

YAMSHCHIKOV, V. P.

Yamshchikov, V. P.

"The variability of Morgan's bacillus under the influence of antibiotics."  
State Order of Lenin Inst for the Advanced Training of Physicians imeni  
S. M. Kirov. Chair of Microbiology. Leningrad, 1956. (Dissertation  
for the Degree of Candidate in Medical Sciences).

Knizhnaya letopis'  
No. 21, 1956. Moscow.

*YAMSHCHIKOV, V. P.*

USSR/ Pharmacology Toxicology, Chamotherapeutic Agents

U-7

Abs Jour : Ref. Zh. Biol., No 2, 1958, No 8109

Author : Krashkin, P. N., Bezborodov, A. M., Yelinov, N. P., Kashkin,  
K. P., Marchenkova, F. G., Tzyganov, V. A., Yamshchikov, V. P.

Inst : -

Title : Materials on the Analysis of Failures in Antibiotic Therapy

Orig Pub : V. Sb. Antibiotki, Eksperim.-Khinich, Izuch. M., 1956.  
274-290.

Abstract : Among the causes for failure in antibiotic therapy,  
the authors have emphasized bacterial resistance, appearance  
of moniliasis, and hormesis. An increased resistance to  
antibiotics is also characteristic of the facultative path-  
ogens which more frequently develop a group tolerance.  
The streptomycin and biomyacin resistant microorganisms

undergo more profound and more stable biochemical changes than those resistant to penicillin, levomycin, and sintomycin. Most of the resistant strains have a decreased tolerance to warming, alcohol, and antiseptic solutions. Alongside the highly resistant strains, dependent strains appear as a result of adaptation, especially among the tubercle bacilli, which grow luxuriously on media saturated with proper antibiotics. Yeast-like organisms of the genus *Candida* are frequently responsible for fatal complications in patients with dysentery and pneumonia. *Monilia* infections affect the mucous membranes of the oral cavity, larynx, vagina and the large skin folds; less frequently ulcerative lesions in the alimentary tract and focal pulmonary involvement are encountered. Streptomycin, penicillin, sintomycin, levomycetin, biomycin and sakazin proved to be ineffective in the treatment of moniliasis. Gramicidin-C, aspergillin and aspergin demonstrated some effectiveness. Streptomycin, penicillin and aureomycin in various concentrations have, actually, increased the growth of *Candida* in special test-tube ex-

periments. Rabbits with experimental moniliasis succumbed to infection after 2 - 5 days if treated with penicillin, streptomycin, biomycin or levomycin, and after 30-35 days if untreated. ~~It is~~ The phenomena of hormesis, i. e. the destruction of the normal microflora of the skin and mucous membranes, is associated with irrational antibiotic therapy. A number of patients demonstrated absence of coliform bacilli cultures, proliferation of Proteus, alkali-forming and putrefactive microorganisms the toxins of which cause toxemia on reaching the blood stream.

~~Y~~AMSHCHIKOV, V. P.

USSR Microbiology. Antibiosis and Symbiosis.  
Antibiotics.

F-2

Abs Jour: Referat Zh.-Biol., No. 9, 1957, 35572

Author : Kaskin, P.M.; Goliakov, P.N.; Kashkin, K.P.;  
Slubko, A.L.; Yamshchikov, V.P.

Title : Common Modifications Features in Conditionally  
Pathogenic Microorganisms Under the Influence  
of Antibiotics

Orig Pub: V sb: Zhiviye vaktsiny, M., 1956, 279-288

Abstract: Conditionally pathogenic faecal alkali-formers,  
enterococci, intestinal and "Morgan" bacilli  
possessed different sensitivity to streptomycin  
(I), biomycin (II), synthomycin (III), levomy-

Card 1/3

USSR /Microbiology. Antibiosis and Symbiosis.  
Antibiotics.

F-2

Abs Jour: Referat. Zh.-Biol., No. 9, 1957, 35572

cetin (IV), and penicillin (V). In relation to the last two bacteria I, III, IV were much more active, and in relation to the faecal alkali-former-III. Enterococci showed sensitivity to V, I, and III. Passage on the media with growing content of antibiotics helped the development of a resistance in the microbes to the preparations studied. The microbes were most easily adapted to streptomycin. The intestinal bacilli, the faecal alkali-formers and partially the "Morgan" bacilli adapted more quickly than the others. In the highly resistant variants polymorphism of the cell elements and weak biochemical activity in comparison with the original cultures were noted. A comparison of the adaptive pathogenic

Card 2/3

USSR /Microbiology. Antibiosis and Symbiosis.  
Antibiotics.

F-2

Abs Jour: Referat. Zh.-Biol., No. 9, 1957, 35572

and conditionally pathogenic microorganisms manifest  
ifested common features in the modification of  
their morphological-biochemical properties.

Card 3/3

*YAMSHCHIKOV, V. P.*

AUTHOR: Kashkin, P. M., Zlatina, K. M., Golyakov, I. N., Kashkin, K. B. and  
Yamshchikov, V. P.

Inst; Not given

Title: Variability of Microorganisms in Leucocyte Cultures Under the Effect of  
Antibiotic Preparations.

Orig Pub: V. sb.: Zhivye vaktsiny, M., 1956, 289-295.

Abstract: Leucocytes develop well in the presence of doses of streptomycin, penicillin, syntomycin, biomycin, and levomycetin which exceed maximum therapeutic doses for humans, and therefore they may be utilized for studying adaptive variability of microorganisms under the influence of antibiotics. By transferring leucocytes in cultures with increasing concentration of a specific antibiotic, resistant variants were obtained of some conditionally pathogenic microorganisms. The common characteristics of resistant forms include weakening of carbolytic activity, viability and antigenicity in reactions with homologous sera by comparison with the initial strains.



YAMSHCHIKOV, V.P.; BEZBORODOV, A.M.; YELINOV, N.P. (Cand. of Bio. Sci.); KASHKIN,  
K.P.; MARCHENKOVA, F.G.; TSYGANOV, V.A. (Cand. of Bio Sci.

"Materials on Analysis of Failures in Treatment With Antibiotics,"

p. 274 Ministry of Health USSR Proceedings of the Second All-Union Conference on  
Antibiotics, 31 May - 9 June 1957. p. 405, Moscow, Medgiz, 1957.

YAMSHCHIKOV V. P.

COUNTRY : USSR  
CATEGORY :  
ABS. JOUR. : RZhBioL, No. 3 1959, No. 10079  
AUTHOR : Bezborodov, A. M., Kashkin, K. P., Yamshchikov, V. P.  
INST. : Leningrad Chemical-Pharmaceutical Institute  
TITLE : Certain Biochemical Characteristics of Bact.  
Faecalis Alcaligenes Resistant to Antibiotics  
ORIG. PUB. : Sb. nauchn. tr. Leningr. khim.-farmatsevt. in-t,  
1957, 3, 111-117  
ABSTRACT : In the adaptation of certain strains of Bacterium  
faecalis alcaligenes to streptomycin and synthomycin  
[chloramphenicol] the morphology of the bacteria was  
changed. The strains resistant to these antibiotics  
assumed the form of coccobacteria. The DNA  
concentration in the strains resistant to synthomycin  
increased (3-3.5%), and in strains resistant to  
streptomycin, decreased (1.4-1.7%) compared with the  
original (2-2.9%). In the resistant strains an increased  
consumption of pyruvic acid is observed. The strains

Card:

1/2

26

COUNTRY :  
CATEGORY :  
ABS. JOUR. : *ZhBiol.*, No. 1959, No. 10079  
AUTHOR :  
INST. :  
TITLE :  
ORIG. PUB. :  
ABSTRACT : adapted to streptomycin acquired the capacity of  
assimilating glutamic acid. Strains resistant to  
synthomycin formed a yellow pigment of carotinoid  
nature. The strains resistant to synthomycin and  
streptomycin lost the power of reducing nitrates. --  
S. P. Shapovalova

Card: 2/2

"Comparative Study of Some Biochemical Characteristics of Proteus morgani Strains sensitive and resistant to Antibiotics," by A. M. Rezbordov, K. P. Kashkin, and V. P. Yamshchikov, Leningrad Chemico-pharmaceutical Institute, Zhurnal Microbiologii, Epidemiologii, i Immunobiologii, No 3, Mar 57, pp 108-113

VOL 28 PP 108-114

Since resistance is apparently caused by a change in different biochemical processes in the microbial cells; the author decided to study the elementary biochemical properties of strains adapted to antibiotics as compared to the original strains, and thus to discover the functions which change during adaptation.

Results obtained at the Chair of Microbiology of the Leningrad Chemico-pharmaceutical Institute have demonstrated the possibility of producing resistant variants in the laboratory by passing them through agar media with antibiotic concentrations of increasing strength. The antibiotics used were synthomycin, levomycin, and streptomycin. The microorganism used was a strain of Proteus morgani, which is responsible for outbreaks of diseases of a paratyphoid character, toxic food infections, and various dysentery-like diseases.

On the basis of the work done, it was concluded that:

"1. *Proteus morgani* strains, adapted to syntomycin, contain more desoxyribonucleic acid, but strains which are adapted to streptomycin have less than the original strain.

"2. There was no difference in the utilization of amino-nitrogen between the strains adapted to antibiotics and the original strains.

"3. Adapting strains develop the ability to assimilate a number of amino acids not natural to the original strains (glyccol, alanine, lysine, beta,  $\alpha$ -phenylalanine). There is an especially marked increase in the yield of asparagin from adapted strains.

"4. In the majority of cases, the resistant strains lost the ability to produce indol. A relation between resistance and the nitrate-reductase activity could not be found.

"5. In the majority of cases, the resistant strains lost the ability to form acids and gas in media of the "varigated" series which is important in view of the differential clinical diagnosis of the microorganisms.

"6. The change in dehydrase activity did not depend on resistance to a specific antibiotic and was an individual property of a strain.

"7. In the process of adaptation to media with synthomycin, certain strains formed a pigment having a carotin-like character. (U)

Sum in 1951

YAMSHCHIKOV, V.P.

Chronic B. breslau infection in an experiment. Eksp. i klin. issl.  
po antibiot. 1:146-148 '58. (MIRA 15:5)  
(SALMONELLA)

L 11253-55 ENT(1)/T JK

ACC NR: AR6022387 (N) SOURCE CODE: UR/0397/65/000/024/0065/0065

AUTHOR: Fel'dmen, I. Kh.; Frankovskiy, Ch. S.; Yamshchikov, V. P.; 39  
Mordvinova, Ye. T.; Maryukhta, Yu. B.; Zaikina, N. A.; Vitovskaya, G. A.;  
Arkad'yeva, G. Ye.

