[illegible] [illegible], I.A.

New developments in research. Stal' 25 no.3:263 Mr '65.

New developments in research. Ibid.:283 (MIRA 18:4)

SHMONIN, L.I.; CHERDYNTSEV, V.V.; TANEYEVA, G.G.; KASHKAROV, L.L.

Determining the isotopic composition of uranium from the stone meteorite Staroye Pes'yanoye. Biul.Kom.po opr.abs.vozr.geol.form. no.1:64-66 '55. (MIRA 9:10)

1. Kazakhskiy gosudarstvennyy universitet i Fiziko-tekhnicheskiy institut AN KazSSR.

(Uranium) (Meteorites)

15-1957-10-14194

Translation from: Referativnyy zhurnal, Geologiya, 1957, Nr 10, p 133 (USSR)

AUTHORS: Cherdyntsev, V. V., Shmonin, L. I., Strashnikov, N. S., Asanova, O. L.

TITLE: Investigation of the Actinium-Radium Ratio in Minerals (Issledovaniye aktiniy-radiyevogo otnosheniya v mineralakh)

PERIODICAL: Byul. Komis. po opredeleniyu absolyutn. vozrasta geol. formatsiy. AN SSSR, 1957, Nr 2, pp 41-65

ABSTRACT: Tests were made on the constancy of the ratio of activity between the uranium and the actinium series in a large number of minerals. Data were also obtained on the ability of some products of the actinium series to migrate under natural conditions. In the test for Ac/Ra in the primary minerals--various oxides, aluminum silicates, titanates, zirconates, niobate-tantalates, phosphates, tungstates, and asphaltites--it was shown that the ratio in these minerals is normal. In secondary minerals, Ac/Ra may deviate markedly from the normal.

Card 1/3

Kazakh State U

Investigation of the Actinium-Radium Ratio in Minerals

This deviation is explained by the complex processes of migration of the radioactive elements. For the majority of secondary minerals, it was observed that Ac/Ra 1. It is possible that this value is, in many cases, due to the accumulation of the radioactive elements of the parent rocks. In many secondary minerals in the zone of oxidation, Ac/Ra is controlled by the migration of Ac and Ra. In some cases Ac/Ra 1. This relationship may occur only if the decay products of U migrate. Spring deposits show a very large fluctuation of Ac/Ra (0.03-17). In some primary minerals Ac/Ra 1, although the age of the minerals is known to be older than needed to establish equilibrium in the uranium series and between uranium and actinium. Such minerals are said to be anomalous. The majority of the anomalous minerals studied are only weakly active, their content of radioactive elements being below the average for the earth's crust. An anomalously high Ac/Ra occurs in many primary minerals, chiefly of hydrothermal origin. The largest anomalies ratio is found in minerals which, to the eye, are well preserved, and it is also found in many minerals that are stable in the zone of oxidation.

80310

SOV/81-59-7-23070

5.5500

Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 7, pp 144 - 145 (USSR)

AUTHORS: Shmonin, L.I., Cherdyntsev, V.V., Tartakovskiy, D.I.

TITLE: The Determination of Boron Content by Means of Irradiation With Slow Neutrons

19

PERIODICAL: Uch. zap. Kazakhsk. un-ta, 1957, Vol 30, pp 7 - 11

ABSTRACT: A method was described for determination of B based on its raised ability (in comparison with other elements by a factor of some hundred) to absorb slow neutrons with the emission of α-particles and Li^7 nuclei according to the reaction: $B^{10} + n = He^4 + Li^7$, the quantity of which is practically proportional to the B content in the analyzed sample. A layer (3 - 5 mg/cm^2) of the finely-ground material to be analyzed is irradiated by neutrons from a Ra-Be-source (~ 0.15 Curie) moderated in a block of paraffin 7 cm thick, and the number of α-particles and Li^7 nuclei which are emitted by the sample in a time unit, is measured by means of a counter installation with a pulse ionization chamber. The content

4

Card 1/2

Investigation of the Neutron Flux of the Earth's Crust SOV/7-59-2-2/14

Results are listed in tables 1 and 2: besides geological formation, location, and genesis, the activity (in μr/h) and flux of slow and fast neutrons (in n/cm^2/h) are given. Gamma activity and the intensity of the neutron flux are usually proportional. In the Aktyuz deposit the intensity increases to 32.4 fast neutrons/cm^2/h and 28.2 slow neutrons/cm^2/h. A dependence of the intensity on humidity was observed in the Vostochnyy Kounrad mine. There are 2 tables and 7 references, 2 of which are Soviet.

ASSOCIATION: Kazakhskiy gosudarstvennyy universitet im. S. M. Kirova (Kazakh State University imeni S. M. Kirov)

SUBMITTED: June 10, 1958

Card 2/2

S/058/62/000/002/001/053
A058/A101

AUTHORS: Cherdyntsev, V. V., Shmonin, L. I., Ostapenko, V. F.

TITLE: Determination of minor traces of thorium by means of neutron irradiation

PERIODICAL: Referativnyy zhurnal. Fizika, no. 2, 1962, 19, abstract 2B141 ("Sb. nauchn. rabot Kafedry optiki i Kafedry eksperim. fiz. Kazakhsk. un-t", 1960, no. 2, 13-16)

TEXT: There is described a method for measuring minor traces of Th^{232} in extracts of some minerals by means of recording the fission fragments of Th nuclei incident to their irradiation by neutrons from a 100-mcurie Ra - Be source. In the present work the thorium was separated from specimens together with cerium, which had been added to the specimens beforehand as the thorium carrier. If the investigated solution contains U, which also undergoes fission under the action of neutrons, the Th and U are separated by irradiating first with fast neutrons and then with thermal neutrons.

[Abstracter's note: Complete translation]

Card 1/1

S/081/62/000/011/017/057
E032/E114

AUTHORS: Cherdyntsev, V.V., Shmonin, L.I., and Ostapenko, V.F.

TITLE: Determination of small quantities of thorium with the aid of neutron irradiation

PERIODICAL: Referativnyy zhurnal, Khimiya, no.11, 1962, 142, abstract 11 D97. (In the Collection: Nauchn. rabot Kafedry optiki i Kafedry eksperim. fiz. Kazakhsk. un-t, no.2, 1960, 13-16).

TEXT: To determine small quantities of thorium (down to 10^{-4}g) in extracts of some minerals, use was made of a method based on the recording of fragments from the fission of thorium nuclei during irradiation by neutrons from a Ra-Be source. Thorium is removed from solution by co-precipitation with cerium oxalate and the precipitate is placed in an ionization chamber. It is then irradiated with a beam of fast neutrons and a number of fission events is recorded. In the presence of U measurements are made of the number of fission events produced by fast and partly slowed-down neutrons.

[Abstractor's note: Complete translation.]

Card 1/1

CHERDYNTSEV, V.V.; SHMONIN, L.I.; OSTAPENKO, V.F.; KHALDEYEV, O.D.;
KASHKAROV, L.L.

Neutron radiation of the earth. Geokhimiia no.3:261-267 '60.
(MIRA 14:5)

1. Kazakhskiy gosudarstvennyy universitet imeni S. M. Kirova,
Alma-Ata.

(Neutrons)
(Nuclear geophysics)

CHERDYNTSEV, V.V.; ASYLBAYEV, U.Kh.; ORLOV, D.P.; SHMONIN, L.I.; ISABAYEV, Ye.A.; KADYROV, N.B.

Uranium isotopes in nature. 1.Actinum-radio ratio of minerals. Geokhimia no.8:650-655 '61. (MIRA 17:3)

1. Geologicheskiy institut AN SSSR, Moskva i Kazakhskiy gosudarstvennyy universitet, Alma-Ata.

ARTAMONOV, Dmitriy Semenovich; LUPICHEV, Nikolai Pavlovich, redaktor;
SIMONIN, L.Ya., retsenzent; SVIRIDOVA, A.A., retsenzent;
VINOGRADOVA, N.M., redaktor; KRASNAYA, A.K., tekhnicheskiy
redaktor.

[Manual for oil barge skippers] Posobie shkiperu neftenalivnoi
barzhi. Izd. 2-oe, perer. i dop. Moskva, Izd-vo "Rechnoi
transport," 1955. 182 p. [Microfilm] (MLRA 9:1)
(Tank vessels) (Petroleum--Transportation)

SHMONIN, M.G.

Maximum runoff in small drainage basins. Sbor.rab.Kursk. gidromet. obzerv. no.2:116-123 '64. (MIRA 17:9)

NIKOLIN, A.V.; BELOV, A.P., kapitan-nastavnik; VARLAMOV, I.S., kapitan-nastavnik; KOSMACHEV, I.K., kapitan-nastavnik; SARATOV, V.F., kapitan-nastavnik; SHMONIN, M.I., kapitan-nastavnik; BEKMAN, A.A., kapitan; DRUZHININ, A.V., kapitan; IVANINA, B.F., kapitan; POLETAYEV, L.A., kapitan; VESHCHILOV, K.A.; VYKHODTSEV, P.K.; SMOLDYREV, A.Ye.; VERESHCHAGIN, Ya.A.; SUTYRIN, M.A.; SAVOSTIN, N.D.; FILYASOV, K.A.; GOLOVUSHKIN, M.P.; IVANOV, A.I.; FILYASOV, K.A., otv.za vypusk; ALEKSEYEV, V.I., red.izd-va; YERMAKOVA, T.T., tekhn.red.

[Rules of navigation on R.S.F.S.R. inland waterways] Pravila plavaniia po vnutrennim vodnym putiam RSFSR. Vvedeny v deistvie s 1 marta 1959 g. prikazom ministra rechnogo flota no.28 ot 11 fevralia 1959 g. Moskva, Izd-vo "Rechnoi transport," 1959. 124 p. (MIRA 13:6)

1. Russia (1917- R.S.F.S.R.) Ministerstvo rechnogo flota. 2. Glavnyy revizor po bezopasnosti sudokhodstva (for Nikolin). 3. Nachal'niki basseynovykh sudokhodnykh inspektsiy (for Veshchilov, Vykhodtsev, Smoldyrev). 4. Rabotniki Upravleniya glavnogo revizora po bezopasnosti sudokhodstva (for Vereshchagin, Sutyrin, Savostin, Filyasov). 5. Glavnoye upravleniye vodnykh putey i gidrotekhnicheskikh sooruzheniy (for Golovushkin).

(Inland navigation--Laws and regulations)

SHMONIN, M.I.

Effective use of a traffic "interval" for track work on heavy traffic lines. Zhel.dor.transp. 42 no.12:30-34 D '60. (MIRA 13:12)

1. Zamestitel' nachal'nika Omskoy dorogi, g. Omsk.
(Railroads—Maintenance and repair)

SHMONIN, P.

Don't lose time. Prof.-tekh. obr. 13 no.7:29 Jl '56. (MLRA 9:10)

1. Zamestitel' direktora tekhnicheskogo uchilishcha No. 13, Sverdlovskaya oblast'.
(Sverdlovsk Province--Technical education)

KOMPANIYETS, T.M.; SHMONIN, M.A.

New developments in research. Stal' 25 no.3:231 Mr '65.
(MIRA 18:4)

SHMONINA, L. I.

Jul/Aug 49

USSR/Chemistry - Acetylene
Chemistry - Androstane

"Acetylene Derivatives, No 94, Synthesis of Polycyclic Compounds Related to Steriods: III, Complete Synthesis of Compounds With Androstane Skeletons and Their Structural Isomers With Methylcyclopentane Rings B," I. N. Nazarov, L. D Bergel'son, L. I. Shmonina, L. N. Terekhova, Inst of Org Chem, Acad Sci USSR, 4pp

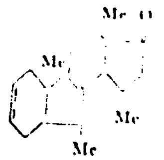
"Iz Ak Nauk SSSR, Otdel Khim Nauk" No 4

Reviews results of 5 years of experiments in subject field in tabular and formulary detail. Submitted 20 Mar 48.

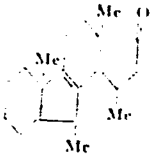
PA 63/49T4

CA

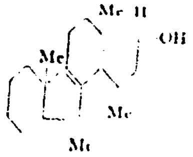
Acetylene derivatives. CX. Synthesis of polycyclic compounds related to sterols. 7. Total synthesis of an isomer of 15-methylandrostenone with a methylcyclopentane B ring. I. N. Nazarov and L. I. Shmonina (Acad. Sci. U.S.S.R., Moscow). *Zhur. Obshchei Khim.* (J. Gen. Chem.) 20, 876-87(1950); cf. *C.A.* 44, 8014d.—Heating 385 g. *2,4-dimethyl-2-cyclopenten-1-one* (I), b. 163.5°, n_D^{20} 1.4660 (prepd. by cyclization of allyl isopropenyl ketone), with 95 g. 1,3-butadiene in the presence of 2 g. pyrogallol in a N atm. 2.5 hrs. at 195-200° in a stainless-steel autoclave gave 347 g. unreacted ketone and 17.3 g. *3,7a-dimethyl-Δ^5-tetrahydro-1-indanone*, b_6 92-5°, b_{10} 99-2°, n_D^{20} 1.4875, d_4^{20} 0.9812; *semicarbazone*, m. 217-18° (decompn.; from EtOH); hydrogenation over Pt in EtOH gave the *corresponding hexahydroindanone*, b_6 66-8°, n_D^{20} 1.4737, d_4^{20} 0.9625 (*semicarbazone*, decomp. 214-15° (from EtOH)). The tetrahydro compd. (72 g.) in 150 ml. Et_2O was treated with C_2H_2 for 35 min. at −70° and, with continued flow of the C_2H_2, there was added over 1 hr. at −70° a mixt. of 500 ml. Et_2O and *tert*-BuOK (from 35 g. K and 200 g. ROH); further treatment with C_2H_2 for 7 hrs., followed by standing 12 hrs. at −70°, passage of C_2H_2 for 3.5 hrs. at room temp., treatment with H_2O, extn. with Et_2O, neutralization of the org. layer with AcOH, and distn., gave 58 g. *3,7a-dimethyl-1-ethynyl-Δ^5-tetrahydro-1-indanol*, b_4 88-90°, n_D^{20} 1.5100, d_4^{20} 1.0114 (hydrogenation over Pt gave the *1-ethylhydrindanol analog*, m. 42-3°). Controlled hydrogenation over Pd in EtOH gave *3,7a-dimethyl-1-vinyl-Δ^5-tetrahydro-1-indanol*, $b_{2.5}$ 78-80°, n_D^{20} 1.5055, d_4^{20} 0.9855. This (8 g.) heated with 3.5 g. powd. $KHSO_4$ to 130-60° at 80-100 mm., then distd. at 10 mm., gave 3.5 g. *3,7a-dimethyl-1-vinyl-$\Delta^{1,5}$-tetrahydroindene* (II), b_6 73-4°, n_D^{20} 1.5060, d_4^{20} 0.917. Heating I with maleic anhydride in C_6H_6 at 100° gave *4b,9-dimethyl-$\Delta^{6,8}$-octahydro-1,2-fluorenedicarboxylic anhydride*, m. 125-6° (from petr. ether), which, boiled with H_2O 2 hrs., gave the *free acid*, decomp. 164-5° (from petr. ether); heating the anhydride with MeOH 2 hrs. gave the *mono-Me ester*, m. 127-8° (from MeOH). Prepn. of I by the Chugaev method, with K in hot xylene, followed by CS_2 and MeI, and distn. at 180-200° at 5 mm. gave poorer yields of II than were obtained with $KHSO_4$, and the product was contaminated by S compds. Heating 5 g. II with 50 g. I in the presence of pyrogallol 6 hrs. at 198-200° gave 55 g. unreacted ketone and 2.6 g. *tetracyclic ketone* (III) b_6 162-5°, n_D^{20} 1.5321, d_4^{20} 1.034; the *2,4-dinitrophenylhydrazone* was polymorphic and crystn. from MeOH gave progressively products m. above 300° (decompn.), decomp. 224-5°, and decomp. 124-5°; the analyses of the derivs. were poorly reproducible and low in N. Hydro-



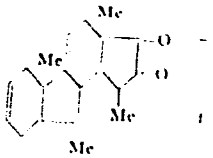
(III)



(IV)



(V)



(VI)

genation of 2.2 g. III over Pt in dioxane (addn. of 2 H)
gave 1.5 g. IV, b_4 158°, n_D^{20} 1.5225, d_4^{20} 1.033 [*2,4-dinitro-*
phenylhydrazone, decomp. 200-2° (from MeOH)]. IV
(1.9 g.) in 55 ml. PrOH with 5 g. Na gave 1.5 g. *alc.* (V),
b_4 167-70°. Heating 5 g. *3,5-dimethyl-3-cyclopentene-*
1,2-dione, m. 63-4° (from the pentenone with SeO_2),
with 20 g. 1,3-butadiene in dioxane 6 hrs. at 158-62°
gave 2.3 g. *3,7a-dimethyl-Δ⁵-tetrahydro-1,2-indandione*,
m. 125-6°, which exists in tautomeric state, giving violet
color with $FeCl_3$ and yielding a *2,4-dinitrophenylhydrazone*,
decomp. 225-6° (from EtOH). Hydrogenation in Et_2O
over Pt gave *3,7a-dimethylhexahydro-1,2-indandione*, m.

