

SHUTOV, I. A.
32043. SHUTOV, I. A. Trakhoma sredi naseleniã Koriãkskogo natsional'nogo okruga Kamchatskoj oblasti; po rezul'tatam obsledovaniã 1948 g. (Vestnik oftalmologii, May-June 1951. v. 30, vyp. 3, p. 30-31) *Title tr.:* Trachoma among the population of the Koryak National District of Kamchatka Oblast'; according to results of the 1948 investigation.

Contains a report on a mass survey, therapy, and indoctrination, together with data on the geography, population and economics of the area. Results of the survey, involving 5,396 persons, largely Russians, but also some 500 Koryaks and 1,000 Itelmens, are presented. Incidence of the disease was found highest among Koryaks, next in Itelmens, least among Russians. Data

of the Eye Clinic (DIRECTOR -
Prof. N. Ye. POKHISOV), Khabarovsk
MEDICAL INSTITUTE.

nik oftalmologii, May-June 1951. v. 30, vyp. 3, p. 30-31) *Title tr.:* Trachoma among the population of the Koryak National District of Kamchatka Oblast'; according to results of the 1948 investigation.

Contains a report on a mass survey, therapy, and indoctrination, together with data on the geography, population and economies of the area. Results of the survey, involving 5,396 persons, largely Russians, but also some 500 Koryaks and 1,000 Itelmens, are presented. Incidence of the disease was found highest among Koryaks, next in Itelmens, least among Russians. Data are given on degrees of affliction, mass therapeutic measures, instruction of local medical personnel and of population.

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S/148/61/000/007/009/012

E193/E380

AUTHORS: Zamyatnin, M.M. and Shutov, I.A.

TITLE: The effect of heat treatment on the behaviour of steel 3кп (3kp) at sub-zero temperatures

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Chernaya metallurgiya, no. 7, 1961, pp. 142 - 148

TEXT: Hot-rolled steel 3kp is a useful constructional material owing to its high ductility, good weldability and relatively low price. The field of application of this material, however, is limited by its relatively low static and impact strength at sub-zero temperatures and by its tendency to age-harden and fail by brittle fracture. This often necessitates its replacement by a more expensive low-alloy constructional steel and the object of the present investigation was to establish whether the desirable combination of properties can be imparted to steel 3kp by a suitable heat-treatment. To this end, tensile tests were carried out on both standard and notched test pieces, as well as transverse bending tests on notched bars and impact strength tests at temperatures ranging
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The effect of heat treatment E193/E380

from +20 to -200 °C on small (6 mm in diameter) specimens (1) in the hot-rolled condition, (2) quenched from 900 °C and tempered for 45 minutes at 600 °C, and (3) quenched from 900 °C and tempered for 45 minutes at 200 °C (the condition of specimens is described by these numerals in Figs. 1, 2 and 5). The steel studied contained 0.15% C, 0.42% Mn and traces of Si. When notched bars were used, the notch (60°, 0.5 mm deep, 0.1 mm root radius) was situated either in the centre of the test piece or near its head. In some cases, the tensile load was applied to notched test pieces not axially but at an angle of 12°. Benzene (cooled by solid CO₂ or liquid nitrogen) or liquid nitrogen was used as the cooling media. The results are reproduced graphically. In Fig. 1, the UTS (σ_B , kg/mm², continuous curve) and yield point (σ_T , kg/mm², broken curve) are plotted against the test temperature (°C) - in Fig. 2, elongation (δ, % - continuous curves) and reduction of area (ψ, %, broken curves) are plotted against the test temperature (°C). The

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The effect of heat treatment E193/E380

breaking load (P, kg, lefthand scale, broken curves) and deflection (F, mm, righthand scale, continuous curves) in transverse bending, are plotted against the temperature ($^{\circ}\text{C}$) in Fig. 5. The results obtained can be summarised as follows. The UTS and the yield point of steel 3kp both in the hot-rolled and heat-treated condition, determined on standard test pieces, increased rapidly with decreasing temperature. The difference between the strength of hot-rolled and heat-treatment material remains practically the same throughout the temperature range studied. Elongation and reduction in area remain practically constant down to -120°C , after which they gradually decrease. Whereas, however, in the case of hot-rolled material both δ and Ψ decrease almost to zero at -196°C , the heat-treated steel (quenched from 900°C and tempered at 600°C) still retains at this temperature a certain degree of ductility, characterised by $\delta = 14\%$ and $\Psi = 45\%$. The notched test pieces, inclined at 12° to the direction of the applied load, lose their ductility at relatively higher temperatures, the decrease in δ and UTS beginning at -60 and -120°C , respectively. The \times

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The effect of heat treatment ²⁸⁰⁶⁸ S/148/61/000/007/009/012
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bending tests yielded similar result. The marked decrease in the transverse bending strength found on hot-rolled material at -60°C was not observed in the heat-treated specimens until a temperature of -100°C was reached. The effect of heat-treatment was, however, most striking in the impact tests. Whereas the impact strength of hot-rolled material decreased rapidly in the $+10$ to -30°C range, the heat-treated specimens had a

considerable impact strength ($4.5-7.5 \text{ kgm/cm}^2$) even at -60°C . It was concluded that heat-treated steel 5kp can be used as a material of construction for critical parts, operating at sub-zero temperatures and under complex stress conditions.

I.V. Kudryavtsev, M.V. Pridantsev and K.V. Popov are mentioned in the article.

There are 5 figures, 1 table and 4 Soviet references. X

ASSOCIATION: Leningradskiy tekhnologicheskii institut
kholodil'noy promyshlennosti (Leningrad
Technological Institute of the Refrigeration
Industry)

SUBMITTED: October 27, 1960
Card 4/7

39933
S/149/62/000/004/003/003
A006/A101

18 1255

AUTHORS: Zamyatnin, M. M., Tsukanov, V. A., Tomilov, M. Ye., Shutov, I. A.

TITLE: The effect of low temperatures upon the mechanical properties of alloys BT 3 (VT3), BT 5 (VT5), and grade 40 XC (40KhS) steel

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Tsvetnaya metallurgiya, no. 4, 1962, 152 - 156

TEXT: The mechanical properties of titanium alloys and improved alloyed steel were investigated by comparison tests at temperatures from +20 to -60°C, in order to reveal the possibility of replacing high-strength steels by titanium alloys. Smooth and notched specimens were subjected to static tensile and bending tests, skew and impact tests. It was found that the properties of VT5 and, in particular, VT3 titanium alloys approach those of 40 KhS steel at all the test temperatures. The proneness of titanium alloys to reduced ductility and plasticity at low temperatures is somewhat greater than for improved steel; it is lower in impact tests. The results obtained show that titanium alloy parts can be successfully used at temperatures down to -60°C. There are 4 figures and 2 tables.

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The effect of low temperatures upon the...

S/149/62/000/004/003/003
A006/A101

ASSOCIATION: Leningradskiy tekhnologicheskii institut kholodil'noy promyshlennosti
(Leningrad Technological Institute of the Refrigeration Industry)
Severo-Zapadnyy zaachnyy politekhnicheskii institut (North-West
Correspondence Polytechnic Institute)

SUBMITTED: January 22, 1962

X

Card 2/2

L 10754-63 EPR/EPF(c)/EWT(1)/EWP(q)/EWT(m)/BDS--AFFTC/ASD--Ps-1/
Pr-4--WW/JD S/0148/63/000/006/0153/0155 10
ACCESSION NR: AP3002902 68

AUTHOR: Zamyatnin, M. M.; Zholobov, V. V.; Tomilov, M. Ye; Shutov I. A.

TITLE: Effect of low temperature on mechanical properties of titanium and its alloys

SOURCE: IVUZ. Chernaya metallurgiya, no. 6, 1963, 153-155

TOPIC TAGS: titanium, titanium alloys, mechanical properties, subzero temperatures

ABSTRACT: Because of insufficiency of available data, an investigation was made of the mechanical properties of the VT1-1 and VT1-2 commercial-grade titanium and titanium alloys VT3-1(1.0-2.0% Mo, 1.50-2.50% Cr, 4.5-6.2% Al), VT5 (4-5.5% Al), OT4 (1.0-2.0% Mn, 2.0-3.5% Al) at temperatures ranging from 20 down to -196C. Results of the tests are shown in Table 1 of the Enclosure. Org. art. has: 2 tables.

ASS: Leningrad Technology Inst. of the Refraction Industry. All-Union Aluminum-Magnesium Institute

Card 1/31

GREKOV, N.A., inzh.; ZAMYATNIN, M.M., kand. tekhn. nauk; ZIKEYEVA, T.F.,
inzh.; TOMILOV, M.Ye., inzh.; SHUTOV, I.A., inzh.

Effect of temperature on the mechanical properties of soft
solders and copper compounds soldered by them. Vest. elektro-
prom. 34 no.7:59-63 J1 '63. (MIRA 16:8)

L 61035-65 EWT(d)/EWT(m)/EWP(w)/EWA(d)/EWP(v)/T/EWP(t)/EWP(k)/EWP(h)/EWP(z)/
EWP(b)/EWA(c) Pf-4 MJW/JD/HM/HW
ACCESSION NR: AR5017429 UR/0137/65/000/006/E011/E011

SOURCE: Ref. zh. Metallurgiya, Abs. 6E75

AUTHOR: Fedorov, A. K.; Shutov, I. A.

TITLE: The effect of low temperatures on the mechanical properties of butt welds
in steel tubes, welded by induction heating with high frequency currents

CITED SOURCE: Tr. Vses. n.-i. in-ta tokov vysokoy chastoty, vyp. 5, 1964,
43-50

TOPIC TAGS: butt welding, pipe, low temperature effect, solid mechanical proper-
ty, steel, induction welding, weld heat treatment, /10 steel, 20 steel

TRANSLATION: Mechanical tests of butt welds in tubes with a diameter of 38 x
32 mm made of steel 10, and 32 x 26 mm made of steel 20, welded with high fre-
quency currents, were carried out on elongation and static bending on an IM-4A
machine in a special apparatus. Impact bending tests were made on an MK-30
pendulum drop hammer. The strength, ductility, and toughness of butt joints in
tubes made of steel 10 and steel 20, welded by induction heating with high frequen-
Card 1/2

L 61035-65

ACCESSION NR: AR5017429

cy currents at low temperatures, are not lower than the properties of the basic metal. Normalizing and hardening with high temperature tempering of the tube butt joints after welding increases their strength and ductility at low temperatures. 2

V. Fomenko

SUB CODE: MM

ENCL: 00

Card 2/2 *slap*

DOLIN, P.A.; KHAVIN, N.Z.; SHUTOV, I.G.; VORONIN, K.P., tekhn.red.

[Collection of regulations in industrial hygiene] Sbornik
deistvuiushchikh pravil po tekhnike bezopasnosti. Izd.3.,
peresm. i dop. Moskva, Gos.energ.izd-vo. Vol.2. 1962. 480 p.
(MIRA 15:5)

(Industrial hygiene—Laws and legislation)

SHUTOV, I., chlen.

Mass dissemination of practices in the construction of the Kakhovka Hydro-electric Power Station. Prof.soiuzu 3 no.8:31-36 Ag '53. (MLA 6:8)

1. Prezidium Tsentral'nogo komiteta profsoyuza rabochikh elektrostantsiy i elektroprmyshlennosti.
(Technical education) (Kakhovka hydroelectric power station)

DOLIN, P.A.; KHAVIN, N.Z.; SHUTOV, I.G.; SKVORTSOV, I.M., tekhnicheskiy
redaktor.

[Collection of safety engineering rules now in force] Sbornik
deistvuiushchikh pravil po tekhnike besopasnosti. Izd. 2-3
peresm. i dop. Sostavili P.A. Dolin, N.Z. Khavin, I.G. Shotov.
Moskva, Gos. energ. izd-vo 1955. 696 p. (MLRA 8:8)

1. Russia (1923- U.S.S.R.) Ministerstvo elektrostantsii.
(Safety engineering)

SHUTOV, I.

The hourly bonus wage system for the repair of equipment in
electric power stations and net. Sots.trud. no.1:117-119 Ja
'57. (MLRA 10:4)
(Electric power plants--Equipment and supplies--Repairing)

DOLIN, P.A.; KHAVIN, N.Z.; SHUTOV, I.G.; VORONIN, K.P., tekhn. red.

[Collection of safety engineering regulations] Sbornik deistvuiushchikh pravil po tekhnike bezopasnosti. Izd.3., peresm. i dop. Moskva, Gos.energ.izd-vo. Vol.1. 1961. 751 p. (MIRA 14:12)
(Electric power plants---Safety measures)
(Electric power distribution---Safety measures)

L 31977-66 EWT(d)

ACC NR: AP6010786

(A)

SOURCE CODE: UR/0106/66/000/002/0009/0022

61
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B

AUTHOR: Iontov, L. Ye.; Lyubimtsev, A. A.; Shutov, I. I.

ORG: none

TITLE: Multipurpose equipment for multichannel multiplex systems for cable and radio-relay lines u

SOURCE: Elektrosvyaz', no. 2, 1966, 9-22

TOPIC TAGS: multiplex, multichannel communication, radio relay, *FREQUENCY CONVERSION, OSCILLATION*

ABSTRACT: The development of multipurpose oscillator and frequency-conversion equipment for multiplex communication systems is reported; the equipment is mounted in cabinets with swing-out frames; it can operate within +10 +40C. Supply-voltages required: 220 v ± 3% ac; -21.2 v ± 3% dc for transistors; -24 v ± 10% dc for signal circuits; +206 v ± 3% dc for anode circuits. The oscillator equipment is suitable for Soviet-made K-21-2, K-60, K-60P, K-1920, R-600 systems; the frequency-conversion equipment can be used in K-60P, K-300, K-1920, R-600 systems. The oscillator cabinet generates a number of carrier frequencies (among them 120 kc for 12--108 kc linear spectrum and 564 kc for 12--252 spectrum), 64, 84, 104, and 412 kc monitoring frequencies, etc. Block diagrams of some oscillator units are shown. The frequency-conversion equipment is based on standard 12-, 60-, and 300-channel trunks which use

Card 1/2

UDC: 621.395.4

SHUTOV, I. S.

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V 1.1
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SHUTOV, I. V.

Shutov, I. V. -- "Chemicals in the Fight against Undesirable Woody Plants in Forestry." Min Agriculture USSR. All-Union Order of Lenin Academy of Agricultural Sciences imeni V. I. Lenin. All-Union Sci Res Inst of Plant Conservation. Leningrad, 1956. (Dissertation For the Degree of Candidate in Agricultural Sciences).

So: Knizhnaya Letopis', No. 11, 1956, pp 103-114

weeds and weed control.

Trudy po prikladnoi biologii, No. 9, 1979, No. 20592

Velichko, Ya.M.; Shutov, I.V.
Voronezhsk. gos. univ. Ser. biol. i lesn. nauch. issled.

An Experiment in Applying Arborescences when
Preparing Reservoir Channels in Flood Zones.

Byul. nauchno-tekhn. inform. Leningr. n.-i.
in-st. lesn. kh-va, 1978, No. 9, 10-26

To destroy tree and shrub thickets in areas
to be occupied with future reservoirs (in the
flood zones of Stalingrad and Saratov Hydro-
electric Power Plant) one applied: sodium
salt of 2,4-D (1), butyl ester of 2,4-D (2),
butyl ester of 2,4,5-T (3), "Fordex" -- a
mixture of the butyl esters of 2,4-D and 2,4,
2,4,5-T in the ratio of 2:1 (4), and "Fortox"
-- butyl ester of 2,4,5-T (5). Treatment with
all arborescences in doses of 2 kg/ha. and higher

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ORIG. PUB. :
CATEGOR. :

ABS. JOUR : *Ref Zhur-Biologiya*, No. 5 , 1959, No. 20592

AUTHOR :
INST. :
TITLE :

ORIG. PUB.:

ABSTRACT : caused complete drying up of the leaves in all species of willow, within 2 months. Oak, elm, Tatarian maple, blackthorn and buckthorn were highly resistant. In treatment with esters of 2,4-D and 2,4,5-T the rate of liquid in spraying, 100 liters per hectare, proved fully adequate. 2-5 in a dose of 4 kg/ha. caused 70% of the willow to die. 1 significantly yielded to them in effectiveness. 3 worked considerably stronger on black poplar than did 2.

CARD: 2/3

BEL'KOV, V.P., kand.biol.nauk; SHUTOV, I.V., kand.sel'skokhozyaystvennykh nauk

New book on chemical weed control ("Chemical weed control in forestry"
by N.E.Dekatova. Reviewed by V.P.Bel'kov, I.V.Shutov). Zashch.
rast.ot vred.i bol. 4 no.3:61 My-Je '59. (MIRA 13:4)
(Weed control) (Forests and forestry)
(Dekatova, N.E.)

VELICHKO, Ya.M., inzh.; SHUTOV, I.V., kand.sel'skokhozyaystvennykh, nauk

Using arboricides in removing trees and brushwood from
the areas to be inundated. Gidr.stroi. 30 no.7:35-38
Jl '60. (MIRA 13:7)
(Herbicides) (Hydroelectric power stations)

BEL'KOV, V.P.; SHUTOV, I.V.

Batching vessel of the ORP-G sprayer for small-size lots.
Zashch. rast. ot vred. i bol. 6 no.9:19 S '61. (MIRA 16:5)
(Spraying and dusting equipment)

SERGEYEVA, T.A.; SHAMAYEV, G.P., inzh.; SAMGIN, P.A.; SHUTOV, I.V., kand
sel'skokhoz.nauk; KALASHNIKOV, K.Ya., kand.sel'skokhoz.nauk

Questions and answers. Zashch.rast.ot vred.i bol. 7 (MIRA 15:11)
no.5:16, 41-43 My '62.

1. Nauchno-issledovatel'skiy institut po udobreniyam i insektofungi-
sidam imeni Ya.V.Samoylova (for Sergeyeva). 2. Nauchno-issledovatel'-
skiy institut lesnogo khozyaystva (for Samgin, Shutov). 3. Pushkinskaya
baza Vsesoyuznogo instituta zashchity rasteniy (for Kalashnikov).
(Plants, Protection of)

NIKIFOROV, I.; MAKAROV, A.; SMOLYAKOV, N.; SIPER, E.; MOGILA, V.; LARIN, M.;
FILIPPOV, K.; TOKMAKOV, V.; BARANOVSKIY, V.; CHETVERIKOV, K.;
POZWANSKIY, A.; SHUTOV, M.; ROZENFEL'D, L.; RUD', A.

Mechanization of waterproofing operations. Stroitel' 8 no.11:
15-20 N '62. (MIRA 16:1)
(Waterproofing—Equipment and supplies)

SHUTOV, M., podpolkovnik

Chemical warfare weapon and defense against it. Voen.znan. 38
no.5:35-36 My '62. (MIRA 15:5)
(Chemical warfare-Safety measures)

CHURCH, R. D.

"Gegenwärtige Lage der Entwicklungstendenzen im Bau analytischer Geräte"

report presented at the

Intl. Measurements Conference (IMEKO) Budapest, 24-30 November ¹⁹⁵⁸~~1960~~

... ..

"Trends and development in chemical analytical instruments" (Section II)

report submitted for Research and Automation, Scientific Society for (Hungarian)
Intl. Measurement Conference - Budapest, Hungary, 24-30 Nov 59

SHUTOV, M. D.

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S/120/60/000/006/003/045

16/50
AUTHORS:

Pavlenko, V. A., Mafalson, E. S., Slutskiy, M. Ye.,
Tayman, G. A., and Shutoy, M. D.

TITLE: Radio-frequency Mass Spectrometer for the Analysis
of the Ionic and Molecular Composition of the Upper
Layers of the Atmosphere

PERIODICAL: Priroda i tekhnika eksperimenta, 1960, No. 6,
pp. 87-95

TEXT: A brief description is given of a mass spectrometer
designed for studying the ionic and molecular composition of
the atmosphere. The mass spectrometer incorporates a nonrecording
magnetic radio-frequency analyzer which separates ions according
to mass, depending on the increase in the energy in a record
high-frequency field. The instrument was designed to record
mass spectra in the mass ranges 1-4 and 12-56. The
circuit of a 4-stage analyzer used in the mass spectrometer
is shown in Fig. 2. It is based on the action of the positive
of the grid assembly in which the energy of the positive
ions having different m/e ratios is increased by different
amounts, depending on the value of this ratio. All three

Card 1/7

Radio-frequency Mass Spectrometer for the Analysis of the Ionic
and Molecular Composition of the Upper Layers of the Atmosphere
Plane-parallel grids are kept at a negative accelerating
voltage U_0 . In addition, the middle grid is given a further
high-frequency voltage. Positive ions entering the analyzer
from the atmosphere are accelerated by U_0 and, on entering
the high-frequency field, are given different energy increments
depending on their mass. The maximum energy increments are
received by the so-called "synchronous" ions, which pass through
the first grid when the phase of the high-frequency voltage is
 60° and the central grid when the field changes sign. The
mass of these ions m is given by:

$$m = 0.2660 \frac{U_0^2}{f^2}$$

where U_0 is the accelerating negative-voltage,
 f is the frequency in Mc/s., and
 S is the distance between the grids in cm.

Card 2/7

A positive delay voltage U_d ensures that the collector
receives only the "synchronous" ions. An increased
resolution of the analyzer and the minimum level of "harmonic"
masses are reached with a number of three-grid stages in
series, with the distances between the middle grids
corresponding to 3.5-3.7 periods of the high-frequency voltage.
The analyzer is equipped with a demountable ion source which
is enclosed in a rugged glass envelope. When a
molecular analysis is required the glass envelope can be
broken by remote control, using a special breaker attached
to the device. The gas entering the analyzer is ionized in
the ion source by electrons emitted by a hot cathode and the
ions are attracted by two grids kept at a small negative
voltage. Single-row grids of tungsten wire, 12 μ in diameter,
wound with a step of 0.4 mm, were used in the analyzer.
The power consumed by the cathode did not exceed 0.75 W.

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9/130/60/000/006/003/045
2032/8314

Radio-frequency Mass Spectrometer for the Analysis of the Ionic and Molecular Composition of the Upper Layers of the Atmosphere

The instrument has the following characteristics:

1. Mass range I) 1 - 4, II) 12 - 56
2. Resolution (full width at half height) 50
3. Range of working pressures in the analyzer in the case of the analysis of molecular composition 10^{-4} - 10^{-6} mm Hg
4. Partial sensitivity in the analysis of molecular composition (single) $5 \cdot 10^{-9}$ mm Hg
5. Duration of 1 cycle of automatic sweep through the mass range 3 sec

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6. Dynamic range of ion current amplifier 10^5
7. Supply voltage 27.5 V \pm 10%
8. Power consumed a) molecular analyzer 6 W
b) ion analyzer 2.5 W
9. Working temperature range -40 to +40 °C
10. Dimensions: measuring block of the analyzer (without ion source) $210 \times 90 \times 70$ mm
ion source $\varnothing = 370$ mm, $\varnothing = 50$ mm
measuring block $\varnothing = 140$ mm, $\varnothing = 50$ mm
11. Weight of measuring block 1.2 kg
12. Weight of analyzer with the electrometric stage and ion source 2.1 kg
13. Specific weight of measuring block 1.2

Test circuits are given of the high-frequency oscillator (Fig. 2), sawtooth voltage generator (Fig. 6) and DC converter (Fig. 7) and DC converter (Fig. 8). These circuits are partly transistorized and employ miniaturized components (see above table for dimensions). All the input voltages are stabilized within $\pm 0.2\%$, when the supply voltage changes by $\pm 10\%$. The mass spectrometer feeds into the telemetric system the following data:
1) voltage at the outputs of the ion current amplifier (mass spectrum);
2) high-frequency voltage;
3) emission current of the cathode in the ion source, and
4) supply voltage (27.5 V).

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Instruments of this type were used on rockets to study the ionic and molecular composition of the atmosphere. There are 8 figures and 5 references; 2 Soviet and 3 English.

ASSOCIATION: Spetsial'noye konstruktorskoye byuro analiticheskogo priborostroyeniya (Special Design Bureau for Analytical Instrument Construction)

SUBMITTED: October 15, 1959

SEUTOV, M. D. and PAVLENKO, V. A.

"Die Modernen Analytischen Messgerate."

report presented at the 2nd Intl. Measurements and Instruments Conference (IMEKO), Budapest, 25 June - 1 July 1961.

PAVLENKO, V. A.; OZEROV, L. N.; RAFAL'SON, A. E.; SHUTOV, M. D.

Experimental-production operation of the MKh1201 automatic
regulating mass-spectrometer. Zav. lab. 28 no.12:1525-1526
'62. (MIRA 16:1)

1. Spetsial'noye konstruktorskoye byuro analiticheskogo
priborostroyeniya AN SSSR.

(Spectrometer)

ACCESSION NR: AP4003737

S/0293/63/001/002/0287/0295

AUTHOR: Pavlenko, V. A.; Rafal'son, A. E.; Shutov, M. D.

TITLE: Series of small-scale mass spectrometers for the study of neutral and ionized gases of the upper layers of the atmosphere.

SOURCE: Kosmicheskiye issledovaniya, v. 1, no. 2, 1963, 287-295

TOPIC TAGS: mass spectrometer, radio frequency mass spectrometer, nonmagnetic mass spectrometer, MKh6401 mass spectrometer, MKh6403 mass spectrometer, MKh6405 mass spectrometer, upper atmosphere

ABSTRACT: The MKh6401, MKh6403, and MKh6405 mass spectrometers (based on the Bennet model) have been redesigned. The MKh6401 mass spectrometer is used for analyzing the molecular and ionic compositions of gases in a mass range of 1-4 and 12-56 amu. It consists of a miniaturized five-grid analyzer with grid distances fixed by metallic cylinders. A beam of slow electrons emitted by a red-hot cathode ionizes the gases. The analyzer, with the ion source, weighs 2.1 kg and is filled with a mixture of hydrogen, helium, argon, and neon at a pressure of 10^{-5} mm Hg. The MKh6403 mass spectrometer, identical in range to that of the MKh6401,

Card 1/3

ACCESSION NR: AP4003737

permits automatic range shifting. The analyzer, the ion source, and the ion collector are located in a common metallic case. In this model, all the elements of the ion source are in the form of highly transparent grids. The acceleration voltage is from 70 to 380 v, and the frequency automatically shifts from 30 to 8.6 Mc. The MKh6405 mass spectrometer, which contains the basic elements of the MKh6403, is considerably more sensitive than the MKh6403 and is suitable for the analysis of gases containing ionized and neutral particles of 1-2 and 12-36 amu. All three mass spectrometers can work at temperatures ranging from -40 to +40C at low and high humidities and are able to withstand considerable amounts of mechanical overloading. During observations made with the mass spectrometers on 22 June 1959, at altitudes of 90-211 km, the presence of the following ions was recorded: O^+ , H_2O^+ , NO^+ , O_2^+ . For purposes of analyzing the neutral components of the upper atmosphere, observations were performed at altitudes higher than 100 km, where the presence of the following were revealed: H, H_2 , N, O_1 , OH, H_2O , N_2 , O_2 , Ar, CO_2 , and N_2O . Orig. art. has: 6 formulas, 7 figures, and 1 table.

