn in the insoluble residue.

A. M.

1. Zinc compounds—Determination 2. Zinc ores—Volumetric analysis

Card 2/2

SOV/137-58-8-18090

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 8, p 268 (USSR)

AUTHORS: Solntsev, N. I., Leont'yeva, K. D.

TITLE: Analysis of the Phases of Tungsten Ores and Concentrates (Fazovyy analiz vol'framovykh rud i kontsentratov)

PERIODICAL: Sb. nauchn. tr. Gos. n.-i. in-t tsvetn. met., 1958, Nr 14, pp 155-168

ABSTRACT: A method of phase analysis is described which permits one to determine separately the W of tungstite, scheelite, wolframite, and hübnerite. The weighted test sample is treated with NH_4OH (sp gr 0.91) at 60°C during 4 hours and filtered. After the removal of NH_3 by boiling and using Ti^{3+} as a reducing agent the tungstite W in the solution is determined photocolorimetrically with rhodanide. The residue is again dissolved in 1-N $H_2C_2O_4$ solution at 20° during 2 hours and filtered. In the solution scheelite W is determined gravimetrically after decomposing $H_2C_2O_4$ with return aqua regia or colorimetrically in oxalic-acid solution. The residue is treated for 20 min with 2.4-N HCl solution at 100° and filtered. In the solution the hübnerite or wolframite W is determined. If both minerals are present

Card 1/2

Analysis of the Phases of Tungsten Ores (cont.)

then the ratio of the W minerals is determined according to a graph and the W contents of each of them is calculated. In the insoluble residue the remaining W is determined. It is indicated that in minerals in which both hübnerite and wolframite are present the precision of the determination of each of these minerals is decreased.

A. M.

1. Tungsten ores—Analysis 2. Tungsten—Determination

SOLNTSEV, N.I.

Determining oxidized copper bound with minerals of enclosing rocks. Sbor. nauch. trud. Gintsvetmeta no.18:104-108 '61. (MIRA 16:7)

(Copper ores--Analysis)

SOLNTSEV, N.I.; CHUDINA, R.I.; KULICHIKHINA, R.D.

Determination of chrysocolla copper. Sbor. nauch. trud. Gintsvetmeta no.18:109-117 '61. (MIRA 16:7)

(Tailings (Metallurgy)--Analysis)
(Copper--Analysis)

SOLNTSEV, N.I.; CHUDINA, R.I.; SAVINA, Ye.V.; KULICHIKHINA, R.D.

Phase constitution of molybdenum-bearing precipitates obtained from molybdate solutions by reduction with hydrogen. Sbor. nauch. trud. Gintsvetmeta no.18:155-164 '61. (MIRA 16:7)

(Molybdenum--Metallurgy)
(Vapor-liquid equilibrium)

SOLNTSEV, N.I.; CHUDINA, R.I.

Chemical phase analysis of alkali melts for lead compounds. Sbor. nauch. trud. Gintsvetmeta no.19:750-755 '62. (MIRA 16:7)

(Alkalies---Analysis)
(Lead compounds---Analysis)

SOLNTSEV, N.I.; USOVA, L.V.

Separate determination of copper, chalcocite, and bornite in ores; some investigations with digenite and betekhtinite. Sbor. nauch. trud. Gintsvetmeta no.19:756-772 '62. (MIRA 16:7)

(Copper ores—Analysis)

SOLNTSEV, O.A.

SOLNTSEV, O.A.; KUSHNAREVA, T.I.

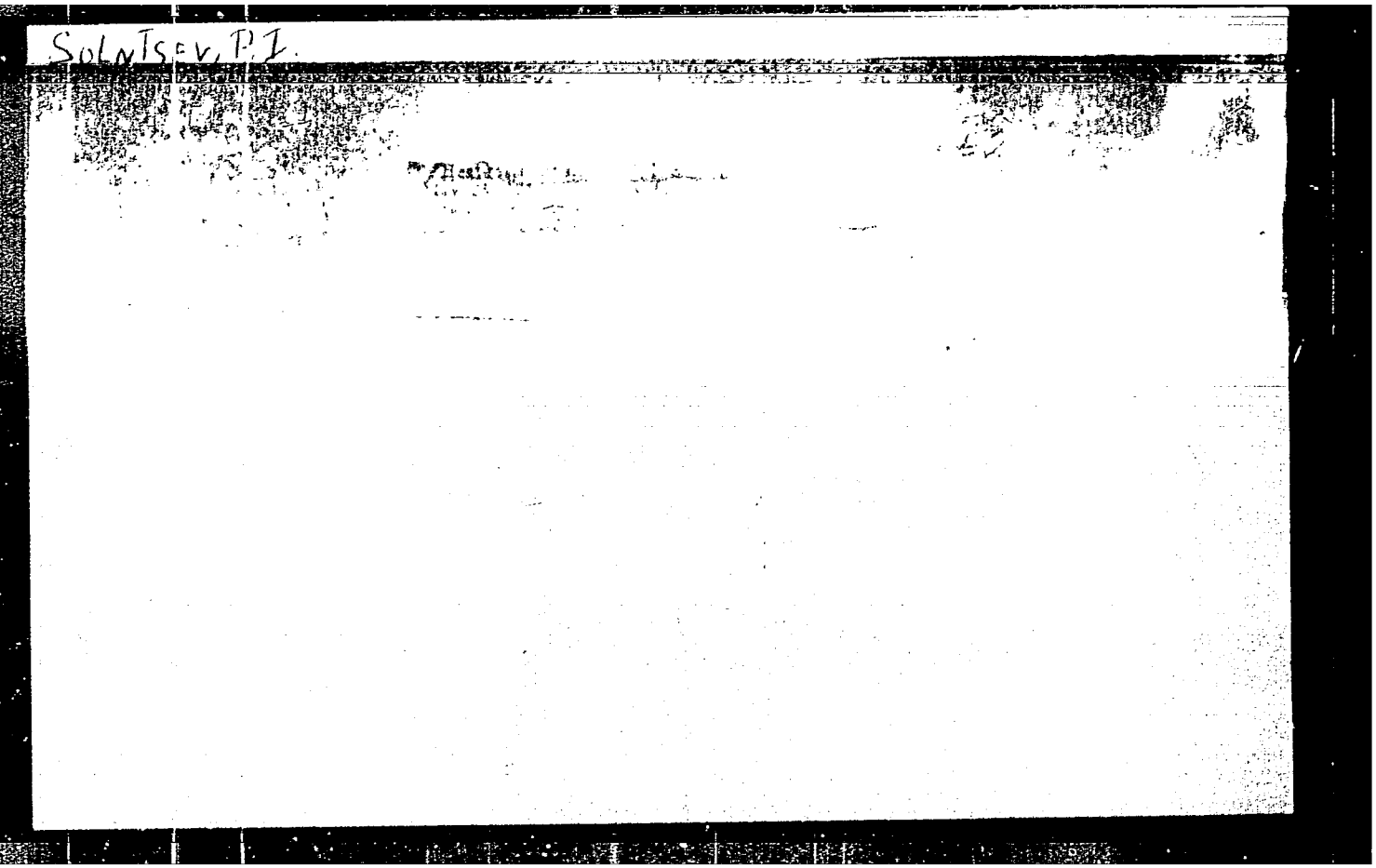
Timan-Pechora area. Trudy VNIGRI no.101:5-48 '57. (MLRA 10:4)
(Timan Ridge--Geology) (Pechora Valley--Geology)

SOLNTSEV, O.A.

Metamorphic schists. Trudy VNIGRI no.133:5-18 '59.
(Timan Ridge--Schists) (MIRA 13:1)

TREBIN, F.A.; BERNSHTEYN, M.A., YELOVNIKOV, S.I.; KULEV, N.A.; SOLNTSEV, O.A.

Prospects for the development of the gas and oil industries of the Komi A.S.S.R. Neft. khoz. 43 no.3:34-39 Mr '65.
(MIRA 18:6)



129-2-9/10

AUTHCR: Mishkevich, R.I., Candidate of Technical Sciences, Solntsev, P.I., Eng., and Smirnov, A.V. Dr. of Technical Sciences.

TITLE: Low Temperature Nitriding of Structural Steel. (Nizkotemperturnoye azotirovaniye konstruktsionnoy stali).