104-4.5° (from petr. ether); *2,4-dinitrophenylhydrazone*,
decomp. about 280° (from EtOH). Replacement of
butadiene by I in a reaction conducted for 6 hrs. at 100°
in dry C_6H_6 yielded the diketone (VI), m. 105-7° (from
EtOH). Reduction by aq. EtOH, HCl, and Zn-Hg at
reflux readily gave *3,7a-dimethyl-Δ⁵-tetrahydroindan*, b_{11}
44-7°, n_D^{20} 1.4671, from the corresponding 1-keto deriv.;
heating the product (1.3 g.) with 5 g. Se 5 hrs. to 310-
30° gave a considerable amt. of o-iso-PrC_6H_4Me, b. 176-
a 7°, b_{18} 85-8°, n_D^{20} 1.5002, d_4^{20} 0.8714, and a small amt. of
C_6H_6. CXI. **Rearrangement of polyene systems. 6.**
Allylic and trienic isomerization of 1,6-heptadien-3-yn-5-
ol, 1,3,6-heptatrien-5-ol, and 1,3,6-octatrien-5-ol. I. N.
Nazarov and L. B. Fisher. *Ibid.* 1107-13(1950).—
Addn. of 50 g. acrolein in 50 ml. Et_2O to the Grignard
reagent from 22 g. Mg, 130 g. EtBr, and 60 g. CH_2:-
CHC:CH in Et_2O at -10° gave, after standing overnight,
b 52 g. *1,6-heptadien-3-yn-5-ol* (I), b_{16} 77-8°, n_D^{20} 1.5040,
d_4^{20} 0.9334, which can be stored with a trace of pyrogallol.
Hydrogenation in EtOH over Pt gave *butylethylcarbinol*,
b. 152-4°, n_D^{20} 1.4205, readily oxidized by CrO_3 to *Bu-*
EtCO, b. 145-8° (*semicarbazone*, m. 106-7°). The
unsatd. alc. (6 g.) shaken 6 hrs. at 65-70° with 60 ml.
3% H_2SO_4 gave on distn. in a N atm. 3.3 g. *1,5-heptadien-*
3-yn-7-ol, b_4 75-6°, n_D^{20} 1.5520, d_4^{20} 0.9515, which yellows
and polymerizes on standing and on hydrogenation yields
heptyl alc., b_{18} 78-9°, n_D^{20} 1.4250 (*phenylurethan*, m. 59-
60°). Stirring 43 g. I in 75 ml. Et_2O with 21 g. Cu-
treated Zn dust and 10 ml. H_2O 12 hrs. at 30-2°, with addn.
of 21 g. Cu-Zn and further stirring for 12 hrs., followed
by 4 repetitions (total 11 days) gave 30 g. *1,3,6-heptatrien-*
5-ol, b_{14} 68-70°, n_D^{20} 1.4995, d_4^{20} 0.8959, which polymerizes
to a gel in 10 days and on hydrogenation gives BuCH

(OH)Et, shaking in dioxane-H_2O contg. 1% H_2SO_4 3 hrs. in a N atm. at room temp. gave *1,3,5-heptatrien-7-ol*, b_2 65-8°, m. 79-80° (from petr. ether), hydrogenated to heptanol. With 52 g. MeCH:CHCHO in the above Grignard reaction is obtained 68 g. *1,6-octadien-3-yn-5-ol*, b_4 67-8°, n_D^{20} 1.5070 (Heilbron, *et al.*, C.A. 38, 4248⁹). This stirred with Zn-Cu in H_2O-Et_2O for a total of 140 hrs. (13 days) gave, from 184 g. *trienol*, 6 g. *octatriene* (probably *1,3,5-isomer*), b_{50} 65-7°, n_D^{20} 1.5300, d_4^{20} 0.7815, which gives octane on hydrogenation over Pt, and 140 g. *1,3,6-octatrien-5-ol*, b_{14} 81-2°, n_D^{20} 1.5030, d_4^{20} 0.8913, which does not polymerize on standing and is hydrogenated over Pt to *butylpropylcarbinol*, b_{15} 46-7°, b. 162-3°, n_D^{20} 1.4140, d_4^{20} 0.8186. The trien-5-ol shaken with 1% H_2SO_4 1 hr. at room temp. gave 60% *1,3,5-octatrien-7-ol*, b_1 89-90°, n_D^{20} 1.5125, d_4^{20} 0.9000, as well as a small amt. of substance b_1 90-130°; the product thickens a little on storage for 1 year but remains clear; its hydrogenation over Pt gives *methylhexylcarbinol*, b_3 72-3°, n_D^{20} 1.4260, d_4^{20} 0.8180, which yields on oxidation *Me hexyl ketone*, b_7 49-50°, b. 170-2°, n_D^{20} 1.4152, d_4^{20} 0.8171; *semicarbazone*, m. 122-3°. Shaking 1,3,5-octatrien-7-ol 45 hrs. in N atm. with 3% H_2SO_4 gave much undistillable matter and unreacted alc. as well as a small amt. of *2,4,6-octatrien-1-ol* (crude, b_1 88-105°), m. 89° (from petr. ether), which yellows on standing and on hydrogenation gives octanol. **CXII. 7. Synthesis and isomerization of styryl(vinylethynyl)carbinol, styrylbutadienylcarbinol, furyl(vinylethynyl)carbinol, and furylbutadienylcarbinol** *Ibid.* 1114-24. Although $PhCH(OH)CH:CHCH:CH_2$ isomerizes into the primary dienol irreversibly under the action of dil. H_2SO_4, the aliphatic analogs undergo a reversible isomerization. Further study of the reaction showed that trienols whose OH group belongs to both the allylic and pentadienic systems undergo only the allylic shift, and not the dienic shift. Addn. of 50 g. PhCH:CHCHO in Et_2O to the Grignard reagent from 50 g. $CH_2:CHC:CH$, 15 g. Mg, and 100 g. EtBr at −20° and stirring overnight in a N atm. gave 58 g. *$CH_2:CHC:CCH(OH)CH:CHPh$*, b_1 140-1°, n_D^{20} 1.6005, d_4^{20} 1.0391; the product must be distd. in 8-10-g. portions in N as distn. of larger amts. leads to *explosive decompn.* Hydrogenation over Pt gave *7-phenyl-5-heptanol*, b_2 130-8°, n_D^{20} 1.5040, d_4^{20} 0.9440, oxidized to *Bu phenethyl ketone*, b_7 125-8°, n_D^{20} 1.4980, d_4^{20} 0.9391 (*2,4-dinitrophenylhydrazone*, m. 130-2°). Heating the styryl alc. (7.3 g.) with 140 ml. 70% aq. dioxane contg. 3% H_2SO_4 12 hrs. at 40-5° in N with pyrogallol gave 3 g. *7-phenyl-1,5-heptadien-3-yn-7-ol*, b_1 139-41°, n_D^{20} 1.6062, d_4^{20} 1.0390, hydrogenated to *phenylhexylcarbinol*, b_7 135-8°, n_D^{20} 1.5024, which with CrO_3-AcOH gives *Ph hexyl ketone*, b_7 129-31°, n_D^{20} 1.5060, d_4^{20} 0.9505 (*semicarbazone*, m. 118-19°; *2,4-dinitrophenylhydrazone*, m. 137-9°) (the authentic ketone was prepd. by oxidation of the corresponding carbinol, b_7 135-7°, n_D^{20} 1.5020, d_4^{20} 0.9386, obtained from BzH and $C_6H_{13}MgBr$). The styryl alc. stirred with Cu-Zn in H_2O for a total of 15 days gave a moderate yield of *7-phenyl-1,3,6-heptatrien-5-ol*, b_2 130-1°, n_D^{20} 1.5970, d_4^{20} 1.0210, along with some *phenylheptatriene;* use of 35-40° gives largely the latter, (probably) *7-phenyl-1,3,6-heptatriene*, b_2 108-10°, n_D^{20} 1.6330, which forms unstable crystals liquefying on exposure to air. Hydrogenation of the trienol over Pt gave the above 7-phenyl-5-heptanol, while the phenylheptatriene gave *1-phenylheptane*, b_4 90–100°, n_D^{20} 1.4870, d_4^{20} 0.8565. Heating the trienol with 70% aq. dioxane and 1% H_2SO_4 in a N atm. 1 hr. to 40–5° gave some 50% *7-phenyl-1,3,5-heptatrien-7-ol*, b_1 142–5°, which could not be crystd. because of rapid oxidation by air; immediate hydrogenation gave *7-phenyl-1-heptanol*, b_4 135°, n_D^{20} 1.5145, d_4^{20} 0.9610, which with CrO_3-AcOH gave *7-phenyl-1-heptanecarboxylic acid*, isolated as the *Ag salt*. Reaction at −19° of 90 g. furfural in Et_2O with the Grignard reagent from 100 g. CH_2:CHC:CH and EtMgBr gave 82 g. *2-furyl(vinylethynyl)carbinol*, b_2 84–5°, n_D^{20} 1.5380, d_4^{20} 1.0913, which polymerizes within 2 months to a solid; its hydrogenation over Pt gives *butyl-2-furylcarbinol*, b 98–9°, n_D^{20} 1.4708, d_4^{20} 0.9608 (also obtained from BuMgCl and furfural). Stirring the unsatd. carbinol with Cu-Zn and H_2O at room temp. to 30–2° for a total of 12 days gave *2-furyl(butadienyl)carbinol*, b_3 83–4°, n_D^{20} 1.5300, d_4^{20} 1.0770, which slowly polymerizes even with hydroquinone, and on hydrogenation over Pt yields the above butyl-2-furylcarbinol. Isomerizations with dil. H_2SO_4 failed as these alcs. resinified and decompd. too readily. G. M. K.

SHMOLINA, L.I.

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"Acetylene Derivatives 135. Regrouping of the Allyl System. V. Exchange Reaction of 8,8-dimethylallychloride With Amines, Potassium Cyanide, and Salts of Organic Acids," I. N. Nazarov, V. N. Rakecheyeva, L. I. Shmolina, Inst of Org Chem, Acad Sci USSR

"Zhur Obshch Khim" Vol XXII, No 4, pp 611-617

In the Action of 8,8 -dimethyl allyl chloride with diethyl amine and peperidene, an approx 70% yield of the corresponding teryiary amines contg the 8,8-dimethyl allyl radical is forned. This exchange reaction proceeds nornally and is not accompanied by allyl regroupings. The reaction of the above with KCN and HCOONa is analogous.

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SHMONINA, L.I.

USSR.

✓Synthesis of polycyclic compounds related to steroids.
XXI. Condensation of 1-vinyl-2-methyl-$\Delta^{1,6}$-hexahydro-
naphthalene with α,β-unsaturated cyclic ketones. Syn-
thesis of steroid ketones with hydrogenated skeletons of
cyclopentanophenanthrene and chrysene. I. N. Nazarov,
L. I. Shmonina, and I. V. Torgov. *Bull. Acad. Sci.*
[redacted] *Chem. Sci.* 1953, 955-08 (Engl. transla-
tion).—See *C.A.* 49, 2452*h*. XXII. Stereochemistry of
polycyclic compounds. 2. Semiestor of *cis*- and *trans*-1-
methylcyclohexane- and -4-cyclohexene-1,2-dicarboxylic
acids, and their transformations. I. N. Nazarov and V. F.
Kucherov. *Ibid.* 1954, 51-64.—See *C.A.* 49, 2454*h*.
XXIII. Synthesis of sulfur analogs of steroidal compounds
by diene condensation of cyclic γ-keto sulfones with bi-
cyclic dienes. I. N. Nazarov, I. A. Gurvich, and A. I.
Kuznetsova. *Ibid.* 1953, 969-70.—See *C.A.* 49, 2450*d*.
XXIV. Condensation of 3,8-dimethyl-1-vinyl-$\Delta^{1,8}$-tetra-
hydroindene with α,β-unsaturated cyclic ketones. I. N.
Nazarov and M. S. Burmistrova. *Ibid.* 1954, 45-50.—
See *C.A.* 49, 2457*f*. Synthesis of polycyclic compounds
related to steroids. XXV. Synthesis of compounds re-
lated to estrone by the method of diene condensation. I.
N. Nazarov and I. L. Kotlyarevskii. *Ibid.* 1953, 977-85.—
See *C.A.* 49, 2458*d*. H. L. H.

Shmonina, L. I.

Synthesis of polycyclic compounds related to steroids. XXI. Condensation of 1-vinyl-9-methyl-$\Delta^{1,8}$-hexahydronaphthalene with α,β-unsaturated cyclic ketones. Synthesis of steroid ketones with hydrogenated skeletons of cyclopentanophenanthrene and chrysene. I. N. Nazarov, L. I. Shmonina, and I. V. Torgov (Inst. Org. Chem., Acad. Sci. U.S.S.R., Moscow). *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1953, 1074-90; cf. *C.A.* 49, 1082*d*.—Heating steroidal ketones with HCl or treatment with Pt in AcOH serves to shift the double bond from the 9,11- to the 8,9-position. Heating 582 g. 1-methyl-1-cyclohexen-6-one with 75 g. $(CH:CH_2)_2$ and 2.5 g. Et_2NPh in an autoclave 3 hrs. at 245-50° gave 543 g. unchanged ketone and 26.5 g. (45% conversion) *cis-9-methyl-Δ^{8}-octahydro-1-oxonaphthalene* (I), b_1 82-4°, n_D^{20} 1.5050 [*semicarbazone*, decomp. 225° (cf. Nudenberg and Butz, *C.A.* 37, 5399^4)], hydrogenated over Pt in EtOH to *cis-9-methyldecahydro-1-oxonaphthalene* (II), b_1 84-6°, n_D^{20} 1.4950 (*2,4-dinitrophenylhydrazone*, m. 159-60°). I (115 g.) in Et_2O was chilled to −70°, satd. with C_2H_2 over 1 hr., then treated with a suspension of the reaction mixt. of 56 g. K in 350 ml. $BuCMe_2OH$ in 1 l. Et_2O, while the C_2H_2 stream was maintained 13 hrs. at −70° after the addn. was complete, and, after an overnight interim, 8 hrs. at −5°; after treatment with H_2O, the org. layer gave 80 g. *1-ethynyl-9-methyl-Δ^{8}-octahydro-1-naphthol*, $b_{1.5}$ 98-9°, n_D^{20} 1.5240 (cf. Gaddis and B., *C.A.* 41, 2029*b*), also formed in 86% yield (b_2 97-8°, n_D^{20} 1.5245) when C_2H_2 was passed into a soln. of 38 g. Na in 1 l. liquid NH_3 simultaneously treated with 133 g. I. Hydrogenation of the product over Pt gave *1-ethyl-9-methyldecahydro-1-naphthol*, $b_{0.5}$ 83-4°, n_D^{20} 1.5060, which slowly solidified and m. 62-3°; the product was probably a mixt. of 2 *stereoisomers* which differ in configuration at C-1. Hydrogenation of the ethynyl alc. over $Pd\text{-}CaCO_3$ readily gave *1-vinyl-9-methyl-Δ^{8}-octahydro-1-naphthol*, b_1 91-3°, n_D^{20} 1.5215; this (4.5 g.) heated with 2.5 g. powd. $KHSO_4$ 0.5 hr. at 130-40°/100 mm., then distd. *in vacuo*, gave 75% *1-vinyl-9-methyl-$\Delta^{1,8}$-hexahydronaphthalene*, b_1 74-4.5°, n_D^{20} 1.5250, which, warmed with maleic anhydride in C_6H_6 3 hrs. in a sealed tube at 100° gave *4b-methyl-$\Delta^{4,8}$-decahydro-1,2-phenanthrenedicarboxylic anhydride*, m. 119-20° (from hexane). Citraconic anhydride in a similar condensation (24 hrs. at room temp. and 7 hrs. at 100°) gave 30% mixed anhydrides, m. 133-45°, from which was isolated the more abundant form, *2,4b-dimethyl-$\Delta^{4,8}$-decahydro-1,2-phenanthrenedicarboxylic anhydride*, m. 16[illegible]-2° (from hexane); the other isomer, presumably the *1,4b-di-Me analog*, was not purified; if the condensation is run 2 days at room temp., an unresolved mixt. of isomers is formed. Hydrolysis of the mixed anhydrides (m. 134-9°) by 50% AcOH, finally at 105°, gave the free *acid*, m. 159-63°, apparently a const. mixt. of unsepd. *isomers*. Heating this acid mixt. with Raney Ni in C_6H_6 17 hrs. at 360-80°, 3 hrs. at 380-400°, and 3.5 hrs. at 400-10° gave a low yield of *1-methylphenanthrene*, m. 120-3°; *picrate*, m. 132°. Condensation of the vinyl compd. (10 g.) with 20 g. 1-methyl-1-cyclopenten-3-one 6 hrs. at 150° in an ampul gave 55% mixed *isomers* of tetracyclic ketones, *10,14-dimethyl-2,9-cardosteradien-15-one*, m. 128-9° and 163-4°, hydrogenated over PtO_2 to the corresponding *dihydro analogs*, m. 114-15° (III) and 125-6° (IV), resp., in which the 9,11-double bond

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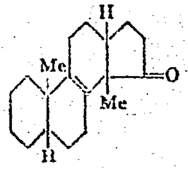
remained. Further hydrogenation in AcOH over PtO_2 of the isomer, m. 114-15°, gave $C_{19}H_{28}O$, the satd. analog, which was the 1st instance of hydrogenation of the 9,11-link in this group. Refluxing III with AcOH-concd. HCl in MePh 10 hrs. gave an isomer, m. 52-4°, which was identified as V, which had been described earlier (*C.A.* 49, 1086e). V could not be hydrogenated further. Heating IV with AcOH-HCl as above gave its isomer (VI), m. 92-3°, which was also described earlier (cf. *loc. cit.*). Shaking IV with PtO_2 under H in AcOH gave 50% yield VI. Heating 6 g. vinylmethylhexahydronaphthalene (above) with 24 g. 1,3-dimethyl-1-cyclopenten-5-one under CO_2 10 hrs. at 170° in an ampul gave a mixt. of isomers which yielded 1.3 g. high-melting (m. 143-4°) and 1.6 g. low-melting isomer (VII) (m. 122-3°) of *10,14,17-trimethyl-2,9-cardosteradien-15-one*, which failed to yield carbonyl derivs. Hydrogenation of the high-melting form over PtO_2 in EtOH gave the *dihydro deriv.*, m. 122-3°, with residual 8,9-double bond, described earlier (*C.A.* 49, 1083i); the latter was not isomerized by boiling with AcOH-HCl, nor could this ketone be hydrogenated further. Similar hydrogenation of VII gave the corresponding *dihydro analog*, m. 127-8°, which does not isomerize with AcOH nor hydrogenate further. However, treatment of VII with iodine in aq. MeOH in the presence of KOH gave a *diiodo deriv.*, m. 128-9°, while Kishner reduction of VII with $N_2H_4.H_2O$ in $O(CH_2CH_2OH)_2$ gave 81% hydrocarbon (VIII), b_2 145-7°, n_D^{20} 1.5330, dehydrogenated under N in C_6H_6 in the presence of Pd-C in 6 hrs. at 350°/30 atm. to *Diels hydrocarbon* (IX), m. 119-21° ($C_6H_3(NO_2)_3$ adduct, m. 146-7°), which was isolated after chromatographic purification on Al_2O_3. Thus VII has the "inverted" configuration of the cyclopentane ring relative to the main nucleus. Heating the vinylmethylhexahydronaphthalene (10 g.) with 90 g.



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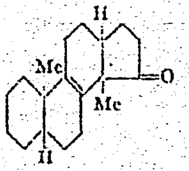

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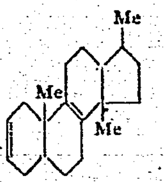
1-methyl-1-cyclohexen-6-one 10 hrs. at 170° under CO_2 gave 43% mixed isomeric ketones (X), from which were isolated 2 g. XA, m. 130–30.5°, 0.6 g. isomer (XB), m. 118–19°, and 0.4 g. isomer (XC), m. 133–3.5°; the structures of XB and XC have not been established. However, hydrogenation over PtO_2 gave the *dihydro derivs.*, m. 119–20° (XI), 114–15°, and 132–3°, resp. XI refluxed with AcOH-HCl in MePh gave XD, m. 137–8°, described earlier (*C.A.* 49, 1085*e*); the same isomerization took place in AcOH in contact with PtO_2 and H. XB heated with HCl-AcOH as above gave an *isomer*, m. 121–1.5°, whose structure was not detd.; XC failed to isomerize under these conditions. Treatment of XI with MeMgBr, finally in boiling C_6H_6, gave the tetracyclic alc. (XII), m. 158–9° (from MeOH), dehydrated over $KHSO_4$ in xylene to a crude product, which after chromatographic treatment gave a low yield of *chrysene*, m. 243–5°; normally the product expected in this case would have been 4-methylchrysene. Heating the vinylmethylhexahydronaphthalene (2.1 g.) with 13 g. 2-methyl-2-cyclohexenone 10 hrs. at 170° under CO_2 gave 1.7 g. mixed *isomeric* ketones, $C_{20}H_{28}O$ (XIII), $b_{0.04}$ 137–9°, n_D^{20} 1.5420; *semicarbazone*, m. 237–7.5°. XIII could not be crystd. or sepd. into individual stereoisomers. Similar reaction with *p*-benzoquinone gave after 3 hrs. at 65° 30% *10-methyl-2,9,16-cardochrysatriene-15,17a-dione*, m. 92–105° (crude), m. 108–18° (from MeOH), with evidence of change of the substance on melting; the compd. failed to yield a semicarbazone or dinitrophenylhydrazone (cf. Gaddis and Butz, *C.A.* 41, 4789*d*). Similar condensation with 1,3-dimethyl-1-cyclopentene-4,5-dione in dioxane 6 hrs. at 100° under CO_2 gave 30% *10,14,17-trimethyl-3,9-cardosteradiene-15,16-dione*, m. 100–10° (from EtOH); the wide m. range is caused by ready isomerization at elevated temp. with formation of a keto-enol form; this occurs very readily in the presence of piperidine at room temp., the *isomeride*, m. 131–2°, gives a violet color with $FeCl_3$ and is assigned the structure XIV; the original dione does not give this color test. **XXII.** Stereochemistry of polycyclic compounds. 2.



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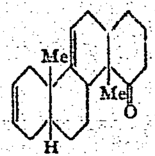

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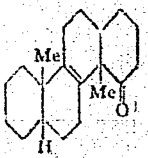

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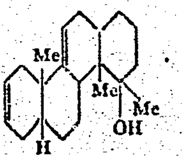

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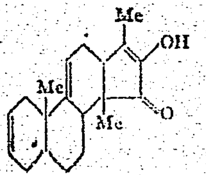

(XIV)

Semiester of *cis*- and *trans*-1-methylcyclohexane- and -4-cyclohexene-1,2-dicarboxylic acids and their transformations. I. N. Nazarov and V. F. Kucherov. *Ibid.* 1954, 63–70; cf. *C.A.* 48, 5109*e*; Bachmann, *et al.*, *C.A.* 35,

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4355[7]; 38, 92[7]; 46, 1018*g*.—Refluxing 25 g. *cis*-1-methyl-4-cyclohexene-1,2-dicarboxylic anhydride (I) 6 hrs. in 75 ml. abs. MeOH gave after evapn. and treatment with petr. ether 12.2 g. (addnl. 1.3 g. obtained by chilling the mother liquor) *cis-1-methyl-2-carbomethoxy-4-cyclohexene-1-carboxylic acid* (II), m. 130–1°. The liquid reaction product failed to crystallize (n_D^{20} 1.4875) and on attempted distn. gave I; hydrolysis with alc. NaOH gave *cis-1-methyl-4-cyclohexene-1,2-dicarboxylic acid*, m. 167–8°. The latter (4 g.) refluxed 2 hrs. in 100 ml. abs. MeOH with 2.6 ml. concd. H_2SO_4, evapd. *in vacuo* to 25 ml., treated with H_2O, extd. with Et_2O and the ext. evapd. gave a partly cryst. product on treatment with petr. ether; the solid (2.4 g.) was identical with II, while the liquid residue gave on distn. 1.2 g. *di-Me cis-1-methyl-4-cyclohexene-1,2-dicarboxylate*, b_4 104–6°, n_D^{20} 1.4725. I (5 g.) refluxed 1 hr. with 1.35 g. Na in 40 ml. abs. MeOH gave after evapn., soln. in H_2O, and acidification with HCl, followed by extn. with Et_2O, 5.2 g. *cis-1-methyl-1-carbomethoxy-4-cyclohexene-2-carboxylic acid*, a viscous oil, n_D^{20} 1.4870; this was also formed in 1.8-g. yield when 2 g. di-Me *cis*-1-methyl-4-cyclohexene-1,2-dicarboxylate was refluxed 3 hrs. with 0.55 g. KOH, 10 ml. H_2O, and 30 ml. MeOH; there was also formed 0.03 g. II, which was sepd. by freezing. Hydrogenation of II in dioxane over Pt gave *cis-1-methyl-2-carbomethoxycyclohexane-1-carboxylic acid* (III), m. 69–70° (from petr. ether). Refluxing 3 g. *cis-1-methylcyclohexane-1,2-carboxylic anhydride* (IV) in 20 ml. abs. MeOH 5 hrs. gave 0.8 g. III. To a warm soln. of 1 g. Na in 25 ml. abs. MeOH was added 3.5 g. IV and the mixt. refluxed 3 hrs., gave, after usual treatment, 69% *cis-1-methyl-1-carbomethoxycyclohexane-2-carboxylic acid* (IVa), m. 59–60° (from petr. ether), which also formed on hydrogenation of the 4-cyclohexene analog. To 10 g. II was added 10 ml. $(COCl)_2$ and the mixt. allowed to stand 1 hr., heated 0.5 hr. to 40–5°, evapd., and distd., gave 10.6 g. *cis-1-methyl-2-carbomethoxy-4-cyclohexene-1-carbonyl chloride* (V), b_1 99–9.5°, n_D^{20} 1.4905. Similarly 5.7 g. III gave 5.7 g. *cis-1-methyl-2-carbomethoxycyclohexane-1-carbonyl chloride* (VI), $b_{2.5}$ 110.5–11°, n_D^{20} 1.4780. Similarly 13 g. *cis-1-methyl-1-carbomethoxy-4-cyclohexene-2-carboxylic acid* gave 13.3 g. corresponding *acid chloride* (VII), $b_{1.5}$ 96–7°, n_D^{20} 1.4885. IVa similarly gave the corresponding *acid chloride* (VIII), b_4 112–12.5°, n_D^{20} 1.4760. V (2 g.) in 10 ml. abs. Et_2O was added with cooling to 2.1 g. CH_2N_2 in Et_2O, allowed to stand 24 hrs., the solvent evapd. and the residue, taken up in 45 ml. cold abs. MeOH, treated with 0.5 g. fresh Ag_2O and refluxed 6 hrs., filtered, the filtrate and wash MeOH concd. *in vacuo* and the residue refluxed 4 hrs. with 7 ml. 40% KOH and 5 ml. MeOH, yielded after acidification and extn. with Et_2O 0.35 g. *cis-1-methyl-2-carboxy-4-cyclohexene-1-acetic acid*, m. 141–3° (from Me_2CO-petr. ether). Similarly 2.1 g. VI gave 0.22 g. *cis-1-methyl-2-carboxycyclohexane-1-acetic acid*, m. 174–5°, which was also obtained by hydrogenation of the unsatd. analog over Pd in MeOH. Similarly 5 g. VII gave 60% *2-methyl-2-carboxy-4-cyclohexene-1-acetic acid*, m. 162–6° (even after repeated crystn. from various solvents); hydrogenation of the product over Pd in MeOH gave *cis-2-methyl-2-carboxycyclohexane-1-acetic acid*, m. 164–5°, and a small amt. of the *trans-analog*, m. 175–7°; since the original acid chloride

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was a pure cis isomer, the result indicates an unexpected isomerization during the Arndt-Eistert reaction. Similar reaction of VIII (3 g.) gave 0.2 g. pure (about 0.5 g. crud *cis*-2-methyl-2-carboxycyclohexane-1-acetic acid, m. 164–[illegible] and about 0.4 g. corresponding *trans-isomer* (IX), m. 175–7°. Treatment of 0.5 g. V in Et_2O at −5° with 0.5 g. $PhNH_2$ in Et_2O, followed by 0.5 hr. at 0° gave 0.6 g. corresponding *anilide* (X), m. 91–3°. Similarly, VII gave the *anilide*, m. 104–5°. To 0.4 g. II in Et_2O was added 0.6 g. powd. PCl_5, the mixt. was heated until soln. took place and was then treated with 4 g. $PhNH_2$, then refluxed 0.5 hr.; after diln. with H_2O and sepn. of the org. layer, there was obtained 0.35 g. *1-methyl-4-cyclohexene-1,2-dicarboxylic acid N-phenylimide*, m. 103–4° (from Et_2O-petr. ether); the same product formed from *cis*-1-methyl-1-carbomethoxy-4-cyclohexene-2-carboxylic acid after the similar treatment; the same product formed from V or VII on treatment with $PhNH_2$ in Et_2O. When the anilide X was refluxed in Et_2O with $POCl_3$ 1 hr., and the org. layer was sepd., washed with 10% Na_2CO_3, and evapd., the same phenylimide was again obtained; the latter also formed on similar treatment of the anilide of VII. Treatment of 1 g. III with 1.5 g. PCl_5, followed by treatment with $PhNH_2$, gave 0.95 g. *1-methylcyclohexane-1,2-dicarboxylic acid N-phenylimide*, m. 109–10° (from Et_2O-petr. ether), the same product being also obtained from similar treatment of IVa, or from reaction of $PhNH_2$ with VI or VIII. Refluxing 3.5 g. *trans*-1-methyl-4-cyclohexene-1,2-dicarboxylic anhydride (XI) with 1 g. Na in 30 ml. abs. MeOH 1 hr. gave after evapn., diln. with H_2O, and acidification, 60% *trans-1-methyl-1-carbomethoxy-4-cyclohexene-2-carboxylic acid* (XII), m. 74–5° (from petr. ether). This (0.5 g.) in Et_2O was treated with 0.75 g. PCl_5, heated until soln. took place, then treated with excess $PhNH_2$ and allowed to stand 1 hr.; the org. layer after usual washing gave XII *anilide*, m. 133–4° (from Et_2O). Refluxing 6 g. di-Me *trans*-1-methyl-4-cyclohexene-1,2-dicarboxylate with 1.7 g. KOH in 25 ml. H_2O and 90 ml. MeOH 10 hrs. gave 63% XII. Hydrogenation of XII over Pd in abs. MeOH gave the satd. analog, m. 92–3°, which treated with PCl_5 followed by $PhNH_2$, gave the corresponding *anilide*, m. 103–5° (from dil. MeOH). *trans-1-Methylcyclohexane-1,2-dicarboxylic anhydride* (XIII) (1.3 g.) was added slowly to 0.35 g. Na in 12 ml. abs. MeOH, refluxed 0.5 hr., dild. with 10 ml. H_2O, freed of MeOH *in vacuo*, and acidified to give 77% satd. analog of XII, m. 91–3°, identical with the above described specimen; refluxing 9.4 g. di-Me *trans*-1-methylcyclohexane-1,2-dicarboxylate 10 hrs. with 2.8 g. KOH in 42 ml. H_2O and 115 ml. MeOH gave after usual treatment 75% same product, m. 92–3.5°. Refluxing 4 g. XI with 15 ml. MeOH 4 hrs. gave, after evapn. and soln. in petr. ether followed by standing for several days, 0.2 g. XII, m. 73–5°, and 1.2 g. isomeric *trans-1-methyl-2-carbomethoxy-4-cyclohexene-1-carboxylic acid* (XIV), m. 50–8°; the latter after the usual treatment gave the corresponding *anilide*, m. 112–14°, while hydrogenation of XIV over Pd gave the liquid satd. analog which yielded, after the usual treatment, the corresponding *trans-1-methyl-2-carbomethoxycyclohexane-1-carboxylic acid anilide* (XV), m. 98–9° (from Et_2O-petr. ether). XII treated in C_6H_6 with $(COCl)_2$, kept 1 hr. at room temp. and 0.5 hr. at 40°, gave the corresponding *acid chloride* (XVI), b_4 104–5°, n_D^{23} 1.4880, which with $PhNH_2$ in Et_2O gave the *anilide*, m. 133–4°. Similar treatment of the satd. analog of XII with $(COCl)_2$ gave the

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corresponding *acid chloride* (XVII), $b_{1.5}$ 96-7°, n^{20}_{D} 1.4770, which with PhNH$_2$ gave the *anilide*, m. 104-5°, identical with the above described specimen. **XVI** treated with CH$_2$N$_2$ as described above gave 85.5% *trans-2-methyl-2-carboxy-4-cyclohexene-1-acetic acid*, m. 205-6° (from Me$_2$CO). Similarly, XVII gave *trans-2-methyl-2-carboxycyclohexane-1-acetic acid*, m. 175-7° (60% yield); pure product, m. 176-7° (from Me$_2$CO-petr. ether), is also obtained by hydrogenation of the unsatd. analog over Pd in MeOH. In this series the trans isomers give stable anilides and enter the Arndt-Eistert reaction more readily than do the cis analogs. XXIII. Synthesis of sulfur analogs of steroidal compounds by diene condensation of cyclic γ-keto sulfones with bicyclic dienes. I. N. Nazarov, I. A. Gurvich, and A. I. Kuznetsova. *Ibid.* 1953, 1091-9.—Heating 4.8 g. 1-vinyl-9-methyl-Δ^1-octahydro-6-oxonaphthalene (I) and 4.3 g. 2,5-dimethyl-4*H*-1-thiapyran-4-one 1,1-dioxide (II) in dioxane with 0.05 g. pyrogallol under N 6 hrs. at 170°, then 7 hrs. at 170° on the next day, gave 6.6 g. crude tetracyclic diketo sulfone, which after fractional crystn. from MeOH and chromatography on Al$_2$O$_3$ gave 3 g. low-melting form (III), m. 212-13°, and high-melting isomer, m. 225-6°. Similar reaction of 1 g. 1-vinyl-9-methyl-$\Delta^{1,6}$-hexahydronaphthalene and 0.99 g. II gave 1.3 g. mixed isomers, sepd. by treatment with EtOH into compd. IV, m. 208-9.5°, and a low-melting isomer of IV, m. 182-3°. Heating 0.75 g. 1-vinyl-3,8-dimethyl-Δ^1-hexahydro-5-indenone and 0.75 g. II similarly in the presence of pyrogallol in dioxane 6 hrs. at 170-5° gave about 0.25 g. high-melting V, m. 235-6° (from EtOH and Me$_2$CO), and the low-melting *isomer*, m. 170-1°. Similarly 2 g. 1-vinyl-3,8-dimethyl-$\Delta^{1,4}$-tetrahydroindene and 1.8 g. II after 4.5 hrs. at 170° gave 1.4 g. mixed isomeric product, which was sepd. into the low-melting VI, m. 158-9°, and the high-melting *isomer*, m. 172-3° (from EtOH). I (1.5 g.) and 1.2 g. 2-methyl-4*H*-1-thiapyran-4-one 1,1-dioxide, similarly heated 6 hrs. at 143-5°, gave 2 g. crude product, m. about 200°, which after chromatography on Al$_2$O$_3$ gave 1.7 g. VII, m. 215-15.5°, which is unaffected by refluxing 0.25 hr. with MeOH contg. 0.1% Na, but which forms a tar after 2 hrs. refluxing. Heating 1.2 g. 1-vinyl-6-methoxy-3,4-dihydronaphthalene with 1 g. II similarly 6 hrs. at 170-5° gave about 1 g. product, which was sepd. into 0.2 g. starting material and about 0.8 g. VIII, m. 221-1.5° (from C$_6$H$_6$). The low-melting isomer of III hydrogenated in dioxane over Pd-CaCO$_3$ gave the 2,3-dihydro deriv. (IX) of III, m. 240-1°, which could not be hydrogenated further; similar hydrogenation of the high-melting III gave the other *isomer* of IX, m. 231-2° (from EtOH). Hydrogenation of VII gave the 2,3-dihydro deriv. (X), m. 215-16.5° (from MeOH), which was unchanged on short boiling with a dil. soln. of Na in MeOH but which formed a tar after 2 hrs. reflux. The hydrogenation could be run either in Me$_2$CO or dioxane (the latter at 60 atm. at 100-20°). The low-melting isomer of VI was hydrogenated in dioxane over Pd to the 2,3,7,8-tetrahydro deriv. (XI), m. 159-60° (from EtOH). X hydrogenated in AcOH over PtO$_2$ and H$_2$PtCl$_6$, then chromatographed on Al$_2$O$_3$, gave XII, m. 245-6° (from C$_6$H$_6$), contg. 0.5 mole C$_6$H$_6$, along with its *diacetate*. Heating XII with AcCl-AcOH 1.5 hrs. at 110° yielded the diacetate in

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the form of a colorless resinous mass. Oxidation of XII with CrO_3-AcOH gave X, m. 214-15°. XXIV. Condensation of 3,8-dimethyl-1-vinyl-$\Delta^{4,8}$-tetrahydroindene with α,β-unsaturated cyclic ketones. I. N. Nazarov and M. S. Burmistrova. *Ibid.* 1954. 56-62; cf. *C.A.* 48, 12759a.—

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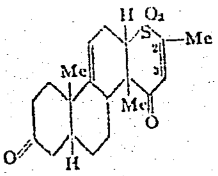
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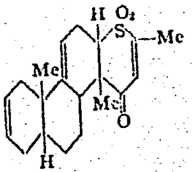
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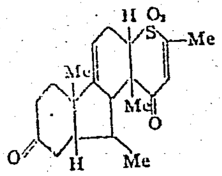
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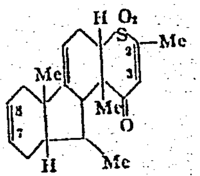
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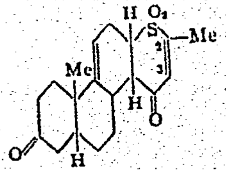
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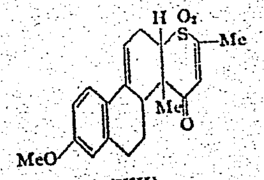
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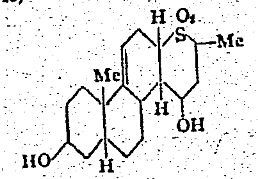
(XII)

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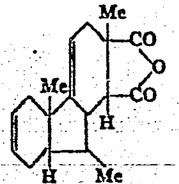
Into 9.2 g. Na in 350 ml. liquid NH_3 was passed C_2H_2 3 hrs. at 20 l./hr. and the mixt. was then treated, with continued passage of C_2H_2, with 33 g. 3,8-dimethyl-Δ^8-tetrahydroindan-1-one in 75 ml. Et_2O, after which the mixt. was treated with C_2H_2 1 hr. longer and kept in the cold overnight; the NH_3 was evapd. and the residue was treated with 100 ml. Et_2O, 35 g. NH_4Cl, and 150 ml. H_2O; the org. layer yielded 87.4% *3,8-dimethyl-1-ethynyl-Δ^8-tetrahydroindan-1-ol*, b_3 88–90°, n_D^{20} 1.5070, which was partially hydrogenated to the previously described *1-vinyl analog* ($b_{1.5}$ 88–90°, n_D^{20} 1.5045; cf. *C.A.* 46, 2088*f*). This (3 g.) and 1.5 g. powd. $KHSO_4$ heated 10 min. to 120° at 95 mm., cooled and extd. with Et_2O gave 2.2 g. *3,8-dimethyl-1-vinyl-$\Delta^{1,8}$-tetrahydroindene* (I), $b_{1.5}$ 60–2°, n_D^{20} 1.5070. Heating 5 g. I with 10 g. 1-cyclopentenone in sealed ampul under CO_2 13 hrs. at 130° gave 3 g. mixed *isomeric 7,10-dimethyl-B-norcardostera-2,9-dien-15-ones*, viscous oil, $b_{0.04}$ 132–4°, d_{20} 1.048, n_D^{20} 1.5400; 2 g. of this product hydrogenated in dioxane in the presence of Pt, absorbed 210 ml. H in 4 hrs. and gave 1.5 g. mixed *isomers of 7,10-dimethyl-B-norcardoster-9-en-15-one*, $b_{0.03}$ 123–6°, n_D^{20} 1.5288, d_{20} 1.043. Heating 4 g. I with 4.8 g. 1-methyl-1-cyclopenten-5-one under CO_2 in ampul 10 hrs. at 170° gave 1.5 g. mixed *isomers* of *7,10,14-trimethyl-B-norcardostera-2,9-dien-15-one*, $b_{0.03}$ 133–8°, n_D^{20} 1.5380, d_{20} 1.037, which hydrogenated in dioxane over Pt catalyst to mixed *isomers* of *7,10,14-trimethyl-B-norcardoster-9-en-15-one*, $b_{0.04}$ 140–2°, n_D^{20} 1.5280, d_{20} 1.019. Heating 5 g. I with 50 g. 1-cyclohexenone as above 10 hrs. at 170° gave 3 g. *isomers* of *7,10-dimethyl-B-norcardochrysa-2,9-dien-15-one*, $b_{0.07}$ 150.5–51°, n_D^{20} 1.5375, d_{20} 1.0533, which hydrogenated in dioxane over Pt to mixed *isomers* of *7,10-dimethyl-B-norcardochrysan-9-en-15-one*, $b_{0.015}$ 132–4.5° n_D^{20} 1.5215, d_{20} 1.0433. Heating 4 g. I with 45 g. 2-methyl-2-cyclohexen-1-one in sealed ampul in the presence of 0.5 g. Me_2NPh 10 hrs. at 170° gave 2.5 g. *isomers* of *7,10,14-trimethyl-B-norcardochrysa-2,9-dien-15-one*, $b_{0.03}$ 147–50°, n_D^{20} 1.5415, d_{20} 1.056, which on standing deposited 0.25 g. *solid isomer*, m. 139–42°. Hydrogenation of the mixed isomers over Pt in dioxane gave mixed *isomers* of *7,10,14-trimethyl-B-norcardochrysan-9-en-15-one*, $b_{0.07}$ 148–50°, n_D^{20} 1.5238, d_{20} 1.033. Keeping 5.1 g. I with 3.8 g. citraconic anhydride in 1 ml. C_6H_6 5 days at room temp. gave 3.5 g. mixed isomers II and III, $b_{0.015}$ 144–5°, n_D^{20} 1.5310, d_{20} 1.137; hydrolysis of this product with alc. NaOH and 50% AcOH gave an uncrystallizable *mixt.* of acids. Keeping 2 g. I and 1 g. *p*-benzoquinone in 20 ml. dioxane in sealed tube under CO_2 24 hrs. at room temp., followed by 3 hrs. at 60°, gave 1.8 g. yellowish *7,10-dimethyl-B-norcardochrysa-2,9,16-trien-15,17a-dione*, m. 166–6.5° (from MeOH); *2,4-dinitrophenylhydrazone*, m. 213–15°. This hydrogenated in dioxane over Pt gave *7,10-dimethyl-B-norcardochrysan-15,17a-dione*, m. 140.5–41° (from Et_2O). XXV. Synthesis of compounds related to estrone by the method of diene condensation, I. N. Nazarov and I. L. Kotlyarevskii. *Ibid.* 1953, 1100–10.—To 140 g. 2-methoxy-5,6,7,8-tetra-



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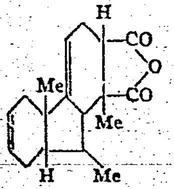

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hydronaphthalene (by hydrogenation of 2-$C_{10}H_7OH$) in 800 ml. AcOH was added over 6 hrs. at 3° 140 g. CrO_3 in 400 ml. AcOH and 60 ml. H_2O, the mass concd. *in vacuo* the following day at 40-50°, and the residue dild. with 500 ml. H_2O and left overnight, yielding 90 g. *6-methoxy-1,2,3,4-tetrahydro-1-oxonaphthalene* (I); the Et_2O ext. of the soln. gave 15 g. starting material and 20 g. more I, for a total yield of 76.5% (based on reacted starting material); pure I b_1 130-5°, m. 78-9°. A soln. of EtMgBr (from 95 g. EtBr) in 200 ml. Et_2O was satd. with 20 l. C_2H_2 at 2.5 atm. and −70°, then heated to 10°, stirred 1 hr., cooled to −70°, and the HC:CMgBr which pptd. on the walls of the autoclave treated at −50° with 20 g. I in dry MePh, the mixt. stirred 0.25 hr. at −70°, warmed to 10°, and stirred 1 hr., then 0.5 hr. at 45° (2-3 atm.); evapn. of the org. layer gave 7 g. *bis(6-methoxy-3,4-dihydro-1-naphthyl)acetylene*, m. 176-7° (from C_6H_6); heating the mother liquor in a high vacuum to 140° (much foaming) gave 7.2 g. *6-methoxy-1-ethynyl-3,4-dihydronaphthalene*, $b_{0.04-0.06}$ 118-25°, n_D^{18} 1.6005, which is rather unstable and cannot be satisfactorily distd. again owing to polymerization (cf. Bachmann and Chemerda, *C.A.* 42, 6798*i*). Hydrogenation of a fresh sample over Pd-$CaCO_3$ in MeOH gave 75% *6-methoxy-1-vinyl-3,4-dihydronaphthalene* (II), $b_{1.5}$ 118-24°, n_D^{18} 1.5865; *maleic acid adduct*, m. 201-2°. II heated with 2-cyclopenten-1-one 3 hrs. at 170° in an ampul gave about 30% condensation product, b_{3-4} 210-15°, which yielded 1.5 g. (from 3 g. II) compd. (III), m. 142° (cf. Dane and Eder, *C.A.* 33, 6820⁴, who give a wrong structure), and 0.8 g. IV, $b_{0.1}$ 210-15°. Hydrogenation of III in MeOH over Pd 30 hrs. at 60° gave 2 isomers of V, m. 160-60.3° and 116-17°. Treating III with MeMgI and heating the isolated product, after the usual aq. HCl treatment, to 180-90° with $KHSO_4$ gave an oil, b. 190-202°/0.1 × 10^{-1} mm., m. 88° (after rubbing); this heated with Se 6 hrs. at 300° gave a low yield of *1'-methyl-7-methoxy-1,2-cyclopentanophenanthrene*, m. 97-8° ($b_{0.1}$ 160-80°); *trinitrobenzene adduct*, m. 126-7°. IV treated as above with MeMgI and the product heated with $KHSO_4$ *in vacuo* at 170° gave an oil, $b_{0.05}$ 180-200°, which, heated with Se 3 hrs. at 300-20°, gave about 20% *3'-methyl-7-methoxy-1,2-cyclopentanophenanthrene*, m. 147-8°; *trinitrobenzene adduct*, m. 136.5-7° (cf. *C.A.* 49, 1082*d*). Heating II with 1-methyl-1-cyclopenten-5-one 4 hrs. at 170° in an ampul gave about 50% mixed *MeO ketones* (VI), $b_{0.1}$ 220-2°; VI, after chromatography on Al_2O_3, reduction of the eluted product with Na-EtOH, and heating with $KHSO_4$ 1 hr. at 180°, gave an oil, $b_{0.1}$ 180-95°, which, heated with Se 7 hrs. at 320-30°, gave a low yield of a solid *product*, $C_{18}H_{11}O$, m. 136-6.5°. Hydrogenation of VI over Pt in EtOH gave mixed *isomers* of *estrone Me ether* (VII), $b_{0.1}$

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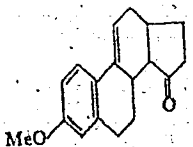
199–203°. Heating 3.7 g. II and 8 g. 1,3-dimethyl-1-cyclopenten-5-one 6 hrs. at 155–60° gave 0.8 g. mixed *isomers* (VIII), $b_{0.1}$ 205–8°, which, refluxed with AcOH-48% HBr 6 hrs., extd. with NaOH and acidified, gave mixed isomers of IX, $b_{0.03}$ 215–20°. VIII over Pt in EtOH added H_2 and yielded mixed dihydro ketone derivs. (X), $b_{0.1}$ 195–200°, demethylated as above in 3 hrs. to the mixed *isomers* of XI, $b_{0.03}$ 215–20°. Heating 4 g. II with 12 ml. 1-cyclohexen-1-one 20 hrs. at 120° gave 2 g. product, b_1 100–70°, which with EtOH yielded 2 g. XII, m. 132° (from EtOH), hydrogenated over Pd in EtOH to *compd.* XIII, m. 147° (from EtOH). Heating 0.1 g. XII with 6 ml. AcOH and 3 ml. 48% HBr 3 hrs. gave 50 ml. *8-methoxy-1,2,3,4-tetrahydrochrysene*, m. 183°. Similar treatment of XIII gave *8-methoxy-1,2,3,4,4a,12a-hexahydrochrysene*, m. 219–20°. The structures of the last 2 products are tentative.



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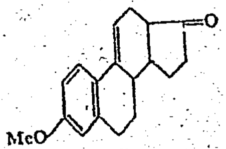

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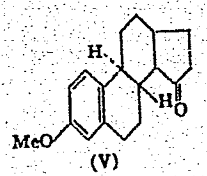

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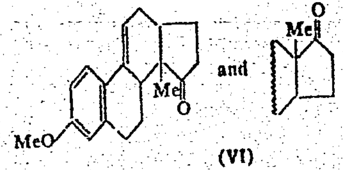

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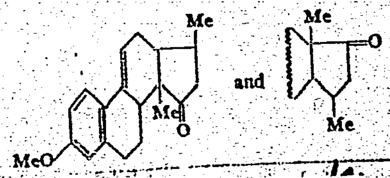

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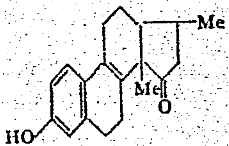

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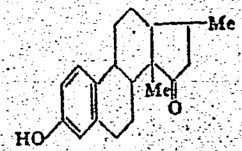

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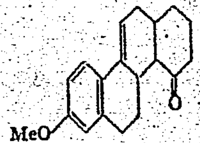

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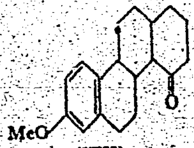

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G. M. Kosolapoff

NAZAROV, I.N.; ZAV'YALOV, S.I.; BURMISTROVA, M.S.; GURVICH, I.A.;
SHMONINA, L.I.

Synthesis of steroid compounds and related substances. Part 34.
9-methyl-1,6-diketo-Δ^5-octahdronaphthalene. Zhur.ob.khim. 26
no.2:441-444 F '56. (MLRA 9:8)

1. Institut organicheskoy khimii Akademii nauk SSSR.
(Naphthalene)

SHMONINA, L.I.

Synthesis of steroid compounds and substances related to them. XXXIV. 9-Methyl-1,6-dioxo-Δ^{8}-octahydronaphthalene. I. N. Nazarov, S. I. Zav'yalov, M. S. Bu[illegible]trova, I. A. Gurvich, and L. I. Shmonina. *J. Gen. Chem. U.S.S.R.* 26, 405-8(1956)(Engl. translation).—See *C.A.* 50, 13847*c*.
B. M. R.

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SHMONINA, L. I.

Shmonina, L. I., Cherdyntsev, V. V., Koshkarova, L. L., Ostanenko, V. F. - The Examination of the Neutron Flow of the Earth's Crust.

The Sixth Session of the Committee for Determining the Absolute Age of Geologic Formations at the Department of Geologic-Geographical Sciences (OGGN) of the USSR Academy of Sciences at Sverdlovsk in May 1957

Izv Ak Nauk SSSR, Ser Geol., No 4, 1958, p. 115-117 author Pekarskaya, T. B.

ШАМОНИНА Л. И.

AUTHORS: Shostakovskiy, M. F., Shmonina, L. I. 62-1-11/29

TITLE: The Investigation of the Radical Addition Mechanism of Poly-halides Compounds to Vinyl Acetate(Issledovaniye radikal'nogo mekhanizma prisoyedineniya poligaloidnykh soyedineniy k vinilatsetatu)

PERIODICAL: Izvestiya AN SSSR Otdeleniye Khimicheskikh Nauk, 1958, Nr 1, pp 64 - 67 (USSR)

ABSTRACT: Up to now the interaction between polyhaloidmethane and trichlorosilane and various olefins and simple vinyl esters was investigated most precisely. This was done to a smaller extent, however, with the reaction of the interaction of the above mentioned compounds with complex vinyl esters. There exists only one American patent (1946, reference 7) in which the interaction between the carbon tetrachloride and vinyl acetate is described. The polarization products of thegeneral formula $CCl_3(CH_2CHOCOCH_3)_n$ Cl, were obtained as result, where n = 1....8. In the present paper the authors report on the investigation of the interaction between CCl_4, $CHCl_3$, $SiCl_4$, $SiHCl_3$ and $C_2H_5SiHCl_2$ and vinyl acetate under the influence of benziolperoxide. It was found that the yield of the equimolecular addition compound of CCl_4 to vinyl acetate is increased corresponding to the greater quan-

Card 1/2

tity of CCl_4. The yield of the product was improved and its constants were defined exactly. For the first time equimolecular addition compounds were obtained of $SiHCl_3$ and $C_2H_5SiHCl_2$ to the vinyl acetate. Here $SiCl_4$ does not enter interaction with vinyl acetate (in the presence of benzoil peroxide). After the interaction between $CHCl_3$ and vinyl acetate has taken place a mixture of theproducts of low-molecular polymerization is formed. There are 2 tables, 7 references, 3 of which are Slavic.

ASSOCIATION: Institute of Organic Chemistry imeni N. D. Zelinskiy, AS USSR (Insitut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR)

SUBMITTED: July 19, 1956

AVAILABLE: Library of Congress

1. Halides-Chemical reactions 2. Vinyl acetate-Chemical reactions

Card 2/2

62-1-23/29

— SHMONINA, L. I.

AUTHORS: Shostakovskiy, M. F., Shmonina, L. I.

TITLE: On the Question of the Production of Hexachlorobutadiene (K voprosu o poluchenii geksakhlorbutadiyena)

PERIODICAL: Izvestiya AN SSSR Otdeleniye Khimicheskikh Nauk, 1958, Nr 1, pp. 109 - 111 (USSR)

ABSTRACT: Hexachlorobutadiene belongs to the best solvents for many organic substances. There are many papers in literature describing the various kinds of the synthesis of hexachlorobutadiene. There is also a series of patents. It was, however, interesting to find also other ways of synthesis, starting from the available raw material. In the previous report of the laboratory of the authors it was proved that it is possible to obtain hexachlorobutadiene on the basis of diazetylene. Furthermore the authors were interested to detect whether it is possible to obtain a substance starting from butindiole (formulae (1) to (4)). These reaction were up to now only partly realized. The authors obtained 1,4 -dichlorbutine according to the known method of(Johnson, ref. 4) with a yield of 80%. It turned out that 1,4-dichlorobutine does not combine at all with chlorine under the given conditions. The realization of this reaction succeeded (with a yield of ~ 98%) by chlorination in a solution

Card 1/2

SHMONINA, L.I.

AUTHORS: Shostakovskiy, M. F., Shapiro, E. S., Shmonina, L.I. 20-1-32/58

TITLE: Chlorination of Diacetylene (Khlorirovaniye diatsetilena).
The Synthesis of Hexachlorobutadiene-1,3 (Sintez geksakhlorbutadiyena -1,3).

PERIODICAL: Doklady AN SSSR, 1958, Vol. 118, Nr 1, pp. 114-116 (USSR).

ABSTRACT: The haloidation-reaction of diacetylene is well investigated in the example of the bromine-addition (reference 1). But there are no data on the chlorination. For this purpose the authors worked out a method: the reaction takes place in the medium of carbon tetra-chloride at -30 - 25°C. Liquid and crystalline 1,1,2,3,4,4-hexachlorobutene-2 forms. Its geometrical isomers were isolated and are known (reference 2). They are supposed not to react with chlorine and bromine. The authors, however, succeeded in performing a further chlorination of the hexachlorobutenes with liquid chlorine under pressure and ultraviolet illumination. In the case of large chlorine excess (4-8 and more Mol) they did not notice any chlorinolysis and obtained octachlorobutane with a quantitative yield. A subsequent dehydrochlorination of the latter led to the synthesis of hexachlorobutadiene-1,3. This is a substance valuable in many commercial respects. Regarding this production (references 3,4) there exist patent applications (although

Card 1/2

85659

5.3630 2209, 1287, 1266

S/079/60/030/009/016/022/XX
B001/B066

AUTHORS: Shostakovskiy, M. F., Guseynov, I. I., Shmonina, L. I., Vasil'yev, G. S., and Lopatin, B. V.

TITLE: Synthesis of Compounds of the Type of 1-Alkoxy-2-oxy-chlorophosphine-3-chlorobutadienes-1,3

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 9, pp. 2836 - 2838

TEXT: The present paper deals with the reaction of ethinyl-vinyl alkyl ethers with PCl_5 (a reaction that has not been described as yet). They suggest the following scheme:

$$ROCH{=}CH{-}C{\equiv}CH + 2PCl_5 \longrightarrow \left[ROCHCl{-}CHPCl_4{-}C{\equiv}CH \cdot PCl_5\right] \longrightarrow$$

$$\longrightarrow \left[ROCH{=}CPCl_4{-}CCl{=}CH_2 \cdot PCl_5\right] + 2SO_2 \longrightarrow ROCH{=}CPOCl_2{-}$$

$$-CCl{=}CH_2 + 2SOCl_2 + POCl_3 .$$

Card 1/3

05059

Synthesis of Compounds of the Type of 1-Alkoxy-2-oxy-chlorophosphine-3-chlorobutadienes-1,3

S/079/60/030/009/016/022/XX
B001/B066

Such a reaction was described by them in Ref. 3. When studying the reaction of ethinyl-vinyl-alkyl ethers with PCl_5, they devised a method of synthesizing 1-alkoxy-2-oxy-chlorophosphine-3-chlorobutadienes-1,3 (Ref. 4). The resultant compounds are viscous liquids which readily turn yellow, have a sharp odor, and are stable at low temperatures in sealed ampoules through which nitrogen had been blown previously. The authors made supplementary experiments to check the structure of the compounds synthesized. On the basis of the infrared spectrum the butadiene structure may be regarded as proven (Ref. 5). The splitting of the absorption band of the double carbon bond for the present compounds may be interpreted in different ways, but the opinion that the band is split into various components by rotational forms of the cis- and trans-configurations (Ref. 6) is supported by the fact that the components have different intensities which are almost independent of the alkyl substituent, and that a shift occurs only in one direction. Mention is made of A. N. Nesmeyanov. There are 2 tables and 8 references: 7 Soviet and 1 British.

Card 2/3

Synthesis of Compounds of the Type of 1-Alkoxy-2-oxy-chlorophosphine-3-chlorobutadienes-1,3

S/079/60/030/009/016/022/XX
B001/B066

ASSOCIATION: Institut organicheskoy khimii Akademii nauk SSSR (Institute of Organic Chemistry of the Academy of Sciences USSR)

SUBMITTED: August 15, 1959

Card 3/3

BATUYEV, M.I.; SHMONINA, L.I.; MATVEYEVA, A.D.; SHOSTAKOVSKIY, M.F.

Optical study of the structure of some 1, 2, 3-substituted 1, 3-butadienes. Izv.AN SSSR Otd.khim.nauk no.3:513-516 Mr '61.
(MIRA 14:4)

1. Institut goryuchikh iskopayemykh AN SSSR i Institut organicheskoy khimii imeni N.D.Zelinskogo AN SSSR.
(Butadiene)

21082
S/079/61/031/003/002/013
B118/B207

5 3630 2209, 1287, 1153

AUTHORS: Shostakovskiy, M. F., Shmonina, L. I., and Guseynov. I. I.

TITLE: Synthesis of 1-alkoxy-2-oxy-dialkoxy- and 1-alkoxy-2-oxy-bis-dialkyl aminophosphine-3-chlorobutadiene-1,3

PERIODICAL: Zhurnal obshchey khimii, v. 31, no. 3, 1961, 734-736

TEXT: The new class of 1,2,3-substituted butadienes (I) previously described by the authors (Ref. 1: ZhOKh, 30, 2836 (1960)), which was obtained by reacting vinyl-ethinyl alkyl ether with PCl_5, contains active chlorine atoms in its group of oxychloro phosphines:

$$ROCH{=}CH{-}C{\equiv}CH + 2PCl_5 \longrightarrow \left[ROCHCl{-}CHPCl_4{-}C{\equiv}CH \cdot PCl_5\right] \xrightarrow{SO_2}$$

$$\longrightarrow ROCH{=}CPOCl_2{-}CCl{=}CH_2.$$

(I) The reaction of butadienes (I) with compounds containing a mobile hydrogen atom (alcohols, amines, mercaptanes) may play a

Card 1/3

considerable role in the synthesis of valuable polymers, if the halogen atoms of the phosphine group are substituted by different radicals. In the reaction of compounds (I) with alcohols, e. g., the chlorine atoms of the phosphine group are easily substituted by alkoxy groups under the formation of 1-alkoxy-2-oxy-dialkoxy phosphine-3-chlorobutadiene-1,3 (II): $ROCH{=}CPOCl_2{-}CCl{=}CH_2 + 2R'OH \longrightarrow ROCH{=}CPO(OR')_2{-}CCl{=}CH_2$ (II). This reaction proceeds easily already at 30-35°C in anhydrous benzene, in the presence of pyridine. The yellowish liquids obtained have a weak odor and are more stable than the initial butadienes (I) and may be preserved in sealed ampoules. Compounds (I) react with dialkyl amines in the same way. In this case, the reaction proceeds in anhydrous petroleum ether at -3°C, in the presence of excess dialkyl amine. In analogy to the compounds (I) and (II), the resulting 1-alkoxy-2-oxy-bis-dialkyl aminophosphine-3-chlorobutadienes-1,3 are assigned the structure $ROCH{=}CPO(NR'_2)_2{-}CCl{=}CH_2$ (III). They are dense, yellowish liquids, which become darker when exposed to air. To confirm the previously assumed structure of 1,2,3-substituted butadienes (I), their Raman spectra were examined. The oscillation frequency of the C-Cl bond in the grouping $-CCl{=}CH_2$ was found to conform to formula (I),

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Synthesis of ... S/079/61/031/003/002/013
B118/B207

and the compounds studied revealed a rotational isomerism at the single C—C and C—P bonds, as well as a geometrical isomerism at the C═C double bond which follows the C—P bond. The infrared spectra of some compounds (II) showed an absorption band 1408—1400 cm^{-1} which corresponds to a vinyl group (═CH_2) in final position, which fact is also in agreement with the structure of 1,2,3-substituted butadienes of these compounds and spectroscopic data presented in Ref. 1. There are 4 Soviet-bloc references.

ASSOCIATION: Institut organicheskoy khimii Akademii nauk SSSR (Institute of Organic Chemistry of the Academy of Sciences USSR)

SUBMITTED: April 21, 1960

X

Card 3/3

SHOSTAKOVSKIY, M.F.; SHMONINA, L.I.; TIKHOMIROVA, I.M.

Reactivity of -halo vinyl alkyl ethers. Izv. AN SSSR.
Ser. khim. no.12:2193-2196 D '63. (MIRA 17:1)

1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR.

PROSVIROV, Ye.S.; SKORNYAKOV, V.I.; BATAL'YANTS, K.Ya. Prinimali uchastiye: VOLYA, G.S.; PENTYUKHOV, V.I.; SHMONINA, M.V. PASHCHINSKAYA, G., red.izd-va; NIKOLAYEVA, T., tekhn.red.

[Commercial and some noncommercial fishes of the western coast of Africa (from the Levrier Bay to the Gulf of Guinea); textbook for fishery workers] Promyslovye i nekotorye nepromyslovye ryby zapadnogo poberezh'ia Afriki (ot bukhty Levrie do Gvineiskogo zaliva); posobie dlia promyslovikov. Kaliningrad, 1961. 175 p. (MIRA 15:2)

1. Konigsberg. Baltiyskiy nauchno-issledovatel'skiy institut morskogo rybnogo khozyaystva i okeanografii. 2. Baltiyskiy nauchno-issledovatel'skiy institut morskogo rybnogo khozyaystva i okeanografii (for Prosvirov, Skornyakov, Batal'yants).
(Atlantic Ocean--Fishes)

PEREL'MAN, A.I.; MUSHINA, Ye.A.: TOPCHIYEV, A.V. [deceased]; Prinimali uchastiye:
KOMOVA, T.A.: SHMONINA, V.L.

Investigating the polymerization of vinylcyclohexane on the catalytic systems $Al(i-C_4H_9+TiCl_4)$. Plast. massy no.8:3-6 '64.

SHMONINA, V. P.

184T12

USSR/Chemistry - Aniline 1 Jun 51

"Catalytic Reduction of Nitrobenzene," D. V. Sokol'skiy, V. P. Shmonina, Kazakh State U imeni S. M. Kirov,

"Dok Ak Nauk SSSR" Vol LXXVIII, No 4, pp 721-724

Examd reduction of nitrobenzene with H_2 in liquid phase over skeleton Ni catalyst promoted or not promoted with Rh in 0.1 N soln of NaOH or neutral 50° alc. Measured potential of catalyst during reaction. Alkali poisons nonpromoted catalyst and increases rate of reduction in presence of Rh. In alkali on nonpromoted catalyst

184T12

USSR/Chemistry - Aniline (Contd) 1 Jun 51

nitrosobenzene (I) and phenylhydroxylamine (II) are reduced at rates approaching max rate of reduction of nitrobenzene (III). EMF of reduction of I and II is higher by 150-180 v than that of reduction of III. III in reduction passes over I as intermediate stage. As long as III is present, I is not reduced further. When III has been completely converted into I, I in alkali is reduced directly to aniline without passing over II. In absence of alkali, III is reduced directly to II without formation of I. II on forming is reduced further to aniline.

184T12

SHMONINA, V.P.

5

USSR.

The catalytic reduction of nitrobenzene and its derivatives on a skeleton nickel catalyst. I. D. V. Sokol'skii and V. P. Shmonina (Kazakh State Univ.). *Sbornik Statei po Obshchei Khim., Akad. Nauk S.S.S.R.* 2, 1188–94(1953).—$PhNO_2$ (I) reduced on Ni at 5° in 50% EtOH goes directly to $PhNH_2$, but at 25 and 40° the rate of reduction decreases to a min. and then rises, owing to stepwise reduction through intermediate compds. PhNO (II) is not reduced in the presence of I, though PhNHOH is. Thus the stepwise reduction is due to intermediate formation of II. In the presence of 0.1*N* NaOH, stepwise reduction occurs at 5, 25, and 40°. These facts indicate that when enough H is adsorbed on Ni, no intermediates are formed. Increasing temp. reduces the amt. of *H* adsorbed, and alkali favors adsorption of I at the expense of H. Such H as is adsorbed in the presence of alkali is more firmly held, however, since at 50°, in neutral soln., reduction does not occur, whereas in alk. soln. it goes slowly to completion. II. Kinetics of reduction of nitrobenzene on a nickel skeleton promoted by rhodium. V. P. Shmonina and D. V. Sokol'skii. *Ibid.* 1195-1201.—Rh deposited on the surface of Ni greatly promotes reduction of $PhNO_2$. The effect is increased in the presence of alkali. Direct reduction to $PhNH_2$ in the presence of alkali is then possible, confirming that the limiting factor is the amt. of adsorbed H.

H. M. Leicester

[illegible]

SHMONIA, V. P. and SOKOL'SKIY, D. V.

Catalytic Reduction of Nitrobenzene and Some of its Derivatives on "Skeleton" Nickel Catalyst. II. Kinetics of Nitrobenzene Reduction on "Skeleton" Nickel with Rhodium Promoter, page 1195, Sbornik Statey po obshchey khimii (Collection of Papers on General Chemistry), Vol II, Moscow-Leningrad, 1953, pages 1680-1686.

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SHMONINA, V. P.

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Chem

Mechanism of catalytic reduction of aromatic nitro compounds. V. P. Shmonina and D. V. Sokol'skii (Kazakh State Univ., Alma-Ata). *Kataliticheskoe Gidrirovanie i Okislenie, Akad. Nauk Kazakh. S.S.R., Trudy Konf.* 1955, 100–20.—Hydrogenation of $PhNO_2$ was examd. over Ni catalyst, promoted by Rh or Pd, and over Pt catalyst. The reactions were run in 50% EtOH with and without addn. of NaOH. The mechanism varies with the conditions used. If the proportion of active H is relatively high, the reaction is nonselective and the intermediates are attacked before desorption; in such case $PhNH_2$ is the final and only product. This occurs over Raney Ni at 5° with or without promoter; the same occurs with promoted Ni or Pt at all temps. With deficiency of active H on the surface the accumulation of PhNO is demonstrated best in alk. medium at all temps. and in neutral soln. at 25–40°. The reaction rate is retarded by substituents in this order: $PhNO_2$, $p\text{-}O_2NC_6H_4NH_2$, $p\text{-}O_2NC_6H_4OH$, $p\text{-}O_2NC_6H_4CO_2H$. At 40° on Raney Ni in neutral soln. the substituents that limit H activation actually accelerate the reaction and the ascending order is: $PhNO_2$, $p\text{-}O_2NC_6H_4CO_2H$, $p\text{-}O_2NC_6H_4NH_2$, $p\text{-}O_2NC_6H_4OH$. On Ni the rate of hydrogenation rises from $PhNO_2$ to $m\text{-}O_2NC_6H_4NH_2$, p-isomer and o-isomer; over Pt the order is reversed. G. M. K.

RM

Shmenina, V.P.

USSR/Kinetics - Combustion. Explosions. Topochemistry. Catalysis. B-9

Abs Jour : Referat Zhur - Khimiya, No 6, 1957, 18638

Author : V.P. Shmenina, D.V. Sokol'skiy.

Title : Catalytic Reduction of Aromatic Nitrocompounds. VI. Influence of Some Functional Groups on Kinetics of Nitrogroup Reduction on Skeleton Nickel.

Orig Pub : Zh. obshch. Khimii, 1956, 26, No 6, 1759-1765

Abstract : The reduction of nitrobenzene (I), nitrobenzoic acid (II), n-nitrophenol (III) and n-nitroaniline (IV) in aqueous-alcohol and alcohol-alkaline solutions on a skeleton Ni catalyst was studied at 5, 25 and 40°. The reduction speed in aqueous-alcohol solutions at 25° was II < I < III < IV, at 5° I was reduced more rapidly, and at 40° more slowly than the other compounds. Introduction of alkalis in the solution decreased the reaction speed. Promotion of the catalyst with rhodium increased the reduction speed of I. On a promoted catalyst,

USSR/Kinetics - Combustion. Explosions. Topochemistry. Catalysis. B-9

Abs Jour : Referat Zhur - Khimiya, No 6, 1957, 18638

the reduction speed is I < III < IV < II. According to the authors' opinion, Rh increases the amount of active hydrogen on the catalyst surface, and alkali increases the concentration of the nitrocompound. It was noted that the introduction of COOH, OH, ONa and NH_2 groups into a para-position with reference to the reduced nitrogroup decreased the adsorption of the nitrocompound in skeleton Ni contrarily to the influence of COONa.

Shmonina, V. P.

3

Distr: 4E2c(j)/4E4j/4E3d

Hydration of acetylene. M. K. Kal'fus, L. M. Tereshchenko, V. P. Shmonina, and D. V. Sokol'skii. U.S.S.R. 108,128, Oct. 25, 1957. C_2H_2 is hydrated with the aid of H_2SO_4 and Hg compds. as catalysts. For more effective use of these substances, regenerated acid contg. Hg_2O and up to 30 g./l. HgO is continually fed into the circulation tube of the hydrator. Hg and its compds. are continually withdrawn from the cycle into the part of the system where the acid is being regenerated. M. Hosch

80308
SOV/81-59-7-22596

5.3200
Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 7, p 73 (USSR)

AUTHORS: Sokol'skiy, D.V., Shmonina, V.P., Skopin, Yu.A., Tverdokhlebova, N.S., Dunina, L.P.

TITLE: The Investigation of the Liquid-Phase Hydration of Acetylene According to Kucherov. I. The Effect of the Composition of the Catalytic Solution on the Course of the Reaction

PERIODICAL: Tr. In-ta khim. nauk. AS KazSSR, 1958, Nr 2, pp 158 - 172

ABSTRACT: The hydration of C_2H_2 was studied by passing it through a sulfuric acid solution of HgO and $Fe_2(SO_4)_3$, depending on the composition and the temperature of the solution, the rate and the duration of passing C_2H_2 through the solution. The loss of catalytic activity of mercury compounds in the course of the process is caused by reducing them to mercury metal with its removal from the solution. In the absence of oxide iron the deactivation of the catalyst takes place more quickly, the introduction of $Fe_2(SO_4)_3$, though promoting the removal of mercury from a solution in a more dispersed state, inhibits its reduction, increasing the reaction rate. The

Card 1/2

80308
SOV/81-59-7-22596

The Investigation of the Liquid-Phase Hydration of Acetylene According to Kucherov. I. The Effect of the Composition of the Catalytic Solution on the Course of the Reaction

optimum passing rate of C_2H_2 at 96°C is 4.3 ml/min per 1 ml of contact solution, the optimum temperature is 75°C. The presence of H_2SO_4 is necessary even in the presence of an intermediate compound formed between C_2H_2 and the catalyst. In the case of a change in the concentration of the contact solution, the yield of acetaldehyde passes through a maximum corresponding at 96°C to a composition of 23.8% H_2SO_4 and 10% $Fe_2(SO_4)_3$; the highest productivity is attained at 75°C and a composition of 13.7% H_2SO_4 and 17% $Fe_2(SO_4)_3$. The introduction of small quantities of chlorine reduces the total yield of CH_3CHO leading to a rupture, the addition of small quantities of CCl_4, C_2Cl_6, $C_2H_4Cl_2$ increases the yield of CH_3CHO; chloroorganic compounds, as well as NaCl taken in large quantities exert a negative effect. In the beginning of the reaction the CH_3CHO yield is less than average, the maximum yield, exceeding 100%, is attained after 3 hours, which is due to the initial formation and the subsequent decomposition of intermediate products; later on the yield decreases again due to the intensification of side processes.

4

Card 2/2 S. Kiperman

SOKOL'SKIY, D.V.; SHMONINA, V.P.; POPOVA, N.M.

Investigation of liquid-phase hydration of acetylene according to Kucherov. Part 2: State of mercury in the acid catalyst. Trudy Inst. khim.nauk AN Kazakh. SSR 3:173-181 '58. (MIRA 12:2)
(Mercury) (Catalysis)

SHMONINA, V.P.

PHASE I BOOK EXPLOITATION SOV/3537

Akademiya nauk Kazakhskoy SSR. Institut khimicheskikh nauk

Trudy, t. 5 (Transactions of the Institute of Chemical Sciences, Kazakh SSR, Academy of Sciences, Vol 5) Alma-Ata, Izd-vo Akademii nauk Kazakhskoy SSR, 1959. 154 p. 1,000 copies printed.

Ed.: N.D. Zhukova; Tech. Ed.: Z.P. Rorokina; Editorial Board of Series: D.V. Sokol'skiy (Resp. Ed.), V.G. Gutsalyuk, and B.V. Suvorov (Resp. Secretary).

PURPOSE: This collection of articles is intended for personnel of scientific research laboratories, laboratories of industrial enterprises, and faculty members of schools of higher education.

COVERAGE: The collection reviews problems of liquid-phase catalytic hydrogenation to upgrade and reactivate various products. Hydrogenation of unsaturated bonds of various types, adsorption of hydrogen on different catalysts, chromatographic separation of mixtures, and the effect of halogen salts of alkali metals on the rate of hydrogenation reactions promoted by various skeleton catalysts are described. Conditions of catalytic hydrogenation of natural fat, sunflower oil, and such synthetic products as esters of high-molecular fatty acids are set out. Dehydration of the butane fraction carried out in combination with isomerization is analyzed. Principles of selecting catalysts and regenerating them are reviewed and the formation of adsorption potentials on metal catalysts is explained. Each article presents conclusions drawn on the basis of experimental findings. References accompany most of the articles.

Card 4/5

SHmonina, V.P.

PHASE I BOOK EXPLOITATION SOV/3537

Akademiya nauk Kazakhskoy SSR. Institut khimicheskikh nauk

Trudy, t. 5 (Transactions of the Institute of Chemical Sciences, Kazakh SSR, Academy of Sciences, Vol 5) Alma-Ata, Izd-vo Akademii nauk Kazakhskoy SSR, 1959. 154 p. 1,000 copies printed.

Ed.: N.D. Zhukova; Tech. Ed.: Z.P. Rorokina; Editorial Board of Series: D.V. Sokol'skiy (Resp. Ed.), V.O. Gutsalyuk, and B.V. Suvorov (Resp. Secretary).

PURPOSE: This collection of articles is intended for personnel of scientific research laboratories, laboratories of industrial enterprises, and faculty members of schools of higher education.

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Card 4/5

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85429

S/081/60/000/016/003/012
A006/A001

5.1190 also 2209

Translation from: Referativnyy zhurnal, Khimiya, 1960, No. 16, p. 73, # 64650

AUTHORS: Shmonina, V.P., Vlasova, K.M., Sokol'skiy, D.V.

TITLE: Catalytic Reduction of Aromatic Nitrocompounds. Information IX The Effect of Ethyl Group on Reduction Kinetics of the Nitrogroup in Skeleton Nickel and Platinum

PERIODICAL: Tr. In-ta khim. nauk. AN KazSSR, 1959, Vol. 5, pp. 72-80

TEXT: The effect of the ethyl radical introduced into the composition of a nitrocompound, on the reduction rate of the nitrogroup, depends on a series of factors, first of all on the catalyst nature. When conducting the process on skeleton Ni, the introduction of an ethyl radical entails an accelarted reaction. The ethyl group speeds up the reaction more in the ortho-state than in the para-state. This is explained by the fact that the introduction of the ethyl group causes a reduced adsorption of the nitrocompound, thus increasing the hydrogen access to the catalyst surface. This redistribution of the catalyst surface under conditions, limiting the reaction by hydrogen activation, has a favorable effect

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85429

S/081/60/000/016/003/012
A006/A001

Catalytic Reduction of Aromatic Nitrocompounds. Information IX. The Effect of the Ethyl Group on Reduction Kinetics of the Nitrogroup in Skeleton Nickel and Platinum

on the process rate. A slight reduction of the adsorption of a nitrocompound on Pt, occuring during the introduction of the ethyl group in the para-state, somewhat accelerates the reaction, whereas a further decrease of adsorption occuring by the introduction of a substitute into the ortho-state, inhibits the reaction. Information VI see RZhKhim. 1957, No. 6, # 18638.

The authors' summary

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

Card 2/2

1 SHMONINA, V. P.

USSR

BALANDIN, Aleksey A. - "On the theory of contact catalysis of hydrogenation and dehydrogenation reactions" (Section I)
BORESKOV, Georgiy K., and VASILEVICH, A. A. - "Mechanism of isotope exchange of hydrogen on platinum" (Section I)
EYDUS, T. (probably Yakov T. EYDUS) - "On the role of intermediate surface forms in some heterogeneous-catalytic reactions of carbon monoxide and olefines" (Section I)
FREYDLIN, Lev Kh, and GORSHKOV, V. I. - "Catalytic transformation of cyclohexene and copper and the multiplet theory" (Section II)
MAMEDALIYEV, Yusuf G., and GUSEYNOV, M. M. - "Chlorocarbons manufacture by chlorination of alkanes in the fluid bed of a catalyst" (Section III)
NIKOLAYEV, L. A. - "Specific aspects of the mechanism of catalysis by complex compounds" (Section II)
PECHERSKAYA, Yu. I., KAZANSKIY, V. B., and VOYEVODSKIY, V.V- "Investigation of heterogeneous catalysts by electron spin resonance" (Section II)
PETROV, A. D. - "On the catalytic synthesis of organosilica compounds" (Section III)
ROGINSKIY, Simon Z. - "Electronic effects in catalysis" (Section I or II)
RUBINSHTEYN, A. M. - "The structure and texture of Chromia-alumina-potassium oxide catalysts" (Section II)
SHUYKIN, N. I., and BEL'SKIY, I. F. - "Catalytic transformations in the furannic compound group" (Section III)
SOKOL'SKIY, D. V., and SHMONINA, V. P. - "Kinetic and mechanism of catalytic reduction in aromatic nitro derivatives" (Section I)
TERENIN, A. N. and ROYEV, A. V. - "Active sites on transition metal catalysts, revealed in the infrared spectrum of adsorbed NO." (Section II)
TOPCHIYEVA, K. V., ANTIPINA, T. V., and LEE HER SHENG (Possibly LI Ho-seng, Moscow Textile Institute) - "The effects of structural characteristics of porous catalysts on activity and kinetic behavior of heterogenous-catalytic reactions" (Section I)
VOL'KENSHTEYN, T. - "General ideas on the electronic theory in catalysis on semiconductors" (Section I)
YEROFEYEV, B. V., and NIKIFOROVA, N. F. - "Catalytic transformation of cyclohexene and copper and the multiplet theory" (Section II)

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reports to be presented at the 2nd Intl Congress on Catalysis, Paris, France, 4-9 Jul '60.

S/079/61/031/003/003/013
B118/B207

AUTHORS: Shmonina, V. P., Temnikova, G. P., and Sokol'skiy, D. V.

TITLE: Catalytic reduction of aromatic nitro compounds. X. Effect of phenol hydroxyl upon the reduction kinetics of the nitro group in nitrobenzene derivatives

PERIODICAL: Zhurnal obshchey khimii, v. 31, no. 3, 1961, 743-749

TEXT: The present paper describes the effect exerted by the presence and position of phenol hydroxyl upon the reduction kinetics of the nitro group in isomeric nitrophenols in the presence of a nickel or platinum catalyst, i. e., in neutral or alkaline-aqueous alcoholic media. The phenol hydroxyl and ONa groups that were introduced into the nitro-compound molecule reduce its adsorption on both catalysts more intensively in ortho-position than in para-position where the reduction is greater than in meta-position. When the reaction is carried out on the skeleton nickel catalyst in an alkaline medium, the ONa group in the molecule of the nitro compound accelerates the reduction. Thus, the compounds studied may, with respect to the increase of reaction rate, be classified as follows: nitrobenzene, m-nitrophenolate,

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Catalytic reduction ... S/079/61/031/003/003/013
B118/B207

p-nitrophenolate, o-nitrophenolate. On the platinum catalyst, however, the ONa group retards the reduction of the nitro compound, and the order of compounds is inverse with respect to the increase of reaction rate. In a neutral medium, the bond between hydrogen and platinum is less stable so that the position of phenol hydroxyl in the molecule exerts no essential influence upon the reaction rate. There are 6 figures, 4 tables, and 8 Soviet-bloc references.

ASSOCIATION: Kazakhskiy gosudarstvennyy universitet (Kazakh State University)

SUBMITTED: January 28, 1960

Card 2/2

S/079/61/031/003/004/013
B118/B207

AUTHORS: Shmonina, V. P., Detinenko, A. I., and Sokol'skiy, D. V.

TITLE: Catalytic reduction of aromatic nitro compounds. XI. Effect of the carboxyl group upon the reduction kinetics of nitrobenzene derivatives

PERIODICAL: Zhurnal obshchey khimii, v. 31, no. 3, 1961, 749-754

TEXT: The authors studied the effect of the presence and position of the carboxyl group the catalytic reduction of the nitro group in isomeric nitrobenzoic acids on skeleton nickel and platinum catalysts in neutral and aqueous-alkaline, alcoholic media. Although the introduction of the carboxyl group into the molecule reduces its reactivity, the effect of the carboxyl group in a heterogeneously catalytic conversion is not limited thereto. The course of reaction in heterogeneous catalysis is in close relation to the adsorption of the reacting products on the catalyst; the influence of the substituent is therefore closely linked with a change of the qualitative ratio of the reacting components on the catalyst surface which, under certain conditions, exerts an important effect upon the reaction rate. The influence

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B118/B207

Catalytic reduction ...

of the mutual position of the substituting groups upon the adsorption of nitrobenzoic acids was studied by N. F. Yermolenko and V. R. Skorokhod (Ref. 2: Uch. zap. Belorussk. gos. univ., no. 20, 165 (1954)) who found that the adsorption of o-nitrobenzoic acid from aqueous solutions on activated carbon is much lower than the adsorption of the respective m- and p-derivatives; this is explained by the fact that two polar groups are in the immediate neighborhood of o-nitrobenzoic acid, which entails a stronger solvation of the molecule in the polar solvent and a reduction of adsorption. The COOH and COONa groups which are introduced into the molecule of the nitro compound, reduce its reactivity and change its adsorbability. With respect to the increase of the adsorptive power on both catalysts, the compounds studied may be classified as follows: o-nitrobenzoic acid sodium < nitrobenzene - m-nitrobenzoic acid sodium < p-nitrobenzoic acid sodium. On the skeleton nickel catalyst, the effect of the carboxyl group is revealed chiefly by the change of the adsorption of the nitro compound; in this case, an inverse dependence was established: The rate of reduction decreases with an increase in adsorption. On the platinum catalyst, the effect of the carboxyl group manifests itself chiefly by a reduction of the reactivity of the molecule; the compounds studied may be classified as follows with respect to the reduction

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B1[illegible]/B207

Catalytic reduction ...

of the reaction rate: nitrobenzene >m-nitrobenzoic acid >o-nitrobenzoic acid = p-nitrobenzoic acid. To interprete the observed dependence of the rate of catalytic reaction on the mutual distribution of substituting groups, it is necessary to consider the effect of the substituent upon the reactivity and adsorption of the molecule. There are 6 figures, 2 tables, and 7 Soviet-bloc references.

ASSOCIATION: Kazakhskiy gosudarstvennyy universitet (Kazakh State University)

SUBMITTED: January 28, 1960

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Card 3/3

SHMONINA, V.P.; SOKOL'SKIY, D.V.

Mechanism of the catalytic reduction of nitrobenzene and some of its derivatives. Trudy Inst.khim.nauk AN Kazakh.SSR 7:38-53 '61. (MIRA 15:8)
(Nitrobenzene) (Reduction) (Catalysis)

SHMONINA, V.P.; TARASOVA, D.V.; ALEKSEYEVA, G.K.; SERAZETDINOVA, V.A.

Catalytic reduction of aromatic nitro compounds. Report No.12: Polarographic study of the mechanism underlying the reduction of nitrobenzene on skeletal nickel. Trudy Inst.khim.nauk AN Kazakh.SSR 8:64-72 '62. (MIRA 15:12)

(Nitrobenzene) (Reduction, Chemical)
(Nickel catalysts)

SOKOL'SKIY, D.V.; SHMONINA, V.P.; TANEYEVA, G.V.

Polarographic determination of acetic and crotonic aldehydes in a mixture. Zav. lab. 30 no.7:793-794 '64. (MIRA 18:3)

1. Kazakhskiy gosudarstvennyy universitet imeni Kirova.

SHMONINA, V.P.; ABDRAKHMANOVA, R.M.

Catalytic reduction of aromatic nitro compounds. Part 13: Kinetics and mechanism of nitrobenzene reduction on palladium. Zhur. ob. khim. 34 no. 3:869-875 Mr '64. (MIRA 17:6)

1. Kazakhskiy gosudarstvennyy universitet.

SHMONINA, V. P.

Catalytic reduction of aromatic nitro compounds. Part 14:
Reduction of nitrobenzene on platinum black. Zhur. ob. Khim.
34 no.6:2[illegible] Je '64. (MIRA 17:7)
1. Kazakhskiy gosudarstvennyy universitet imeni Kirova.

[illegible]

[illegible] concrete tubing. Fig. [illegible]
(MIRA [illegible])

[illegible]

KO[illegible]EVIN, V.G., prof.; SHCHEBNIKOV, F.V., kand. tekhn. nauk;
SEMONOV, Z.S., kand. tekhn. nauk; GUR'YANOV, V.E., inzh.

Improving the technology of conducting mining operations in Kuznetsk Basin mines. Ugol' 40 no.11:21-24 '65.
(MIRA 18:11)

1. Kuzbasskiy politekhnicheskiy institut.

~~Kolesnik, Z.A.~~ Shmonova, N.I.

20-6-39/48

AUTHORS: Kolesnik, Z. A., and Shmonova, N. I.

TITLE: On the Study of Petroleum Transformations Under Anaerobic Conditions, Effected by the Influence of Bacteria of the Genus *Pseudomonas* (K izucheniyu izmeneniya nefti v anaerobnykh usloviyakh pod vliyaniyem bakteriy iz roda *Pseudomonas*).

PERIODICAL: Doklady AN SSSR, 1957, Vol. 115, Nr 6, pp. 1197-1199 (USSR)

ABSTRACT: It is one of the tasks of the microbiology of petroleum to study bacteria in pure cultures isolated from the "microbiocenosis" of seam-waters: it shall help to clear up the problem concerning the part played by them in the transformation of mineral oil. According to Bierstecher (Birshtekher) a number of aerobic microbes exist which utilize petroleum as a source of carbon. There are, however, no works dealing with the character of the transformation of petroleum as well under the influence of the "micro-biocenosis" as a whole as under the influence of any physiological group of bacteria. Therefore the present work was carried out. Fluorescing bacteria which color the culture-medium green were discovered in the

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On the Study of Petroleum Transformations Under Anaerobic Conditions, Effected by the Influence of Bacteria of the Genus Pseudomonas

seam-water of the bore-hole no. 120 of the IXth seam in the district Tashkala (North Caucasus). A pure culture of isolated bacteria of this type assigned them to the genus *Pseudomonas*. Difficulties arose, however, in the determination of the species. The bacterium was, therefore, eliminated by the authors as *Ps. fluorescens denitrificans*. In order to clear up the relation existing between the bacterium and petroleum, mineral culture-mediums were prepared which contained the following substances as the only source of carbon: a) Asphaltenes, b) oils (together with petrol-ether-resins), c) non-refined fractions boiling out at 250-300°C, d) hard paraffin and e) petroleum. It was experimentally found that the above-mentioned bacterium is not capable of assimiliting carbon from the substances mentioned in a) and c), but that it propagates in the substance d) and in oils. The petroleum culture-medium was visually much changed. It seemed to be interesting to determine the

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20-6-39/48

On the Study of Petroleum Transformations Under Anaerobic Conditions, Effected by the Influence of Bacteria of the Genus Pseudomonas

character of transformation of the petroleum as well under the influence of <u>Ps. fluorescens</u> alone as together with sulfate-reducing bacteria. To these latter an important part in the transformation of petroleum is ascribed. In their experiments the authors investigated cultures of both bacteria in the ratio 1: 1 or individually. The paraffin-containing petroleum was previously dehydrated. For creating anaerobic conditions, the air was removed from the test tubes by nitrogen which had previously been purified from traces of oxygen at 30-32oC. In the individual experiments, after 1 week, a light thin film developed below the petroleum and a precipitation of sulphorous iron at the bottom of the vessel. After 3 weeks a loose brown mass of bacteria (1-1,5 am thick) was to be seen under the petroleum. In the second test the 1 l-bottle after 20 days filled with a similar mass of bacteria films down to the bottom. The fluorescing stopped. The petroleum-transformations and the other products are chemically characterized. The tests performed under anaerobic conditions indicate

CARD 3/5

On the Study of Petroleum Transformations Under Anaerobic Conditions, Effected by the Influence of Bacteria of the Genus Pseudomonas 20-6-39/48

ASSOCIATION: All-Union Petroleum Institute for Scientific Research and Geological Prospecting (Vsesoyuznyy neftyanoy nauchno-issledovatel'skiy geologorazvedochnyy institut)

PRESENTED: V. N. Shaposhnikov, Academician, May 27, 1957

SUBMITTED: May 27, 1957

AVAILABLE: Library of Congress

CARD 5/5

SIMONOVA, N. I., GORSKAYA, A. I., SIMAKOVA, T. L., KOLESNIK, Z. A., BOLOTSKAYA, O. P. and STRIGALEVA, N. V.

"The Nature of Oil Changes in Anaerobic Conditions under the Influence of Biogenic Factors," p. 315-360 Voprosy obrazovaniya nefti, sbornik statey (Problems of the Origin of Petroleum, Collection of Articles) Leningrad, Gostoptekhizdat, 1958, 389 p. Trudy, vyp. 128,

This book, containing four articles written by 11 specialists, reports on the results of studies made on the origin of oil deposits in the Northeastern Caucasus. The program was organized in 1950-55 by VNIGRI (All-Union Petroleum Sci.Res. Inst. for Geological Survey)

SHMONOVA, N.I. 1

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S/081/62/000/006/067/117
B149/B108

11.0130

AUTHORS: Simakova, T. L., Strigaleva, N. V., Kolesnik, Z. A., Voronova, I. K., Gerasyuto, Z. S., Shmonova, N. I.

TITLE: The role of bacteria in the transformation of hydrocarbons and asphalto-bituminous components of paraffin-base petroleum under anaerobic conditions

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 6, 1962, 527, abstract 6M130 (Tr. Vses. neft. n.-i. geologo-razved. in-ta, no. 174, 1961, 77 - 97)

TEXT: The results of experiments with three different communities of bacteria taken from the water below the petroleum layer in the wells of Tashkal, the Staro-Groznenskiy oil field and the Emba region are described. It is shown that under the biological action of bacteria certain changes occur in the structure of methane hydrocarbons separated from the fraction 250 - 300°C of Tashkal petroleum by forming complexes with urea. The methane hydrocarbons in the analogous fractions of Makhachkala petroleum were not affected by bacteria. The structural composition of aromatic
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X

The role of bacteria in the ... S/081/62/000/006/067/117
B149/B108

hydrocarbons in the kerosene and oil fractions was changed, the aromatic rings showing a decrease and the paraffin chains an increase. It is concluded that the change in composition of the hydrocarbons and of the asphalt-bituminous part of petroleum depends both on their chemical composition and on the species-composition of the bacterial community. [Abstracter's note: Complete translation.]

X

Card 2/2

SIMAKOVA, T.L.; KOLESNIK, Z.A.; STRIGALEVA, N.V.; VORONOVA, I.K.;
SHMONOVA, N.I.; GERASYUTO, Z.S.; ANDREYEVA, L.G.

Bacteriological change of petroleums and their components under anaerobic conditions. Trudy Inst.mikrobiol. no.9:81-85 '61. (MIRA 15:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy geologorazvedochnyy institut, Leningrad.
(Petroleum--Microbiology)

VASENKO, Ye N.; GATALA, Ye.Ye.; ZAKUTSKAYA, M.P.; KHAYMUROVA, V.F.;
SHMORGUN, O.V.

Vapor pressure and boiling point of a ternary mixture of acetic anhydride, acetic acid, and water. Dokl. LPI 5 no. 1/2:161-164 '63. (MIRA 17:6)

VASENKO, Ye.N.; GATALA, Ye.Ye.; ZAKUTSKAYA, M.P.; LEVASHEVA, V.L.;
KHAYDUKOVA, V.F.; SIMONGUN, O.V.

Liquid-vapor equilibrium in the ternary system acetic anhydride - acetic acid - acetaldehyde. Dokl. LPI 5 no. 1/2:172-175 '63.
(MIRA 17:6)

SHMONOVA, N.I.

Role of the biogenic factor of the asphaltization process in different types of petroleums. Trudy VNIGRI no.227 Geokhim.sbor no.9:64-70 '64. (MIRA 18:1)

SHMORGUN, S.S.

Vascular reflexes in affections of the liver and biliary tract in children [with summary in English]. Fiziol.zhur. [Ukr.] 3 no.6: 45-47 D '57. (MIRA 11:2)

(REFLEXES) (BILIARY TRACT--DISEASES)
(LIVER--DISEASES)

SHMORGUN, S.S., Cand Med Sci -- (diss) "Change in certain functions of the cardio-vascular system in Botkin's disease in children." Kiev, 1958, 14 pp (Kiev Order of Labor Red Banner Med Inst im Acad$\overset{e}{a}$mician Bogomolets) 200 copies (KL, 29-58, 138)

SHMORGUN, S.S.

Peripheral blood circulation in Botkin's disease in children. Vop. okh.mat. i det. 3 no.3:47-51 My-Je '58. (MIRA 11:5)

1. Iz kafedry pediatrii (zav.-dotsent D.L. Sigalov) Kiyevskogo instituta usovershenstvovaniya vrachey (dir.-prof. I.I. Kal'chenko) i fiziologicheskoy laboratorii Ukrainskogo instituta okhrany materinstva i detstva (zav. Ye.S. Stal'nenko).
(HEPATITIS, INFECTIOUS) (BLOOD--CIRCULATION)

ANDRYUSHCHENKO, F.K.; GREKHOVA, V.V.; GONCHAROVA, Ye.I.; SHMORGUN, V.I.

Effect of the pH and buffer concentration on the stability of sodium hydrosulfite in solutions. Ukr. khim. zhur. 27 no.4:536-539 '61. (MIRA 14:7)

1. Nauchno-issledovatel'skiy institut osnovnoy khimii, Khar'kov.
(Sodium dithinite) (Hydrogen-ion concentration)

TIMOSHENKO, G.M.; GRUBA, V.I.; LOGVINOV, N.G.; PERMYAKOV, N.G.; SLAVUTSKIY, S.O.; SHMORIN, M.Ya.

Automation of technological processes in hydraulic mining. Ugol' 39 no.9:37-42 S '64. (MIRA 17:10)

1. Donetskiy politekhnicheskiy institut (for Timoshenko, Gruba, Logvinov). 2. Ukrainskiy nauchno-issledovatel'skiy institut gidrodobychi uglya (for Permyakov). 3. Gosudarstvennyy proyektno-konstruktorskiy institut avtomatizatsii rabot v ugol'noy promyshlennosti (for Slavutskiy). 4. Vsesoyuznyy nauchno-issledovatel'skiy i proyektno-konstruktorskiy institut dobychi uglya gidravlicheskim sposobom (for Shmorin).

ANDRYUSHCHENKO, F.K.; OREKHOVA, V.V.; GONCHAROVA, Ye.I.;
SHMORGUN, V.I.

Effect of pH and buffer concentration on the stability of sodium hydrosulfite in solutions. Report 2. Ukr. khim. zhur. 29 no.2:125-127 '63. (MIRA 16:6)

1. Nauchno-issledovatel'skiy institut osnovnoy khimii, Khar'kov.
(Sodium dithionite)
(Hydrogen-ion concentration)

GVOZDEVICH, Aleksandr Makarovich; ZAYGEROV, Iosif Borisovich;
KOROLEV, Vitaliy Arkad'yevich; SHMORGUN, Yakov Shayevich;
KASHTANOV, F., red.; DOMOVSKAYA, G., tekhn. red.

[Mechanization of conveying operations in machinery plants; experience of the Minsk Tractor Factory] Mekhanizatsiia transportnykh operatsii v mashinostroenii; iz opyta raboty Minskogo traktornogo zavoda. Minsk, Gos.izd-vo BSSR. Red. proizvodstvennoi lit-ry, 1961. 70 p. (MIRA 15:2)
(Minsk—Conveying machinery)

ZAYGEROV, Iosif Borisovich; prinimali uchastiye: GVOZDEVICH, A.M., SHMORGUN, Ya.Sh., inzh.; TIMOFEYEV, T.S., inzh.; ARAV, R.I., inzh., KULESHOVA, A.I., inzh.; GORODETSKIY, G.Ye., inzh.; SOSNENKO, M.N., inzh. retsenzent; SIROTIN, A.I., red.; EL'KIND, V.D., tekhn. red.

[Reclamation of used sand mixtures; design of pneumatic reclaimers] Regeneratsiia otrabotannykh smesei v liteinom proizvodstve; konstruktsiia i raschet pnevmaticheskikh regeneratorov. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1961. 181 p. (MIRA 14:5)

1. Nachal'nik otdela mekhanizatsii Moskovskogo transformativnogo zavoda (for Gvozdevich, Shmorgun, Timofeyev, Arav, Kuleshova, Gorodetskiy)

(Sand, Foundry) (Pneumatic machinery)

GOROKHOV, P.K., kand. tekhn. nauk; GOR'KOVA, V.I., kand. tekhn. nauk; PAVLOV, L.I., kand. tekhn. nauk; SERGEYEV, N.P.; TAREYEV, B.M., doktor tekhn. nauk, prof.; SHMOTKIN, I.S.; KURBATOVA, N.S. kand. tekhn. nauk, prof., red.; CHESKIS, Z.B., red.

[French-Russian electrical engineering dictionary] Frantsuzsko-russkii elektrotekhnicheskii slovar'. Pod red. N.S.Kurbatovoi i B.M.Tareeva. Moskva, Sovetskaia entsiklopediia, 1965. 720 p.
(MIRA 18:12)

UGORETS, I.I.; GLAZUNOV, A.A.; SYROMYATNIKOV, I.A.; KASHUNIN, I.S.; POSTNIKOV, N.A.; RADTSIG, V.A.; UL'YANOV, S.A.; GRUDINSKIY, P.G.; VASIL'YEV, A.A.; KUVSHINSKIY, N.N.; BAPTIDANOV, L.N.; TARASOV, V.I.; KRIKUNCHIK, A.B.; SHAPIRO, A.B.; BIBIKOV, V.V.; DVOSHIN, L.I.; KLINGOF, I.D.; KARPOV, M.M.; USPENSKIY, B.S.; CHALIDZE, I.M.; BLOCH, Ya.A.; SHMOTKIN, I.S.

Iosif IAkovlevich Gumin; obituary. Elek.sta.26 no.12:58 D '55.
(Gumin, Iosif IAkovlevich, 1890-1955) (MLRA 9:4)

KUZNETSOV, Serafim Petrovich,; YEGORCHENKOV, Anatoliy Ivanovich; SHMOTOV, A.A., redaktor; KAYDALOVA, M.D., tekhnicheskiy redaktor.

[Reclamation of new lands in Khabarovsk Territory] Osvoenie novykh zemel' v Khabarovskom krae. [Khabarovsk] Khabarovskoe knizhnoe izd-vo 1955. 51 p. [Microfilm] (MIRA 10:5)
(Khabarovsk Territory--Reclamation of land)

SOV/20-122-4-42/57

AUTHOR: Shmotov, A. P.

TITLE: The Mutual Relations of Greisens and Skarns
(K voprosu o vzaimootnoshenii greyzenov i skarnov)

PERIODICAL: Doklady Akademii nauk SSSR 1958, Vol. 122, Nr 4, pp 687-690 (USSR)

ABSTRACT: In the Dzhidinskiy ore region numerous intrusions of Kimmeridgian granite are known in which intensive exo - and endogenic contact zones are developed: hornstone, skarns, calc - silicate rocks (with pyroxene and scapolite) as well as molybdenite - bearing greisen. In the area of the ore bearing rocks the principal rock type is a Lower Cambrian limestone - sandstone suite. The ores are usually associated with younger leucocratic granites which intrude the sediments in the cores of anticlines and form small northwest - elongated stocks (smaller than 1 km^2). The metamorphism is clearly expressed in the resulting contact metamorphic facies (Ref 4). The highest grade of the metamorphism is biotite - hornstone facies; the rocks of this facies lie adjacent to and surround the granite in an observable zone 90 to 150 m broad. In this zone the limestone and sandstone have been completely transformed into

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