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SHUTOV, M. D.

L 15688-65 EWT(d) Po-4/Pq-4/Pg-4/Pk-4/Pl-4 ASD-3/AFFTC/ESD-3/APGC
ACCESSION NR: AP4047481 S/0120/64/000/005/0157/0161

AUTHOR: Levina, L. Ye.; Men'shikov, M. I.; Pavlenko, V. A.; Rabinovich,
I. S.; Rafal'son, A. E.; Tsy'mberov, M. Ya.; Shutov, M. D.

TITLE: New MKh 1101 mass-spectrometric leak detector

SOURCE: Pribory i tekhnika eksperimenta, no. 5, 1964, 157-161

TOPIC TAGS: leak detector, mass spectrometric leak detector / MKh 1101
leak detector

ABSTRACT: The new MKh 1101 leak detector differs from previous types (PTI-4a and PTI-6) in that it has no oil-vapor pump, uses an oxidation-resistant cathode, and is calibrated by a reference diffusion-type helium leak. Two lobar rotary (Roots) pumps driven by a single motor provide the rough and fine vacuums; the equilibrium vacuum is $(2-5) \times 10^{-6}$ torr. The cathode is stable in operation at pressures up to 1 torr. The leak detector sensitivity is $(1-5) \times 10^{-6}$

Card 1/2

L 15638-65
ACCESSION NR: AP4047481

lmc/sec for helium and 5×10^{-4} lms/sec for hydrogen. Setting the detector in operation takes only 10 minutes. Orig. art. has: 6 figures.

ASSOCIATION: SKB Analiticheskogo priborostroyeniya AN SSSR (Special Design Office for Analytical Instruments, AN SSSR)

SUBMITTED: 03Jun63

ENCL: 00

SUB CODE:ME

NO REF SOV: 002

OTHER: 000

Card 2/2

L 27745-66 ENT(m)/FMP(t)/ETI IJP(c) JD
ACC NR: AP6001580

SOURCE CODE: UR/0120/65/000/006/0130/0135

AUTHOR: Tal'roze, V. L.; Pavlenko, V. A.; Tantsyrev, G. D.;
Grishin, V. D.; Ozerov, L. N.; Kirillova, I. I.; Rafal'son, A. R.
Shutov, M. D. 38
B

ORG: Institute of Chemical Physics of AN SSSR, Moscow (Institut
khimicheskoy fiziki)

TITLE: MKh1307¹⁰ chromat-mass-spectrometer (Khromass-2)

SOURCE: Pribory i tekhnika eksperimenta, no. 6, 1965, 130-135

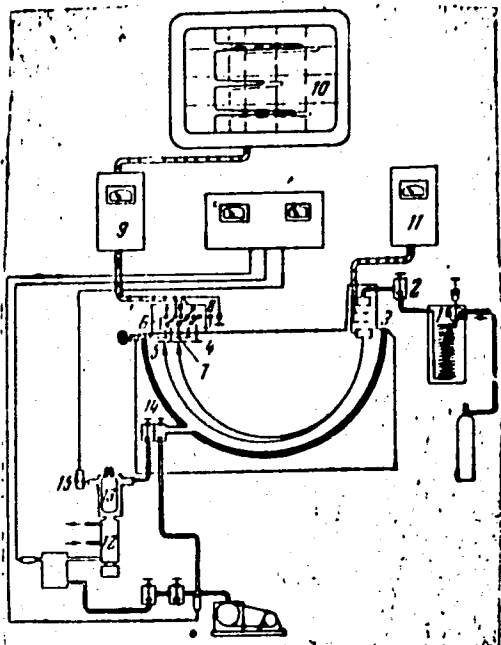
TOPIC TAGS: chromatography, mass spectrometer

ABSTRACT: The design and operation of MKh1307 mass-spectrometer is described. This spectrometer is formed by combining a chromatograph with a two-beam magnetic mass-spectrometer. A laboratory version of Khromass-2 spectrometer served as a prototype for MKh1307 type. The arrangement of MKh1307 chromat-mass-spectrometer is schematically shown on Card 2/2. The chromatograph (1) is connected via a dose-valve (2) to the ion-source (3) of the mass-spectrometer which is equipped with two large (4 and 5) and two small (6 and 7) collectors. By using a switch (8) the collectors can be connected to a set of two electrometer amplifiers (9). Double ion currents are automatically recorded
UDC: 543.51+543.544

Card 1/3

L 27745-66

ACC NR: AP6001580



by an electronic potentiometer (10). The ion source was fed from an electronic circuit (11). The small collectors were used for measurements of two mass-spectral lines while the large ones collected the intensities of two line groups. The spectral peaks were measured for each of two measuring channels and their heights were compared. The peak ratio was used for defining tested substances. The design of chromatograph was illustrated and described. It can be equipped either with capillary or packed columns. The ion system consisting of ion source, mass analyzer and ion collectors, was also described and diagrammatically represented. The ion source was placed in the magnetic field of a mass-analyzer. A permanent magnet of about 6000 gauss was used. The resolving power of the mass-spectrometer was

Card 2/3

L 27745-66

ACC NR: AP6001580

about 50. The ion collectors were designed for a simultaneous measurement of two spectral lines differing in masses from 4 to 6%. A simultaneous recording was also provided for two groups of lines including one group of 34 to 45 amu and the second of 48 to 100 amu. The electronic circuit feeding the ion source was designed for cathode currents up to 2 ma, accelerating voltages of 300 to 1200 v and ionizing voltages of 50 to 100 v. The vacuum system was also described and the MKh1307 apparatus was shown in a photo. Some results of measurements were summarized in a table. A high sensitivity of the MKh1307 spectrometer permits defining the mixtures with contents up to $10^{-4}\%$. Orig. art. has: 5 figures.

SUB CODE: 20 / SUBM DATE: 50oct64 / ORIG REF: 010 / OTH REF: 006

Card 3/3 *Jo*

PAVLENKO, V.A.; RAFAL'SON, A.E.; TSYMBEROV, M.Ya.; SHUTOV, M.D.

The MKh 1102 high-sensitivity mass-spectrometric leak
detector. Prib. i tekhn. eksp. 10 no.5:190-194 S-O '65.

(MIRA 19:1)

1. Spetsial'noye konstruktorskoye byuro analiticheskogo priboro-
rostrroyeniya AN SSSR, Leningrad. Submitted Sept.19, 1964.

Hand, Washed, Ironed, etc., etc.

[Sanitary production of people and the modernization
of clothing] naučnarnia obrabotka ljudi i obezbezazhi-
vanie oduzdy. Moskva, Stroitel'stat, 1964. 22 p.

(SIS 17:11)

GORBUNOV, I.P.; GLUKHOV, V.P.; KOTLUKOV, K.G.; MOSKALEV, V.D.; SIPAYLOV, Yu.A.; SMEYAN, N.K.; SHUTOV, M.I.; BYKOV, S.G., red.; KANEVSKAYA, M.D., red.; BLAZHENKOVA, G.I., tekhn.red.

[Training methods for members of civil air defense groups] Metodika podgotovki lichnogo sostava grupp samozashchity. Moskva, Izd-vo DOSAAF, 1959. 165 p. (MIRA 13:3)

1. Vsesoyuznoye dobrovol'noye obshchestvo sodeystviya armii, aviatsii i flotu.

(Air defenses)

SHUTOV, N.

Disburse social insurance funds correctly. Okhr. truda i sots.
strakh. 4 no.6:33-34 Je '61. (MIRA 14:7)

1. Starshiy instruktor otdela Vsesoyuznogo tsentral'nogo soveta
professional'nykh soyuzov po gosudarstvennomu sotsial'nomu
strakhovaniyu.

(Insurance, Social)

SHUTOV, N.G., kandidat tekhnicheskikh nauk, dotsent.