PERIODICAL: Metallovedenie i obrabotka metallov, 1957, No. 2, pp. 49-54 (U.S.S.R.)

ABSTRACT: The experimental work was carried out by engineer R.V. Chudnovskaya and four assistants. The authors investigated the possibility of utilsing a nitriding process at a temperature below 400°C. As a result to the experiments described a low temperature catalytic process of nitriding at 380°C (60 to 80 hours) and 430°C (24 hours) was developed which permits obtaining a Rockwell C hardness of 42 to 50 on structural alloy steel for a layer depth of 0.20 to 0.25 mm; there is a steep decrease in the hardness from the surface towards the core. By using the nitriding processes described here, the development of Type II temper brittleness in nitrided components is eliminated and the obtained nitrided layer is free of any brittleness usually encountered on such layers in 38ХМЮА steel. The process

Card 1/3

TITLE: Low Temperature Nitriding of Structural Steel. (Nizkotemperturnoye azotirovaniye konstruktsionnoy stali).

described here is used in a number of Soviet factories and two of the authors of this paper have an "author's certificate" for this process. Fig. 2 gives the change of the hardness and depth of the nitrided layer as a function of nitriding processes (380, 430 and 480°C with catalysts and 530 and 580°C without catalysts) for four different steels. Fig. 3 gives the change of the micro-hardness along the cross section of the nitrided layer as a function of the nitriding process for 35ХМА steel for equal nitriding processes. Table 1 contains literary data on changes of certain parameters during the reactions. Table 2 gives the Cr content with depth of the nitrided layer for the 35ХН3М steel. Table 3 gives hardness of the nitrided layer in the 15N scale as a function of the temperature and the holding time during nitriding.

The text includes 4 sets of graphs, and 3 tables. There are 5 references, all Russian.

129-2-9/10

TITLE: Low Temperature Nitriding of Structural Steel. (Nizkotemparaturnoye azotirovaniye konstruktsionnoy stali).

ASSOCIATION: ---

PRESENTED BY: ---

SUBMITTED: ---

AVAILABLE: Library of Congress

Card 3/3

PETROV, A.K.; SPERANSKIY, V.G.; KHIZHNICHENKO, A.M.; SHILYAYEV, B.A.; DANILOV, A.K.; BORODULIN, G.M.; ZAMOTAYEV, S.P.; MARKARYANTS, A.A.; SOLNTSEV, P.I.; SMIRNOV, Yu.D.; VAYNBERG, G.S.; OKOROKOV, N.V.; KOLOSOV, M.I.; SKL'KIN, G.S.; MEDOVAR, B.I.; LATASH, Yu.B.; YEFROYMOVICH, Yu.Ye.; VINOGRADOV, V.M.; SVEDE-SHVETS, N.N.; SKOROKHOD, S.D.; KATSEVICH, L.S.; SHTROMBERG, Ya.A.; MIKHAYLOV, O.A.; PATON, B.Ye.

Reports (brief annotations). Biul. TSNIICHM no.18/19:67-68 '57. (MIRA 11:4)

1. Zavod Dneprospetsstal' (for Speranskiy, Borodulin). 2. Chelyabinskiy metallurgicheskiy zavod (for Khizhnichenko). 3. Uralmashzavod (for Zamotayev). 4. Trest "Elektropech'" (for Vaynberg). 5. Moskovskiy institut stali (for Okorokov). 6. TSentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii (for Sel'kin, Svede-Shvets). 7. Institut elektrosvarki AN USSR (for Paton, Medovar, Latash). 8. TSentral'naya laboratoriya avtomatiki (for Yefroymovich, Vinogradov). 9. Gisogneupor (for Skorokhod). 10. Trest "Elektropech'" (for Katsevich). 11. Tbilisskiy nauchno-issledovatel'skiy institut okhrany truda Vsesoyuznogo tsentral'nogo soveta profsoyuzov (for Shtromberg).

(Steel--Metallurgy)

SOV/137-58-7-14457

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 7, p 75 (USSR)

AUTHORS: Markaryants, A.A., Solntsev, P.I., Smirnov, Yu.D.

TITLE: Degasification of Steel Under Vacuum in the Manufacture of Forgings (Degazatsiya stali pod razrezheniyem pri proizvodstve pokovok)

PERIODICAL: Trudy Nauchno-tekhnicheskogo obshchestva chernoy metallurgii, 1957, Vol 18, pp 582-591

ABSTRACT: The degasification of 34KhN3MF steel was accomplished by means of pouring the molten metal from one ladle into another under vacuum; 6 to 7.5 minutes were required to transfer 20-22 tons of metal. The vacuum apparatus was composed of a chamber with an intermediate casting device, a heat exchanger equipped with a filter, three vacuum pumps, and three reserve containers for the creation of preliminary vacuum as well as for accelerated removal of gases. Ingots weighing 18.9 and 13.4 tons, made of steel the properties of which it was desired to investigate, were converted into rotor-type forgings. The macrostructure of the latter exhibited no peculiarities whatever. Compared with stock prepared from regular ingots, the

Card 1/2

SOV/137-58-7-14457

Degasification of Steel Under Vacuum in the Manufacture of Forgings

overall quality of the plastic properties of metal in the internal zones of forgings prepared from vacuum-treated ingots was significantly higher. The influence of the vacuum is most apparent in the magnitude of relative shrinkage. Vacuum degasification of steel reduces the harmful effects of hydrogen, and its employment is advisable when it is desired to effect a leveling of plastic properties of the metal without resorting to protracted periods of tempering.

Ye.K.

1. Steel--Forging 2. Steel--Degasification 3. Vacuum systems--Applications

Card 2/2

SOLNTSEV, P.I.; GERSHKOVICH, V.I.

Durability of press mold plates during the press molding of grog products. Ogneupory 27 no.3:120-126 '62. (MIRA 15:3)

1. Leningradskiy korablestroitel'nyy institut (for Solntsev).
2. Borovichskiy kombinat ogneuporov (for Gershkovich).
(Plates, Iron and steel--Testing) (Refractory materials)

Solntsev, P.I.

19

PHASE I BOOK EXPLOITATION SOV/6162

Trubin, V. N., Candidate of Technical Sciences, and I. Ya. Tarnovskiy, Doctor of Technical Sciences, eds.

Kovka krupnykh pokovok; rezul'taty issledovaniya tekhnologicheskikh rezhimov (Production of Heavy Forgings; Results of a Study of Technological Methods). Moscow, Mashgiz, 1962. 223 p. 3800 copies printed.

Reviewer: O. A. Ganago, Candidate of Technical Sciences; Tech. Ed.: N. A. Dugina; Executive Ed. of Ural-Siberian Department (Mashgiz): E. L. Kolosova, Engineer.

PURPOSE: This book is intended for engineering personnel of forging shops and engineering and design offices at heavy-machinery plants, as well as for those working in scientific-research and planning organizations. It may also be useful to students at higher educational establishments.

Card 1/6

Production of Heavy Forgings; (Cont.)

COVERAGE: The book reviews technological problems of forging large steel ingots. The effect of reduction and conditions of deformation on the quality of forgings is discussed on the basis of research work done at heavy-machinery plants of the USSR. The book offers practical suggestions on improving the quality of large forgings and reducing the amount of labor required to produce them. I. Ya. Chernikhova, V. I. Tarnovskiy, and V. P. Bakharev took part in preparing the copy for publication. There are 193 references, mostly Soviet.

TABLE OF CONTENTS:

Foreword 3

Ch. I. Effect of Technological Parameters of Forging on the Quality of Forgings 5

Deformations and stresses during drawing and upsetting operations (Tarnovskiy, I. Ya., and V. N. Trubin) 5

Forging of 35-ton ingots (Naumenko, V. G., and D. I. Filimonov) 92
Optimum reductions in forging 5- to 35-ton ingots 102

Ch. III. Changes in Metal Quality Occurring During the Drawing of Differently Shaped Structural Alloy-Steel Ingots
General principles 104
Forging of long ingots (3.5, 6.9, and 10.8 tons) of 36KhN3MF steel (Brenman, M. I., and P. I. Solntsev) 104
Forging of differently shaped 6.9-ton 36KhN3MF-steel ingots (Brenman, M. I., and P. I. Solntsev) 107
Forging of large (up to 42 tons) alloy-steel ingots (Golubyatnikov, N. K.) 124
Optimum reduction in forging alloy-steel ingots 136

Ch. IV. Effect of Upsetting on the Quality of Forgings 143
Basic principles 145
145

ACC NR: AT6036655 SOURCE CODE: UR/0000/66/000/000/0282/0283

AUTHOR: Nozzhukhin, A. S.; Kuznetsov, V. I.; Kushakovskaya, M. S.; Makhalova, O.K; Goryachev, I. A.; Solntsev, S. A.; Shostak, V. I.; Kudrin, I. D.