TITLE: Azo-derivatives of benzene as potential antibacterial<sup>b</sup> compounds.  
I.

SOURCE: Ref. zh. Farmakologiya. Toksikologiya, Abs. 24.54.512

REF SOURCE: Tr. Leningr. khim.-farmatsevt. in-ta, vyp. 18, 1965, 171-172

TOPIC TAGS: benzene, chemical compound, microorganism contamination,  
bacteria, plant parasite

ABSTRACT: An in vitro method of serial dilutions was used to test the activity of several synthetic azo-compounds in relation to dermatophytes, some gram positive and gram negative bacteria and two species of yeastlike molds. All the tested azo-compounds containing a carboxylic group proved inactive. The exception was 2,4-dichlor-3-carboxy-4'-oxyazobenzol. The azo-compounds displayed highest activity in relation to Cr. neoformans, weaker activity in relation to dermatophytes, and the weakest in relation to Candida albicans. Only

Card 1/2

UDC: 615.7

1-11-66  
ACC NR: AR6022387

certain azo-compounds displayed antibacterial and antiviral action. The highest in vitro activity was displayed by 2,4-dichlor-4'-methyl-4-oxyazobenzol and 2,4-dichlor-4'-oxyazobenzol which proved most effective in relation to yeastlike molds and dermatophytes and weakest in relation to bacteria. M. Zabolotskaya. [Translation of abstract].

SUB CODE: 06, 07

Card 2/2 MT



MALYSHEVA, N.A., kand.tekhn.nauk; YAMSHCHIKOV, V.S., gornyy inzh.

Choice of a method of developing a conveyer dump and the length of the dump space. Gor. zhur. no.7:20-23 J1 '61.  
(MIRA 15:2)

1. Moskovskiy gornyy institut (for Malysheva). 2. Vsesoyuznyy nauchno-issledovatel'skiy institut nerudnoy promyshlennosti, Stvaropol' (for Yamshchikov).

(Strip mining)

(Conveying machinery)

BAZYLEV, V.G., kand.tekhn.nauk; MIKHAYLOV, V.A., kand.tekhn.nauk;  
OKOL'ZIN, Ye.P., inzh.; SIRENKO, V.N., inzh.; YANSECHIKOV, V.S.,  
inzh.

Open working of deposits of carbonate rock. Sbor.trud.VNIINerud  
no.1:3-23 '62. (MIRA 15:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut nerudnykh  
stroitel'nykh materialov i gidromekhanizatsii.  
(Rocks, Carbonate) (Quarries and quarrying)  
(Aggregates (Building materials))

RZHEVSKIY, Vladimir Vasil'yevich, prof., doktor tekhn. nauk;  
ISTOMIN, Viktor Vladimirovich, gornyy inzh.;  
YAMSHCHIKOV, Valeriy Sergeyeovich, gornyy inzh.; Pri-  
nimali uchastiye: YASTREBINSKIY, M.A., gornyy inzh.;  
LEBEDKOVA, A.A., gornyy inzh.; OVCHINNIKOV, V.A.,  
gornyy inzh.

[Technology and the overall mechanization of the open  
pit mining of coal, ore, and rock products] Tekhnolo-  
giya i kompleksnaya mekhanizatsiya otkrytoi dobychi  
uglia, rud i nerudnykh iskopaemykh. Moskva, Mosk. in-t  
radioelektroniki i gornoj elektromekhaniki. No.6. Pt.1.  
1963. 151 p. (MIRA 17:8)

ACC NR: AR6009030  
AUTHOR: Yamshchikov, V. S.

SOURCE CODE: UR/0169/65/000/010/D028/D029

TITLE: On the directivity of the wave field of an ultrasonic radiator in bedrock

SOURCE: Ref. zh. Geofizika, Abs. 10D194

REF SOURCE: Nauchn. tr. Mosk. in-ta radioelektroniki i gorn. elektromekhan., sb. 52, vyp. 2, 1964, 91-95

TOPIC TAGS: ultrasonic radiation, ultrasonic property, ultrasonic wave propagation, bedrock ultrasonic property, *MINERAL*

ABSTRACT: Results of an experimental study of the directivity characteristics of a lead zirconate titanate ceramic ultrasonic radiator of a piston type are discussed. Rock core samples of 8 - 12 cm diameter, 5 - 6 cm long were used. The samples were cut into two half-disks; their center part was contacted by the radiator, with the receiver contacting the periphery and the polar distribution of ultrasound intensity was observed in a 180° sector. Directionality plots are given for samples of peridotite and limestone, at 500 kc. Knowledge of these directional characteristics is useful in the choice of rational plans for ultrasound receiver locations in the studies of bedrock properties. [Translation].

UDC: 552.1:53

SUB CODE: 04, 20/      SUBM DATE: None

Card 1/1

DMITRIYEV, A.P., dotsent; DOBROVOL'SKIY, G.N., inzh.; KUZUYAYEV, L.S., inzh.;  
TRET'YAKOV, O.N., inzh.; YAMSHCHIKOV, V.S., inzh.

Determining certain physical properties of rock for estimating  
their drillability by thermal piercing. Izv. vys. ucheb. zav.;  
gor. zhur. no.8:86-90 J1 '64 (MIRA 18:1)

1. Moskovskiy institut radicelektroniki i gornoy elektromekhaniki.  
Rekomendovana kafedroy fiziki gornyykh porod.

EXT 1. ENA 5  
ACCESSION NR: AP5001050

S. 0049/64/000/011/1007.155

AUTHOR: Yanshehikov, V. S.

TITLE: Influence of intensity on the absorption of ultrasonic waves in rocks

SOURCE: AN SSSR. Izvestiya. Seriya geofizicheskaya, no. 11, 1964, 1697-1699

TOPIC TAGS: rock, geophysics, ultrasonic wave, geophysical instrument, geophysical prospecting, ultrasound, wave attenuation

ABSTRACT: The attenuation of elastic waves is one of the principal characteristics used in geophysics and mining to study the properties and structure of rocks in the field and the

intensity of an ultrasonic wave on the character of its absorption in rocks, determining the region of linear dependence between the intensity and absorption of elastic waves, that is, the limit of the effect of this linear relationship. The study was made using different rocks in an ultrasonic range from 0.1 to 2 watts/cm<sup>2</sup>. A block diagram of the experimental apparatus is shown in Fig. 1. The ultrasonic signal is emanating from the quartz piezoelectric converter and introduced through a contact layer  
Card 1/5

L 21751-65

ACCESSION NR: AP5001050

of liquid into the investigated rock sample. The oscillations passing through the sample are detected by a ceramic piezoelectric converter with a frequency close to the frequency of the quartz plate and are fed to the amplifying channel of an electronic oscillograph whose cathode-ray tube is used for measurement of the amplitude of the detected oscillations. Further details on the apparatus are provided. In the experimental method the change in intensity of the radiation of the quartz converter by a certain value on the screen of the cathode-ray tube of the oscillograph is used for determining the amplitude of the ultrasonic wave passing through the sample. Each measurement is repeated several times. Results are presented in a table. Fig. 2 of the Enclosure shows the graphic dependence of the relative amplitude of an ultrasonic wave passing through a rock sample on the intensity of the ultrasonic wave for limestone and peridotite. The curves show that at rather high intensities, there is a nonlinear dependence for both rock types between the intensity and absorption of the ultrasonic wave. The point of appearance of the nonlinear region is different from different rocks. For rocks with a high absorption coefficient it begins somewhat later ( $I=1.4-1.6 \text{ watt/cm}^2$ ) than for dense rocks (for peridotite  $I = 1.2-1.4 \text{ watt/cm}^2$ ). These results should be taken into account in developing ultrasonic apparatus for investigation of rocks and in the method for measurement of absorption of an

Card 2/5

L 21751-65

ACCESSION NR: AP6001050

2

ultrasonic wave. "The author wishes to thank V. G. Yegurnov for assistance in carrying out the experiment". Orig. art. has: 1 formula, 3 figures and 1 table.

ASSOCIATION: Moskovskiy institut radioelektroniki i gornoy elektromekhaniki (Moscow  
Institit of Radioelectronics and Mining Electromechanics)

SUBMITTED: 16Nov63

ENCL: 02

SUB CODE: ES

NO REF SOV: 003

OTHER: 000

Card 3/5



L 21751-65

ACCESSION NR: AP5001050

ENCLOSURE: 01

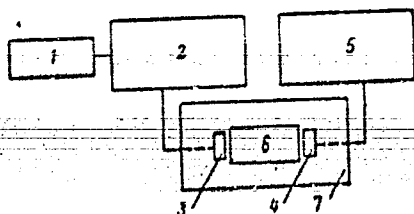


Fig. 1. Block diagram of the experimental apparatus. 1 - voltage stabilizer; 2 - ultrasonic oscillator; 3 - ultrasonic source; 4 - receiver; 5 - oscillograph; 6 - sample; 7 - bath with water.

Card 4/5

L 21751-65

ACCESSION NR: AP5001050

ENCLOSURE: 02

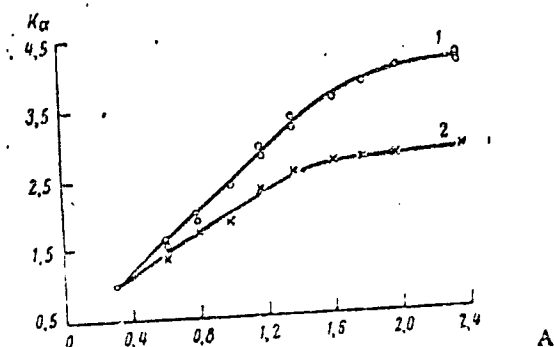


Fig. 2. Dependence of relative amplitude of an ultrasonic wave passing through a sample on intensity of oscillations.  $A$ .  $\gamma$  watts/cm<sup>2</sup>

Card 5/5

RZHEVSKIY, V.V., prof., doktor teh.n.nauk; VAYNSHTOK, I.S., kand.tekhn.nauk;  
YAMSHCHIKOV, V.S., gornyy inzh.

