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LEVINA, R. Ya.

PA 64/49T18

USSR/Chemistry - Diene Conversion Jun 49
Chemistry - Cyclopropane

"Synthesis of Olefin, Paraffin, and Cyclo-paraffin Hydrocarbons: VII, The Conversion of Diene Hydrocarbons Into Cyclopropanes. The Synthesis of 1, 1-, 2, 2-Tetramethylcyclopropane," R. Ya. Levina, B. M. Gladshteyn, P. A. Akishin, Moscow Ord of Lenin State U. Lab of Org Chem imeni N. D. Zelinskiy, 5 3/4 pp

"Zhur Obshch Khim" Vol XIX, No 6

Develops a method for extracting cyclopropanoic hydrocarbons in three steps, and by this method synthesizes 1, 1-, 2,2-tetramethylcyclopropane,

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and determines its previously underscribed structure from its physical and chemical properties (which are mentioned). Investigates possibility of using ditertiary 1,3-dibromide in Gustavson's reactions for first time. Submitted 5 Jan 48.

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PROCESSES AND PROPERTIES INDEX

Isomerization of unsaturated hydrocarbons in contact with metal oxides. VIII. Isomerization of 1-hexyne on chromium oxide on aluminum oxide. R. Ya. Levina, H. A. Viktorova, and V. I. Elkhfel'd. Zhur. Obshchei Khim. (J. Gen. Chem.) 19, 305-8(1949); cf. C.A. 41, 1625b. BuC:CH (I), passed at 250° over 65 cm. of Cr_2O_3 deposited on Al_2O_3 at the rate of 0.12-0.15 ml./min., gave 60% (relative to the wt. of I passed) of a condensate in which the original I was absent. By the maleic anhydride reaction and n, the condensate contains 54% $(MeCH:CH)_2$ (II), the rest, by phys. consts., being a mixt. of 2- and 3-hexynes. The isomerization is accompanied by the production of a considerable amt. of high-boiling polymers, evidently issued from intermediate allenic hydrocarbons. The main reaction scheme is I → $[MeCH_2CH_2CH:C:CH_2]$ → $MeCH_2CH_2C:CMe$ → $[MeCH_2CH:C:CHMe]$ → II or → $MeCH_2C:CCH_2Me$. Thus, Cr_2O_3 has an isomerizing effect not only on dienic hydrocarbons with an isolated system of double bonds and on aromatic hydrocarbons with an unsatd. side chain, but also on straight-chain α-acetylenic hydrocarbons. N. Thon

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

LEVINA, R. YA.

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"Studying the Combination Dispersion Spectra of Alkadienes with Isolated and Conjugate System of Double Bonds," Zhur. Fiz. Khim., 23, No. 6, 1949.

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Synthesis of hydrocarbons. XVI. Synthesis of isoxenane (2,3,4-trimethylhexane). R. Ya. Levina, N. P. Shusherina, and E. G. Treshchova. *Vestnik Moskov Univ.*, 5, No. 9, 37–41(1950); *Ser. Fiz.-Mat. i Estestven Nauk* No. 6; cf. *C.A.* 46, 878h, 1954e, 1955e.—MeEtCO (430 g.) satd. at room temp. with HCl (140 g.), kept 48 hrs., and treated with 400 ml. H_2O gave 200 g. EtCMeClCOMe, b_{100} 124–6°, which, boiled 4 hrs. with 100 g. pyridine, filtered, and washed with aq. NaOH gave 61% mixed EtCMe:CMeCOMe and MeCH:CMeCHMeCOMe, b_{100} 156.5–60°, n_D^{20} 1.4410, d_4^{20} 0.8000. The mixt. with MeMgI (cf. above ref.) gave mixed 2,3,4-trimethyl-3- and 4-hexenol-1-ols, b_{100} 84–6°, n_D^{20} 1.4540, d_4^{20} 0.8619, which on dehydration by distn. with iodine gave 65% (based on initial ketone) mixed isomeric 2,3,4-trimethylhexadienes, b_{100} 130.7–33.5°, n_D^{20} 1.4451, d_4^{20} 0.7649. Hydrogenation of the mixt. over Pt-C at 170° gave 2,3,4-trimethylhexane, which after distn. over Na b_{100} 137.6–7.8°, n_D^{20} 1.4138, d_4^{20} 0.7347 (cf. Fenske, et al., *C.A.* 42, 2180e). The structure is confirmed by the Raman spectrum which checks perfectly the data of Fenske, above, insofar as the most prominent lines are concerned. However, the new substance has a richer spectrum when resolved by a better instrument (slit width is 250% narrower). The complete Raman spectrum is (in cm.$^{-1}$): 274 (0.2), 333 (2.5), 357 (0.1), 401 (0.4), 434 (1), 466 (4), 471 (1), 518 (0.3), 570 (1), 585 (1), 676 (0), 735 (1.5), 746 (2.5), 764 (1.5), 760 (1.5), 779 (1.5), 806 (1.5), 822 (1.8), 875 (3.5), 896 (0.3), 915 (3.5), 956 (4), 978 (1), 996 (1.8), 1031 (2), 1056 (1), 1085 (0.8), 1107 (0.3), 1165 (4), 1183 (1.5), 1256 (0.1), 1270 (0.3), [illegible] (2), 1315 (0.5), 1325 (1.5), 1355 (2), 1382 (1), 14[illegible] 6, 1463 (10), 2879 (2.5), 2884 (2.5), 2877 (6), 2916 ([illegible] 943 (3.5), 2968 (4), and 2932 (2). Thus the struct[illegible] "homomesitones" from the alkali-catalyzed condens[illegible] of MeEtCO is established.