ORG: none

TITLE: Effect of radioprotective drugs on the functional condition of the human organism [Paper presented at the Conference on Problems of Space Medicine held in Moscow from 24-27 May 1966]

SOURCE: Konferentsiya po problemam kosmicheskoy meditsiny, 1966. Problemy kosmicheskoy meditsiny. (Problems of space medicine); materialy konferentsii, Moscow, 1966, 282-283

TOPIC TAGS: radiation protection, space pharmacology, cosmic radiation biologic effect, human physiology, space medicine, motion sickness

ABSTRACT:

The effect of cystamine on the functional condition of the human organism was studied on the the basis of the hypothesis of A. V. Lebedinskiy). Five hundred heathy volunteers were used. The maximum permissible dose of cystamine was established as a dose of 1.2 [units not given] per single application, or 0.8 units every 6 hr for 24 hr, or 0.6—0.8 units once a day for a month. Administration of cystamine in the doses indicated did not cause any significant changes in work capacity, hematopoiesis, or in cardiovascu-

Card 1/2

ACC NR: AT6036655

lar, respiratory, digestive, excretory, or nervous system function. However, administration of cystamine did lead to complaints of lethargy and brief unpleasant sensations in the epigastrium in 10% of the cases. After administration of the drug some increase in sensitivity to motion sickness and to the effect of high temperatures was noted among subjects.

[W. A. No. 22; ATD Report 66-116]

SUB CODE: 06 / SUBM DATE: 00May66

Card 2/2

ZHUCHIN, D.I.; KONSTANTINOV, S.V.; PROKOFIYEVSKIY, G.N.; SALTYKOV, S.G.; KHARKHARDIN, L.S.; KLENDO, N.A., inzh., nauchn. red.; PEREVALYUK, N.V., red.

[Rural construction in the Virgin Territory] Sel'skoe stroitel'stvo v TSelinnom krae. Moskva, Stroiizdat, 1964. 89 p. (MIRA 17:9)

SOLNTSEV, S.S.

We shall meet the 22d Congress of the CPSU with high production indexes. Gidroliz. i lesokhim. prom. 14 no.6:18-19 '61. (MIRA 14:9)

1. Khorskiy gidroliznyy zavod.
(Khor--Hydrolysis)

LOKSHIN, S.V., inzh.; SOLNTSEV, S.V., inzh.; TANYGIN, B.S., inzh.

Tower cranes made of standardized units. Mekh. stroi. 19 no.8:16-18 Ag '62. (MIRA 16:7)

(Cranes, Derricks, Etc.)

IVANOV, Boris Nikolayevich; TKALIN, Ivan Mikhaylovich; SOLNTSEV, Vyacheslav Aleksandrovich; SHTRUM, Viktor L'vovich; SHNEYDER, Roman Izrayle-vich; MAYANSKIY, Iosif Isaakovich; BORISOVA, Volya Petrovna; ARUTYU-NOV, V.O., retsenzent; BLEKHSHTEYN, L.I., red.; SOBOLEVA, Ye.M., tekhn.red.

[Technology of the manufacture of electric instruments] Tekhnolo-giia elektropriborostroeniia. Moskva, Gos.energ.izd-vo, 1959. (MIRA 13:4)
590 p.
(Electric apparatus and appliances)

L 44290-66 EWT(m)/EWP(j), WW/JW/RM
ACC NR: AP6026152 SOURCE CODE: UR/0076/66/040/007/1650/1652

AUTHOR: Shirokikh, P. K.; Bystrov, V. M.; Ponomarev, V. V.; Solntsev, V. A. 58 B

ORG: Moscow University im. M. V. Lomonosov, Chemistry Department (Moskovskiy gosudarstvennyy universitet, Khimicheskiy fakul'tet)

TITLE: Heats of combustion and enthalpies of formation of some acetylenic amines

SOURCE: Zhurnal fizicheskoy khimii, v. 40, no. 7, 1966, 1650-1652

TOPIC TAGS: acetylenic amine, heat of combustion, enthalpy of formation

ABSTRACT: The authors have prepared high-purity samples of the following acetylenic amines:

$CH{\equiv}OCH_2NH_2$
$CH{\equiv}OCH_2N(CH_3)_2$
$(CH{\equiv}CCH_2)_2NCH_3$
$(CH{\equiv}CCH_2)_3N$
$CH_2{=}CHC{\equiv}CCH_2N(CH_3)_2$
$(CH_3)_2NCH_2C{\equiv}CCH_2N(CH_3)_2$

The heats of combustion of these amines were determined calorimetrically by a procedure described in the source. The values of the heats of

Card 1/3 UDC: 541.11

combustion (after the necessary corrections) and the calculated values of enthalpies of formation of the amines are given in Table 1. The calculation procedure is explained in the source. Orig. art. has: 2 tables. [BO]

Table 1.

Compound	-ΔU, cal/g. V = const; T = 293.16C	-ΔH, kcal/mol. p = const; T = 293.16C	ΔH°form kcal/mol T = 293.16C
C_3H_9N	9115,7 9105,3 9110,1 Average 9110,4±3,6	502,2±0,2	49,2±0,2
$C_4H_{11}N$	9916,7 9903,9 9914,0 Average 9911,5±5,1	823,0±0,4	47,1±0,4
C_7H_9N	10040,5 10017,8 10048,6 10044,1	1077,4±0,3	111,4±0,3

Card 2/3

06474
SOV/141-1-5-6-18/28

AUTHORS: Solntsev, V.A. and Tager, A.S.

TITLE: Theory of the Interaction of Two Electron Beams Moving in a Periodic Electrostatic Field

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, 1958, Vol 1, Nr 5-6, pp 127 - 138 (USSR)

ABSTRACT: The problem discussed was partly investigated by the authors in two earlier works (Refs 1 and 2). The analysis given is carried out under the following assumptions: 1) the electron trajectories are rectilinear; 2) the constant component of the electron space charge is compensated by ions; 3) the excitation of the higher-order space charge waves in the beam is neglected and, 4) both beams are of the single-velocity type. The two electron beams are fully intermixed and move along the axis z with velocities $v^{(1)}(z)$ and $v^{(2)}(z)$; the velocities change with a period L. This change of velocities can be secured by employing a periodic electrostatic field. The equations of the high-frequency components of the current

Card1/5

Theory of the Interaction of Two Electron Beams Moving in a Periodic Electrostatic Field

densities $i^{(1)}$ and $i^{(2)}$ in the two beams are described by (see Refs 1 and 2):

$$\frac{d^2 i^{(1,2)}}{dz^2} + 2j \frac{\omega}{v^{(1,2)}} \frac{di^{(1,2)}}{dz} - \frac{\omega^2}{(v^{(1,2)})^2} i^{(1,2)} + \frac{1}{v^{(1,2)}} \frac{dv^{(1,2)}}{dz} \left(2j \frac{\omega}{v^{(1,2)}} i^{(1,2)} + 3 \frac{di^{(1,2)}}{dz} \right) = \frac{j\omega J^{(1,2)} \eta}{(v^{(1,2)})^3} E(z) \qquad (4)$$

where $E(z)$ is the longitudinal component of the high-frequency field, J is the constant component of the current density and $\eta = e/m$. The solution of Eq (4) is in the form of Eq (6), where γ denotes the propagation constant for the zero space harmonic of the current. By introducing new variables, defined by Eq (7), Eq (4) can be