Ultrasonic impulse device for studying rocks. Gor.zhur. no.1:72-73  
Ja '65. (MIRA 18:3)

1. Moskovskiy institut radioelektroniki i gornoy elektromekhaniki.

ADMISSION NO: AP5010209

REF ID: A65097003 114 115

AUTHOR: Yagubchikov, V. S. Moscow

TITLE: Nature of elastic wave damping in rocks in a region of small intensity oscillations

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 3, 1965, 134-136

TOPIC TAGS: elastic wave, damping factor, acoustic frequency, rock, wave propagation

ABSTRACT: The elastic damping of acoustically generated waves in rocks was studied experimentally. The schematic of the test is shown in Fig. 1 on the Enclosure, where 1- is the stabilizer, 2- ultrasonic generator, 3- emitter, 4- receiver, 5- oscillogram, 6- specimen, 7- bath. The bath is filled with water with a layer of oil on top. The emitter is a quartz plate with a natural frequency of 1000 kHz. The maximum power P is about 8.5-10 watts over a 4-cm<sup>2</sup> area. To make the results independent of the absorptive property of the particular rock under study, the following ratio is introduced:  $K_{\alpha} = A_1/A_0$ , where  $A_1$  is the measured amplitude at the corresponding radiation intensity and  $A_0$  is the initial amplitude with intensity 0.25 volt/cm<sup>2</sup>. Two types of rocks were investigated: a diabase and a

Card 1/3

1 07205-01

ACCESSION NR: AP5018209

peridotite. Both transverse and longitudinal wave damping were investigated in the  
transverse wave measurement. The longitudinal wave measurement was a comparison  
of the transverse wave measurement and the longitudinal wave measurement. The  
transverse waves show only a small departure from linearity. It is shown from  
analytical considerations that a terminal amplitude in a longitudinal wave does show  
nonlinear effects which are absent from the transverse wave amplitudes. (Orig. art.  
has: 4 formulas, 2 figures, and 1 table.

ASSOCIATION: none

SUBMITTED: 03Jun64

ENCL: 01

SUB CODE: MT, ME

NO REF SOV: 003

OTHER: 000

Card 2/3

E 63208-65

ACCESSION NR: AP5018209

ENCLOSURE: 01

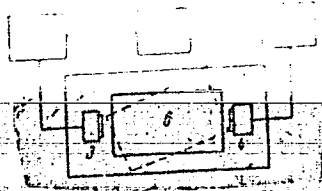


Fig. 1.

Card 3/3

L 00766-67 ENT(L)/ENT(R)/T/ENT(W)/ENT(t)/ETT GW JD

ACC NR: AP6022185

SOURCE CODE: UR/0415/65/000/006/0058/0063

AUTHOR: Yamshchikov, V. S.

67  
B

ORG: Institute of Radio Electronics and Mining Electromechanics, Moscow (Institut radioelektroniki i gornoy elektromekhaniki)

TITLE: Use of the ultrasonic pulse method for studying the strength of rocks

SOURCE: Fiziko-tehnicheskiye problemy razrabotki poleznykh iskopayemykh, no. 6, 1965, 58-63

TOPIC TAGS: ultrasonic wave propagation, ultrasonic inspection, compressive strength, carbonate, *PETROLOGY, ELASTIC DEFORMATION, PLASTIC DEFORMATION*

ABSTRACT: Data are given from an investigation of the strength of rocks determined on the basis of one or several ultrasonic characteristics. The specimens were carbonate rocks from the Podolsk deposit. The MIRGEM-I-V ultrasonic pulse instrument was used for measuring the acoustic characteristics of the specimens. Measurements of propagation velocity were accurate within  $\pm(1-2\%)$ . The mean square error in measurement of the attenuation factor was  $\pm 10\%$ . The experimental results show a pronounced increase in the rate of propagation of elastic waves with compressive strength. However, the extreme scatter in experimental data precludes the derivation of a strict relationship between these indices. The maximum strength of carbonate rocks depends on the rate of

Card 1/2

UDC: 552.1:539.4

L 00766-67

ACC NR: AP6022185

0

development of both elastic and plastic deformations up to the moment of destruction. The experimental data show that plastic deformations in carbonate rocks are associated with the plastic properties of the structure and the effect of porosity. Experimental stress-deformation diagrams were used for determining elastic and plastic indices of the rocks. Empirical expressions are given for the elastic limit and apparent maximum strength as functions of the velocity of the ultrasonic wave and for the coefficient of plasticity as a function of the ultrasonic attenuation factor at a frequency of 500 kc. An analysis of these relationships shows that each of the acoustic characteristics is uniquely associated with the given types of deformation. These empirical formulas are used as the basis for deriving an approximate expression for maximum compressive strength of carbonate rocks in terms of the velocity of ultrasonic propagation and ultrasonic attenuation. This formula is satisfactorily confirmed by experimental data within an accuracy of  $\pm(10-25\%)$ . Deviations of the theoretical strength indices from the experimentally measured values are due to the fact that the strength of carbonate rocks is a complex function of a large number of factors for which relationships are difficult to establish. Orig. art. has: 3 figures, 2 tables, 3 formulas.

SUB CODE: 08/<sup>20</sup> SUBM DATE: 11May65/ ORIG REF: 007

*ms*  
Card 2/2



DMITRIYEV, A.P., dotsent; YAMSHCHIKOV, V.S., inzh.

Elasticity of rocks and its effect on their drill ability by  
thermal piercing. Izv. vys. ucheb. zav.; gor. zhur. 8 no.7:  
98-102 '65. (MIRA 18:9)

1. Moskovskiy institut radioelektroniki i gornoy elektromekhaniki.  
Rekomendovans kafedroy fiziki gornyykh porod.

L 04306-67 EWT(1) GV

ACC NR: AR6014575

SOURCE CODE: UR/0169/65/000/011/G016/G016

AUTHORS: Yakobashvili, O. P.; Yamshchikov, V. S.

TITLE: Ultrasonic methods for determining the elastic parameters of rocks

49  
B

SOURCE: Ref. zh. Geofizika, Abs. 11G121

REF SOURCE: Nauchn. tr. Mosk. in-t radioelektroniki i gorn. elektromekhan., sb. 51, 1965, 12-18

TOPIC TAGS: ultrasonic wave, ultrasonic wave propagation, seismology, seismic wave, earth crust, PETROLOGY

ABSTRACT: Dynamic methods for determining elastic parameters of rocks are based on measuring the distribution velocities of the elastic waves in specimens and may be divided into two groups: 1) direct methods (ultrasonic impulse methods) in which the time  $t$  needed for the distribution of a wave through a specimen and the length  $l$  of the specimen are measured; 2) indirect (resonance methods) in which the wave length  $\lambda$  at a desired frequency  $f$  (corresponding to the oscillations produced), is measured. A comparison of the existing methods for determining the elastic parameters of rocks by the ultrasonic impulse method is presented. These methods involve: a) sound distribution; b) the immersional method. Both methods are briefly described. It is concluded that, with the method of time distribution, only the velocity of longitudinal waves in a formation may be reliably determined. By using the immersion method, the velocities of both the longitudinal and the transverse waves may be determined with sufficient accuracy. From these, all the elastic constants of a given rock may be calculated. R. M. [Translation of abstract]

Card 1/1 *gd* SUB CODE: 08

UDC: 552.1:53

L 44364-66 EWT(d)/EWP(c)/EWP(k)/T/EWP(v)/EWP(l) IJP(c)

ACC NR: AP6021385 (A)

SOURCE CODE: UR/0101/66/000/002/0020/0021

AUTHOR: Yamshchikov, V. S. (Candidate of technical sciences); Levushkin, L. N. (Engineer); Bondarenko, V. G. (Engineer); Sviridov, V. M. (Engineer) 568

ORG: Moscow Institute of Radioelectronics and Mining Electromechanics (Moskovskiy institut radioelektroniki i gornoy elektromekhaniki); Podol'sk Cement Plant (Podol'skiy tsementnyy zavod)

TITLE: The use of ultrasonic waves in the quality control of carbonate rocks

SOURCE: Tsement, no. 2, 1966, 20-21 14

TOPIC TAGS: cement, carbonate, quality control, ultrasonic wave propagation

ABSTRACT: The feasibility of applying ultrasonic wave propagation for quality control of carbonate rocks to be used in the cement industry was investigated. A correlation between the mineral composition of the carbonate rocks and the rate of ultrasonic wave propagation was established. Maximum wave propagation of 2500 m/sec corresponds to dolomite-free rocks. For rocks containing from 0 to 16-20% dolomite, the ultrasonic wave propagation is 2500-2000 m/sec. The accuracy of the determination of the carbonate rock composition by the ultrasonic wave propagation technique is ±2%. Be-

UDC: 666.94.022 : 620.179.16

Card 1/2

L 44364-66

ACC NR: AP6021385

cause of the high degree of accuracy and simplicity, the ultrasonic wave propagation method is recommended for use by the cement industry. Orig. art. has: 1 table.

SUB CODE: 08,20,11/ SUBM DATE: none/ ORIG REF: 003

Card 2/2 hs

YAMSHCHIKOV, Valoriy Sergeyevich; RZHEVSKIY, V.V., prof., doktor  
tekh. nauk, nauchn. red.

[Ultrasonic and sonic methods of investigating rocks]  
Ul'trazvukovye i zvukovye metody issledovaniia gornyykh  
porod. Moskva, Mosk. in-t radioelektroniki i gornoj  
elektromekhaniki, 1964. 70 p. (MIRA 18:5)

MIKHAYLOV, V.A., kand.tekhn.nauk; OKOL'ZIN, Ye.P., inzh.; YAMSHCHI-  
KOV, V.S., inzh.

Using conveyer-belt transportation. Mekh.i avtom.proizv. 16 no.  
2:22-23 F '62. (MIRA 17:3)

YAMSHCHIKOV, Yu.

Work and people of the Ust' Donetsk Harbor. Rech. transp. 21  
no. 10:22-23 0 '62. (MIRA 15:10)

1. Zamestitel' nachal'nika Ust' Donetskogo porta.

(Ust'-Donetsk--Harbor)

24(4)

SOV/51-b-4-17/29

AUTHORS: Obreimov, I.V. and Yamshchikov, Ye. F.