Regulating and testing engines on whips under operating conditions.
Trudy GIIVT no.13:157-175 '55. (MIRA 10:1)
(Marine engines--Testing)

STULOVA, Anna Fedorovna; SHUTOV, Nikolay Iyanovich

[Leading poultry farmers] Peredovye ptitsevody. [Gor'kii]
Gor'kovskoe kn-vo, 1954. 36 p. (MIRA 9:10)
(Poultry)

40234-01
ACC NR: AN6008100 SOURCE CODE: UR/9008/66/000/063/0002/0002

AUTHOR: Shutov, P. (Major General of Artillery, Hero of the Soviet Union)

ORG: none

TITLE: Training of antiaircraft missilemen at a missile firing range

SOURCE: Krasnaya zvezda, 17 Mar 66, p. 2, col. 1-4

TOPIC TAGS: antiaircraft unit, missile subunit, guided missile training, training area, firing range, aerial target, supersonic target

ABSTRACT: The author analyzes problems of organizing and carrying out simulated combat firing exercises of antiaircraft missile subunits against small supersonic aerial targets flying at all altitudes, and under conditions of jamming. Missilemen can obtain a complete understanding of a modern combat only during training exercises at a missile firing range where theory and practice are combined. The antiaircraft missile firing range, in the author's opinion, is really a missile academy. Shortcomings in combat firing and tactical training of some

Card 1/2

ACC NR: AN6008100

antiaircraft missile subunits are examined. Methods of rating combat firing
exercises are discussed. [NT]

SUB CODE: 15/ SUBM DATE: none/

Card 2/2 *LC*

SHUTOV, P. A.

26566 Listovoye chrenkovaniye dekorativnykh porod. Trudy azerbaydzh. Nauch-issled, In-ta mnogolet, Nasazhdeniy, T. I., 1949, s. 63-66.

SO: LETOPIS' NO. 35, 1949

CHER, I. I.

"Eucalyptus in Azerbaijan." *Sov. Biol Sci, Azerbaijan Sci Res Inst of Perennial Plants, Baku, 1953. (RZ.Biol, No 1, Sep. 54)*

SO: Sum 432, 29 Mar 55

SHUTOV, P.A.; ALEKPEROVA, S.G.

Bay laurel culture in Azerbaijan. Izv. AN Azerb. SSR. Ser. biol.
i med. nauk no. 7:25-32 '61. (MIRA 16:7)
(AZERBAIJAN--LAUREL)

SHUTOV, P.K.; ROTENBERG, I.P.; YESIPOV, G.Z.

Production of water-soluble low-phenol phenol-aldehyde resins using
semicoke phenolates as a phenolic raw material. Plast.massy no.11:
57-58 '61. (MIRA 14:5)

(Phenol concentration products)

SHUTOV, Petr Vladimirovich; SKVORTSOV, V.P., red.; IVANOVA, A.G., tekhn.red.

[Mining equipment and machinery] Gornoprokhodcheskoe oborudovanie
i mekhanizmy. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po geol. i
okhrane nedr, 1959. 399 p. (MIRA 12:12)
(Mining engineering--Equipment and supplies)
(Mining machinery)

SHUTOV, P.V., general-mayor artillerii, Geroy Sovetskogo Soyuz

On the threshold of the new academic year. Vest.proti⁶vovozi.obor.
no.12:10-13 D '61. (MIRA 15:3)

(Military education)

TASLITSKIY, M.; LOGINOV, M., inzh. (Kuybyshev); SHUTOV, R. (Vyksa, Gor'kovskoy obl.); RUSAKOV, A., master (Angarsk); DEMIN, A., inzh. (Serpukhov); GAYDAMAK, A.; ZAYTSEV, I., (Moskva); MALYSHEV, N. (Moskva)

Suggested, created, introduced. Izobr.i rats. no.12:14-15 D '62.
(MIRA 15:12)

1. Sotrudnik Gosudarstvennogo instituta po vnedreniyu peredovykh metodov rabot i truda v stroitel'stve Ministerstva stroitel'stva RSFSR, Moskva (for Taslitskiy). 2. Master ruchnogo uchastka Dneprovskogo alyuminiyevogo zavoda imeni S.M.Kirova (for Gaydamak).
(Technological innovations)

SHUTOV, R.A., starshiy master

Deoxidation of 25L and 35GL steel in the ladle by ferromanganese.
Metallurg 7 no.5:15-16 My '62. (MIRA 15:5)

1. Plavil'nyy uchastok zavoda drobil'no-razmol'nogo
oborudovaniya.

(Steel--Electrometallurgy)

NETSKY, L.I., inzh.; SHUTOV, S.A., inzh.

Outline of ship repair and operational bases and a basic index
of their work. Rech.transp. 13 no.5:37-38 4y '59.

(MIRA 12:9)

(Ships--Maintenance and repair)

EWT(1)/BDS/EEC(b)-2--AFFTC/ASD/ESD-3--P1-4--IJP(C)
L 10044-63

ACCESSION NR: AR3000375

S/0058/63/000/004/E066/E066

SOURCE: RZh. Fizika, Abs. 4447

62

AUTHOR: Kot, M. V.; Shutov, S. D.

TITLE: Anistropy of electric conductivity and optical properties of antimony selenide crystals

CITED SOURCE: Tr. po fiz. poluprovodnikov. Kishinevsk. un-t, vyp. 1, 1962, 47-53

TOPIC TAGS: antimony selenide crystals, electrical and optical properties, semiconductors

TRANSLATION: The properties of single crystals² of Sb sub 2 Se sub 3, which are characterized by a rhombic lattice with layered structure and therefore have anisotropic properties, have been investigated. The results of the measurements of the electric conductivity, as a function of the temperature, along the three crystallographic directions show that the component perpendicular to the cleavage plane is five times smaller than the two others. A formula is presented for the

Card 1/2

L 10044-63

ACCESSION NR: AR3000375

calculation of the temperature dependence of the components of the conductivity tensor, from which the width of the forbidden zone and the activation energy of the lattice imperfections are found to be 1.06 and 0.14 ev, respectively. It is shown that Sb sub 2 Se sub 3 is a 2-axis crystal, and the positions of the optical axes are determined. The values of the refractive indices in the direction of the principal dielectric axes are given. The optical activation energy and the refractive index for one and the same crystallographic direction depend on the polarization of the light. Such a dependence indicates probably that the energy beams in antimony selenide has a complex structure. V. Gurevich

DATE ACQ: 14May63

ENCL: 00

SUB CODE: PH

cs/ja
Card 2/2

ACC NR: A17003-01

SOURCE CODE: UR/0000/66/000/000/0221/0228

AUTHOR: Sobolev, V. V.; Syrbu, N. N.; Shutov, S. D.

ORG: none

TITLE: Energy structure of bands of certain II - V, V - VI, and III - VI compounds

SOURCE: AN BSSR. Institut fiziki tverdogo tela i poluprovodnikov. Khimicheskaya svyaz' v poluprovodnikakh i termodinamika (Chemical bond in semiconductors and thermodynamics). Minsk, Nauka i tekhnika, 1966, 221-228

TOPIC TAGS: semiconducting material, semiconductor band structure, light reflection, optic spectrum, Brillouin zone, optic transition

ABSTRACT: The purpose of the investigation was to study the reflection spectra in the region $E > E_g$ of a large number of anisotropic semiconductors ($ZnSb$, $CdSb$, Zn_4Sb_3 , Zn_3Sb_2 , Cd_4Sb_3 , Zn_3P_2 , Cd_3P_2 , Zn_3As_2 , Cd_3As_2 , $ZnAs_2$, $CdAs_2$, Sb_2S_3 , Sb_2Se_3 , Sb_2Te_3 , Bi_2S_3 , Bi_2Se_3 , Bi_2Te_3 , $InSe$, In_2Te , $GaSe$, and $GaTe$) for the purpose of determining the energy gaps at different points of the Brillouin zone and comparing them with the band theories for anisotropic substances. The reflection spectra were investigated in the region 1 - 6 eV at $T = 293K$. Plots of all the spectra are presented and tables of the reflection peaks for different energies are given. The main conclusion of the data is that most reflection maxima of the crystals are due to direct interband transitions; their magnitudes on the energy scale are directly equal to the values of the corresponding interband gaps at different principal points of the Brillouin zone. The

Card 1/2

UDC: 541.57

ACC NR: AT7003884

various peaks observed on the reflection spectra for the different substances are interpreted from the point of view of the published theoretical and experimental papers dealing with the different compounds. Orig. art. has: 1 figure and 4 tables.

SUB CODE: 20/ SUBM DATE: 20Aug66/ ORIG REF: 011/ OTH REF: 008

Card 2/2

ACC NR: AT/003385

(A)

SOURCE CODE: UR/0000/66/000/000/0240/0250

AUTHOR: Kritova, S. G.; Sobolev, V. V.; Syrba, N. N.; Shutov, S. D.