Theory of the Interaction of Two Electron Beams Moving in a Periodic Electrostatic Field

written as Eq (8). The integration of this leads to Eq (9). The solution of this is in the form of Eq (10). On the other hand, Eq (6) may be written as Eq (11). Now, Eq (9) can be solved in terms of the series defined by Eqs (12) and (13), where Γ_k and Γa_k are given by Eqs (13a) and (13b). By substituting the series of Eqs (11) and (13) into Eq (9) and carrying out the integration, an infinite system of linear algebraic equations is obtained. These relate the amplitudes $c_n^{(1)}$ and $c_n^{(2)}$ and are given by Eqs (15). If the system is to give significant solutions, its determinant should be equal to zero, as defined by Eq (16). This represents a general equation of the dispersion of two intermixed electron beams. If the space charge is compratively small, the system obeys Eqs (18) and (19). The dispersion equation is, therefore, given by Eq (20). If the average plasma frequencies of the waves in the beams are equal, Eq (20) is represented by Eq (22); the solution of this is in the form of Eq (23). The solution

Theory of the Interaction of Two Electron Beams Moving in a Periodic Electrostatic Field

is plotted in Figure 2 for various values of a_{-k}. The relative width of the interaction bands is given by Eq (24a). On the other hand, the maximum amplification in db per unit length of the beam is expressed by Eq (26a). Eqs (24) and (26) show that the efficiency of the interaction of the electron beams depends on the coefficients a_k. It is shown in the appendix to the paper that the coefficient a_k, for a system with sinusoidally varying electrostatic potential, is given by Eq (28), where φ_s is defined by Eq (29). On the other hand, for an electrostatic system with a stepwise change of the potential (Figure 4), a_k is given by Eq (30), where φ_c is defined by Eq (31). The dependence of a_k on φ_c is illustrated in Figure 5. Normally, the spread of the electron velocities (which was not taken into account in the above analysis) has a considerable influence on the

Theory of the Interaction of Two Electron Beams Moving in a Periodic Electrostatic Field

characteristics of a two-beam tube. This effect can be evaluated approximately (M.I. Rodak - Ref 6). The electron velocity distribution function is given by Eq (32), where N denotes the density of the electrons, while v_T is a parameter characterising the spread of the electron velocities. The dispersion equation for v_T can be written as Eq (33). On the basis of the above analysis, it is concluded that the introduction of a periodic change in the velocity of the electrons in a two-beam tube leads to the appearance of the higher-order interaction regions; these regions lie in the vicinity of the frequencies which are practically independent of the magnitude of the space charge of the beam. There are 5 figures and 7 references, of which 3 are English and 4 Soviet.

SUBMITTED: May 12, 1958

Card 5/5

SUBMITTED: December 7, 1957

AUTHORS: Golubkov, P.V. and Tsimring, Sh. Ye. SOV/109-3-3-22/23

TITLE: The Second All-Union Conference on Radioelectronics of the Ministry of Higher Education of the USSR (Vtoraya vsesoyuznaya konferentsiya MVO SSSR po radioelektronike) - News Item

PERIODICAL: Radiotekhnika i Elektronika, 1958, Vol 3, Nr 3, pp 440 - 444 (USSR)

ABSTRACT: The conference took place during September 23 - 29, 1957, at Saratovskiy gosudarstvennyy universitet imeni N.G. Chernyshevskogo (Saratov State University imeni N.G. Chernyshevskiy). Apart from the universities, the conference was attended by the representatives of some scientific research institutes of the Soviet and Ukrainian Academies of Science, various industrial establishments and the interested ministries. This arrangement stimulated the discussion and evaluation of the papers presented and permitted the determination of plans for the future research to be carried out by the universities in the field of radioelectronics. "Comparison of the Efficiency of Certain Methods of the Generation of Millimetre Waves" by A.S. Tager and "Application of the Higher Spatial Harmonics of the Electromagnetic Field in Slowing-down Systems" by A.S. Tager and V.A. Solntsev.

A number of the papers in the Electrodynamics Section dealt with the complex phenomena appearing at the junctions of waveguides. Here, it is necessary to mention the papers: "The Calculation of Junctions" by Ya.M. Turovar;

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A001/A001

9.1300
9.2585

Translation from: Referativnyy zhurnal, Fisika, 1960, No. 11, p. 344, # 30759

AUTHORS: Solntsev, V.A., Tager, A.S.

TITLE: Electronic Waves in a Periodic Electrostatic Field and Their Interaction With the Field of Waveguide Systems

PERIODICAL: Tr. Konferentsii po elektronike SVCh, 1957, Moscow-Leningrad, Gosenergoizdat, 1959, pp. 112-132

TEXT: The propagation of a weak high-frequency signal in a rectilinear electronic flux with the velocity of electrons varying periodically along the beam was theoretically studied. Space harmonics of the current are considered, conditions of increasing their amplitudes are obtained at the motion of the beam in free space. The interaction of current harmonics with the electromagnetic field of the waveguide system was studied by the methods of the weak signal theory. The analysis was performed with allowance for the reverse effect of a HF field on the electronic beam. It is shown that an effective interaction of the electronic beam with the fast waves of the waveguide system can be brought about at certain relations between the velocity of electrons and the period of its variation. The

Card 1/2

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Electronic Waves in a Periodic Electrostatic Field and Their Interaction With the Field of Waveguide Systems

effectiveness of such a device (electrostatic undulator) was compared, within the framework of the linear theory, with the effectiveness of the instrument of ЛБВ (LBV) or ЛОВ (LOV) type; it is shown that the non-relativistic undulator does not yield a gain in maximum frequency. Conditions are specified under which an employment of periodic electrostatic focusing in LBV does not result in deterioration of their characteristics.

A.S. Tager

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

Card 2/2

06340
SOV/141-2-1-12/19

AUTHORS: Solntsev, V.A. and Tager, A.S.

TITLE: Periodic Interaction of Electron Streams

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, 1959, Vol 2, Nr 1, pp 101 - 110 (USSR)

ABSTRACT: It is shown that where interaction takes place, non-evanescent processes occur not only in the fundamental band but also in narrow, higher-frequency intervals. The effect is independent of current density but is limited by dispersion in electron velocity. Previous analyses have most often been concerned with two electron streams having different, constant velocities. The forms of interaction studied here are shown in Figure 1. In the first three variants, parameters of the electron stream change periodically; in Figure 1a, velocity; Figure 1б, stream diameter; Figure 1B, drift-tube diameter. In the structures of Figure 1г the interaction is modified by slots in a screen and in Figure 1д by a "slalom" focusing arrangement. With continuous interaction the maximum working frequency depends on plasma frequency and velocity dispersion as discussed in Ref 1 (V.M. Lopukhin). The reason for the existence of discrete

Card1/3

Periodic Interaction of Electron Streams

bands of frequency in the interaction with a periodic structure is best seen in the case of Figure 1r. If the streams only interact over the length of a slot then the phase change of the faster space-charge wave between one slot and the next must equal that of the slower wave or differ from it by $2\pi k$, where k is a whole number. The simple formula quoted in Ref 1 then becomes Eq (3). An alternative viewpoint is that the higher order bands arise from synchronism between, e.g. the m-th spatial harmonic of the slower beam with the n-th of the faster one. If the relation between current density and stream cross-section is Eq (8) and replacing the high-frequency component of velocity, current density and space charge by equivalent quantities in Eq (11), the relation between equivalent current density and longitudinal electric field is Eq (15). The longitudinal electric fields induced in one stream by current in another are Eq (16). If thin streams are considered, the expression (A.6) derived in the appendix allows for the reduction in the axial component of Coulomb force in comparison with the

SOLNTSEV, V. A., Cand Phys-Math Sci — (diss) "Propagation of waves in periodic electron streams and their interaction with the electromagnetic field of waveguide systems," Moscow, 1960, 18 pp (Gorkiy State Univ im. N. I. Lobachevskiy) (KL, 35-60, 123)

S/109/60/005/07/008/024
E140/E163

9.1300

AUTHORS: Solntsev, V.A., and Tager, A.S.

TITLE: Excitation of Waveguide Systems by an Electron Stream with Prescribed Modulation

PERIODICAL: Radiotekhnika i elektronika, Vol 5, No 7, 1960, pp 1100-1111 (USSR)

ABSTRACT: In the majority of published work on the theory of waveguide excitation by prescribed currents, monochromatic currents with prescribed space distribution are considered. The most general theory of monochromatic current excitation of waveguides is given by Vaynshteyn (Refs 1, 2). On the other hand, in the theory of the Cherenkov and Doppler effects in waveguide systems, the radiation of a point charge or an elementary electric dipole moving rectilinearly along the waveguide is considered. The spectral density of the current connected with such a charge or dipole is constant over a very wide band of frequencies. In real electron devices the current spectrum has a complex character and does not reduce to either of the cases considered. The basic formulae obtained by the two methods differ from each other in principle. The present work

Card 1/2

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S/141/61/004/004/015/024
E202/E435

9,2572 (1144, 1139)

AUTHOR: Solntsev, V.A.

TITLE: Parametric amplification and frequency conversion in a wide electron beam

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, v.4, no.4, 1961, 712-725

TEXT: The author examines theoretically the propagation of a weak HF signal in a wide rectilinear electron beam conforming to the travelling-wave law. The background for the analytical treatment is developed from the first principles and the formal analysis is used to explain the functioning and properties of these time-dependent amplifiers and mixers. Great attention is given to the most outstanding feature of these amplifiers, viz the low noise level. The whole problem is reduced to a solution of an ordinary differential equation of the second order

$$\frac{d^2V_\xi}{d\xi^2} + \frac{\beta_p^2(\xi)}{[1-u/v_0(\xi)]^2} V_\xi = 0, \qquad (11)$$

where

$$\beta_p(\xi) = \omega_p(\xi)/v_0(\xi) = \sqrt{\eta J_0(\xi)/\varepsilon_0 v_0^3(\xi)},$$

Card 1/4

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E202/E435

similar to an equation of a heterogeneous long line. This simplification is achieved by considering the time of arrival of the wave packets into a long line, instead of the "running time", and by transformation into a moving coordinates system. The above equation leads to general expressions for the HF voltage and the current respectively, viz

$$V(z, t) = \frac{1}{1-u/v_0(z-ut)} \{A[t-t_0(z, t)]\, a(z-ut) + B[t-t_0(z, t)]\, b(z-ut)\}; \quad (12)$$

$$\tilde{i}(z, t) = -\varepsilon_0 \left\{ \frac{\partial A[t-t_0(z, t)]}{\partial t} \cdot \frac{\partial a(z-ut)}{\partial z} + \frac{\partial B[t-t_0(z, t)]}{\partial t} \times \right.$$

$$\left. \times \frac{\partial b(z-ut)}{\partial z} + u \frac{\beta_p^2(z-ut)}{[1-u/v_0(z-ut)]^2} \{A[t-t_0(z, t)]\, a(z-ut) + B[t-t_0(z, t)]\, b(z-ut)\} \right\}. \quad (12a)$$

Parametric amplification ...

in which A and B, are arbitrary functions solved in the usual manner from the boundary conditions. The latter are found from the geometry of the problem and result in a system of two differential equations of the first order. Ultimately these are solved and re-substituted giving all the (physically) admissible solutions. Having solved the main problem, the author considers a special case, viz that of parametric amplification and frequency conversion with a weak sinusoidal signal. Here the general solution is given by taking account of the periodicity. Finally, a detailed analysis of noise is given and it is found that the minimum noise coefficient for a parametric amplifier of this type occurs when the electron gun of the amplifier is designed in such a way as to suppress the frequency equal to 3 times the amplified frequency. Acknowledgments are expressed to A.S.Tager for advice. There are 2 tables and 9 references: 5 Soviet and 4 non-Soviet. The references to English language publications read as follows: Ref.1: W.H.Louisell, C.Quate, Proc. IRE, v.46, 707 (1958); Ref.2: W.H.Louisell, J. of Electronics and Control, v.6, 1 (1959); Ref.6: L.M.Manley, H.E.Rowe, Proc. IRE, v.44,

Card 3/4

30683
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E202/E435

Parametric amplification ...

904 (1956); Ref.7: R.W.Gould, Proc. IRE, v.47, 419 (1959).

SUBMITTED: October 11, 1960

4

Card 4/4

OVCHAROV, V.T.; SOLNTSEV, V.A.

Simplified nonlinear equations of a traveling-wave tube.
Radiotekh. i elektron. 7 no.11:1931-1940 N '62. (MIRA 15:11)
(Traveling-wave tubes)

44189

S/109/62/007/012/005/021
D266/D308

9432-0

AUTHORS: Ovcharov, V. T. and Solntsev, V. A.

TITLE: Application of simplified nonlinear equations of a travelling wave tube to O type tubes

PERIODICAL: Radiotekhnika i elektronika, v. 7, no. 12, 1962, 2013-2023

TEXT: Simplified treatment of O type tubes by the authors (Radiotekhnika i elektronika, v. 7, no. 11, 1962, *1931) leads to numerical results very similar to those obtained by earlier investigators. The transit time is expanded in a Fourier series and the current is obtained in closed form if higher order terms of the expansion are neglected. The approximations are claimed (Abstracter's note: The effect of electron-overtaking is not analyzed) to be valid up to arbitrary values of a.c., but they lose validity for large velocity modulation. The nonlinear partial differential equation system is reduced to an ordinary differential equation system which can be easily solved on a computer. Comparison with more

Card 1/2 * Not abstracted

rigorous TWT calculations shows that the simplified theory correctly predicts the weak nonlinear effects, i.e. the presence of gain for larger values of b (Pierce's parameter), absence of gain for large input signals and large losses, etc. The equations are used with slight modification for describing the properties of BWO and klystrons. The authors believe that the equations can be further simplified and analystical solutions - suitable for the design of tubes - can be obtained. In the present paper approximate analytical solutions are confined to bunching in klystrons. There are 16 figures.

SUBMITTED: January 17, 1962

AVDUYEVSKIY, V.F.; SOLNTSEV, V.A.

Selecting operational frequency in measuring by the screen method. Izm.tekh. no.9:8-10 S '65. (MIRA 18:10)

SOLNTSEV, V.A.; MCHEDLIDZE, G.G.

Simplified nonlinear equations of a traveling-wave tube at finite values of the amplification parameter. Radiotekh. i elektron. 11 no.1:58-67 Ja '66. (MIRA 19:1)

1. Submitted September 26, 1964.

SOLNTSEV, V.A.

Solution of the characteristics equation of a traveling-wave tube with a large space charge parameter. Radiotekh. i elektron. 11 no.1:68-74 Ja '66. (MIRA 19:1)

1. September 26, 1964.

SOLNTSEV, V.G., inzhener; GRITSEVETS, I.I.: MERENKOV, A.S.

Some problems of producing excavators and cranes in the sixth five-year plan. Stroi. i dorl mashinostr. 1 no.12:3-7 D '56. (MLRA 10:1)

(Excavating machinery) (Cranes, derricks, etc)

Solntsev, V. M.

21(8) SOV/89-6-5-18/33

AUTHORS: Bak, M. A., Bugorkov, S. S., Petrzhak, K. A., Il'inskaya, T. A., Petrov, Yu. G., Vanatskiy, V. N., Solntsev, V. M., Sorokina, A. V.

TITLE: The Yield of Ru^{103} and Ru^{106} in the Fission of U^{235} and Pu^{239} by Fast Neutrons (Vykhody Ru^{103} i Ru^{106} pri delenii U^{235} i Pu^{239} bystrymi neytronami)

PERIODICAL: Atomnaya energiya, 1959, Vol 6, Nr 5, pp 577-578 (USSR)

ABSTRACT: The yields of Ru^{103} and Ru^{106} were determined by means of a relative measurement with respect to the Mo^{99}-yield. Uranium oxide (U^{235}-enrichment >90 %) and plutonium oxide were pressed in aluminum caskets. The latter were surrounded by a 1 mm thick Cd-sheet, and the whole was packed in a firmly closed aluminum cylinder. The cavities are filled with boron carbide (all-round thickness at least 2 cm). Two samples were made from uranium and 4 from plutonium, and were irradiated for 52.2 hours in a water-filled beam tube of the heavy-water reactor of the AS SSSR (AS USSR). The neutron spectrum is characterized by the ratio

Card 1/3

The Yield of Ru^{103} and Ru^{106} in the Fission of U^{235} and Pu^{239} by Fast Neutrons SOV/89-6-5-18/33

$E_n > 1.5$ Mev : $E_n > 2.5$ Mev = 4.0 ± 1.5. From the irradiated samples Ru and Mo was chemically separated, after which thin β-preparations (thickness < 20 μg/cm^2) were produced on an organic foil; their activity was measured by means of a 4π-counter. An aluminum filter of 3 mg/cm^2 thickness is attached, so that only the β-rays of Ru^{103} and Ru^{106} reach the counter. Determination of the absolute activity of Ru^{103} and Ru^{106} was carried out by means of further filtering and recording the absorption curves of these radiating bodies with the same numbers. The momentum values measured make it possible, from 2 equations with 2 unknown ratios to calculate the latter. Herefrom it is possible to calculate the absolute fractions. From the latter and from the measured absolute Mo^{99}-β-activity (which will be dealt with by a publication in the near future) it was possible to calculate the following yields:

Card 2/3

The Yield of Ru^{103} and Ru^{106} in the Fission of U^{235} and Pu^{239} by Fast Neutrons

SOV/89-6-5-18/33

	Ru^{103}	Ru^{106}
Pu^{239}(n,f)	5.7 ± 1.0 %	4.6 ± 0.8 %
U^{235} (n,f)	3.2 ± 0.6 %	0.71 ± 0.12 %

There are 1 figure, 1 table, and 1 Soviet reference.

SUBMITTED: December 22, 1958

Card 3/3

FEYERMARK, M.M., inzh.; EBIN, L.Ye., doktor tekhn.nauk, LEVIN, M.S., kand. tekhn.nauk, ZUL', N.M., kand.tekhn.nauk, SOLNTSEV, V.M., inzh., KORSHUNOV, A.P., inzh.

Grounding of the neutral line in 6 and 10 kv. overhead networks. Energetik 8 no.11:12-16 N '60. (MIRA 13:12)

1. UGPI "Tyazhpromelektroproyekt" (for Feyermark). 2. Vsesoyuznyy nauchno-issledovatel'skiy institut elektrifikatsii sel'skogo khozyaystva (for Ebin, Levin, Zul'). 3. Giprosel'elektro (for Solntsev, Korshunov).

(Electric power distribution)
(Electric currents--Grounding)

KORSHUNOV, A.P., inzh.; SOLNTSEV, V.M., inzh.

Designing of efficient power lines with 6 to 10 kilovolt rating for the electrification of villages. Elek.sta. 31 no.4:71-76 Ap '60. (MIRA 13:7)
(Electric lines--Overhead)
(Rural electrification)

23000

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E111/E452

21.3100

AUTHORS: Solntsev, V.M. and Tolmachev, Yu.M.

TITLE: The reaction of the solution of U_3O_8 in sulphuric acid
I. Kinetics of some reactions with powders

PERIODICAL: Radiokhimiya, 1961, Vol.3, No.2, pp.187-194

TEXT: The present work was devoted to the examination of the formal kinetics of reactions of powders in solution. The authors consider first reactions whose rates $-dm/dt$ do not depend on diffusion factors but only, for a given value of the rate constant K, on the phase contact area S. Here m is the mass of material at time t. Assuming that all the particles of a powder are identical in size and shape, the authors derive

$$m_0^{\frac{1}{3}} - m^{\frac{1}{3}} = zt. \qquad (5)$$

where m_0 is the mass when $t = 0$ and

$$z = k\frac{S_0}{3m_0^{\frac{2}{3}}}. \qquad (6)$$

Card 1/5

The reaction of the solution ...

S_o being the surface when $t = 0$. A form of this relation is used in studying reactions of solids with gases (Ref.2: R.L.Farrar, H.A.Smith, J.Phys.Chem., 59, 7, 763 (1955)). The authors do not consider the recent treatment of P.Barret, R.Hartoulari and R.Perret (Ref.1: C.R., 248, 20, 2862 (1959)) to be applicable. The authors used Eq.(5) in studying the solution of U_3O_8 in sulphuric acid at a temperature controlled with an accuracy of up to 0.1°C. The oxide was prepared by heating uranium peroxide at 800°C and U^{233} was added to give nominally 10^4 alpha-particles per min per mg of oxide. Samples of solution were taken periodically from the reaction vessel, the solids were removed by centrifuging and the alpha-activity of the residue on drying the solution on a platinum disc was then measured. Without mixing, the reaction was found to be of the second order with respect to the acid concentration C (in mols) for C = 4 - 10 mols. Fig.1 shows the relation between $(m_o^{1/3} - m^{1/3})$ in mg as a function of time (minutes) for the solution of U_3O_8 in 6 M H_2SO_4 at 60°C. The results indicate that the powder form is suitable for the investigation of solution kinetics. For powders with mixed sizes a non-linear relation is obtained between $m^{1/3}$ and t: this can be resolved into a

Card 2/5

The reaction of the solution ...

series of straight lines characteristic of the various fractions. This treatment gives for the rate constant k the equation

$$k = \frac{\sum 3s_n m_{0,n}^{\frac{2}{3}}}{q}. \qquad (11)$$

where q is the total surface of all fractions and n is the number of the fractions. The authors have used this treatment to analyse the published data on the solution of various samples of MgO in dilute sulphuric acid; these data do not conform to Eq.(5) because the samples consisted of mixtures of size fractions. Assuming that dye adsorption per unit surface of MgO in the work was independent of the way in which the oxide was produced and was the same for all samples, the authors obtain the following

$$fk = k' = \frac{\sum 3s_n m_{0,n}^{\frac{2}{3}}}{p}. \qquad (13)$$

Card 3/5

The reaction of the solution ...

in which f is a proportionality factor and p is the percent absorption of dye. This can be used to determine rate constants for the solution of powders of mixed dispersion provided the total powder surface is known. The authors next consider reactions controlled by diffusion through a layer of reaction product. They assume, for simplicity, that the layer does not alter the particle volume and obtain the equation of W. Iander, (Z.anorg. u. allgem. Chem., 173, 1, 1 (1927). Next they assume that particle-volume changes in the reaction and obtain an equation

$$[(m_0^2 + m\beta)^{1/3} - m^{1/3}]^2 = \frac{2kt}{f} = k_1 t. \qquad (21)$$

Here

$$\alpha = \frac{M_0 d_p}{d_0 M_p}, \qquad (20)$$

M_o and d_o being the molecular weight and density, respectively,

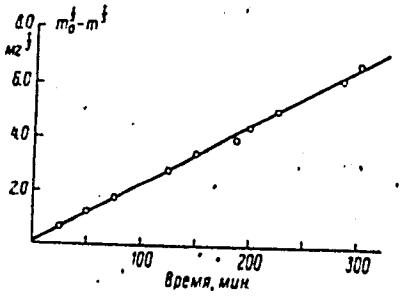
S/186/61/003/002/010/018
E111/E452

The reaction of the solution ...

of the original substance, M_p and d_p those of the product $\beta = 1 - \alpha$. Eq.(21) is a more accurate rate expression than that of Iander and becomes identical to it if $\alpha = 1$. There are 2 figures, 4 tables and 4 non-Soviet-bloc references. The reference to the English language publication reads as follows: R.L.Farrar, H.A.Smith, J.Phys.Chem., 59, 7, 763 (1955).

SUBMITTED: April 21, 1960

Fig.1.



Card 5/5

29820
S/020/61/140/006/017/030
B103/B101

21.4100

AUTHORS: Blinova, N. I., Solntsev, V. M., and Tolmachev, Yu. M.