TITLE: The Dispersion Curves of Chloroform and Carbon Tetrachloride in a Wide Range of Temperatures (Krivyye dispersiikhloroforma i chetyrekhkhlorigo uglroda v shirokom intervale temperatur)

PERIODICAL: Optika i Spektroskopiya, 1959, Vol 6, Nr 4, pp 517-522 (USSR)

ABSTRACT: The present paper is a continuation of earlier work (Refs 1, 2). It deals with the dispersion curves of  $\text{CCl}_4$  and  $\text{CHCl}_3$  between 2800 and 6200 Å at temperatures from 0 to 77°C for  $\text{CCl}_4$  and from -3 to +53°C for  $\text{CHCl}_3$ . The cell used is shown in Fig 1. It was made of quartz glass transparent in ultraviolet. It consisted of a solid piece 1 with two tubes for admission of the liquid (6) and removal of air (7), a spacer 2, a cover 3 and a special plate 4. The complete assembly is shown in the right-hand part of Fig 1. The plate 4 had two parallel sides as shown in Fig 2. The light fell normally to the sides a and a' and grazed along the side ABCD. The side c made an angle of about 45° with side a. Consequently a and c formed a prism which deviated rays towards the base if  $\mu_l < \mu_q$  and towards the vertex when  $\mu_l > \mu_q$  ( $\mu_l$  and  $\mu_q$  are the refractive indices of the liquid in the cell and the quartz plate respectively). A ray which missed the side c

Card 1/4



The Dispersion Curves of Chloroform and Carbon Tetrachloride in a Wide Range of  
Temperatures 00V/51-5-4-17/29

and a ray deviated by  $c$  interfered with one another. The interference pattern could be seen by illuminating the quartz plate of Fig 2 with white light and focusing the shadow (Fig 3) of the plate on to a spectroscopy slit placed at right angles to the edge CD of the plate. The pattern is shown in Fig 3 where the dark band is the shadow of the face  $c$ . The bright band which intersects this dark band at  $\lambda = \lambda_0$  corresponds to a ray deviated by the dihedral angle with the edge FG. A chain of oval spots, shown as 2 in Fig 3, is the Fresnel diffraction pattern of a ray which grazes the side ABCD. The centre of the gap between two dark spots corresponds to the wavelength at which

$$\mu_1 - \mu_2 = m\lambda/d \quad (1)$$

where  $d$  is the thickness of the layer studied and  $n$  is an interger.

Card 2/4

The Dispersion Curves of Chloroform and Carbon Tetrachloride in a Wide Range of Temperatures

SOV/51-8-4-17/29

When  $n = 0$ ,  $\lambda = \lambda_0$  and the refractive indices of quartz and the liquid are equal. From this the values of  $\lambda$  and  $\mu_1$  at  $n = 1, 2, 3, \dots$  can be deduced and the dispersion curve can be constructed. The regions between the experimental values of  $\mu$  and  $\lambda$  were interpolated by means of Sellmeier's formula with three constants

$$\mu^2 = A + B/(\nu_0^2 - \nu^2) \quad (2).$$

The values of  $A$ ,  $B$  and  $\nu_0^2$  at  $20^\circ\text{C}$  are given in Table 1. The dispersion of  $\text{CCl}_4$  is shown in Fig 9, in the form of  $\Delta\mu' = f(\lambda)$ , where  $\Delta\mu' = \mu_1 - \mu(t)$ ,  $\mu_1$  is the refractive index at  $19.0^\circ\text{C}$  and  $t$  is temperature. Similarly the dispersion of  $\text{CHCl}_3$  is plotted in Fig 10 as a function  $\Delta\mu'' = f(\lambda)$ , where  $\mu'' = \mu_2 - \mu(t)$ ,  $\mu_2$  is the refractive index at  $20.2^\circ\text{C}$  and  $t$  is temperature. Lines 1-6 in

Card 3/4

The Dispersion Curves of Chloroform and Carbon tetrachloride in a Wide Range of Temperatures SOI/51-5-4-17/29

Fig 9 and 1-3 in Fig 10 represent the dispersion curves at various temperatures; they confirm that a change of temperature displaces the dispersion curves parallel to themselves. There are 10 figures, 3 tables and 8 references, 7 of which are Soviet and 1 English.

SUBMITTED: May 29, 1958

Card 4/4

68312

24,3400

AUTHOR: Yamshchikov, Ye.F.

SO7/51-8-1-11/40

TITLE: The Dispersion Curve of Gaseous n-Pentane <sup>1</sup>

PERIODICAL: Optika i spektroskopiya, 1960, Vol 8, Nr 1, pp 61-65 (USSR)

ABSTRACT: The paper reports determination of the dispersion curve of gaseous n-pentane and calculation of the oscillator strength  $f$ . The refractive index was measured using Jamin-type interferometer with fused quartz plates 20 mm thick. Tubes 17.26 cm long, were placed in each beam of the interferometer. One of these tubes was evacuated to below 0.1 mm Hg, the other was filled with n-pentane vapours. The ends of the tubes were sealed with thin sheets of polythene or caprone (Fig 1). N-pentane was obtained from the laboratory of Academician B.A. Kazanskiy. A compound source of light was used, consisting of an arc between two iron electrodes with a beam from a very-high-pressure krypton lamp passing between the electrodes (Fig 3). Before measurements the instrument was calibrated by obtaining the dispersion curve of dry air and comparing it with the reported measurements of Meggers and Peters (Ref 3); the two sets of results agreed between 2500 and 5000 Å. The refractive index of n-pentane at 0°C and 760 mm Hg was found to be 1.001780 for  $\lambda = 5570.29 \text{ Å}$ . The dispersion curve of

Card 1/2

4

68312

The Dispersion Curve of Gaseous n-Pentane

SOV/51-6-1-11/40

n-pentane was obtained between 2330 and 5800 Å. The experimental results could be fitted quite well to a Sellmeier curve (at 760 mm Hg and 0°C);

$$\mu^2 = A + B/(\nu_0^2 - \nu^2),$$

where  $A = 1.0007532$ ,  $\nu_0^2 = 93.1340 \times 10^8$ ,  $B = 25.2124 \times 10^6$ . The differences between the Sellmeier and experimental values are shown in Fig 7. The value of B was used to calculate the oscillator strength; it was found to be  $f = 9.74$ . Acknowledgment is made to I.V. Obreimov for his advice. There are 8 figures, 1 table and 3 references, 1 of which is Soviet, 1 English and 1 German.

SUBMITTED: June 20, 1959

Card 2/2

✓

S/076/60/034/012/026/027  
B020/B067AUTHOR: Yamshchikov, Ye. F.

TITLE: Correction of the Refractive Index of n-Pentane

PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol. 34, No. 12, p. 2845

TEXT: When measuring the refractive indices of n-heptane vapors in a wide range of wavelengths, a value  $\mu_D = 1.001772$  was obtained which considerably differs from the value of 1.001711 given in the Landolt-Börnstein tables. When comparing the result obtained with data by Friberg (Ref. 2) for methane, ethane, and propane in the gaseous phase, it was found that the value of the refractive indices for n-pentane vapors lies on a straight line which corresponds to Friberg's data for methane, ethane, and propane. Hence, it may be assumed that the value given for the refractive indices of n-pentane vapors in the Landolt-Börnstein tables can be replaced by the value  $\mu_D = 1.001772$  for  $t = 0^\circ\text{C}$  and a pressure of  $p = 760$  mm Hg. Academician B. A. Kazanskiy is mentioned. There are 1 figure and 2 non-Soviet references: 1 Swedish and 1 German.

Card 1/2

Correction of the Refractive Index of  
n-Pentane

S/076/60/034/012/026/027  
B020/B067

ASSOCIATION: Akademiya nauk SSSR, Institut elementoorganicheskikh  
soyedineniy (Academy of Sciences USSR, Institute of  
Elemental-organic Compounds)

SUBMITTED: Merch 5, 1959

Card 2/2

YAMSNCHIKOV, Ye.F.

Dispersion curves of n.perfluoroheptane and completely fluorinated  
methylcyclohexane. Opt. i spektr. 12 no.6:793-799 Je '62.  
(MIRA 15:5)

(Dispersion) (Heptane--Optical properties)  
(Cyclohexane--Optical properties)



YAMSHCHIKOV, Ye.F.

Dispersion curves of n.pentane, isopentane, and n.octodecane.  
Opt. i spektr. 12 no.6:799-801 Je '62. (MIRA 15:5)  
(Dispersion) (Hydrocarbons---Optical properties)

JAMSHCHIKOVA, A.I. , DEMENT'EV, M.L. and HIRSHER, M.L.

"Lambliasis in the Aetiology of Entero-colitis in Moscow Infants, and its Treatment."

No. 3, 42-46, May- June, 1950. 14 refs.

A group of 71 children between the ages of  $1\frac{1}{2}$  and 3 years was collected in a special nursery because they were all said to be suffering from chronic dysentery, which is not uncommon in Moscow. All these children were tested for lambliasis. Samples of fresh faeces were prepared in two ways: (1) with physiological saline and (2) with Lugol's solution. In faeces from 40 children vegetative and encysted forms of *Lamblia intestinalis* were found. This result was compared with that of an investigation of 34 healthy children in another nursery, who had suffered from acute gastro-enteritis of different duration in the past. *Lambliae* were found in only 12 of these healthy children.

After a course of (acrikhine) (?mepacrine) for five days, lambliae were still present in the faeces in half the number of children. After a second course of acrikhine for 3 days (dosage scheme not given) a better result was obtained, but not a complete cure at all. The authors recommend for infants suffering from lambliasis a full 5-day course of acrikhine, and then two 3-day courses with a 10-day interval. All children who have suffered from gastro-enteritis for any length of time, irrespective of whether they have had dysentery or not, required repeated tests for lambliasis. Abstracts of World Medicine, Vol. 8 1950.

YAMSHCHIKOVA, H. I.

USSR/Physics - Technical Physics

Card 1/1 Pub. 22 - 22/47

Authors : Finkel'shteyn, B. N., and Yamshchikova, A. I.

Title : Effect of aluminum on the magnitude of interatomic silver bonds

Periodical : Dok. AN SSSR 98/5, 781-782, Oct 11, 1954

Abstract : Measurements were conducted to determine the concentration dependence of activation energy of Ag self-diffusion in an Ag-Al alloy. This value was found to be connected with the heat of sublimation, which is accepted as a measure of energy of the crystalline lattice, by a certain empirical ratio. The effect of increased Al-content on the elasticity modulus is explained. The effect of component valences on the interatomic Ag-bonds is described. Six references: 5-USSR and 1-German (1949-1953). Tables; graph.

Institution : The I. V. Stalin Steel Institute, Moscow

Presented by: Academician V. G. Kurdyumov, May 18, 1954

FINKEL'SHTEYN, B.N., professor, doktor fiziko-matematicheskikh nauk; YAMSHCHI-KOVA, kandidat tekhnicheskikh nauk.

Effect of alloy composition on interatomic bonds in aluminum-silver systems. Sber.Inst.stali 34:36-47 '55. (MLRA 9:7)

1.Kafedra fiziki.  
(Aluminum-silver alloys) (Silver--Isotopes)

YAMSHCHIKOVA, A. I., FINKELSHTEYN, B. N. (Prof.)

"The Effect of the Alloy Compound on the Inter-Atomic Binding in an Aluminum-Silver System," In book: The Application of Radiosotopes in Metallurgy, Symposium XXXIV; Moscow, State Publishing House for Literature on Ferrous and Nonferrous Metallurgy, 1955.

FINKELSTEIN, B. N. (Prof.), Dr. Phys.-Math. Sci., Chair of Physics, Moscow Inst. of Steel im I. V. Stalin; YAMSHCHIKOVA, A. I. (Ass't.)

YAMSHCHIKOVA, A.I., kand.tekhn.nauk

Effect of vanadium, molybdenum, niobium on the properties of  
titanium alpha-alloys. Metallovedenie 3:279-297 '59. (MIRA 14:3)

(Titanium alloys—Metallurgy)

YAMSHCHIKOVA, A. I.

Metallurgical) obratki stali, No. 3 (Physical Metallurgy) Collection of Articles, No. 3), Leningrad, Sverdlovsk, 1959. 300 p. 3,200 copies printed.

Ed.: G. I. Buzynin, Candidate of Technical Sciences; literary and tech. Ed.: E. I. Baranovskii.

PURPOSE: This collection of articles is intended for scientific personnel at research and educational institutions and industrial plants and also for advanced students.

CONTENTS: The articles report the results of investigations of 1) the effect of various factors on the susceptibility of constructional and heat-resistant steels to brittle failure at various temperatures and heat-resistant steels conditions of loading (long-time, short-time, cyclic, uniaxial); 2) alloying, structure, and condition of alloys as related to their mechanical properties; and 3) corrosion resistance and evaluation of stainless and heat-resistant steels. The articles are accompanied by numerous Soviet and non-Soviet references. No illustrations are mentioned.

Author: P. O., and V. A. Zaslavskii, Engineer, Mechanical Strength of Steel

Bludovits, Yu. F., Candidate of Technical Sciences. Thermal Fatigue of Metals 214

Chechulin, B. B.; V. I. Syzhikov, Engineer; and Yu. S. Meynberg, Candidate of Technical Sciences. Investigation of the Fatigue Strength of Titanium 230

Zaslavskii, V. A., Candidate of Technical Sciences. Effect of Heat-Treatment Parameters and Position on the Properties of Alpha Alloys of Titanium 263

Khristov, Yu. D. Heat Treatment of Two-Phase Alloys of Titanium 279

Khristov, Yu. D., and Eneva, Yu. D. Anomalous Grain Growth of Metals in Vacuum 286

Khristov, Yu. D., Candidate of Technical Sciences; A. S. Zaytsev, and Yu. D. Eneva, Candidate of Technical Sciences. Investigation of the Mechanism of the Distribution of Elements in Metallic Alloys and the Role of Carbon in Alpha-Titanium 312

Gal'perin, L. S., Candidate of Technical Sciences; and E. I. Zaslavskii, Engineer. Structure and Properties of Forgings as Influenced by Forging Conditions 326

Gal'perin, L. S., Candidate of Technical Sciences; A. I. Zaslavskii, Engineer. Properties of Single-Phase Metastable Titanium Alloys 349

Strubas, P. V., Candidate of Technical Sciences. Modeling in Corrosion Tests Made in Moving Sea Water 358

Yamshchikova, A. I., Engineer; and E. I. Zaslavskii, Engineer. Use of the Electron Microscope in Investigating the Structure of 270-40-40 Austenitic Steel at Various Degrees of Susceptibility to Intergranular Corrosion 367

AVAILABLE: Library of Congress

Card 6/6

21  
1978/01  
7-20-80

SHUL'KIN, S.M., kand.tekhn.nauk; YAMSHCHIKOVA, A.M.

Properties of single-phase weldable titanium alloys. Metall-  
cvedenie 3:358-366 '59. (MIRA 14:3)

(Titanium alloys--Welding)



*YAMSHCHIKOVA, KH. G.*

USSR/Zooparasitology - Acarina and Insect-Vectors of Disease  
Pathogens.

G-4

Abs Jour : Ref Zhur - Biol., No 3, 1958, 10098

Author : Nel'zina, E.N., Slinko, L.I., Kadatskaya, K.P., Ivanov,  
K.A., Yamshchikova, Kh.G., Poltavtsev, N.N., Skirda, G.I.

Inst : -

Title : Ixodic Ticks (Parasitiformes, family Ixodidae) of Rodents  
in Northwestern Caspian Coast.

Orig Pub : Sb. tr. Astrakhansk. protivochumn. st., 1955, No 1, 416-  
433

Abstract : The fauna of ixodic ticks in the district studied is com-  
paratively sparse (5 species, more or less, are numerous);  
individual specimens may be regarded as of Kirgiz and  
European-Siberian origin. Closest biocenotic ties with  
rodents are found in *Ixodes laguri laguri* and *Thipicepha-  
lus schulzei*. The first of these (steppe species) is con-  
nected with rodents who build deep, comparatively

Card 1/2

USSR/Zooparasitology - Acarina and Insect-Vectors of Disease  
Pathogens.

APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R001962030003-7"

G-4

Abs Jour : Ref Zhur - Biol., No 3, 1958, 10098

permanent burrows (susliks, hamsters) and is surmised to  
play a substantial role in the epizootology of tularemia  
and some rickettsioses among susliks, hamsters and field  
mice. *Rh. schulzei* inhabits semideserts; its principal  
hosts are the small and yellow susliks.

Card 2/2

KOBRINSKIY, A.Ye.; SHLYAKHTIN, A.V.; YAMSHCHIKOVA, M.N.

Vibrations of nonlinear systems caused by periodical impacts.

Trudy Inst.mash.Sem.po teor.mash. 18 no.70:49-67

(MIRA 12:1)

(Vibration)

KOBRINSKIY, A.Ye.; SHLYAKHTIN, A.V.; YAMSHCHIKOVA, M.N.

Theory of vibration impact machines. Trudy Inst. mash. Sem.  
po teor. mash. 20 no. 79:27-43 '60. (MIRA 13:12)  
(Vibrators) (Impact)

YAMSHCHIKOVA, M.N.

Periodic movements of a vibratory-percussive system at various  
recovery coefficients. Teor.mash.i mekh. no.105/106:50-61 '65.  
(MIRA 18:4)

YAMSHCHIKOVA, N.A., inzh.

Device for boring guide heads of side rudders. Sudostroenie 27  
no.12:62 D '61. (MIRA 15:1)  
(Steering gear)

MAL'NIKOV, S.A.; GORBACHEVA, F.Ye.; YAMSHCHIKOVA, N.A.

Use of exercise therapy in progressive muscular dystrophy.  
Trudy 1-go MMI 24:203-212 '63 (MIRA 17:3)

POROKHOVA, V. Ya.; YAMSHCHIKOVA, H.A.

Exercise therapy in hysterical paralysis and paresis. Trudy  
1-go MMI 24:344-352'63 (MIRA 17:3)

YAMSHCHIKOVA, N.A.

Use of exercise therapy and massage in treating myopathy.  
Vop. kur., fizioter. i lech. fiz. kul't. 28 no.4:344-346  
Jl-5g '63. (MIRA 17:9)

1. Iz kliniki nerвных bolezney (zav.- prof. V.V. Mikheyev)  
I Moskovskogo ordena Lenina meditsinskogo instituta imeni  
Sechenova.



YAMSHTEKIN, S.I.

Effect of the palatal structure on the singing voice [with summary  
in English]. Vest.oto-rin. 19 no.6:88-91 N-D '57 (MIRA 11:3)

1. iz L'vovskogo logopedicheskogo i foniatricheskogo dispensera.  
(PALATE, anat. and histol.  
eff. of structure on voice in singing)  
(VOICE  
eff. of palatine structure on singing)

YAMSHTEKIN, S.L.

Influence of the structure of the palatal arch and of the epiglottic cavities on the function of the vocal apparatus. Stomatologia 38 no.5:48-50 S-O '59. (MIRA 13:3)

1. Iz L'vovskoy gorodskoy stomatologicheskoy polikliniki (glavnyy vrach V.G. Starodubtseva).  
(PALATE) (EPIGLOTTIS) (VOCAL CORDS)

AUTHOR: Yamtol'skiy, V.G.

SOV/109-3-12-10/13

TITLE: Diffraction of a Plane Wave on a Wire Grid Situated Inside a Dielectric Layer (Difraktsiya ploskoy volny na provolochnoy setke, raspolozhennoy vnutri dielektricheskogo sloya)

PERIODICAL: Radiotekhnika i Elektronika, 1958, Vol 3, Nr 12, pp 1516 - 1518 (USSR)

ABSTRACT: The system considered is shown in the diagram on p 1516. It consists of a wire grid situated inside a flat dielectric layer, having a permittivity  $\epsilon$ . The distance between the wires of the grid is  $d$ . The radius of the wires is  $\rho$ . The thickness of the dielectric layer is  $2r$  and  $\alpha$  is the wave number. Technically, the most important case is when the grid is situated in the middle of the layer. Assuming that the wires of the grid carry currents  $I$ , the field excited by the currents when  $r = \infty$  can be written in the form of Eq (1) where  $\alpha'$  is the wave number in the dielectric. At a great distance from the wires, the field can be written as Eq (2). The field at the surface of the wires can be written as Eq (3), where  $R_k$  is defined by Eq (4). Consequently, the field

Card1/2 produced by the grid outside the dielectric layer can be

SOV/109-3-12-10/13

## Diffraction of a Plane Wave on A Wire Grid Situated Inside a Dielectric Layer

written in the form of Eq (5), where  $T_k$  is the transmission coefficient of the wave through the dielectric-air boundary, which is defined by Eq (6). If now a plane wave impinges on the grid (from the negative direction of the axis  $x$ ), the field in the plane of the grid is expressed by Eq (8), while the field transmitted through the dielectric is given by Eq (9). The above equations permit the complete solution of the problem; thus, the transmission coefficient of the system which is defined by Eq (11), can be expressed as Eq (12); the functions  $F_1$ ,  $F_2$  and  $F_3$  of Eq (12) are defined by Eqs (13), (14) and (15). There are 1 figure and 6 references, 3 of which are English, 1 German and 2 Soviet.

SUBMITTED: October 4, 1957

Card 2/2

S/717/62/000/007/009/010  
D207/D302

AUTHORS: Yamyashev, A.V., Candidate of Technical Sciences, and  
Zubko, A.M., Candidate of Physico-Mathematical Sciences

TITLE: The effect of melting in vacuum on the composition and  
properties of metals and alloys

SOURCE: Dnepropetrovsk. Institut metallovedeniya i fiziki metallov.  
Problemy metallovedeniya i fiziki metallov, no. 7, Moscow,  
1962, 450 - 471

TEXT: The authors report a series of experiments, started in 1955,  
on the effect of vacuum melting in induction furnaces on properties  
of metals and alloys. Tests on electrolytic and Armco iron showed  
that simple remelting at  $8 \times 10^{-3}$  mm Hg removed most of the hydrogen  
and addition of carbon to the melt reduced the oxygen content by a  
factor of 5, even at 0.5 mm Hg. Heat treatment at 1600 - 1750°C at  
 $10^{-3}$  -  $10^{-4}$  mm Hg reduced the sulphur content only slightly. Armco  
iron heated in a vacuum showed strong evolution of CO before melting  
and of hydrogen after melting and during pouring. Work on the ball-  
Card 1/2

The effect of melting in vacuum on ...

S/717/62/000/007/009/010  
D207/D302

bearing steel  $\text{UX 15}$  (ShKh15) was carried out together with another laboratory in the author's Institute. It was found that ShKh15 steel with low-oxygen and globular phase content could be obtained by melting together commercial iron and electrolytic chromium in vacuum and by adding carbon before other admixtures (Al, Si). Simple remelting in vacuum reduced considerably the amounts of residual manganese, oxygen and nitrogen in the ferrite steel X28 (Kh28). Addition of carbon to Kh28 melted in vacuum improved considerably its impact strength. Strong reduction of the oxygen nitrogen and non-metallic content, and an improvement of mechanical properties were obtained for the steel 18XHBA (18KhNVA) by preparing it in vacuum. Residual nitrogen and hydrogen could be reduced very considerably in nickel by melting in vacuum. Acknowledgements are made to M.M. Fillipycheva, L.M. Slavina and S.N. Fedorov, all of whom took part in the experimental work. There are 5 figures, 14 tables and 8 references: 2 Soviet-bloc and 6 non-Soviet-bloc. The references to the English-language publications read as follows: Dastu and I. Chipman, J. Metal Trans., 41-49, 1949; I.A. Cordier and I. Chipman, J. Metal Trans., 7, 905-917, 1955; W. Binder, R. Hevard and H. Spindelov, Trans. ASM, 43, 95, 1951.

Card 2/2

YAMZIN, I.I.

CAND PHYSICOMATH SCI

Dissertation: "Atomic Decay of Electrons."

2 March 49

Inst of Crystallography, Acad Sci USSR.

SO Vecheryaya Moskva  
Sum 71

YANZIN, I. I.

Electrons

Atomic scattering of electrons; verification of laws of atomic scattering of electrons according to intensities of electron diffraction patterns. Trudy Inst. krist. no. 5, 1949.

Monthly List of Russian Accessions, Library of Congress, December 1952. Unclassified.



YAKOVIN, I. I.

USSR/Physics  
Crystallography  
Films, Deposited

Apr 49

"Experimental Verification of the Theory of the  
Elastic Scattering of Fast Electrons," I. I.  
Yamarin, Z. G. Pinsker, Inst of Cryst, Acad Sci  
USSR, 4 pp

"Dok Ak Nauk SSSR" Vol IXV, No 5

Measured intensities of interference maxima from  
polycrystalline films of Al, Cu, Ag, Au, beta-Sn, Zn,  
and Mg on electograms. States that absence of any  
connection between thickness of sample and corre-  
ponding theoretical and experimental intensities  
39/A97106

USSR/Physics (Contd)

Apr 49

indicates absence of dynamic scattering in these  
films. Thus, justified applicability of theory  
of atomic scattering and kinematic theory of  
scattering in crystal lattices of light and quite  
heavy elements during passage of electrons of  
38 to 56-kv energies through films of average  
thickness up to 5.10-6 cm. Submitted by Acad A. A.  
Lebedev, 24 Jan 49.

39/A97106

FA 159T86

USSR/Physics - Microscopes, Electron  
Electrical Equipment Feb 50

"High-Voltage Apparatus for Electronography,"  
I. I. Yamzin, Inst of Cryst, Acad Sci USSR, 4 pp  
"Zavod Lab" Vol XVI, No 2

Two basic types of high-voltage apparatus (50 kv) are designed mainly for use with electron microscopes. First type is modification of ordinary roentgen apparatus. Second type uses principle of rectification of HF current from tube generator, and is extremely expensive and complicated type invented by Yamzin uses principle

USSR/Physics - Microscopes, Electron  
(Contd) 159T86  
Feb 50

of amplification of audio-frequency oscillations produced by tube generator with voltage amplifiers raised to 30 kv and rectified by kenotron rectifier. Use of relatively low-frequency current permits simplification of power losses in various circuit elements, radio tubes and parts. Claims 10-12 hr/day operation for over a year under use with standard 0.1-0.5 ma with operating voltage of 45-55 kv. Only service necessary for this period was tube replacement.

159T86

CP  
Chemical Industry  
B

Synthetic mica. I. I. Yamsin. *Zapiski Vsesoyuz. Mineralog. Obshchestva* (Mem. Soc. Russ. Mineral.) 81, 224-31 (1932).—A survey of the work done on the synthesis of P phlogopite and related P micas by crystal from the melts. The expts. made in Russia, Germany, England, United States, and Japan are outlined in their importance for the practical and expected com. solution of the problems involved. The efficiency of different methods is discussed for the production of high-quality electrotech. insulator mica material. The priorities of Russian authors, especially of Khrushchov, Morozovich, and D. P. Gelgov'ev for having discovered the correct methods of mica synthesis is emphasized.  
W. Bittel

Силин, И. И.

"Lattice Structure of Silicon Oxide Tetrahedrons in Mica"  
Tr. in-ta Kristallogr. AN SSSR, (1953, 121-134)

The usual assumption of hexagonal symmetry of silicon oxide tetrahedrons in mica seems to be wrong. The distance K - O shortens, if the lattice is ditrigonal, which occurs at a certain inclination of tetrahedrons. The distance K - O and the dimensions of an elementary cell computed under this assumption are in good agreement with experimental values. (RZhFiz, No 9, 1955)

SO: Sum-No 787, 12 Jan 56

1. YAMZIN, I. I., SHASHKINA, T. I.
2. USSR (600)
4. Chemistry, Analytical
7. New method of qualitative chemical analysis, Priroda 42, no. 3, 1953.

9. Monthly List of Russian Accessions, Library of Congress, May 1953. Unclassified.

*Yamgin, I. I.*

✓ Stabilization of the Temperature Conditions of Electric Resistance Furnaces. V. V. Vernikovskii and I. I. Yamgin. (*Zavolokaya Laboratoriya*, 1956, 21, (4), 332-363). (In Russian). A temperature regulating arrangement, suitable for resistance furnaces working at high temperatures (1500-2500° C), is described. For a carbon-element furnace the power was kept within  $\pm 0.5\%$  of the required mean value. 3

YAMZIN, I. I.

Lattice structure of silicate tetrahedra in micas. Trudy Inst. krist.  
no.9:251-258 '54. (MLRA 7:11)

1. Institut kristallografii Akademii nauk SSSR.  
(Mica) (Silicates) (Crystallography)

YAMZIN, I.I.

Orientating action of a magnetic field on the growth of dia-  
and paramagnetic crystals. Trudy Inst.krist.no.11:206-211 '55.  
(Magnetism) (Crystallography) (MIRA 9:6)



YAMZIN, I. I.

Structure and morphological peculiarities of fluorophlogopite and tenfolite. I. I. YAMZIN, V. A. TIMOFEEVA, T. I. SHASHKINA, E. N. BELOVA, AND N. V. GLUKH. *Zhurnal Vsesoyuz. Mineralog. Obshchestva*, 84 [4] 415-24 (1955).—Two different micas were synthesized, fluorophlogopite,  $\text{KMg}_2(\text{Si}_2\text{Al}_2)\text{F}_2$  (I), and tenfolite,  $\text{KMg}_2\text{Li}(\text{Si}_2\text{O}_5)\text{F}_2$  (II), having the fluorophlogopite structure. The micas were obtained by slow cooling of a melt of the pure oxides and fluorides in stoichiometric proportions. Differential thermal analysis of the melts yielded melting points of  $1340^\circ \pm 5^\circ\text{C}$ . and  $1185^\circ \pm 5^\circ\text{C}$ . for I and II, respectively. X-ray measurement of interplane distances showed the same values as in various natural micas of the I type; values of distances  $a$ ,  $b$ ,  $c$ , and  $c'$  were 5.32, 9.16, 10.67, and 10.2, respectively; the monoclinic angle was  $100^\circ$ . The micas synthesized showed no change in structure when heated from room temperature to  $1600^\circ\text{C}$ . from the powder X-ray patterns, in contrast to natural phlogopite. Optical properties measured were  $n_\gamma$ ,  $n_\beta$ , and  $n_\alpha$ , having values of 1.549, 1.548, and 1.522, respectively, for I and 1.540, 1.540, and 1.513 for II. Birefringence was 0.41 and the angle  $2V$  was nearly 0. II was transparent in the visible range above 270  $\mu$ . Morphological characteristics shown reveal the spiral growth of crystals and the presence of screw dislocations. Star formations and stepped "hills" on crystal faces were observed. 12 figures, 22 references. D.T.W.

YAMZIN, I. I.

USSR/Physical Chemistry. Crystals.

B-5

Abs J. O. APPROVED FOR RELEASE: 09/01/2001, 14 CIA-RDP86-00513R001962030003-7"

Author : V. A. Timofeyeva, I. I. Yamzin  
 Inst : Institute of Crystallography  
 Title : The Formation of Corundum and Spinel from the Gaseous Phase

Orig Pub: Tr. In-ta kristallogr. AN SSSR, 1956, vyp 12, 67-72

Abstract: In conducting experiments on the crystallization from the fusions of mixtures of oxides and fluorides at a high temp. there was discovered from the gaseous phase, depending on the composition of the batch, the formation of crystals of corundum,  $\text{MgO}\cdot\text{Al}_2\text{O}_3$ ,  $\text{ZnO}\cdot\text{Al}_2\text{O}_3$ ,  $\text{ZnO}$ ,  $\text{MnO}\cdot\text{Al}_2\text{O}_3$ ,  $\text{ZnO}\cdot\text{Fe}_2\text{O}_3$ . The form of crystals is described and the values of coefficients of hardness and refraction are given. The derivative products were carefully dehydrated and the authors believe the reactions proceed without the participating water, in contrast to the assumption made previously (Lacroix A., Bull. Soc. min., 1887, 10, 157-158).

Card 1/1

S/564/57/000/000/C20/029  
D258/D307

AUTHORS: Yamzin, I. I., and Leyzerzon, M. S.

TITLE: Synthetic micas, their properties and application

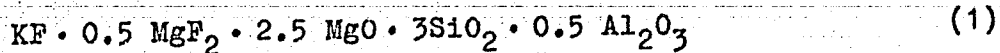
SOURCE: Rost kristallov; doklady na Pervom soveshchanii po rostu kristallov, 1956 g. Moscow, Izd-vo AN SSSR, 1957, 277-286

TEXT: The present work is concerned with some results of the studies on the crystallization of fluorophlogopite and teniolite, carried out in Laboratoriya morfologii kristallov Instituta kristallografii (Laboratory of Crystal Morphology of the Crystallography Institute) on 50 - 100 g melts. Some results are given of analogous work on 1 - 5 kg melts, carried out at Laboratoriya prirodnoy i iskusstvennoy slyudy VNII-asbesttsementa (Laboratory of Natural and Artificial Mice of the VNII of Asbestos Cement). The optimum charge compositions were

Card 1/3

Synthetic micas...

S/564/57/000/000/020/029  
D258/D307



for fluorophlogopite and



for teniolite. These compositions gave crystals free from glass, forsterite, mullite, etc. The best results were obtained when (a) fluorophlogopite was heated rapidly to 1380°C, held at this temperature to complete the fusion, and slowly cooled to below crystallization temperature; (b) teniolite was heated rapidly to 1210°C, held until molten and slowly cooled. These heating regimes avoided losses of volatile components. The resulting

crystals were up to 10 cm<sup>2</sup> x 1.5 mm, and were of sufficient quality for some of their physical, chemical, electrical and mechanical properties to be measured and compared with those of natural micas. The crucible-less method of fusion was successfully tried. To prepare ceramic products, the synthetic micas were ball-milled,

Card 2/3

S/564/57/000/000/020/029  
D258/D307

Synthetic micas...

bonded with 10 - 15% of 85%  $H_5PO_4$ , pressed at  $700 \text{ kg/cm}^2$ , and heated for 1 1/2 hrs at  $950 - 1000^\circ\text{C}$ . Some applications of synthetic micas in electrical, radio, and aircraft industries are mentioned. The following workers assisted in the work: G. G. Lommleyn, V. A. Timofeyeva, V. V. Vernikovskiy, T. I. Shashkina, Ye. N. Belova, and N. V. Glikl (Crystallography Institute, and Yu. N. Ul'ko, S. I. Sokol'skiy, O. L. Feofilova, A. S. Naletov, and I. M. Gol'dman (VNII of Asbestos Cement). There are 7 figures and 2 tables.

Card 3/3

AUTHOR: Yamzin, I.I. SOV/70-4-3-25/32

TITLE: An Apparatus for Neutronographic Structure Analysis

PERIODICAL: Kristallografiya, 1959, Vol 4, Nr 3, pp 423-425 (USSR)

ABSTRACT: The diffractometer described was designed specially for single-crystal work and has dimensions similar to those used in X-ray apparatus. It consists of crystal monochromator, collimator, spectrometer and recording apparatus. A Soller slit system made of Cd plates is used and gives a divergence of about  $20'$ . The monochromator, a single crystal of Pb cut obliquely at  $6^\circ$  to (111) is fixed to the reactor wall and works at  $\lambda = 1.1 \text{ \AA}$  with  $\theta = 11^\circ$ . This reduces the  $\lambda/2$  component to a minimum. The spectrometer is mostly a GUR-3 goniometer as used in the URS-50I diffractometer, but the counter and shielding weigh  $\sim 30$  kg and have to be separately carried on a ring outside the goniometer. The angular settings are remotely controlled by selsyns. A proportional,  $\text{BF}_3$ -filled counter shielded by 10 cm of paraffin and 3 cm of  $\text{B}_4\text{C}$  is used. The counter has a single slit collimator of Cd with a divergence

Card1/2

SOV/70-4-3-25/32

An Apparatus for Neutronographic Structure Analysis

of 20'. A monitoring counter can be put into the direct beam. The electrical equipment consists of a VSE-2500 HT rectifier, 3 identical counting channels. The counters are immediately followed by 6Zh2B cathode followers leading to AD-1 amplitude discriminators, each having a pre-amplifier raising the signal level by 30 db. The remaining units are: PS-64 counter, RYe-1 rate meter, EPP-09 mechanical counter and recorder.

A specimen curve from a 1 mm<sup>3</sup> KCl crystal is shown. There are 2 figures, and 3 references, 2 of which are Soviet and 1 English.

ASSOCIATION: Institut kristallografii AN SSSR (Institute of Crystallography of the Ac.Sc.USSR)

SUBMITTED: March 20, 1959

Card 2/2

YAMZIN, I.I.; NOZIK, Yu.Z.

Adjustment of single-crystal specimens for neutron diffraction  
study. *Kristallografiia* 6 no.3:471-473 My-Je '61. (MIRA 14:8)

1. Institut kristallografii AN SSSR.  
(Neutron diffraction crystallography)

S/070/61/006/006/004/008  
E132/E135

AUTHORS: Nozik, Yu.Z., and Yamzin, I.I.  
TITLE: On the structure of manganese ferrite

PERIODICAL: Kristallografiya, v.6, no.6, 1961, 923-924

TEXT: Manganese ferrite of composition  $Mn_{1.03}Fe_{1.97}O_4$  has been examined by neutron diffraction at room temperature and above the Curie point. Single crystals were used in the forms of 6 mm diameter spheres, 60 reflexions being obtained from the zones [110] and [100]. Intensity measurements were accurate to better than 5%. The oxygen parameter U was found to be  $0.260 \pm 0.002$  and X, the amount of inverseness, determined by the proportion of Mn ions in tetrahedral positions, was found to be  $0.80 \pm 0.04$ . Intensities were corrected for secondary extinction, the angular disorientation of the mosaic being  $1.3'$ . Tables of observed and calculated intensities are given for nuclear and magnetic contributions to the scattering. The magnetic moments were  $\mu_o = 4.60\mu_B$  ( $T = 4.2 \text{ }^\circ K$ );  $|\mu_{oct}| = |\mu_{tet}| = 3.18\mu_B$  ( $T = 296 \text{ }^\circ K$ ).

Card 1/2



On the structure of manganese ferrite S/070/61/006/006/004/008  
E132/E135

The disagreement coefficient was 6.0%. Acknowledgment is expressed to Academician N.V. Belov for advice. There are 1 table and 5 references; 1 Soviet-bloc, 1 Russian translation from non-Soviet publication and 3 non-Soviet. The English language references read as follows:

- Ref.1: J. Hastings, L. Corliss, Phys. Rev., Vol.104, 328, 1956.
- Ref.3: Hamilton. Acta crystallogr., Vol.10, 629, 1957.
- Ref.4: Hamilton. Phys. Rev., Vol.110, 1050, 1958.
- Ref.5: H. Lipson and W. Cochran. Determination of Crystal Structures, 1953. Russian translation, Moscow, 1956. (Opredeleniye struktury kristallov. p.86)

ASSOCIATION: Institut kristallografii AN SSSR  
(Institute of Crystallography, AS USSR)

SUBMITTED: June 27, 1961

Card 2/2

YAMZIN, I.I.; NOZIK, Yu.Z.; BELOV, N.V., akademik

Neutron diffraction study of the cubic modification of  $PbF_2$ . Dokl.  
AN SSSR 138 no.1:110-111 My-Je '61. (MIRA 14:4)

1. Institut kristallografii AN SSSR.  
(Lead fluoride)

YAMAZAKI, T.

- ALIMOV, B. A., Institute for Physical Problems, Akademiya Nauk SSSR, Moscow - "Neutronographic study of NiCO<sub>3</sub>" (Section 3-2)
- BELOV, R. V., Associate Director, Institute of Crystallography, Academy of Sciences USSR, Moscow - "Magnetic (ferromagnetic) space group symmetry" (C-6)
- BELOV, R. V., KOSOVA, E. E., Both Institute of Crystallography, Academy of Sciences USSR, Moscow
- BRUNY, J. P., Johns Hopkins University, Baltimore, Md., and DOBAY, G. E., Geophysical Laboratory, Carnegie Institution, Washington, D. C. - "Tables of magnetic space groups, II. Special positions" (C-4)
- BOGOLYUBOV, A. S., Institute for Physical Problems Akademiya Nauk SSSR, Moscow - "Problems of transition elements" [sic] (M-16)
- BOGOLYUBOV, A. S., ALEXANDER, G. S., BOGOLYUBOV, G. Ye. - "Piezomagnetic effect in antiferromagnets" (M-15)
- BRONSKIY, Ye. I., Head, Magnetic Laboratory, Moscow State University - (1) "The electrical and galvanomagnetic properties of thin films at very low temperatures" (M-2); (2) "On the connection between the Nernst-effect in ferromagnetic metals and the Nernst-effect in ferromagnetic oxides" (M-7); "The anisotropy of the magnetic susceptibility" (M-1)
- BRONSKIY, Ye. I., Institute of Crystallography, Academy of Sciences USSR - "Electron diffraction study of thioarea CO (M-2)"
- BRONSKIY, Ye. I., Central Scientific Research Institute of Metallurgy, Moscow - "The problem of the influence of spontaneous magnetization on crystal structure and phase state of alloys" (M-8)
- BRONSKIY, Ye. I., VIKHREVA, E. V., NIKOLAYEV, Ye. G., Central Scientific Research Institute of Metallurgy, Moscow - "Neutron diffraction investigation of order-disorder in the alloys 'Ferrous-titanium and ferrous-cobalt'" (M-1)
- BRONSKIY, Ye. I., NIKOLAYEV, Ye. G., Central Scientific Research Institute of Metallurgy, Moscow - "Neutron diffraction study of the structure of solid hydrogen and deuterium" (C-8)
- BRONSKIY, Ye. I., Institute of Crystallography, Academy of Sciences USSR - "Results and progress of electron diffraction analysis" (C-11)
- BRONSKIY, Ye. I., Central Scientific Research Institute of Metallurgy, Moscow - "Magnetic anisotropy in alloys of Ni-Fe-Co alloys" (M-9)
- BRONSKIY, Ye. I., Central Scientific Research Institute of Metallurgy, Moscow - "Some problems of the theory of high coercive materials" (M-17)
- BRONSKIY, Ye. I., Institute of Ferromagnets, Academy of Sciences USSR - "Some investigations of non-metallic ferro and antiferromagnets" (M-13)
- BRONSKIY, Ye. I., Institute of Crystallography, Academy of Sciences USSR - "Development of electron diffraction method" (C-11)
- BRONSKIY, Ye. I., KRYLOV, S. V., KUKHAR, I. E., Institute of Crystallography, Moscow - "Atomic and magnetic structures of magnetic ferrite" (J-2)
- BRONSKIY, Ye. I., Institute of the Physics of Metals, Academy of Sciences USSR, Sverdlovsk. A member of the IUPAP Commission on Magnetism. The listing of Paragraph 1 of Comment for a complete listing of members of the Commission. Some investigations of Soviet physics on the theory of ferromagnetism for the last year" (Invited paper. Section M-1)

USSR (cont.)

Paper to be submitted for the IUPAP Intl. Conference on Magnetism and Crystallography, Kyoto, Japan, 25-30 Sep 1961

S/070/62/007/001/006/022  
E132/E460

AUTHORS: Yamzin, I.I., Staritsyn, V.Ye., Nozik, Yu.Z.

TITLE: A small-scale neutron diffractometer

PERIODICAL: Kristallografiya, v.7, no.1, 1962, 72-76

TEXT: The mechanical and electrical construction of a small diffractometer (consisting of a table for the crystal specimen and a swinging arm for the counter) is described. It follows the traditional Bragg spectrometer design, the counter arm moving only in the equatorial plane. The two rotations necessary are provided by selsyn motors connected to the work drives through magnetic clutches. A timer controls the rates of rotation. The instrument was tested under typical conditions which were: polycrystalline specimen of  $\text{Be}_2\text{SiO}_4$ , 10 mm in diameter and 30 mm high; enriched  $\text{BF}_3$  counter, followed by cathode follower, pulse amplifier and discriminator, counter, integrator and pen recorder forming one channel and a second channel monitoring the primary beam after the Pb monochromator. The primary beam was formed by Cd Soller slits giving a divergence of  $20'$ ; the Pb monochromating crystal had a mosaic spread of  $20'$  and was cut at an angle of  $6^\circ$  to the Card 1/2 ✓

A small-scale neutron diffractometer

S/070/62/007/001/006/022  
E132/E460

(111) plane; there was a further Cd Soller slit collimator in front of the counter, 100 mm long with an acceptance angle of 20'. The record of the powder trace shows a line half-width of about 20' at  $\theta = 15^\circ$ . The device was constructed by Laboratoriya struktury kristallov (Laboratory of Crystals Structure) and the konstruktorskiy byuro (Planning office) of the Institute of Crystallography AS USSR. There are 4 figures. ✓

ASSOCIATION: Institut kristallografii AN SSSR  
(Institute of Crystallography AS USSR)

SUBMITTED: March 11, 1961

Card 2/2

NOZIK, Yu.Z.; YAMZIN, I.I.

Measurement of the integral intensities of diffraction reflections. Kristallografiia 7 no.1:123-124 Ja-F '62.  
(MIRA 15:2)

1. Institut kristallografii AN SSSR.  
(Neutrons--Diffraction)

S/070/62/007/006/016/020  
E132/E435

AUTHORS: Kuz'minov, Yu.S., Yamzin, L.L., Belov, N.V.

TITLE: The magnetic structure of yttrium ferrite

PERIODICAL: Kristallografiya, v.7, no.6, 1962, 946-948

TEXT: Neutron diffraction examinations were made of polycrystalline specimens of  $Y_3Fe_5O_{12}$  at room temperature and at  $300^\circ C$ , which is above the Curie temperature. Very good agreement was obtained between the observed and calculated intensities. The nuclear contribution was calculated from the structure of S.Geller and M.A.Gillio (J. Phys. and Chem. Soc., v.3, 1/2, 1957). The magnetic contribution was calculated from Neel's model in which the spins of the  $Fe^{+++}$  ions occupying the octahedral positions (a) are antiparallel to the spins of the  $Fe^{+++}$  ions in the tetrahedral (d) positions. The ions in (a) positions were ascribed a room-temperature magnetic moment of  $\mu_a = 4.60 \mu_B$  and the ions in (d) positions -  $\mu_d = 4.16 \mu_B$ . It was assumed that at  $0^\circ K$  the moment of the  $Fe^{+++}$  ions was  $5 \mu_B$ . The parameters assumed were: (in the space group  $Ia\bar{3}d$ )  
O in general positions with  $(x,y,z) = (-0.0247, 0.0572, 0.1492)$ ;  
Card 1/2

The magnetic structure ...

S/070/62/007/006/016/020  
E132/E435

Y in 24(c) positions. There are 2 figures and 1 table.

ASSOCIATION: Institut kristallografii AN SSSR  
(Institute of Crystallography AS USSR)

SUBMITTED: June 8, 1962

Card 2/2



S/070/62/007/006/017/020  
E073/E335

AUTHORS: Kuz'minov, Yu.S., Yamzin, I.I., Mal'tsev, Ye.I. and Belov, N.V.

TITLE: Determination of the amplitude of Raman scattering of thermal neutrons on yttrium nuclei

PERIODICAL: Kristallografiya, v. 7, no. 6, 1962, 948 - 949

TEXT: The atlas of Hughes on neutron cross-section gives the value  $\sigma = (8.0 \pm 0.3) \times 10^{-24} \text{ cm}^2$ . It can be calculated from this value that  $b_Y = 0.8 \times 10^{-12} \text{ cm}$ . There was some doubt about this value since the references given by Hughes did not contain information on the scattering of neutrons on yttrium. The authors of this paper determined  $b_Y$  from the measured intensity of neutron diffraction on polycrystalline yttrium oxide, using a 15-mm diameter, 70 mm high specimen pressed from powder of a grain size between 1 and 5  $\mu$ . The value of  $b_Y$  was determined from tabulated values of  $b_0 = 0.58 \times 10^{-12} \text{ cm}^2$  and the structural model of

Card 1/2

Determination of ....

S/070/62/007/006/017/020  
E075/E335

yttrium oxide, as published by W. Zachariassen (Norsk. geol. tidsskr. 9, 310 - 316, 1926; Struct. Rept., 16, 218, 1952). The average of three measurements of the amplitude of the Raman scattering was  $b_Y = (+0.816 \pm 0.07) \times 10^{-12}$  cm. There is 1 figure.

ASSOCIATIONS: Institut kristallografii AN SSSR (Institute of Crystallography of the AS USSR)  
Fiziko-tekhicheskiy institut AN SSSR (Physico-technical Institute of the AS USSR)

SUBMITTED: June 8, 1962

Card 2/2

3/070/63/008/001/004/024  
E132/E460

AUTHORS: Kuz'minov, Yu.S., Yamzin, I.I., Belov, N.V.

TITLE: A neutron diffraction study of an yttrium-neodymium ferrite with the garnet structure

PERIODICAL: Kristallografiya, v.8, no.1, 1963, 21-24

TEXT: A polycrystalline specimen of composition  $1.5 Y_2O_3 \cdot 1.5 Nd_2O_3 \cdot 5 Fe_2O_3$ , prepared by ceramic techniques was examined at room temperature and at  $360^\circ C$  (above the Curie point) by neutron diffraction. The wavelength was  $1.11 \text{ \AA}$ . R. Pauthenet (J.Appl.Phys., v.30, no.4, 1959, 290) proposed a scheme of interactions for garnet structures of composition  $3M_2O_3 \cdot 5Fe_2O_3$  following Neel's analysis of spinels. 4 Fe ions are in octahedral positions 16(a), 6 Fe ions are in tetrahedral positions 24(d) and 6 rare earth ions are in 24(c) positions with coordination 8 (tetrag. anti-prism). He proposed that the sub-lattices a and d had a strong negative exchange interaction and that the sub-lattice c was magnetized anti-parallel to the resultant moment. The interaction c-d is weaker than a-d. K.P.Belov and L.A.Malevskaya, on the other hand, suggested that the c sub-lattice was not ferromagnetically ordered (Izv. AN Ser.fiz., Card 1/2

S/070/63/008/001/004/024  
E132/E460

A neutron diffraction ...

v.25, no.11, 1961, 1371-1375). The latter suggestion is here shown experimentally to be correct. The chemical unit cell was cubic,  $Ia3d$ , with  $a = 12.48 \text{ \AA}$  and extra lines were not observed. The intensities were measured and were also calculated. The differences between the intensities above and below the Curie point gave the magnetic contribution which was compared with that calculated from two sub-lattices (Belov) and from three (Pauthenet). Very good agreement with Belov's model was obtained. The conclusion was checked by examining a specimen of composition  $1.5Y_2O_3 \cdot 1.5Nd_2O_3 \cdot 5Al_2O_3$  which should show extra lines if the Nd were ordered - these were not found. There are 2 figures and 1 table. ✓

ASSOCIATION: Institut kristallografi AN SSSR  
(Institute of Crystallography AS USSR)

SUBMITTED: August 9, 1962.

Card 2/2