ORG: none

TITLE: Energy band structure of crystals of groups IV, III - V, II - VI, and the Mg_2Si type

SOURCE: AN BSSR. Institut fiziki tverdogo tela i poluprovodnikov. Khimicheskaya svyaz' v poluprovodnikakh i termodinamika (Chemical bond in semiconductors and thermodynamics). Minsk, Nauka i tekhnika, 1966, 240-250

TOPIC TAGS: semiconducting material, semiconductor band structure, light reflection, optic spectrum

ABSTRACT: The authors investigated the band structure, using the reflection spectra of pure and alloyed, polished and etched samples, cleaved crystals, and dendrites of groups IV and III - V, and polished and etched crystals of groups II - VI (Si, Ge, GaAs, GaSb, InAs, InSb, InP, GaP, and AlSb), Mg_2Si , Mg_2Sn , and certain solid solutions of the systems InP-InAs, AlSb-GaSb, CdTe-HgTe, ZnSe-CdSe, Mg_2Si-Mg_2Sn , and Mg_2Si-Mg_2Se . The various peaks observed on the different spectra of the substances are listed and compared with results obtained by others. Tables of the experimental values of the direct interband transitions are presented. It is stated in the conclusion that the lack of concrete and sufficiently detailed calculations of the bands and schemes for the chemical binding forces for most solids makes it very difficult

Card 1/2

UDC: 541.57

Card 2/2

L 9204-66 EWT(1)/EWT(m)/EWT(w)/T/EWP(t)/EWP(b) IJP(c) GG/JD

ACC NR: AR6000123

SOURCE CODE: UR/0058/65/000/008/E054/E055

SOURCE: Ref. zh. Fizika, Abs. 8E409

AUTHORS: ^{44,55} Lange, V. N.; ^{44,55} Lange, T. I.; ^{44,55} Shutov, S. D.

42
B

ORG: none

TITLE: Anisotropy of microhardness

CITED SOURCE: Izv. AN MoldSSR. Ser. fiz.-tekhn. i matem. n., no. 12, 1964, 61-68

TOPIC TAGS: ^{2, 44, 55} antimony compound, crystal property, hardness | 6

TRANSLATION: The scratching method was used to investigate the anisotropy of the microhardness of Sb_2Se_3 crystals on the planes (100), (010), and (001). It is shown that the magnitude of the microhardness, and also the external form of the scratches, depends essentially on the direction of the scratching on the investigated face. On the (010) plane the maximum of the microhardness is observed in the scratch directions (301) and ($\bar{3}01$). An interpretation of the character of the dependence of the microhardness on the direction on the (010) face is difficult. Apparently, in Sb_2Se_3 crystals the slip occurs along the (010) plane in the (100) direction. On the (001) plane the minimum of hardness is observed close to the (100) direction, and on the (100) plane the greatest hardness is in the (010) direction, i.e., perpendicular to the emergence of the cleavage plane on the (100) face. It is also shown that in all directions the hardness in scratching decreases upon illumination, i.e., a photo-mechanical effect takes place. V. Osvenskiy.

SUB CODE: 20

Card 1/1 *nds*

2

L 10030-63 EWT(1)/EDS/EEC(b)-2--AFFTC/ASD/ESD-3--LJF(C)

ACCESSION NR: AR3000374 S/0058/63/000/004/E064/E064

SOURCE: RZh. Fizika, Abs. 4E434

AUTHOR: Kot, M. V.; Shutov, S.D.

TITLE: Some electric properties of crystals of antimony triselenide

CITED SOURCE: Tr. po fiz. poluprovodnikov. Kishinevsk. un-t, vyp. 1, 1962, 54-56

TOPIC TAGS: antimony triselenide crystals, electric properties, semiconductors

TRANSLATION: Homogeneous single crystals of Sb sub 2 Se sub 3 of the n and p type were obtained by doping with tin and antimony. The tin is a donor impurity, while the antimony, without changing the hole character of the conductivity of the stoichiometric crystal, increases the electric conductivity by four orders of magnitude. The electric conductivity and the thermal emf were investigated with current flowing along the cleavage plane, that, in the direction of the [001] axis. From the data on the electric conductivity

Card 1/2

L 10030-63

ACCESSION NR: AR3000374

of crystals, the activation energies of the donors and acceptors are calculated, found to be 0.04 and 0.03 ev, respectively. On the basis of measurements of the thermal emf in the region of intrinsic conductivity it is established that the mobility of the holes in Sb sub 2 Se sub 3 is almost three times larger than the mobility of the electrons. V. Gurevich

DATE ACQ: 14May63 ENCL: 00 SUB CODE: PH

bm/Kel
Card 2/2

SHUTOV, T.I.

Crustless cheese in a polymer packing. Inform.biul.VDNKH no.11:10-11
N 64. (MIRA 18:2)

1. Direktor pavil'ona "Molochnaya promyshlennost'" na Vystavke
dostizheniy narodnogo khozyaystva SSSR.

KHOBOTOVA, N.M., ekskursovod; TROITSKAYA, N.K.; GRINBERG, A.M.; DOMINSKAYA, G.B.; SHUTOV, T.I.

Exhibitions and displays of special items. Inform. biul.
VDNKH no.10:9-11 '63. (MIRA 18:5)

1. Razdel "Priborostroyeniye i sredstva avtomatizatsii" pavil'ona "Mashinostroyeniye" na Vystavke dostizheniy narodnogo khozyaystva (for Khobotova).
2. Glavnyy inzh.-metodist pavil'ona "Mashinostroyeniye" na Vystavke dostizheniy narodnogo khozyaystva (for Troitskaya).
3. Glavnyy metodist razdela "Geologiya" ob'yedinennogo pavil'ona "Toplivnaya promyshlennosti' i geologiya" na Vystavke dostizheniy narodnogo khozyaystva SSSR (for Dominskaya).
4. Direktor pavil'ona "Molochnaya promyshlennost'" na Vystavke dostizheniy narodnogo khozyaystva SSSR (for Shutov).

KUROV, G., kapitan 3-go rango; SHUTOV, V., kapitan-leytenant

Communists of the foremost warships. Komm.Vooruzh.Sil 1
no.17:58-59 S '61. (MIRA 14:8)

(Destroyers (Warships))

SHUTOV, V. D.

SHUTOV, V. D. - "Fragmental Feldspars of the Productive Stratum of Azerbaydzhah and Their Paleogeographical Significance." Sub 30 May 52, Inst of Geological Sciences, Acad Sci USSR. (Dissertation for the Degree of Candidate in Geological and Mineralogical Sciences).

SO: Vechernaya Moskva January-December 1952

Шутов, В. Д.

USSR/Geology

Card : 1/1

Authors : Kossovskaya, A. G. and Shutov, V. D.

Title : Conditions leading to the accumulation of the productive stratum of Azerbaidzhan

Periodical : Dokl. AN SSSR, 97, Ed. 1, 141 - 143, July 1954

Abstract : The geological conditions resulting in the genesis of the petroleum rich productive stratum of Azerbaidzhan (Az-SSR), are explained. Five USSR references.

Institution :

Presented by : Academician, D. I. Shcherbakov, April 14, 1954

Shutov, V. D.

USSR/Minerals - Mineralogy

Card 1/1 Pub. 22 - 39/49

Authors : Kossovskaya, A. G., and Shutov, V. D.

Title : Nature of changes in clastic biotite during epigenesis

Periodical : Dok. AN SSSR 101/3, 541-554, Mar 21, 1955

Abstract : Lithological-petrographic data are presented on the changes occurring in clastic biotite (magnesium-iron mica) during the process of epigenesis. Graph; illustrations.

Institution : Acad. of Sc., USSR, Inst. of Geol. Sc.

Presented by: Academician D. I. Shcherbakov, November 20, 1954

KOSSOVSKAYA, A.G.; SHUTOV, V.D.

Zones of epigenesis in the terrigenous complex of the Mesozoic
and Upper Paleozoic deposits of the western Verkhoyansk Range.
Dokl. AN SSSR 103 no.6:1085-1088 Ag '55. (MLRA 9:1)

1. Predstavleno akademikom N.M. Strakhovym.
(Verkhoyansk Range--Geology, Stratigraphic)

KOSSOVSKAYA, A.G.; SHUTOV, V.D.

Zonal alterations of terrigenous rocks during epigenesis and early-stage metamorphism in a geosynclinal zone. Vop.min.osad. obr. 3/4:452-467 '56. (MLRA 9:11)

1. Institut geologicheskikh nauk Akademii nauk SSSR, Moskva.
(Geochemistry)

SHUTOV, V.D.

New method for studying clastic feldspars in terrigenous rocks.
Vop.min.osad.obr. 3/4:647-653 '56. (MLRA 9:11)

1. Institut geologicheskikh nauk Akademii nauk SSSR, Moskva.
(Feldspar)

SHUTOV, V.D.

✓ The character and distribution of mineral neogenes in a profile of Meso-Paleozoic deposits of Western Verkhoyansk. A. G. Kossovskaya and V. D. Shutov. *Trudy Geol. Inst., Akad. S.S.S.R.* 1956, No. 6, 135-68. — The mineral sequence in the Mesozoic and late Paleozoic periods is studied and classified. The cementing substance in the upper Permian is typically muscovite, chlorite, or quartz. In the Jurassic-Triassic it is chlorite (with opal, chalcedony, or quartz); in the lower Cretaceous, Ca zeolites and clays. The rock-forming components are muscovite, chlorite, andesine plagioclase, and quartz in the upper Permian; biotite, plagioclase, and quartz in the Jurassic-Triassic; and hydrated deformed biotite in the Cretaceous. Common accessory minerals are: Permian, epidote, zoisite, rutile, and muscovite; Jurassic-Triassic, epidote, zoisite, sphene, ilmenite, anatase, brookite, leucocene; Cretaceous, epidote, zoisite, ilmenite. C. H. Puchman.

2

See

SHUTOV, V. D.

3

Epigenic new formation of epidote and zoisite in Mesozoic and upper Paleozoic sediments of the western Verkhoyansk Range. A. G. Kossovskaya and V. D. Shutov. Doklady Akad. Nauk S.S.S.R. 108, 139-41 (1966). The new crystals of epidote, albite, chlorite, and quartz in Devonian sediments of Alsace was described by Lapparent (1924); an analogous occurrence is now described in Lower Cretaceous, Triassic, and Lower Permian sandstones of terrigenous origin, with albite-oligoclase, quartz, microcline, chloritized biotite, and epidote, zoisite, and garnet in the heavy fractions. The epidote shows some replacement by quartz. The epidote forms fine-granular or radial aggregates, or well-developed prisms. In the geologically older sediments the epigenic epidote occurs in dendritic forms filling the pores of the rock, assocd. with green chlorite (isotropic, $n = 1.648$). The zoisite forms small prismatic crystals with parallel extinction, gray, or anomalous interference colors; often around quartz or feldspar grains. The epigenic origin of epidote and zoisite in the described rocks is evidently from original clayey carbonate fillings cementing the sandstones. W. Bitel

2

Handwritten initials/signature

USSR/Cosmochemistry. Geochemistry. Hydrochemistry. D

Abs Jour : Ref Zhur - Khimiya, No. 8, 1957, 26558.

Author : Kossovskaya, A.G., Shutov, V.D.
Inst : Geological Institute of Academy of Sciences
of USSR.

Title : Character and distribution of New Mineral
Formations in Cross-Section of Mesozoic and
Paleozoic Deposits in Western Verkhoyan'ye.

Orig Pub : Tr. Geol. in-ta, AN SSSR, 1956, vyp. 5,
135 - 168.

Abstract : No abstract

Card 1/1

15-57-4-4513

Translation from: Referativnyy zhurnal, Geologiya, 1957, Nr 4,
p 73 (USSR)

AUTHORS: Kossovskaya, A. G., Shutov, V. D.

TITLE: Zonal Alterations in Clastic Rocks During Epigenesis
and Incipient Metamorphism in the Geosynclinal Zone
(Zonal'nost' izmeneniya terrigennykh porod pro epigeneze
i nachal'nom metamorfizme v usloviyakh geosinklinal'noy
zony)

PERIODICAL: Vopr. mineralogii osadoch. obrazovaniy. Books 3-4.
L'vov, L'vovsk. un-t, 1956, pp 452-467.

ABSTRACT: In the east-west part of the Verkhoyansk meganticlinorium
along the right bank of the Lena and Aldan Rivers, an
almost uninterrupted section of sedimentary beds,
ranging in age from Lower Cretaceous to Lower Permian
(a thickness of more than 11 000 m), has been studied.
These rocks are uniformly fragmental. Large-scale zones
have been distinguished on the basis of rock structure,
nature and composition of the cement, groups of newly

Card 1/4

19- 7-4-4813

Zonal Alterations in Clastic Rocks (Cont.)

formed minerals, and composition and degree of recrystallization of the clay material. 1) The zone of clay cement embraces the upper part of the Lower Cretaceous rocks, over 500 m thick. The sandy-silty rocks are cemented by pore filling. The clay cement consists of finely comminuted clastic material (quartz, feldspar, and mica) and a weakly polarizing matrix, in places containing chlorite; rarely the cement shows calcitic corrosive features. Fragmental hornblende and acid plagioclase are most intensely corroded; quartz and biotite are least affected. 2) The zone of chlorite and chlorite-quartz cement includes the lower part of the Lower Cretaceous and the Upper Jurassic. The rocks are chiefly sandy-silts with subordinate mudstones. The chlorite cement fills pores and forms as a crust on the mineral grains. In the upper part of the zone the cement consists of chlorite and chlorite-opal; more rarely laumontite and calcite are present, generally producing a poikilitic-like structure. Below in the section, the opal gives way to chalcedony and quartz. The epigenetic transformation of the clay cement culminates in the lower horizons of this zone. The biotite has been hydrated; at the base of the zone it has been converted to chloritic minerals. 3) The zone
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15-57-4-4513

Zonal Alterations in Clastic Rocks (Cont.)

of quartz-recrystallized cement (quartzitic structure) embraces the section from the Middle Jurassic to the Permian, a thickness of 4000 m to 6000 m. The sandy-silty rocks have a quartzitic structure, produced by the recrystallization of grains of quartz and feldspar. The biotite is chloritized. Intense development of hydromicas is observed. Newly formed minerals include rutile, ilmenite, leucoxene, sphene, anatase, brookite, epidote, and apatite. Crystalloblastic growth has been noted in the lower parts of the zone. 4) The zone of quartz-recrystallization and micaceous cement embraces the Lower Permian rocks, up to 4000 m in thickness. It is characterized by complex quartzitic structure and sandstones with muscovite cement. Commonly the muscovite has formed along fragmental grains of feldspar and quartz. In this process the potassium feldspar has been replaced along the entire surface of the grain and shows no recrystallized rim. Such features indicate an instability in the epigenetic environment in the deposits of the geosynclinal zone. The biotite is completely converted to muscovite and chlorite. Epidote and zoisite are widely developed, and anatase and sphene are also present. The zones as distinguished correspond to structural
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15-1957-3-3014

Translation from: Referativnyy zhurnal, Geologiya, 1957, Nr 3,
p 82 (USSR)

AUTHOR: Shutov, V. D.

TITLE: A New Method of Studying Fragments of Feldspar in
Clastic Rocks (Novyy metod izucheniya oblomochnykh
polevykh shpatov v terrigennykh porodakh)

PERIODICAL: Vopr. mineralogii osadoch. obrazovaniy, Books 3-4,
L'vov, L'vovsk. un-t, 1956, pp 647-653

ABSTRACT: A new method is proposed for studying the quantita-
tive distribution of different feldspars in sand-
silt rocks. The Federov stage is used on a
preparation of grains mounted in Canada balsam.
The method combines the principles of immersion
and universal-stage technique. It is especially
convenient to use grains in the 0.1 to 0.5 mm
range for study. The preparation is illustrated

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A New Method of Studying Fragments of Feldspar in Clastic Rocks

diagrammatically and the feldspar grains are counted (to a total of 300). Identification of the type of feldspar may be made by the optic sign and by comparing the index of refraction of Canada balsam with the principal optic section of the mineral. This section may be properly oriented on the universal stage. Among the feldspar fragments, it is possible to distinguish and account for all types, and these are listed with their diagnostic properties. The method is recommended for use with fresh feldspar fragments as well as with detrital grains.

T. A. Ya.

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AUTHORS: Kossovskaya, A. G., Logvinenko, N. V., 20-2-37/50
Shutov, V. D.

TITLE: On Various Stages of Formation and Alteration of Terrigenous
Rocks (O stadiyakh formirovaniya i izmeneniya terrigennykh porod)

PERIODICAL: Doklady AN SSSR, 1957, Vol. 116, Nr 2, pp. 293-296 (USSR)

ABSTRACT: The study of the stages of the sedimentation-rock formation can be generalizingly called the stage analysis. Its task is: the detection of paragenetic mineral-associations of the texture-and structure variations, as well as of physical-mechanical parameters which characterize the different stages of the history of the formation- and existence of the rocks: i. e. the sedimentation-, the diagenesis- and epigenesis stage and finally the stage of the initial metamorphism. The final stages of the formation of the sedimentation rocks mean either their transformation into metamorphous rocks or the surface weathering and destruction. Thus the stadial analysis has to contain a series of processes which differ very much in character and orientation. The first and last stages are the best known. The study of the thick cross sections of terrigenous deposits in geosynclinal regions and in transition areas to the latter facilitated the detection of a certain zonality which characterizes the sedimental rocks which were subjected

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On Various Stages of Formation and Alteration of Terrigenous Rocks.

to a various depth of depression and thus to a different stress action. The zonality is expressed in a specifically mineralogical-petrographical composition of the newly formed mineral components, in certain structure-texture characteristics of the rocks and in their physical-mechanical properties. The zones of the epigenesis and of the early metamorphism occur on the thick vertical cross sections of the sedimentary masses as well as on their development surfaces. The collected material of the Soviet and of the foreign petrographs shows that the history of existence of the sedimentary rocks represents an uninterrupted and orientated process. It is divided into series of stages: These are the following: 1) diagenesis, 2) epigenesis, 3) metagenesis or initial metamorphism, and finally 4) regional metamorphism. The epigenesis is characterized by: a) a gradual solidification of the rocks by the increase of their volume weight and decrease of the porosity, b) alteration of the original splinter structures- and textures, then by "softening" of the same structures by a recrystallization of the clastic grains of the arenaceous rocks and by the formation of mosaic structures. c) Considerable reworking of the argillaceous minerals by their increasing recrystallization degree, vanishing of a series of argillaceous minerals with existing intermediate layer water (montmorillonite-group) and by an

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intensive water mica transformation of the kaolinite, finally by the occurrence of the association hydro-chlorite. The depth epigenesis takes place metasomatically. The epigenesis is divided into an initial and a depth epigenesis; Metagenesis or early metamorphism is a transition state from the sedimentary rocks in general to the metamorphous ones. The volume and the specific weight of the rocks increase, minerals with a more solid structure of the crystal lattice occur. The original characteristics of the texture vanish, the metasomatos process gains importance. A division can be found, like in the case of the epigenesis. The regional metamorphism is connected with the metagenesis stage by gradual transitions. The formation of the mineral association of the muscovite-chlorite-zone characteristic of this stage begins already in the epigenesis. In the metagenesis this association determines the mineralogical-petrographical type of the schist. Quality alterations of the association occur only in the biotite zone where the occurrence of biotite is fixed which is produced at the cost of the interaction between muscovite and chlorite. The alteration of the association is connected with a further temperature rise. Also the specific weight increases up to 2,86. In the case of depression a progressive epigenesis takes place, in the case of general elevation, however, a regressive epigenesis.

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On Various Stages of Formation and Alteration of Terrigenous Rocks.

It has no orientated character and does not change considerably the results of the progressive epigenesis. There are 1 table and 16 references 15 of which are Slavic.

ASSOCIATION: Geological Institute AN USSR, Khar'kov State University (Geologicheskiiy institut Akademii nauk SSSR, Khar'kovskiy gosudarstvennyy universitet)

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KOSOVSKAYA, A.G.; LOGVINENKO, N.V.; SHUTOV, V.D.

Various stages in the formation and changes of terrigenous rocks.
Dokl. AN SSSR 116 no.2:293-296 S '57. (MIRA 11:2)

1. Geologicheskii institut AN SSSR i Khar'kovskiy gosudarstvennyy
universitet. Predstavleno akademikom N.M. Strakhovym.
(Rocks)

~~SHUTOV, V. D.~~ and KOSKOVSKAYA, A. G.

"Zonality in the Structure of Terrigene Deposits in Platform and Geosyncline Regions."

report presented at the 5th Intl. Sedimentology Congress, Geneva/Lausanne, 2-7 June 1958.

Acad. Sci. USSR, Moscow.

KOSSOVSKAYA, A. G. and SHUTOV, V. D.

"Factors Determining the Mineralogical Composition of Clay Rocks in Platform and Geosyncline Regions."

paper distributed at the International Clay Minerology Congress in Brussels, Belgium, 1 - 5 Jul 58.

Comment: B-3,116,859

SOV/5-58-6-4/13

AUTHORS: Kossovskaya, A.G. and Shutov, V.D.

TITLE: To the History of the Development of the Western Part of the Upper Yana Region and the Vilyuy Depression During the Upper Paleozoic and Mesozoic Eras (K istorii razvitiya zapadnogo Verkhoyan'ya i Vilyuyskoy vpadiny v verkhnem paleozoye i mezozoye).

PERIODICAL: Byulleten' Moskovskogo obshchestva ispytateley prirody, Otdel geologicheskiiy, 1958, Nr 6, p 43-57 (USSR)

ABSTRACT: The history of the development of the Upper Yana and the adjacent regions during the accumulation of the terrigenous deposits during the Upper-Paleozoic and Mesozoic eras (from the Lower Permian up to Upper Cretaceous time) is distinctly divided into two large cycles of accumulation of sedimentary deposits: the Upper Paleozoic (Lower Permian - Middle

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Triassic times) cycle and the Mesozoic (Upper Triassic - Upper Cretaceous times) cycle. The formation of the sedimentary layers during the first cycle occurred mainly within the limits of the Upper Yana geosynclinal region. In the second, Mesozoic cycle, it spread to the adjacent parts of the plateau region and to the Vilyuy depression. Both cycles were similarly built and subdivided into a series of lithologic formations, replacing each other in time, and corresponding to separate stages of the development of each cycle (see table on p 46-47). The Upper Paleozoic cycle began with the formation of deposits of the lower sand-schist complex (figure 1) formed under

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marine conditions of the Lower Permian transgression. Its formation was complicated by two regressive movements. In the next stage of this cycle, which also occurred under marine conditions, deposits of schist facies were formed. Its layers were formed of black argillaceous schists with a large content of thinly dispersed organic matter. A general regression began in the Upper Permian time and a submarine **cordillera**, dividing the western and eastern slopes of the Upper Yana ridge, was also formed at that time. Deposits of a flyshoid complex were formed on the western slopes, whereas argillaceous schists were formed on the eastern slope. The second part of the Upper Permian time was characterized by a further differentiation of vertical movements. On both cordillera slopes congl-

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merate-sand-argillaceous deposits were formed at that time. A large sinking zone was formed in the central part of the western slope, and the coal-bearing non-productive complex was formed in the depression, coal bearing layers alternating with sand-schist layers. The end of the Upper Paleozoic cycle was characterized by regional elevations, which in the Middle Triassic time included the whole western part of the Upper Yana region and the adjacent Vilyuy depression. These elevations shifted the sea basin to the north and east. The Mesozoic cycle began with the accumulation of sand-conglomerate sediments which form the Upper Triassic - Lower Liassic deposits in the western part of the Upper Yana region. The sea from the east again

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covered the western slopes of the Upper Yana ridge and the formation of deposits of the sand-conglomerate complex took place under conditions of an increasing transgression, accompanied by two regressive movements. During the next stage, in the Middle- and Upper Liassic times, the aleurolite-argillaceous deposits were formed. The stage of an increasing regression began during the Middle Jurassic period, characterized by a diminution of the marine basin and by a large accumulation of sediments of the upper sand complex, of a semifacial texture and composed of maritime as well as continental layers. In the Upper Jurassic and Lower Cretaceous (up to Aptian) periods, a thick coal-bearing complex was formed. The zone of intensive

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sagging moved to the Upper Yana region and the Vilyuy depression. Intensive mountain-forming processes, accompanied by regional ruptures and volcanic activity, took place at the end of the Lower Cretaceous period. This fixed the last stage of formation of the Upper-Yana **Kolyma** folding region, and the Upper Yana ridge became a chain of mountains. General elevations in the Upper Yana region drove the zone of sagging into the Vilyuy depression where, in the Albian and the whole Upper Cretaceous periods, a complex of kaolinized alluvial sandstones was

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the Upper Yana Region and the Vilyuy Depression During the
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formed. The following geologists are men-
tioned by the author: N.P. Kheraskov,
A.A. Mezhvilk, N.S. Shatskiy, N.M. Strakhov
and Y.M. Pushcharovskiy. There is 1 set of
profiles, 1 table, 1 diagram and 21 Soviet
references.

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AUTHOR: Shutov, V.D. 11-58-7-2/12

TITLE: Lithologic and Stratigraphic Subdivision and Sedimentation Conditions of Permian and Lower Triassic Deposits of the Verkhoyansk Range (Litologo-stratigraficheskoye raschleneniye i usloviya osadkonakopleniya permskikh i nizhnetriassovykh otlozheniy Verkhoyanskogo khrebta)

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya geologicheskaya, 1958, Nr 7, pp 20-36 (USSR)

ABSTRACT: The author proposes a scheme of subdivision and comparison of Permian and Lower Triassic Deposits of the Verkhoyansk mountain ranges. This region was explored in detail by many groups of geologists sent by different Soviet organizations, and the author himself worked many years in the region. He sums up the information gathered by V.N. Andrianov, A.S. Kashirtsev, A.V. Vikhert, A.V. Zimkin, A.V. Leyptsig, G.S. Borushko, V.M. Mel'nikov and others and connects them with information obtained from the study of bearing profiles by members of the Scientific-Research Institute of Arctic Geology I.P. Atlasov, A.A. Mezhevilk and others, made more precise by other expeditions of this Institute under the direction of V.M. Lazurkin. The author identifies 5 different complexes or formations that form the

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Lithologic and Stratigraphic Subdivision and Sedimentation Conditions of Permian and Lower Triassic Deposits of the Verkhoyansk Range

Upper Paleozoic cycle. These complexes represent strongly synchronous formations and form separate stratigraphic levels. The paleontologic remainders collected by A.S. Kashirtsev, Ye.M. Lyutkevich, A.V. Zimkin, Yu.N. Popov, A.F. Yefimova, I.I. Tuchkov, V.N. Andrianov, B.S. Abramov, A.V. Vikhert and the author in Permian and Lower Triassic profiles of various parts of the region, confirm the following divisions:

1) Lower sand-shist complex was formed in condition of transgression development and characterizes the basic transgressional stage of the cycle. This complex was formed by two layers corresponding to the deposits of Sakmara and Arti (Lower Permian) stages which could be traced through the whole Verkhoyansk region. (The author divides the whole region in three sections, determined by the characteristics of their profiles). The lower layer has different names in the three sections. It is formed mainly of argillaceous shists and by its paleontologic remainders it is identified as belonging to the Sakmara stage. The upper layer is identified as belonging to the Arti stage. It has different names in the three sections, but on the whole

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