TITLE: Some particularities of the interaction between uranium mixed oxide and acids

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 140, no. 6, 1961, 1314-1316

TEXT: The authors studied the discrepancy between the initial and final UO_2^{2+} : U^{4+} ion ratios on dissolution of uranium mixed oxide in acids without oxidizers. This ratio is 2:1 on final solution, whereas in the initial stage, mainly U(VI) is dissolved, so that the ratio U(VI) : U(IV) is much higher than 2:1. High-purity U_3O_8 powder was dissolved in CO_2 atmosphere at constant temperatures (25 or 90°C) in a) sulfuric, b) perchloric, and c) acetic acids. The solutions were analyzed after 100 min (H_2SO_4), 10 min ($HClO_4$), and 40 min (CH_3COOH). U(IV) was determined in the solution by titrating with $KMnO_4$, the total quantity of U by

Card 1/4

precipitation as ammonium diuranate and igniting to U_3O_8. Ratios of 76 : 1 in a), 60 :1 in b), and 300 : 1 in c) were found for the beginning solution of U_3O_8. After 2 hr, the ratio U(VI) : U(IV) in the solution became 1 : 1 and remained constant, until dissolving was completed. A precipitation is deposited in the final stage of dissolving, in which the ratio varies between 2:1 and 1:1. Once the ratio of 1:1 is reached in the solution as well as in the precipitation, the composition of the precipitation does not change anymore. This is a dark, slightly violet colored powder which becomes grey-green on drying in air, the ratio U(VI) : U(IV) approximating 2:1. A ratio of 1:1 is maintained for 48 hr in the powder, when the water is saturated with CO_2. When U_3O_8 is dissolved in HNO_3, a stable ratio of 2:1 is conserved in the powder during the entire time of dissolving. It was found that the uranium atoms in U_3O_8 do not play the same role. It is difficult to find a different explanation for the varying U(VI) : U(IV) ratios in the solution and in the precipitation during the reaction of U_3O_8 with acids. It is presumed that U_2O_5 which is

possibly a compound of U(V) forms in the final stage of U_3O_8 solution in acids. Probably, U(V) disproportions to U(VI) and U(IV) in a ratio of 1:1, when it is dissolved in acids. It might be possible, however, that U_2O_5 is not a compound of U(V), but for instance $UO_3 \cdot UO_2$. When it is dissolved in acids, a ratio of U(VI) : U(IV) = 1:1 will result. In this case, U_3O_8 should have a composition of say $UO_3 \cdot UO_3 \cdot UO_2$. $UO_3 \cdot U_2O_5$ is suggested, until the structure of U_3O_8 is finally cleared up. The U_3O_8 formed reacts, however, much slower with acids than the initial U_3O_8 molecule. It is presumed that the peculiar course of the reaction described is characteristic of many chemical compounds; oxides, sulfides, and further compounds (basic and double salts) of metals, the atoms of which show different valences, will react, presumably, sometimes in an analogous way. Papers by Vikt. I. Spitsyn, G. M. Nesmeyanova, Ye. A. Kanevskiy (ZhNKh,5, 1938 (1960)) and by G. M. Nesmeyanova, G. M. Alkhazashvili (Atomnaya energiya, 8, 330 (1960)) are mentioned. There are 3 tables and 6 references; 4 Soviet and 2 non-Soviet.

29820
S/020/61/140/006/017/030
Some particularities of the interaction... B103/B101

ASSOCIATION: Radiyevyy institut im. V. G. Khlopina Akademii nauk SSSR (Radium Institute imeni V. G. Khlopin AS USSR)

PRESENTED: May 24, 1961, by A. A. Grinberg, Academician

SUBMITTED: May 18, 1961

Card 4/4

HLINOVA, N.I.; ROMANOV, G.A.; SOLNTSEV, V.M.; TOLMACHEV, Yu.M.

Magnetic properties of U_2O_5. Dokl. AN SSSR 147 no.5:1112-1113 D '62. (MIRA 16:2)

1. Radiyevyy institut im. V.G. Khlopina AN SSSR. Predstavleno akademikom A.A. Grinbergom.
(Uranium oxides—Magnetic properties)

L 36979-65 EWG(j)/EWT(m)/EPF(c)/EPR/EWP(t)/EWP(b) Pr-4/Ps-4 IJP(c)
ACCESSION NR: AP4043855 JD/ES/JG S/0186/64/006/004/0463/0466

AUTHOR: Blinova, N. I.; Kurbatov, V. V.; Solntsev, V. M.

TITLE: A roentgenometric study of the system U sub 3 O sub 8 - U sub 2 O sub 5

SOURCE: Radiokhimiya, v. 6, no. 4, 1964, 463-466

TOPIC TAGS: uranium oxide, oxide crystal structure, xray diffraction pattern, lattice constant, rhombic lattice, uranium pentoxide

ABSTRACT: The authors prepared U_2O_5 either by dissolving U_3O_8 in sulfuric acid or by reducing U_3O_8 with hydrogen at 370C, and then determined the lattice constants by x-ray diffraction analysis during the reoxidation of U_2O_5 to U_3O_8. They found that, as U_2O_5 is saturated with oxygen, only the U_2O_5 crystal structure is observed in all the intermediate stages, and stable diffraction lines characteristic of the U_3O_8 lattice appear only after reaching an empirical composition of $UO_{2.62}$. The entire range of compositions from U_2O_5 to U_3O_8 is thus homogeneous. Visual comparison of the x-ray diffraction patterns led the authors to conclude, in opposition to the hypothesis of Milne (Am. Miner., 36, 5-6, 417, 1951) and others, that the U_3O_8 lattice is a deformed U_2O_5 lattice. On the basis of homology, the

Card 1/2

L 36979-65

ACCESSION NR: AP4043855

most likely structure for the U_3O_8 lattice is a rhombic structure, produced by the gradual penetration of oxygen atoms into the U_2O_5 unit cell. "The authors thank Prof. Yu. M. Tolmachev for his valuable advice." Orig. art. has: 2 tables and 1 figure.

ASSOCIATION: None

SUBMITTED: 18Jan64

NO REF SOV: 004

ENCL: 00

OTHER: 012

SUB CODE: IC, OP

mee

Card 2/2

SOLNTSEV, V.M.; TOLMACHEV, Yu.M.

Thermodynamics of U_3O_8 dissolution in H_2SO_4. Radiokhimiia 7 no.6:719-722 '65. (MIRA 19:1)

L 43973-66 EWT(m)/EWP(t)/ETI IJP(c) ES/JD/WW/JG

ACC NR: AP6022502 SOURCE CODE: UR/0054/66/000/001/0129/0132

AUTHOR: Kozhina, I. I.; Osipova, V. V.; Solntsev, V. M.; Tolkachev, S. S. (deceased)

ORG: none

TITLE: Certain properties of uranium pentoxide

SOURCE: Leningrad. Universitet. Vestnik. Seriya fiziki i khimii, no. 1, 1966, 129-132

TOPIC TAGS: uranium compound, inorganic oxide, x ray analysis, heat resistance

ABSTRACT: The dimensions of the hexagonal cell of U_2O_5 were measured and the thermal stability of U_2O_5 was determined. The hexagonal cell size was established: $a = 6.814 \pm 0.001$ kX and $c = 4.118 \pm 0.001$ kX. The composition of the hexagonal phase of U_2O_5 obtained at low temperatures varies within the range $UO_{2.50}$-$UO_{2.64}$. U_2O_5 is disproportionated at temperatures above 145°C to 2 phases: hexagonal and cubic. At temperatures of 145 - 170°C hexagonal U_3O_{8-x} and cubic UO_{2+y} are formed; and at 800 - 1000°C, hexagonal U_3O_{8-x} and cubic U_4O_9,

UDC: 546.791-31:548.73

Card 1/2

L 43978-66

ACC NR: AP6022502 O

a = 5.43 ± 0.01 Å are formed. Orig. art. has: 3 tables.

SUB CODE: 07/ SUBM DATE: 02Jul65/ ORIG REF: 004/ OTH REF: 007

Card 2/2 ULR

25

JUN 25 1963

SCHNTSEV, N.

PHASE I BOOK EXPLOITATION SOV/6261

Kernenergie und Flotte; Artikelsammlung (Nuclear Energy and the Navy; Collection of Articles) [Berlin] Deutscher Militarverlag [1961]. 232 p. Errata slip inserted. 2000 copies printed.

Translation from the Russian of: Atomnaya energiya i flot.

Translator: Erika Steuk, Lieutenant Commander. Responsibility for German edition: Claus Gruszka, Engineer; Ed.: Klaus Krumsieg.

PURPOSE: This collection of articles is intended for officers of the army, coast guard, and merchant marine.

COVERAGE: The book, a translation from the Russian, contains 25 articles dealing with the application of nuclear weapons to naval combat operations. Chapters 19 and 25 have been supplemented with additional data for this edition. The devastating features of nuclear explosions are discussed. Attention is also given to the protection of personnel, ships, and coastal facilities against nuclear weapons, and to the present and future applications of nuclear

Card 1/3

power plants to shipping. No personalities are mentioned. There are 16 references: 10 Russian (including 3 translations from English-language sources), 1 French, 1 German, 1 English, 1 American, and 2 either English or American.