G. M. Kosolapoff

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Synthesis of hydrocarbons. VIII. Reaction of 1,4-dichloro-2-butyne with organomagnesium compounds. R. Ya. Levina, Yu. S. Shabarov, and V. R. Skvarchenko (Lenin State Univ., Moscow). *Zhur. Obshchei Khim.* (J. Gen. Chem.) 20, 294-9(1950); cf. *C.A.* 44, 1037a. Addn. of 180 ml. $SOCl_2$ to 65 g. $(HOCH_2C)_2$ in 110 ml. pyridine over 5-6 hrs. with cooling, followed by standing overnight, gave 70% *1,4-dichloro-2-butyne*, b_{50} 80°, n_D^{20} 1.5066, d_4^{20} 1.2575. This (50 g.) in 2 vols. Et_2O added at −16° in 30 min. to MeMgBr (from 150 g. MeBr) in 200 ml. Et_2O, stirred 1 hr., and decompd. on the next day with dil. AcOH gave 54% hydrocarbon fraction, b_{50} 60-85°, and 2.5 g. high-boiling material, b. 112-24°. At higher temps. the yield drops, while the presence of a little pyrogallol gives a somewhat better yield. The high-boiling fraction consists of reactive unsatd. halides, since on further reaction with MeMgBr addnl. amts. of a hydrocarbon fraction identical with the above are obtained. The unsatd. halides could not be satisfactorily identified, as polymerization set in on standing. After fractionation over Na the hydrocarbon fraction yielded *3-hexyne*, b_{50} 80-80.5°, n_D^{20} 1.4168, d_4^{20} 0.7258, and *2,3-dimethyl-1,3-butadiene*, b_{50} 60-9.5°, n_D^{20} 1.4333, d_4^{20} 0.7285.

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Synthesis of hydrocarbons. IX. Diene hydrocarbons in the synthesis of olefinic hydrocarbons with central location of the double bond. R. Ya. Levina, V. R. Skvarchenko, E. G. Treshchova, and V. M. Tatevskii (Moscow State Univ.). *Zhur. Obshchei Khim.* (J. Gen. Chem.) 20, 419-24 (1950); cf. C.A. 44, 6805h, 9336e. Chlorination of 10 g. 2,4-hexadiene in 30-40 ml. Et_2O with ice cooling until 2 Cl atoms had been added gave 70% *2,5-dichloro-3-hexene* (I), b_{10} 78.5-9.0°, n_D^{20} 1.4710, d_4^{20} 1.0002 (proved by ozonolysis, which gave $MeCHClCO_2H$ only). I (51 g.) refluxed 12 hrs. with MeMgBr (from 128 g. MeBr) gave 20% *2,5-dimethyl-3-hexene*, b_{10} 103.5°, n_D^{20} 1.4100, d_4^{20} 0.7122, as well as 30% 2,4-hexadiene. Bromination of the former gave *2,5-dimethyl-3,4-dibromohexane*, b_{10} 109°, n_D^{20} 1.5058, d_4^{20} 1.5034; the hydrocarbon itself is a pure trans form as shown by a strong 1668 cm.$^{-1}$ Raman line. Similar reaction with EtMgBr gave 25% *3,6-dimethyl-4-octene*, b_{10} 149.5-50.0°, n_D^{20} 1.4205, d_4^{20} 0.7702; its bromination gave the *4,5-dibromooctane*, b_{10} 137°, n_D^{20} 1.5000, d_4^{20} 1.3800; oxidation of the olefin gave only $MeEtCHCO_2H$, while a strong 1668 cm.$^{-1}$ Raman line indicated pure trans structure of the olefin. **X. Partial reduction of diene hydrocarbons with a conjugated double bond system by means of sodium in liquid ammonia.** R. Ya. Levina, V. R. Skvarchenko, V. M. Tatevskii, and E. G. