L 14918-63 EWT(d)/BDS/EEC-2 AFFTC/ASD.

ACCESSION NR: AP3004092 S/0108/63/018/007/0056/0059

AUTHOR: Babanov, Yu. N. (Member of the Society, see Association) 53

TITLE: Signal distortion analyzed in special converter stages of a highly selective receiver

SOURCE: Radiotekhnika, v. 18, no. 7, 1963, 56-59

TOPIC TAGS: signal distortion, signal distortion analysis

ABSTRACT: It is suggested that the selectivity of a receiver, when two AM signals overlap, can be substantially improved by including a number of series-connected special converter stages in the r-f channel of the receiver (Yu. N. Babanov, Radiotekhnika, v. 17, no. 12, 1962). Special selectivity-favoring features of the converter stages are: (1) heterodyne voltage in the stages is derived from the carriers of noise signals by means of circuits that include a narrow-band filter, a frequency doubler, and a phase shifter; (2) the heterodyne-voltage amplitude is so proportioned that, at a selected operating point on the tube characteristic, this relation is held $S_0 = \frac{S_1}{2}$, where the tube transconductance is

$$S(t) = S_0 + S_1 \cos(\omega_1 t + \varphi_1).$$

Card 1/2

L 14918-63

ACCESSION NR: AP3004092

(3) with no noise signal, the special converter stages operate as IF amplifier stages. The latter feature may cause additional distortions due to the converter stages proper. This important point is analyzed mathematically with the conclusion that although such distortions are possible, they can be made negligible. Orig. art. has: 18 formulas.

ASSOCIATION: Nauchno-tekhnicheskoye obshchestvo radiotekhniki i elektrosvyazi (Scientific and Technical Society of Radio Engineering and Electrocommunication)

SUBMITTED: 03Dec61

DATE ACQ: 05Aug63

ENCL: 00

SUB CODE: CO

NO REF SOV: 003

OTHER: 000

Card 2/2

ACCESSION NR: AP4042512 S/0109/64/009/007/1143/1148

AUTHOR: Ageyev, D. V.; Babanov, Yu. N.

TITLE: Radio reception of AM signals with overlapping spectra of desirable and interference signals

SOURCE: Radiotekhnika i elektronika, v. 9, no. 7, 1964, 1143-1148

TOPIC TAGS: radio communication, radio reception, selective radio reception, radio signal, radio signal isolation

ABSTRACT: This general problem is theoretically considered: A desirable AM signal mixed with n-1 interfering AM signals is applied to the input of a radio receiver; the frequency spectra of all n signals overlap, and every signal spectrum, as well as the receiver passband, is $2\Delta F$-cps-wide. Isolate the 1-f desirable signal from the above mixture. By comparing the equations which describe the AM signals, these conclusions are reached: (1) Veracious isolation

Card 1/2

ACCESSION NR: AP4042512

of the desirable signal is possible if: (a) only one interfering signal is present and (b) among many zero values of the interfering-signal modulating wave, no value is repeated with an exact frequency; (2) If the mixture contains two or more interfering signals, the receiver is able to isolate the desirable signal only with certain probability (statistical isolation); (3) If condition (1b) is not met, the veracious isolation is still possible, provided the carrier frequencies and initial phases are exactly determined in advance. Orig. art. has: 17 formulas.

ASSOCIATION: none

SUBMITTED: 24Apr63 ENCL: 00

SUB CODE: EC NO REF SOV: 004 OTHER: 000

Card 2/2

ACCESSION NR: AP4042513 S/0109/64/009/007/1149/1158

AUTHOR: Babanov, Yu. N.

TITLE: Methods of radio reception of AM signals with overlapping frequency spectra of desirable and interfering signals

SOURCE: Radiotekhnika i elektronika, v. 9, no. 7, 1964, 1149-1158

TOPIC TAGS: radio communication, radio reception, selective radio reception, radio signal, radio signal isolation

ABSTRACT: Two systems intended for a practical realization of signal-isolation methods are discussed: (1) The author's system (Radiotekhnika, 1962, 17, 12, 48) containing several conversion stages with selected heterodyne frequencies and phases; the interfering frequency components are gradually "pushed away," along the frequency axis, from the desirable frequency components; the system is based on a utilization of the symmetry of the AM-signal spectra with respect to their carriers; (2) Yu. F. Korobov's system (Candidate's Dissertation of 1961) which separately isolates the modulating waves on each side band of the

Card 1/2

ACCESSION NR: AP4042513

desirable-signal spectrum and then combines the components according to their weight coefficients; the operation is performed by a synchronous detector whose (heterodyne) optimum phase is selected automatically; the system is based on the asymmetry of the mixed spectrum with respect to the desirable-signal carrier. These general conclusions are offered: (1) The systems designed for one desirable and only one interfering station can perform veracious isolation of the desirable signal; (2) The systems designed for more than one interfering station can perform only statistical isolation; (3) All systems (including some German and American mentioned in the article) are based on the asymmetry discussed above. Orig. art. has: 5 figures and 17 formulas.

ASSOCIATION: none

SUBMITTED: 24Apr63 ENCL: 00

SUB CODE: EC NO REF SOV: 005 OTHER: 005

Card 2/2

L 19753-65 [illegible] Pn-h/Pn-h/Pac-h [illegible]

ACCESSION NR: AP4047812 S/0103/64/019/010/0040/0046

AUTHOR: Ageyev, D. V. (Active member); Babanov, Yu. N. (Active member)

TITLE: Transmission of radio signals with overlapping frequency spectra

SOURCE: Radiotekhnika, v. 19, no. 10, 1964, 40-46

TOPIC TAGS: radio communication, signal separation, receiver selectivity

ABSTRACT: A group-transmission (R. A. Wainwright, IRE Trans. on Comm. Syst., CS-9, no. 4, 1961) AM sweep-carrier radio communication system is considered. In this system, the desirable signal is so changed that its active spectrum occupies a relatively narrow band ΔF and is sweeping, according to a definite periodic law $\varphi(t)$, within a frequency band whose width Δf considerably exceeds ΔF. Hence, if both the transmitter and the receiver synchronously follow the same law of carrier sweep, the adjacent-channel interference can be reduced to short-duration pulses. An example of a system with a sawtooth

Card 1/2

L 19783-65
ACCESSION NR: AP4047812

carrier sweep is considered in some detail, and its advantages over the conventional series method of transmission are demonstrated. As a possible application of the system, the case of a few low-power sweep-carrier broadcast stations operating in an area of a powerful constant-carrier station is cited. Orig. art. has: 3 figures and 11 formulas.

ASSOCIATION: Nauchno-tekhnicheskoye obshchestvo radiotekhniki i elektrosvyazi (Scientific and Technical Society of Radio Engineering and Electrocommunication)

SUBMITTED: 28Jun63 ENCL: 00

SUB CODE: EC NO REF SOV: 007 OTHER: 003

Card 2/2

L 08443-67 EWT(d)/FSS-2

ACC NR: AR6019061 SOURCE CODE: UR/0274/66/000/001/A006/A007

AUTHOR: Babanov, Yu. N.

67
B

TITLE: A theory on statistical extraction of a useful modulated carrier from a mixture consisting of fluctuating noise and of useful and interfering AM signals

SOURCE: Ref. zh. Radiotekhnika i elektrosvyaz', Abs. 1A38

REF SOURCE: Tr. Gor'kovsk. politekhn. in-ta, v. 20, no. 5, 1964, 5-11

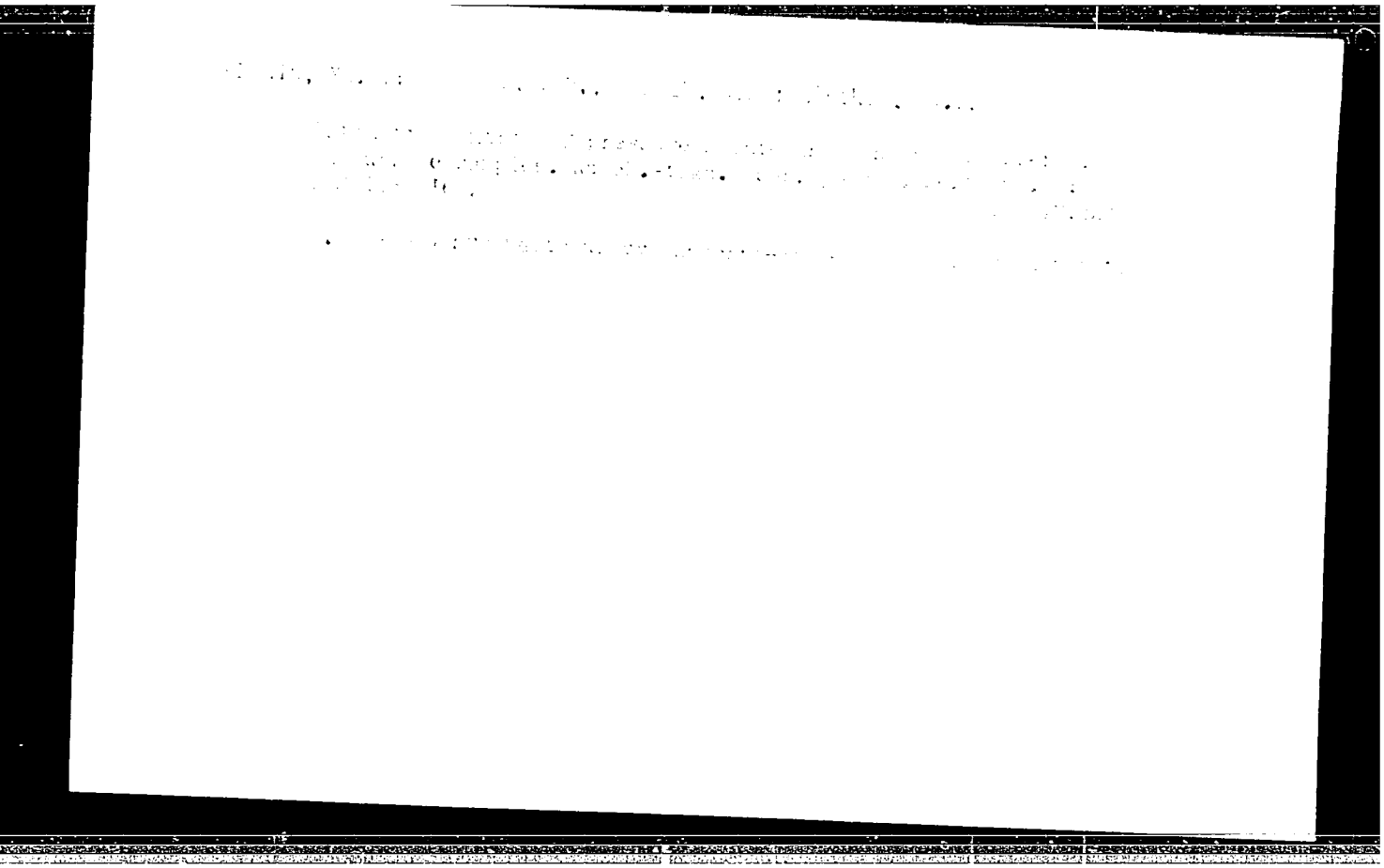
TOPIC TAGS: radio signal, speech signal, random noise signal, signal analysis, signal correlation, signal detection, radio signal effect, signal interference, signal modulation, signal noise separation, signal reception, white noise

TRANSLATION: A situation in which the input to a receiver consists of useful AM signal, an interfering AM signal, and a fluctuating noise is considered. The frequency spectra of the useful and the interfering AM signals coincide and have a bandwidth of ΔF Hz. Both signals are voice-modulated. The fluctuating noise is white noise with normal frequency distribution; all parameters of both signals are known: frequencies f_0 and $f_1 (f_0 \neq f_1)$, initial phases ϕ_0 and ϕ_1 and levels U_0 and U_1. The computed relations are given. The problem reduces to one for which a solution was obtained earlier: the problem of finding optimum reception conditions for a complex high frequency signal $U\Sigma(t)$ superimposed on a background of fluctuating noise. 6 references. L. Ya.

SUB CODE: 17,09

Card 1/1 egb

UDC: 621.391.161



L 41236-65 EEO-2/EWT(1)/EEC-4/EED-2/EWA(h) Pn-4/Peb/Pl-4 JM
ACCESSION NR: AP5005576 S/0106/65/000/002/0001/0008

32
B

AUTHOR: Babanov, Yu. N.

TITLE: Radio reception with overlapping frequency spectra of desirable and interfering AM signals and a fluctuation noise

SOURCE: Elektrosvyaz', no. 2, 1965, 1-8

TOPIC TAGS: radio reception, noise suppression, AM reception

ABSTRACT: The reception of a desirable AM signal mixed with an interfering AM signal and with a white normally distributed fluctuation noise is theoretically considered. Simple algebraic equations show that the first isolation of the desirable signal can be accomplished by a set of selective circuits tuned to carrier frequency of the interfering AM signal. Further isolation should be performed by a synchronous detector consisting of a sync heterodyne, a converter tube, and a low-pass filter. Such a detector performs two independent operations

Card 1/2

L 41236-65
ACCESSION NR: AP5005576

with the input signal: (a) multiplication of the input and heterodyne oscillations and (b) filtration. The sync detector output consists of the desirable signal mixed with the fluctuation noise; the frequency and phase characteristics of the low-pass filter should be so proportioned that the output desirable signal has a minimal mean-square error. The final isolation of the desirable signal can be achieved by a two-channel m-unit circuit described earlier by the author (Elektrosvyaz', 1963, no. 11). It is also shown that the interfering AM signal does not affect the selection of frequency and phase characteristics of the optimal filters. Orig. art. has: 5 figures and 28 formulas.

ASSOCIATION: none

SUBMITTED: 06Aug64 ENCL: 00 SUB CODE: EC

NO REF SOV: 003 OTHER: 000

Card 2/2

STUPISHIN, A.V., prof.; BABANOV, Yu.V., ml. nauchn. sotr.; GUSEVA, A.A., ml. nauchn. sotr.; DUGLAV, V.A., dots.; ZAKHAROV, A.S., dots.; KOSTINA, N.M., assistent; LAVROV, D.D., dots.; LAPTEVA, N.N., assistent; ROMANOV, D.F., ml. nauchn. sotr.; SIROTKINA, M.M., aspirant; SMIRNOVA, T.A., ml. nauchn. sotr.; TORSHYEV, N.P., st. prepod.; TAYSIN, A.S., st. prepod.; TROFIMOV, A.M., assistent; KHARITONYCHEV, A.T., prepod.; STUPISHIN, A.V., red.; KHABIBULLOV, R.K., red.

[Establishing physicogeographical regions in the middle Volga Valley] Fiziko-geograficheskoe raionirovanie Srednego Povolz'ia. Kazan', Izd-vo Kazanskogo univ., 1964. 196 p. (MIRA 18:12)

ACC NR: AP7009577 SOURCE CODE: UR/0103/66/021/011/0029/0040

AUTHOR: Babanov, Yu. N. (Active member NTO (I))

ORG: Scientific Technical Society for Radio Engineering and Communications (Nauchno-tekhnicheskoye obshchestvo radiotekhnika i elektrosvyazi)

TITLE: Optimal radio reception of AM under conditions of interference by another AM signal and fluctuational noise

SOURCE: Radiotekhnika, v. 21, no. 11, 1966, 29-40

TOPIC TAGS: radio reception, amplitude modulation

SUB CODE: 17

ABSTRACT: An analysis of the problem of optimal radio reception of amplitude modulation where fluctuational noise and one other interfering AM signal are present (with fully known parameters of carrier oscillations of both signals). It is demonstrated that when there are no fluctuational noises in the input mixture, the optimal receiver precisely (reliably) determines the useful transmitted signal. When the input mixture does contain fluctuational noise, the precision of determination of the transmitted signal depends on the ratio of the levels of the useful signal, interfering signal and noise. The structure of an optimal receiver circuit for this case is determined. The author thanks D. V. Ageev for valuable advice. Orig. art. has: 4 formulas. [JPRS: 40, 102]

Card 1/1 UDC: 621.396.6

0930 1107

BABCHIN, I.S., prof.; BABANOVA, A.G., doktor med. nauk; BLOKHIN, N.N., prof.; BONDARCHUK, A.V., prof.; GAL'PERIN, M.D., prof.; GOL'DSHTEYN, L.M., prof.[deceased]; DYMARSKIY, L.Yu., kand. med. nauk; KARPOV, N.A., prof.; KOYRO, M.A., nauchn. sotr.; LARIONOV, L.F., prof.; LITVINOVA, Ye.V., kand. med. nauk; MEL'NIKOV, R.A., kand. med. nauk; NECHAYEVA, I.D., doktor med. nauk; PETROV, Nikolay Nikolayevich, prof.; PETROV, Yu.V., kand. med.nauk; RAKOV, A.I., prof.; ROGOVENKO, S.S., kand. med. nauk; SENDUL'SKIY, I.Ya., prof.; SEREBROV, A.I., prof.; SMIRNOVA, I.N., kand. med. nauk; TAL'MAN, I.M., prof.; TOBILEVICH, V.P., prof.; TRUKHALEV, A.I., kand. med. nauk; KHOLDIN, Semen Abramovich, prof.; CHEKHARINA, Ye.A., kand. med. nauk; CHECHULIN, A.S., kand. med. nauk; SHAAK, V.A., prof.[deceased]; SHANIN, A.P., prof.; SHAPIRO, I.N., prof.[deceased]; SHEMYAKINA, T.V., kand. med. nauk; SHERMAN, S.I., prof.; ABRAKOV, L.V., red.; LEBEDEVA, Z.V., tekhn. red.

[Malignant tumors]Zlokachestvennye opukholi; klinicheskoe rukovodstvo. Leningrad, Medgiz. Vol.3. Pts.1-2. 1962. (MIRA 16:5)

1. Deystvitel'nyy chlen Akademii meditsinskikh nauk SSSR (for Blokhin, Petrov, Serebrov). 2. Chlen-korrespondent Akademii meditsinskikh nauk SSSR (for Kholdin).

(CANCER)

BABANOVA, G.B., studentka

Morphology of the disorders of protein metabolism in the kidneys; on the morphogenesis of Bright's disease. Trudy 1-go MMI 22: 185-191 '63 (MIRA 18:2)

KANYSHAN, V.P.; BABANOVA, L.I.

Find of Lower Jurassic limestone boulders near Karadag (Crimea).
Dokl.AN SSSR 145 no.2:384-385 Jl '62. (MIRA 15:7)

1. Khar'kovskiy gosudarstvennyy universitet imeni A.M.Gor'kogo.
Predstavleno akademikom D.V.Nalivkinym.
(Karadag region (Crimea)--Geology, Stratigraphic)

BABANOVA, L.I.

Find of the Middle Jurassic medusa Atollites caucasicus Sobolev in the Crimean Mountains. Paleont.zhur. no.1:139-140 '63. (MIRA 16:4)

1. Khar'kovskiy gosudarstvennyy universitet.
(Crimean Mountains—Medusae, Fossil)

BABANOVA, L.I.

New data on Jurassic brachiopods. Paleont. zhur. no. 1:63-70 '64. (MIRA 17:7)

1. Khar'kovskiy gosudarstvennyy universitet imeni A.M. Gor'kogo.

BABANOVA, L.I.

Stratigraphic and facies distribution of Jurassic brachiopods in the eastern part of the Crimean Mountains. Dokl. AN SSSR 156 no. 3:547-549 '64. (MIRA 17:5)

1. Khar'kovskiy gosudarstvennyy universitet im. A.M.Gor'kogo. Predstavleno akdemikom D.V.Nalivkinym.

BABANOVA, L.I.

New genus of terebratulid brachipods from the Middle Jurassic of the Crimean Mountains. Paleont. zhur. no.4:94-97 '65.
(MIRA 19:1)

1. Khar'kovskiy gosudarstvennyy universitet imeni Gor'kogo.
Submitted April 25, 1964.

BABANOVA, M.S.; ROSHCHINA, N.A.; SALIKOVA, M.V.; KHOKHLOVA, T.I.; YUDIN, F.K.

Changes of some morphological and biochemical indices of the blood in edema of baby pigs. Sbor. nauch. trud. Ivan. sel'khoz. Inst. no.19:183-189 '62. (MIRA 17:1)

1. Kafedra anatomii i fiziologii sel'skokhozyaystvennykh zhivotnykh (zav. - dotsent A.K. Petrov) Ivanovskogo sel'skokhozyaystvennogo instituta.

Category : USSR/General Problems - Problems of Teaching A-3

Abs Jour : Ref Zhur - Fizika, No 1, 1957, No 78

Author : Babanova, N.A.
Title : Two Experiments in Acoustics

Orig Pub : Fizika v shkole, 1956, No 3, 53-54

Abstract : A suggestion that the layer of lycopodium used in the experiment with the Kundt tube be replaced by a layer of smoke. Description of the experimental procedure used in the demonstration of standing sound waves and interference phenomena.

Card : 1/1

MADAYEVA, O.S.; BABANOVA, N.P.; RODIONOV, V.M., akademik.

Cartain properties of α-toluenesulfonic acid esters of 17 β-oxysteroids. Reduction of 3β -acetate-17β -α-toluenesulfonate of androstenediol by lithium-aluminum hydride. Dokl.AN SSSR 92 no.1:79-80 S '53. (MLRA 6:8)

1. Akademiya nauk SSSR (for Rodionov). 2. Vsesoyuznyy nauchno-issledovatel'skiy khimiko-farmatsevticheskiy institut im. S.Ordzhonikidze (for Madayeva and Babanova).
(Esters)

Babanova N. P.

Some properties of esters of *p*-toluenesulfonic acid and 17-β-hydroxysterols. IV. Quaternary pyridinium salts of ditosylate of 5-androstene-3β,17β-diol. O. S. Madaeva and N. P. Babanova (S. Ordzhonikidze All-Union Sci. Research Chem. Pharm. Inst., Moscow). *Zhur. Obshchei Khim.* 25, 1950–3(1955); cf. *C.A.* 50, 5008g.—To 5 g. 5-androstene-3β,17β-diol (I) in 15 ml. dry pyridine was added with cooling 6.7 g. *p*-$MeC_6H_4SO_2Cl$ and the mixt. kept at room temp. 4 days. After treatment with water, soln. in C_6H_6, and washing the ext. with dil. HCl, there was obtained on evapn. of the solvent 7.3 g. I *ditosylate*, m. 138.5–9.5° (from petr. ether-Me_2CO), $[\alpha]_D^{20}$ −59° ($CHCl_3$). This (7.3 g.) in 730 ml. pure Me_2CO (free of alc.) was refluxed 4 hrs. with 420 ml. H_2O and 0.3 g. $MgCO_3$; after concn., soln. in Et_2O, washing the soln. with H_2O, drying and evapn. there was obtained 3.44 g. corresponding *17-tosylate*, m. 128.5–9.5°. To 0.5 g. I in 2 ml. dry pyridine was added 0.28 g. *p*-$MeC_6H_4SO_2Cl$ and the mixt. heated 0.5 hr. at 70°, allowed to stand overnight, and treated with H_2O as above; there was obtained an unstated yield of *3-monopyridinium salt* of the above *ditosylate*, $C_{38}H_{51}O_6NS_2.H_2O$, m. 189–40° (from Me_2CO), $[\alpha]_D^{20}$ −29.83° ($CHCl_3$). This in Me_2CO, treated with NaI, rapidly gave a ppt. of *p*-$MeC_6H_4SO_2Na$, while the soln. yielded the monopyridinium salt of *3-iodo-5-androstene-17-ol tosylate*, m. 183–3.5° (from Me_2CO-Et_2O).

G. M. Kosolapoff

ZOBOV, Ye. V.; SHCHELKUNOVA, M. S.; Prinimala uchastiye: BABANOVA, Zh. I., laborant

Use of stilbazole in the photocolorimetric determining of aluminum in wine and juices. Trudy MNIIPP 1:137-140 '61. (MIRA 16:1)

(Aluminum—Analysis) (Grape juice) (Wine)

ZOBOV, Ye.V.; SHCHELKUNOVA, M.S.; BABANOVA, Zh.I.; CHAPURIN, V.I.; SHEMELEVA, V.A.; DYUL'GER, T.B.; GINKU, A.I.

Anticorrosive coatings of the internal surfaces of tanks used for the storage and processing of wine and juices; preliminary report. Trudy MNIIPP 2:43-55 '62. (MIRA 16:4)
(Wine and wine making—Equipment and supplies)
(Corrosion and anticorrosives)

BABANOVSKIY, I.V. (Moskva)

Public health financing. Sov.zdrav. 19 no.12:26-28 '60. (MIRA 14:3)

(PUBLIC HEALTH--FINANCE)

RABANOVSKIY, I.

Several problems of finanving public health. Fin. SSSR 21 no.10: 55-58 O '60. (MIRA 13:10)
(Public health--Finance)

BABANSKAYA, K.M.

BARSUKOV, M.I., professor; BABANSKAYA, K.M., kandidat meditsinskikh nauk.

Tasks for Soviet public health in the light of decisions taken by the September Pleanry Session of the Central Committee of the Communist Party of the Soviet Union. Sov.med.18 no.1:4-7 Ja '54. (MLRA 7:1)

1. Iz Instituta organizatsii zdravookhraneniya i istorii meditsiny im. N.A.Semashko (direktor Ye.D.Ashurkov) Akademii meditsinskikh nauk SSSR. (Public health)

BABANSKAYA, M.V., brigadir kompleksnoy brigady kommunisticheskogo truda

We mastered allied occupational skills. Transp. stroi. 12 no.3: Mr '62. (MIRA 16:11)

1. Stroitel'noye upravleniye No.114 tresta Yugozaptransstroy.

UDOVENKO, S.A., inzh.; BABANSKIKH, L.I., inzh.

Methods for determining the content of dicarboxylic acids.
Masl. - zhir. prom. 27 no.12:27 D '61. (MIRA 14:12)

1. Nauchno-issledovatel'skiy institut sinteticheskikh zhirozameniteley i moyushchikh sredstv.
(Acids, Fatty)

UDOVENKO, S.A.; BABANSKIKH, L.I.

Using the method of potentiometric analysis for determining carbonyl numbers in dark-colored products. Trudy NIISZHIMSa no.3:89-90 '62. (MIRA 16:12)

AGAFONOV, B.; BABANSKIY, I.

Organization of work and students' wages in school brigades.
Politekh. obuch. no.7:89 Jl '59. (MIRA 12:9)

1.Kirovogradskiy oblastnoy institut usovershenstvovaniya uchiteley.
(Kirovograd Province--Agriculture--Study and teaching)

BABANSKIY, M. M.

Babanskiy, M. M. - "Some physico-chemical properties and technical indexes of the Volga delta waters," Trudy Stavrop. s.kh. in-ta, Issue 3, 1948, p. 325-32 --- Bibliogr 9 items

So: U-3566, 15 March 53, (Letopis 'Zhurnal 'nykh Statey, No. 13, 1949)

BABANSKIY, M. M.

Babanskiy, M. M. - "Hydrochemical characteristics of the Volga waters and p ssible changes in them in connection with the Great Volga problem," Trudy Stavrop. s.-kh. in-ta, Issue 3, 1948, p. 333- 47 — Bibliog: 10 items

So: U-3566, 15 March 53, (Letopis 'Zhurnal 'nykh Statey, No. 13, 1949)

BABANSKIY, M.M.

Hydrochemical characteristics of the lake Sengileyevskoye.
Gidrokhim. mat. no.21:64-80 '53. (MLRA 7:3)

1. Kafedra neorganicheskoy khimii Stavropol'skogo sel'skokhozyaystvennogo instituta.
(Sengileyevskoye, Lake--Hydrology)
(Hydrology--Sengileyevskoye, Lake)

BAE.NSKIY, NIKOLAY NIKOLAYEVICH

Die okonomische geographie der UdSSR. Berlin, Volk and Wissen, 1954.
432 P Illus., Maps
Translation from the Russian: "Economicheskaya Geografiya SSSR: Uchebnik Dlya 8 Klassa spredney shkoly. Izd. 14-ye". Moscow, 1953

SO: N/5
621.8
.B21

L 2603-66 EWT(d)/EWT(m)/EWP(w)/EWP(k)/ETC(m) WW/EM

ACCESSION NR: AP5022216 UR/0198/65/001/008/0074/0084

AUTHORS: Babanskiy, V. D. (Moscow); Moskalenko, V. N. (Moscow)

TITLE: On the frequency spectrum of two-layer plate natural oscillations

SOURCE: Prikladnaya mekhanika, v. 1, no. 8, 1965, 74-84

TOPIC TAGS: elastic plate, elastic oscillation, Hamilton equation, potential energy

ABSTRACT: A general solution is obtained for the frequency spectra of the natural vibrations of a two-layer plate. The two plates are circular in shape, uniform, and are connected by means of elastic rods uniformly distributed between them (see Fig. 1 on the Enclosure). The deflection equations for the system are derived from Hamilton's principle

$$\int_{t_0}^{t_1}(T-U-V)\,dt=\int_{t_0}^{t_1}\iint_S L(u_a, v_a, w_a)\,dx\,dy\,dt. \quad (1)$$

Expressions are derived for the deformation energy U of the plates, the potential energy of the external load

$$V=-\sum_{a=1,2}\iint_S q_a w_a\,dx\,dy+\text{const}. \quad (2)$$

Card 1/4

and the kinetic energies of the plates and the rods T. In their final form the equations for flexural oscillations are given by the set

$$-\frac{E'h}{1-\nu^2}\Delta\varphi+\frac{24EI}{H^3f_0(1+e)}\varphi+\frac{12EI}{H^2f_0(1+e)}w=0;$$

$$-\left[\frac{E'h}{2(1+\nu)}+\frac{2GI_0}{Hf_0}\right]\Delta\psi+\frac{24EI}{H^3f_0(1+e)}\psi=0; \quad (3)$$

$$D\Delta\Delta w-\frac{6EI}{Hf_0(1+e)}\Delta w-\frac{12EI}{H^2f_0(1+e)}\Delta\varphi+\frac{1}{2}m^*\frac{\partial^2 w}{\partial t^2}=0$$

with series solutions of the type

$$w(r,\theta,t)=\sum_{m=0}^{\infty}[w_{1m}(r)\sin m\theta+w_{2m}(r)\cos m\theta]\exp(i\omega t). \quad (4)$$

As an example, the special case of circular plates of radius R is considered fixed along the circumference. The characteristic equation for the natural vibrations of the system is obtained in Bessel functions which, up to a two-term approximation, can be given by

L 2603-66

ACCESSION NR: AP5022216

$$J'_m(\sqrt{p})\,J_m(\sqrt{p}) - I_m(\sqrt{p})\,J'_m(\sqrt{p}) + \frac{1-\alpha}{2\sqrt{p_0}}\beta\left[J'_m(\sqrt{p_0})\,I'_m(\sqrt{p_0}) - \right.$$

$$\left. - \frac{m^2}{p_0} J_m(\sqrt{p_0})\,I_m(\sqrt{p_0})\right] \approx 0. \qquad (5)$$

Orig. art. has: 25 equations and 4 figures.

ASSOCIATION: Institut mekhaniki AN SSSR (Institute of Mechanics, AN SSSR)

SUBMITTED: 15Apr64 ENCL: 01 SUB CODE: AS

NO REF SOV: 000 OTHER: 000

Card 3/4

L 2603-66

ACCESSION NR: AP5022216

ENCLOSURE: 01

0

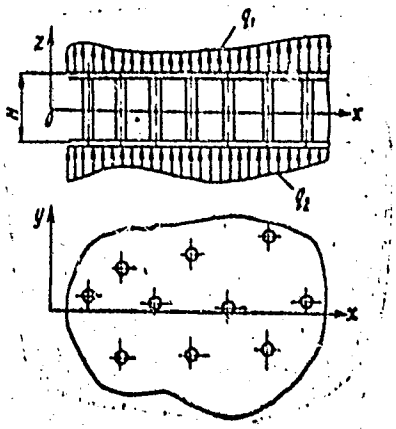


Fig. 1

4/4 mg

Card 1/2

BAPANSKIY, YE.V.

Sposob N'yutona dlya resheniya algebraicheskikh i transtsendentnykh uravneniy, kak odin iz vidov iteratsionnogo sposoba. L., Trudy in-ta tochnoy mekh. i optiki; 1 (1936), 63-73.

SO: Mathematics in the USSR, 1917-1947
edited by Kurosh, A.G.,
Markushevich, A.I.,
Rashevskiy, P.K.
Moscow-Leningrad, 1948

POPOV, N.I.; KOLCHEV, V.A.; UKHANOV, S.P.; BABANSKIY, Yu.K., (Rostov-na-Donu).

Survey of school activities. Fiz. v shkole 16 no.6:91-92 N-D '56. (MLRA 9:12)

1. 2-ya shkola imeni A.P. Chekhova, g. Taganrog (for Popov) 2. 15-ya srednyaya shkola Yugo-Vostochnoy zheleznoy dorogi (for Kolchev) 3. 7-ya srednyaya shkola, Vologda (for Ukhanov).
(Physics--Study and teaching)

BABANSKIY, Yu.K.

Cooperation of physics teachers with Pioneer organizations.
Fiz. v shkole 18 no.4:46-48 Jl-Ag '58. (MIRA 11:7)

1. Pedagogicheskiy institut, g. Rostov-na-Donu.
(Physics--Study and teaching) (Pioneers (Communist Youth))

22(1)

SOV/47-59-3-9/53

AUTHOR: Babanskiy Yu.K.

TITLE: N.K.Krupskaya on the Connection Between the Teaching of Physics and Life

PERIODICAL: Fizika v shkole, 1959, Nr 3, pp 22-26 (USSR)

ABSTRACT: This is a summary of N.K. Krupskaya's (wife of Lenin) views on methods of teaching physics at elementary and secondary schools. The methods are based on the intimate connection between teaching practice and industrial production (visits to plants, study of suggestions to improve industrial production, compilation of teaching programs according to practical needs, use of training films). On the basis of N.K. Krupskaya's views, the author also derives conclusions for the teaching of physics at the present time. There is 1 sketch and 6 Soviet references.

ASSOCIATION: Gosudarstvennyy pedagogicheskiy institut, Rostov-na-Donu (State Pedagogical Institute, Rostov-na-Donu)

Card 1/1

BABANSKIY, Yu.K.; BALABEKYAN, O.I. (Orenburg); PENNER, D.I.; AVRUKINA, T.E. (Leningrad); SVITKOV, L. (Moskva)

Discussion of the draft program of physics for the eight-year school and the secondary school of general education with industrial training. Fiz.v shkole 20 no.1:62-65 Ja-F '60. (MIRA 14:10)

1. Gosudarstvennyy pedagogicheskiy institut, Rostov-na-Donu (for Babanskiy). 2. Pedagogicheskiy institut, Sverdlovsk (for Penner).

(Physics--Study and teaching)

BABANSKIY, Yu.K.

The physics teacher and work in a pioneer troop corresponding to the stages of a young pioneer. Fiz. v shkole 20 no.3:37-39 My-Je '60. (MIRA 13:11)

1. Gosudarstvennyy pedagogicheskiy institut, g.Rostov-na-Donu.
(Physics--Study and teaching)
(Pioneers (Communist Youth)

BABARCZY-J.

Experiments on growing vine in powdered basalt. József Babarczy (Vineyards Research Inst., Budapest). *Agrokémia és Talajtan* **3**, 103-12(1954)(Italian summary).—Basalt contains over 2% K_2O and around 1% P_2O_5. Available 0.0097% P_2O_5 and 0.3833% K_2O were found by the Kühn analysis and 0.3263% P_2O_5 and 0.125% K_2O by the Egner method. Ca, Mg, Na, S, H, and traces of Cr, Sn, Ti, Ni, Mn, V, As, F, and B were found in the basalt. Three vine types were planted. Since basalt contains no N, 0.01 *N* solns. of NH_4NO_3 or $(NH_4)_2CO_3$ were used for watering. Control vines occurred in plants watered with the $(NH_4)_2CO_3$ soln. (pH 8.90). Data on the growth of the vines, the no. of leaves, and the max. leaf size are tabulated for all three "watering" liquids, as observed from June through October.

Peter D. Moskovits

agri 1

L 6647-65 EWT(m)/EPF(c)/EWP(j) Pc-4/Pr-4 ASD(m)-3/AS(mp)-2/ASD(a)-5/ ESD(gs)/ESD(t) RM

ACCESSION NR: AP4042747 S/0079/64/034/007/2258/2262

63

AUTHOR: Nametkin, N. S.; Chernyshova, T. I.; Babare, L. V.

TITLE: Synthesis of organosilicone derivatives of ferrocene, containing the Si-H bond

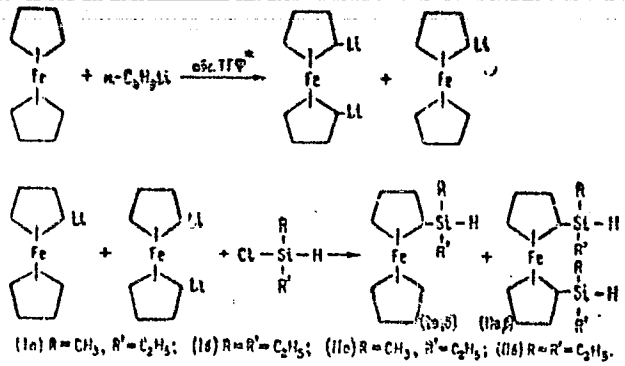
SOURCE: Zhurnal obshchey khimii, v. 34, no. 7, 1964, 2258-2262

TOPIC TAGS: organosilicone, ferrocene, dialkylsilyl ferrocene, Si H bond, Si H bond reactivity, addition reaction, hexene, methylethylsilyl ferrocene addition reaction, platinum catalyst, infrared spectrum, triethylsilyl ferrocene

to the following reaction:

Card 1/3

L 6647-65
ACCESSION NR: AP4042747



(IIa) R = CH_3, R' = C_2H_5; (IIб) R = R' = C_2H_5; (IIв) R = CH_3, R' = C_2H_5; (IIг) R = R' = C_2H_5.

The reaction proceeded with the formation of both mono-as well as disubstituted dialkylsilyl ferrocenes. Yield and properties are tabulated. The reaction products were stable fatty fluids; I. R. spectra showed an intensive absorption

ASSOCIATION: None

SUBMITTED: 21May63 ENCL: 00

SUB CODE: OC, GC NO REF SOV: 001 OTHER: 005

Card 3/3

BABARE, L.V.; PETROVSKIY, P.V.; FEDIN, E.I.

Determination of the structure of organosilicon derivatives of ferrocene by the nuclear magnetic resonance method. Zhur. strukt.khim. 6 no.5:783-785 S-O '65.

(MIRA 18:12)

1. Institut elementoorganicheskikh soyedineniy AN SSSR. Submitted April 14, 1965.

Babarenko, A. A.

Texture of rolled and recrystallized titanium. N. V. Ageev and A. A. Babarenko. *Izvest. Akad. Nauk S.S.S.R., Otdel. Tekh. Nauk* 1955, No. 8, 100-6.—Different types of texture of rolled sheets from various grades of Ti were observed. Changing the temp. during rolling affects the texture, and greater deformation increases the degree of perfection of the structure. Recrystn. of Ti with 80-85% deformation causes no changes or disappearance of its texture. The recrystn. structure is very slightly expressed with 50-60% deformation and is of a somewhat different type from the texture of rolled Ti, presumably caused by recrystn.

W. M. Sternberg

AUTHOR: Babareko, A. A. (Moscow)

TITLE: Determination of the Influence of Gaseous Admixtures on the Texture of Titanium (Opredeleniye vliyaniya gazovykh primesey na teksturu titana)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1958, Nr 3, p 126 (USSR)

ABSTRACT: During resmelting and heat treatment, titanium becomes contaminated with oxygen and nitrogen from the air or from the protective atmosphere due to insufficient purity of the latter. This leads to a deterioration in the machinability of the metal and to changes in the mechanical properties of the titanium (Refs.1 and 2). Alloys containing over 0.5 wt % oxygen are very brittle and it is practically impossible to machine them. Information published on the mechanism of deformation of titanium of various degrees of purity is contradictory. While F.D.Rosi et alii (Ref.3) disclaim any influence of the degree of purity on the mechanism of plastic deformation of titanium, A T. Churchman (Ref.4) found that small admixtures of oxygen and nitrogen do bring about a certain change in the mechanism of deformation of titanium. The influence of gaseous admixtures on the rolling texture was studied by the author of this paper on specimens of

Card 1/3

Determination of the Influence of Gaseous Admixtures on the Texture of Titanium.

magnesium-thermically produced titanium which was contaminated by oxygen and nitrogen by remelting in an arc furnace in presence of traces of air. The results are given in the table herewith:

Specimen Number	Hardness H_B	Oxygen Weight %	Nitrogen Weight %
1	207	0.015	0.018
2	241	0.11	Not Determined
3	255	0.25	0.07
4	277-269	0.31	0.145

Oxygen analysis was effected by vacuum extraction in the IMET (Metallurgical Institute im A.A.Baykov) Laboratory for Steel Metallurgy and nitrogen analysis according to Kel'dal was effected in the analytical laboratory of the same Institute. The specimens Nrs 1 and 2 with low contents of gas

Determination of the Influence of Gaseous Admixtures on the Texture of Titanium.

admixtures, cold rolled with a reduction of 82%, proved to have a "twin" cold rolled texture of iodide titanium (Ref.5). The specimens Nrs 3 and 4 with large contents of nitrogen and oxygen could not be deformed in the cold state. All the 4 specimens, rolled at 700°C with a reduction of 90%, also had a "twin" texture of iodide titanium but in this case it was less pronounced. Obviously, the presence of oxygen and nitrogen in quantities occurring in industrial grades of titanium does not show any influence on the rolling texture. (This is a complete translation). There is 1 table and there are 5 references, 4 of which are English and 1 Soviet.

SUBMITTED: February 14, 1957.

Card 3/3 1. Titanium--Gases--Effects

Guseva, L. N., Babareko, A.A. SOV/

The Distortions of the Crystal Structure of Copper and Its Solid Solutions by Deformation (Iskazheniya kristallicheskoy ... medi i yeye tverdykh rastvorov pri deformatsii)

... Akademii nauk SSSR, 1958, Vol. ..., Nr ..., pp. ...

In a previous paper by L. N. Guseva (Ref 1) it was found that ... thermal treatment is necessary for the suppression of the effects of deformation in copper and its alloys. The reason for this may be the inhomogeneous states after filing. It was interesting, in these objects, to study the changes of the crystalline fine structure caused by plastic deformation. The broadening of the X-ray interference maxima of the metals during deformation served the purpose of estimating structural distortions. A table contains the widths measured at half the height of the maxima. The broadening of reflexes at one and the same degree of deformation is greater in each of the solid solutions under investigation than in pure copper. This difference is all the more important the

SOV/20-110-3-22/67

The Retention of the Crystal Structure of Copper and Its Solid Solutions by Deformation

higher the concentration of the solid solution and the greater the difference in the atomic dimensions of the components of the alloys. In one and the same alloy filing widens reflexes considerably. The second table contains the values of the true width of the reflexes (111) and (222) by the powders of copper and its solid solutions. The microstresses in pure copper (which was filed at a low temperature) as well as in alloys with 10 % Zn and 4,6 % Al were similar to each other. Further details are given. The domains of the coherent scattering are smaller in the alloys than in pure copper. The difference in the behavior of copper and of the solid solutions during annealing can be explained by the influence exercised by the characteristic features of substructure upon the growth of the crystallites. There are 2 tables and 8 references, 7 of which are Soviet.

ASSOCIATION: Institut metallurgii im. A. A. Baykova Akademii nauk SSSR (Metallurgical Institute imeni A. A. Baykov, Academy of Sciences, USSR)

PRESENTED: December 7, 1957, by I. P. Bardin, Member, Academy of Sciences, USSR

The Distortions of the Crystal Structure of Copper and Its Solid Solutions by Deformation SOV/20-120-3-22/67

SUBMITTED: December 5, 1957

1. Copper--Crystal structure 2. Copper alloys--Crystal structures
3. Copper--Deformation 4. Copper alloys--Deformation

Card 3/3

BABAREKO, A. A.

Akademiya nauk SSSR. Institut nauchno-tekhnicheskoy informatsii

Metallurgiya i metallovedeniye; khimiya, metallovedeniye i obrabotka titana (Metallurgy and Metallography; Chemistry, Metallography, and Treatment of Titanium) Moscow, Izd-vo AN SSSR, 1959. 383 p. (Series: Itogi nauki; tekhnicheskiye nauki, 2) Errata slip inserted. 2,700 copies printed.

Ed.: N. V. Ageyev, Corresponding Member, Academy of Sciences, USSR; Ed. of Publishing House: V. S. Rzheznikov; Tech. Ed.: Yu. V. Rylina.

PURPOSE: This collection of articles is intended for metallurgists working with titanium and titanium alloys.

COVERAGE: The articles in this collection deal with the chemistry, metallurgy, and machining of titanium and titanium alloys. The articles are based on abstracts appearing in the Referativnyy zhurnaly for chemistry and metallurgy, from 1953 to 1955. For the most part the articles are based on non-Soviet material. No personalities are mentioned. References follow each article.

BABAREKO, A.A.

Deformation textures and the recrystallization of titanium and its alloys. Itogi nauki: Tekh. nauki no.2:247-251 '59. (MIRA 12:9)

(Titanium--Metallography)

GUSEVA, L.N.; BABAREKO, A.A.

Anisotropy of the broadening of the X-ray diffraction maxima of deformed solid solutions of copper. Dokl. AN SSSR 124 no.4:789-791 F '59. (MIRA 12:1)

1.Institut metallurgii imeni A.A. Baykova AN SSSR. Predstavleno akademikom I.P. Bardinym.
(Metallography) (X rays--Diffraction)

S/180/60/000/005/024/033
E021/E106

AUTHORS: Babareko, A.A., and Guseva, L.N. (Moscow)

TITLE: The Structure and Strengthening of Copper by the Formation of Solid Solutions

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo, 1960, No.5, pp. 186-189

TEXT: The fine structure of deformed copper and copper solid solutions with zinc (3-25%), aluminium (4-13%), silicon (4.7%), tin (5.7%), antimony (0.6-1.3%), and nickel (11-52%) was investigated by X-ray methods. Samples were prepared from high quality materials under flux, and homogenised at 800 °C for 100 h. All the samples were single phased at room temperature (the decomposition of the Al-5.7% Sn alloy is very slow at room temperature). Diffraction spectra were taken and the broadening of the reflections after deformation was examined. The dimensions of the regions of coherent scattering and the residual elastic microdeformation were estimated from the results. The resistance to plastic deformation of the samples after

Card 1/3

S/180/60/000/005/024/033
E021/E106

The Structure and Strengthening of Copper by the Formation of Solid Solutions

deformation was estimated by hardness measurements. It was shown that an increase in concentration of an alloying element resulted in a greater degree of breaking up of the structure during deformation and an increase in hardness. An increase in the difference in atomic sizes of the elements forming the solid solution has the same effects. The close relationships between hardness and lattice distortion were demonstrated. Alloys with similar hardness values also had similar regions of coherent scattering of X-rays. The results are explained in terms of dislocation theory. Both the degree of breaking up of the coherent regions and the residual deformation of these regions are connected with the number of dislocations and the character of their distribution in a deformed crystal. Thus the resistance to deformation of the investigated alloys is determined more by the characteristics of the atomic mechanism of plastic flow than by the strength of the interatomic bonds in the lattice.

Card 2/3

S/180/60/000/005/024/033
E021/E106

The Structure and Strengthening of Copper by the Formation of Solid Solutions

There are 2 figures, 1 table and 12 references: 6 Soviet and 6 non-Soviet.

SUBMITTED: February 9, 1960

Card 3/3

Abstract P.A.

18 8200 187510

S/126/60/010/02/013/020
E021/E335

AUTHORS: Guseva, L.N. and Babareko, A.A.

TITLE: The Fine Crystal Structure and the Mechanism of Plastic Deformation of Solid Solutions Based on Copper

PERIODICAL: Fizika metallov i metallovedeniye, 1960, Vol. 10, No. 2, pp 269 - 271

TEXT: An earlier investigation was carried out on the different state of the crystal lattice of copper and its solid solutions with zinc after filing (Ref. 2). The broadening of the X-ray reflections obtained from solid solutions was much greater than for copper. Quantitative measurements have been carried out on the breadth of the lines obtained from powdered copper and alloys of copper with zinc, aluminium and tin to investigate the influence of various factors on the breadth of the line. 111 and 222 reflections were examined. The results are given in the table with the actual breadth of the reflections in the second and third columns and the percentage broadening on account of dispersion of the regions of coherent scattering and microstresses in the fourth and fifth columns, respectively. The dimensions of the regions of coherent dispersion D and their relative residual

Card 1/2

S/126/60/010/02/013/020
E021/E335

The Fine Crystal Structure and the Mechanism of Plastic Deformation of Solid Solutions Based on Copper

microdeformation $\Delta a/a$ are given in the next two columns. It can be seen that the solid solutions show a considerable decrease in dimensions of the regions of coherent dispersion compared with pure copper. These regions are the smaller, the greater the percentage of alloying element and the greater the difference in atomic diameters of copper and the element. This shows that in the case of alloys of copper, there is an increase in the number of elementary acts of plastic flow.
There are 1 table and 5 Soviet references.

ASSOCIATION: Institut metallurgii AN SSSR (Institute of Metallurgy of the Ac.Sc., USSR)

SUBMITTED: July 25, 1959

Card 2/2

S/180/62/000/002/007/018
E193/E383

AUTHORS: Guseva, L.N. and Babareko, A.A. (Moscow)

TITLE: Factors affecting solid-solution hardening of alloys

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye tekhnicheskikh nauk. Metallurgiya i toplivo, no. 2, 1962, 78 - 83

TEXT: The results of an earlier investigation (Ref. 1 - the authors - Izv. AN SSSR, OTN, 1960, no. 5, 186) had shown that the degree of homogeneity of plastic flow of solid solutions increases with increasing concentration of the solute atoms and with increasing difference in the size and chemical factor of the alloy components. It had also been postulated that instead of relating strength of copper-base alloys to atomic-bond forces, it could be related to the variation in the mechanism of plastic flow - hence the present investigation, in which the relationship between the mechanism of plastic flow of various copper-base solid solutions and their resistance to deformation was studied. The experimental materials comprised

Card 1/ 3

Factors affecting ....

copper and binary copper alloys containing 3 - 24.8% Zn, 4.7 or 12% Al, 4.0% Si, 5.6% Sn, 0.5 or 4.25% Sb and 12 or 29.5% Ni. All the test pieces were homogenized by holding for 100 hrs at 800 °C and then were cold-rolled to 20, 50 or 80% reduction (with or without subsequent annealing at 600 °C) after which hardness measurements were taken under 5- and 10-kg loads. The experimental results of the present investigation and data on the character of plastic deformation from Ref. 1 were used to construct graphs relating hardness of various specimens to, so-called, volume and chemical factors and to the limit degree of dispersion of the normal regions of coherent scattering, $1/D$, inherent in each alloy, which could be attained in powder specimens prepared by filing. The latter relationship is represented by a graph reproduced in Fig. 1, where the hardness (H_v, kg/mm^2) of various alloys (as listed in the legend) is plotted against $1/D \times 10^{-4}$ cm^{-1}. Analysis of these and other results led to the conclusion that elastic and chemical interaction between active dislocations and solute atoms is

closely associated with the change in the character of plastic flow caused by alloying and with work-hardening of solid solutions. The results of the present investigation indicate that in the case of different solid solutions based on a given metal, the effect of the solute atoms on the mechanical properties of the solid solution at various stages of the deformation process varies from one alloying element to another. Solid solutions containing solute atoms which are characterized by strong elastic interaction with dislocations will have maximum resistance to flow in the early stages of the deformation process. Solute atoms exhibiting a strong tendency to localized chemical interaction will, on the other hand, ensure a high resistance to deformation at high degrees of plastic deformation. There are 4 figures.

SUBMITTED: June 12, 1961

18 8200,

40726

S/180/62/000/004/007/009
E111/E183

AUTHORS: Guseva, L.N., and Babareko, A.A. (Moscow)

TITLE: Substructure of deformed chromium

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye tekhnicheskikh nauk. Metallurgiya i toplivo, no.4, 1962, 153-156

TEXT: In continuation of their earlier work (Zh. neorg. khimii, v.7, no.9, 1962, and Izv. AN SSSR, OTN, Metallurgiya i toplivo, no.2, 1962, 78) the present authors thought it desirable to study the deformation-induced substructure of chromium, not only because of its low plastic properties and high values of its bond-strength characteristics, but also because it belongs to a sub-group of metals with almost isotropic properties. In the hope that data on the extent of distortion along the different crystallographic directions in a lattice with isotropic properties would give indications of the geometry of elementary plastic effects, they studied by X-ray diffraction filings of chromium with a hardness (Vickers) of about 80 kg/mm^2, vacuum annealed chromium powder being used as a standard. The measured

Card 1/2

Substructure of deformed chromium. S/180/62/000/004/007/009
E111/E183

microstrains were found to be larger than the maximum (calculated) values of those associated with the presence of single, randomly distributed dislocations, or those which could be regarded as residual elastic strains. The work shows, inter alia, that deformation of chromium occurs mainly by the generation and movement of linear dislocations. Brittle failure of chromium could be attributed to localised concentration of dislocations on widely separated planes of slip. This aspect needs further investigation.
There is 1 table.

SUBMITTED: October 21, 1961

Card 2/2

S/180/62/000/006/008/022
E021/E151

AUTHORS: Guseva, L.N., and Babareko, A.A. (Moscow)

TITLE: Dislocation structure of some deformed metals and alloys

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye tekhnicheskikh nauk. Metallurgiya i toplivo, no.6, 1962, 98-102

TEXT: Investigations were carried out on chromium, copper and copper-base solid solutions after deformation by filing. The characteristics of the substructure, D (the size of the regions of coherent reflection) and $\Delta a/a$ (the value of non-uniformity of the lattice parameter or the so-called microdeformation of the lattice) were obtained from the breadth of X-ray reflections. The density of the dislocations was calculated and their distribution was shown. The true dislocation density for copper was 5×10^{11} cm^{-2}. For solid solutions of copper with zinc, aluminium, silicon, tin, antimony or nickel, the dislocation density did not change markedly and was within the limits $3 - 7 \times 10^{11}$ cm^{-2}. During deformation, a polygonised structure was obtained. When

Card 1/2

solid solutions were formed, the presence of foreign atoms in the lattice decreased the degree of polygonisation and in some cases resulted in random distribution of dislocations with no change in density. In the case of chromium, the true dislocation was less than 1.3×10^{11} cm^{-2}. It was considered that the difference in distribution of the dislocations in copper and its alloys indicated different mechanisms of plastic flow which might be related to the mechanism of the relaxation accompanying deformation. In pure copper, relaxation of the stress fields around dislocations led to redistribution of dislocations during the process of deformation. In copper solid solutions, relaxation of stresses proceeded by interaction of dislocations with impurity atoms and the formation of Cottrell atmospheres around dislocations. Thus, X-ray data on substructure of deformed crystals can be used for showing the inter-atomic changes during plastic flow and fracture of metals. There is 1 table.

SUBMITTED: June 3, 1962

Card 2/2

GUSEVA, L.N.; BABAREKO, A.A.

Atomis structure and mechanism of the plastic flow of solid solutions. Zhur.neorg.khim. 7 no.9:2200-2205 S '62. (MIRA 15:9)

(Solutions, Solid) (Dislocations in metals)

SAVITSKIY, Ye.M. (Moskva); CHUPRIKOV, G.Ye. (Moskva); BABAREKO, A.A. (Moskva)

Crystal structure distortion during the deformation of rhenium with various degrees of purity. Izv. AN SSSR. Otd. tekh. nauk. Met. i gor. delo no.3:166-169 My-Je '63. (MIRA 16:7)
(Rhenium--Metallography) (Crystal lattices)

S/126/63/015/003/011/025
E193/E383

AUTHORS: Babareko, A.A. and T'ao Tsu-Ts'ung

TITLE: Substructure of niobium deformed by filing

PERIODICAL: Fizika metallov i metallovedeniye, v. 15, no. 3, 1963, 405 - 409

TEXT: In continuation of their work on the fine structure of Cr and Mo, the authors studied the substructure of filings obtained from three grades of Nb: I - sintered Nb with a hardness HV = = 75 kg/mm^2; II - Nb obtained by melting a sintered compact (HV = 210 kg/mm^2); III - Nb obtained by melting Nb powder (HV = 310 kg/mm^2). The experimental work, carried out on 300-mesh filings, comprised measurements of the width of X-ray diffractions and determination of the size D of the regions of coherent scattering and the magnitude of microstresses $\Delta a/a$. The results, correlated with those obtained earlier for Cr and Mo, are given in Table 2. Analysis of the relationship between the width of the X-ray diffractions and the diffraction angle showed that with increasing hardness of Nb specimens the rate of broadening of the X-ray lines increased and the anisotropy of broadening decreased

Substructure of ....

with increasing diffraction angle. This indicated that the presence of impurities in Nb affected both the magnitude and character of the lattice distortions. It was found also thatthe anisotropy of broadening was related to the elastic properties of Nb, the minimum lattice distortions coinciding with directions of maximum elastic modulus. This led to the conclusion that anisotropic distribution of elastic strains in the lattice might be one of the main sources of stacking faults.
There are 1 figure and 4 tables.

ASSOCIATION: Institut metallurgii imeni A.A. Baykova
(Institute of Metallurgy imeni A.A. Baykov)

SUBMITTED: August 9, 1962

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102810010-8"

Substructure of ....

Table 2: Magnitude of D, $\Delta a/a$ and internal stresses σ_{BH} in the filing of some metals

Specimen	$D \cdot 10^6$, cm	$\Delta a/a \cdot 10^3$	Young modulus, $E \cdot 10^{-3}$, kg/mm^2	$\sigma_{BH} = \Delta a/a \cdot E$, kg/mm^2
Cr	~ 15	4.0	25	100
Mo techn.	8.0	3.8	32	122
Mo purified	2.5	2.5	32	80
Nb I	2.9	6.2	10	62
Nb II	2.3	8.5	10	85
Nb III	3.0	11.5	10	115

Card 3/3

ACCESSION NR: AP4019818 S/0279/64/000/001/0176/0179

AUTHOR: Babareko, A. A. (Moscow); T'ao, Tsu-Ts'ung (Moscow); Savitskiy, Ye. M. (Moscow)

TITLE: Distortions of the crystal structure of Mo and the Mo-Re alloy during deformation

SOURCE: AN SSSR. Izv. Metallurgiya i gornoye delo, no. 1, 1964, 176-179

TOPIC TAGS: molybdenum, rhenium, molybdenum rhenium alloy, deformation related structural distortion, molybdenum structural distortion, diffraction line analysis, microdeformation analysis, elastic property anisotropy, molybdenum crystal structure

ABSTRACT: Processes occurring during the deformation of Mo of varying degrees of purity and of an Mo alloy with 35 at.% Re were studied to clarify the physical characteristics of the effect of alloying and purification on ductility. Structural distortion was evaluated in relation to the expansion of X-ray interference peaks for metals undergoing deformation. Test specimens were in the form of powders obtained by filling ingots of technical Mo, high-purity Mo, and Mo + 35 at.% Re and were screened through a 300-mesh screen. Interference peaks were automatically recorded on a URS-50-I unit (monochromatic k_α-radiation). The width of

Card 1/2

ACCESSION NR: AP4019818

the lines at 110, 200, 112, 220, 310, 222 and 321 mμ was measured 5 times. It was found that the high ductility of pure Mo leads to a decrease in the dimensions of coherent scattering regions and lower microdeformation as compared to technical Mo ($8 \cdot 10^{-6}$ to $2.5 \cdot 10^{-6}$ cm and 0.0038 to 0.0025, respectively) due to greater depth of plastic deformation in pure Mo during the filling of the powders. Minor anisotropy of elastic properties of Mo results in a microdeformation- related anisotropic widening of the diffraction lines. Such anisotropy was absent for the Mo-Re system named above. "The author acknowledges the contribution of L. N. Gusevaya in evaluating the results". Orig. art. has: 4 tables and 3 formulas.

ASSOCIATION: none

SUBMITTED: 22Dec61 DATE ACQ: 31Mar64 ENCL: 00

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

Card 2/2

L 3417-66 EWT(m)/EWP(w)/T/EWP(t)/EWP(b)/ETA(c) IJP(c) JD/JG/GS

ACCESSION NR: AT5023099 UR/0000/65/000/000/0250/0254

AUTHOR: Savitskiy, Ye. M.; Babareko, A. A.; T'ao, Tsu-ts'ung

TITLE: Crystal-structure defects and density of dislocations in molybdenum of different degrees of purity following its filing

SOURCE: Problemy bol'shoy metallurgii i fizicheskoy khimii novykh splavov (Problems of large-scale metallurgy and physical chemistry of new alloys) k 100-letiyu so dnya rozhdeniya akademika M. A. Pavlova, Moscow, Izd-vo Nauka, 1965, 250-254

TOPIC TAGS: crystal structure, molybdenum, coherent scattering, crystal defect

ABSTRACT: The clarification of the physical nature of the effect of interstitial impurities on the plasticity of Mo is of major interest. In this connection, the authors present the results of an experimental investigation of the structural defects caused by deformation and the distribution of dislocation in Mo containing different amounts of impurities (0.023, 0.002, 10^{-4}% oxygen and, in one case, 0.1% La). Specimens for X-ray examination were obtained by filing the ingots, with screening of powder through a 300-mesh sieve. On the basis of an examination of

Card 1/3

L 3417-66

ACCESSION NR: AT5023099

the interference maxima of the metal during deformation, obtained through monochromatic copper K_α-emission by means of automatic recording with an URS-501 spectrometer, the crystal-structure defects were evaluated. It was established that the dimensions of the regions D of coherent scattering for commercial molybdenum (0.023% O) are roughly 3 times as large as for ultra-pure molybdenum (10^{-4}% O) and the microdeformation is 1.5 times as high. According to the theory of dislocations, the crystal-structure defects detected by this method are conditioned by the increase in the density of dislocations on deformation. Dislocations form the boundaries of the regions of coherent scattering and cause internal stresses in the lattice. Hence, the density of dislocations in deformed molybdenum may be determined according to the dimensions of the regions D and the magnitude of microdeformation. Approximate formulas of the elastic deformation of lattice as a function of density of dislocations are presented. It is shown that for ultra-pure Mo the density of dislocations ρ_D, calculated according to the dimensions of D, coincides with the calculated extent of microdeformation $\Delta a/a$. On the basis of these findings, it turns out that the distribution of dislocations in ultra-pure molybdenum is random so far as the nature of their interactions is concerned, whereas in commercial Mo and in the alloy Mo + 0.1% La the dislocations are arrayed in pile-ups whose formation is associated with the growth of the fields.

Card 2/3

L 3417-66

ACCESSION NR: AT5023099

9

of elastic stresses. These pile-ups are due to the presence of impurities, and they lead to stress concentrations which is the reason why commercial Mo is so brittle. By contrast, ultra-pure Mo, which lacks such pile-ups, is more plastic and its D regions are smaller. "The authors are indebted to L. N. Guseva for her active assistance, as well as to V. P. Fedotov for handling the gas analysis of Mo specimens." Orig. art. has: 3 tables, 4 formulas.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: SS, MM

NR REF SOV: 005 OTHER: 002

Card 3/3 hd

L 42135-66 EWT(m)/EWP(w)/T/EWP(t)/ETI/EWP(k) IJP(c) JD/HW/JG

ACC NR: AP6027744 SOURCE CODE: UR/0370/66/000/004/0084/0089

AUTHOR: Ageyev, N. V. (Moscow); Babareko, A. A. (Moscow); Chuprikov, G. Ye. (Moscow); Bokareva, N. N.

ORG: none

TITLE: Mechanism of the plastic deformation of differently oriented molybdenum single crystals under tension

SOURCE: AN SSSR. Izvestiya. Metally, no. 4, 1966, 84-89

TOPIC TAGS: molybdenum, single crystal, [redacted] crystal structure, [redacted] plastic deformation

ABSTRACT: A series of variously oriented molybdenum single crystals, 4 mm in diameter and 80—100 mm long, were stretched at a rate of about 1 mm/min. A strong dependence of mechanical properties on the orientation of crystals was observed. Crystals with the axis oriented in the region bounded by [012], [011], [111], and [112] exhibited a high ductility and deformed with multiple necking with a total elongation of 1.5—7%. Crystals with the axis oriented in the region bounded by [012], [112], and [001] had a low ductility and failed in a brittle manner by a cleavage along the plane of the cube with 1—2% elongation. In the group of ductile crystals, those with the axis oriented close

Card 1/2 UDC: 669.28—172

L 4213-66
ACC NR: AP6027744

2

to [011] deformed locally with a reduction of area of over 90% at a total elongation of about 2%. Crystals with the axis oriented close to [111] deformed uniformly with necking beginning at a total elongation of about 7%. In all cases, deformation proceeded by a multiple slip. It is concluded that no dislocation blocking occurs during the plastic yield of crystals with the axis oriented close to [011]; blocking occurs when the crystal axis is oriented close to [111], but it may be overcome by growing stresses. In crystals with the axis close to [001], the blocking of dislocations prevents yielding altogether and finally leads to brittle fracture. Orig. art. has: 2 figures.

SUB CODE: 11/ SUBM DATE: 18Jan65/ ORIG REF: 001/ OTH REF: 007 [TD]
ATD PRESS: 5062

Card 2/2

L 40300-66 EWT(m)/EWP(w)/T/EWP(t)/ETI/EWP(k) IJP(c) JD/WW

ACC NR: AP6007354 SOURCE CODE: UR/0126/66/021/002/0257/0264

52
51
B

AUTHOR: Babareko, A. A.

ORG: Metallurgical Institute im. A. A. Baykov (Institut metallurgii)

TITLE: X-ray investigation of plastic flow and deformation blocking geometry in molybdenum single crystals

SOURCE: Fizika metallov i metallovedeniye, v. 21, no. 2, 1966, 257-264

TOPIC TAGS: molybdenum, plastic flow, crystal orientation, molybdenum metallurgy, plastic deformation, x ray diffraction analysis

ABSTRACT: The crystallographic mechanism of plastic deformation of molybdenum single crystals with different orientations (shown in Fig. 1) was investigated. X-ray diffraction effects were used to determine the effects of crystal orientation on the deformation mechanism, and sample epigrams are presented for crystals 2, 6, 229, and 240 under various deformation conditions. It was found that location of the tensile load axis in the region [012]--[011]--[111]--[112] of the stereographic triangle resulted in highly plastic deformation at room temperature with formation of a neck. Crystals with axis orientation [012]--[$\bar{1}$12]--[001] are not plastic and fail after 1--2% elongation with brittle fracture along (001). The properties of the highly plastic crystals also depend on orientation: with a crystal axis orientation [011] the deformation occurs locally with formation of a neck and area reduction of > 90% at a total elongation of 2%; with axis orientation [$\bar{1}$11] a

Card 1/2

UDC: 539.26:539.37/38

L 40307-66

ACC NR: AP6007354

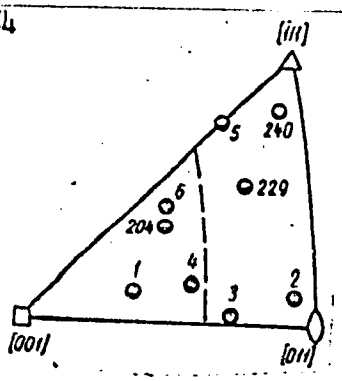


Fig. 1. Initial orientation of Mo single crystals (the dotted line represents the boundary between plastic and brittle crystals).

considerable uniform elongation is observed with formation of a neck only at ≈ 7% elongation. Orig. art. has: 1 formula and 5 figures.

SUB CODE: 11, 20/ SUBM DATE: 22Feb65/ ORIG REF: 001/ OTH REF: 002

Card 2/2 mlp

USSR.

/ 2240. OPERATION OF VF-5NE (PEAT HARVESTING) MACHINES IN 1954 SEASON. Tolkarin, A.F. et al. (Torf. Prom. (Peat Ind., Moscow), 1954, (8), 5-15). Experiences in six peat fields are recorded. (L).

BABAKIN, F.F.

BAUSIN, A.F.; SOKOLOV, A.A.; ANTONOV, V.Ya.; KURDYUMOV, S.V.; BEL'KEVICH, P.I.; SAVINYKH, A.I.; KARAKIN, F.F.; SOLOPOV, S.G.; YEFIMOV, V.S.; YARIVITSIN, V.I.; RABKIN, B.A.; BABARIN, A.F.; MATVEYEV, L.M.; FUNIKOV, S.A.; CHERNENKOV, D.P.; BULAYEVSKIY, N.V.; kandidat tekhnicheskikh nauk; SHIMKARINK, K.K.; TSUPROV, S.A.; GINZBURG, L.N.; VASIL'YEV, Yu.K.

Scientific and technical conference on the work of the peat industry of the Ministry of Electric Power Stations. Torf.prom. 32 no.2:1-20 '55. (MLRA 8:5)

1. Zamestitel' ministra elektrostantsiy (for Bausin). 2. Zamestitel' direktora VNIITP (for Sokolov). 3. Zamestitel' direktora MTI (for Antonov. 4.Zamestitel' direktor "'krniimesttopprom"(for Kurdyumov). 5. Direktor Instituta torfa AN BSSR(for Bel'kevich). 6. Nachal'nik Glavenergozapchasti MES(for Savinykh). 7. Glavnyy inzhener Ivanovskogo torfotresta (for Karakin). 8. Zamestitel' direktora MTI (for Solopov) 9. Upravlyayushchiy Shaturskogo torfotresta (for.Yefimov). 10. Glavnyy mekhanik Invanovskogo torfotresta (for Yarovitsin). 11. Glavnyy mekhanik Leningradskogo torfotresta (for Rabkin). 12. Glavnyy inzhener Ozeretsko-Neplyuyevskogo torfopredpriyatiya (for Babarin). 13. Glavnyy inzhener Gor'kovskogo torfotresta (for Matveyev). 14 Rukovoditel' laboratorii VNIITP (for Funikov). 15. Glavnyy inzhener tresta Lentorfostroy (for Chernenkov).

(Continued on next card)

BABARIN, A.F., inzhener.

Operating harvesters on larger plots. Torf.prom.33 no.3:15-16 '56.
(MLRA 9:7)

1.Ozeretsko-Neplyuyevskoye torfopredriyatiye.
(Peat machinery)

BABARIN, A.F., inzh.

Results of the composite crew method of work and of the simplified system of perpetual accounting for peat. Torf.prom. 36 no.2: 15-17 '59. (MIRA 12:4)

1. Ozeretsko-Neplyuyevskoye torfopredpriyatiye.
(Peat industry)

BABARIN, A.F., inzh.

Operational data of the UFB-SB peat-winning machine. Torf.prom. 36 no.8:15-16 '59. (MIRA 13:3)

1. Ozeretsko-Neplyuyevskoye torfopredpriyatiye.
(Peat machinery)

FEDOROVA, T.A., BABARIN, P.M.

Uric acid and allantoin content of urine in rats irradiated by roentgen rays. Med.rad. 3 no.5:90-94 S-O '58 (MIRA 11:12)
(HYDANTOINS, in urine,
allantoin, eff. of x-rays in rats (Rus))
(URIC ACID, in urine,
eff. of x-rays in rats (Rus))
(ROENTGEN RAYS, eff.
on urinary allantoin & uric acid in rats (Rus))

ROMANOVA, L.S.; BABARIN, P.M.

Effect of physical exercises on the content of serum proteins, lipoproteins and total cholesterol in middle-aged and elderly persons with manifestations of arteriosclerosis. Kardiologiia 1 no.6:36-41 N-D '61. (MIRA 15:1)

1. Iz sektora sportivnoy meditsiny (zav. - prof. S.P.Letunov) TSentral'nogo nauchno-issledovatel'skogo instituta fizicheskoy kul'tury (dir. - dotsent N.G.Ozolin) i 2-go Moskovskogo fizkul'turnogo dispansera (glavnyy vrach Ya.A.Mel'nikov).

(ARTERIOSCLEROSIS) (EXERCISE THERAPY)
(BLOOD--ANALYSIS AND CHEMISTRY)

BABARIN, P.M.; ROMANOVA, L.S.; CHIBICH'YAN, D.A.

Changes in the blood cholestrol content in middle-aged and elderly persons under the influence of physical exercise. Sovet. med. 26 no.5:109-111 My'63 (MIRA 17:1)

1. Iz TSentral'nogo nauchno-issledovatel'skogo instituta fizicheskoy kul'tury, Moskva.

BABARIN, V. I., and A.IA. CHERKEZ.

Novyi metod rascheta individual'nykh vykhlopnykh patrubkov. Moskva, BNT, 1946.

Title tr.: New method of designing individual exhaust stacks.

NCF

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress, 1955