TABLE OF CONTENTS:

Foreword 5

1. A. Sedov, Engineer Lieutenant Colonel, Docent, Candidate of Technical Sciences. The Dangers of Nuclear Weapons Tests 9

2. S. Sergeyev, Captain (Navy). Explosions of Nuclear Weapons in the Air and Above and Under Water 22

3. V. Ryabchuk, Captain (Navy). The Shock Wave 32

4. M. Arkhipov, Engineer Lieutenant Colonel, Docent, Candidate of Technical Sciences, and V. Girenko, Engineer, Lieutenant Commander. Light Radiation 42

19. A. Uvarov, Engineer Lieutenant Commander, Docent, Candidate of Technical Sciences. U.S. Nuclear-Powered Submarines 162

20. P. Mikhailov, Engineer Lieutenant Colonel, Candidate of Technical Sciences. Depth Charges 189

21. M. Rudnitskiy, Engineer Rear Admiral. Nuclear Power Plants in Warships 192

22. N. Solntsev, Engineer Captain (Navy), Docent, Candidate of Technical Sciences. Utilization of Nuclear Power Plants in Shipping 197

23. V. Zvonkov, Corresponding Member, Academy of Sciences USSR, Honored Scientist and Technologist RSFSR. Nuclear Power Plants in Transportation 204

24. N. Varvarov, Guards Colonel. Nuclear-Powered Flying Boat 209

L 54656-65 EWT(l)/EWP(m)/EPF(c)/EPF(n)-2/EPR/EWG(m)/FCS(k)/EWA(l) Pd-l/Pr-4/Ps-4/Pu-4/Pi-4 WW/GS/RM

ACCESSION NR: AT5010481 UR/0000/65/000/000/0055/0090

AUTHOR: Avduyevskiy, V. S. (Doctor of technical sciences); Kryukov, V. N. (Engineer); Solntsev, V. P. (Candidate of technical sciences).

TITLE: Experimental investigation of the structure of the boundary layer and heat transfer on a rough surface

SOURCE: Issledovaniye teploobmena v potokakh zhidkosti i gaza (Investigation of heat exchange in liquid and gas flows). Moscow, Izd-vo Mashinostroyeniye, 1965, 55-90

TOPIC TAGS: boundary layer, heat transfer, rough surface boundary layer, subsonic air flow, displacement thickness, momentum thickness, surface roughness effect

ABSTRACT: The structures of boundary layers and the heat transfer in subsonic air flows along smooth and rough surfaces near the forward stagnation point are experimentally investigated. The experimental set up, models, and techniques used are described in detail (see Fig. 1 of the Enclosure). Steel and copper disks 500 mm in

Card 1/3

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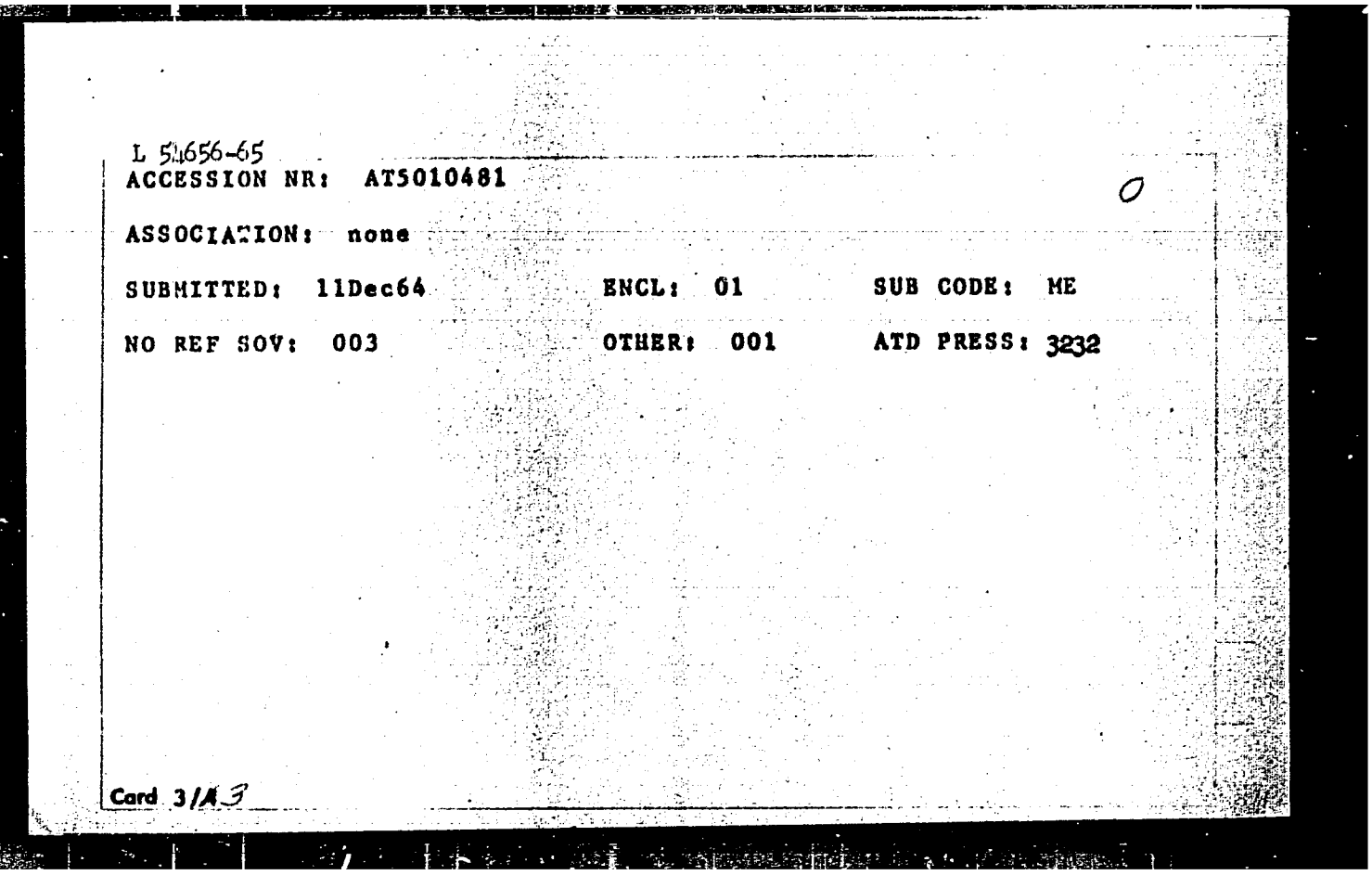
ACCESSION NR: AT5010481

diameter were used as models in the study of both processes. A method was used for measuring the local heat transfer coefficient which made it possible to determine the heat transfer coefficient α from the relation $\alpha = (cG/F)n\psi$ where c is the specific heat capacity, G the weight of the body, F the surface, n the rate of heating, and ψ the coefficient of nonuniformity of the temperature field. The boundary layer thickness, displacement thickness, and momentum thickness were determined for axisymmetric flows over smooth surfaces and surfaces of various degrees of roughness. A comparison of the results obtained here with theoretical data obtained by Loytsyanskiy (Mekhanika zhidkosti i gaza (Mechanics of Fluids and Gases) 1957, Moscow) shows a rather good agreement and that the heat transfer coefficients obtained experimentally are somewhat larger than the theoretical values. The dependence of the momentum thickness δ^{**} on the free flow velocity is also established. The results of experimental investigations of the structure of boundary layers along a rough surface in the cases of flow along a heat-insulated surface and in the presence of heat transfer are given in graphs and discussed. The results are summarized and their accuracy is evaluated on the basis of the tests performed. A series of conclusions is outlined. Orig. art. has: 43 figures and 6 formulas. [AB]

Card 2/3



L 54656-65
ACCESSION NR: AT5010481

ASSOCIATION: none

SUBMITTED: 11Dec64 ENCL: 01 SUB CODE: ME

NO REF SOV: 003 OTHER: 001 ATD PRESS: 3232

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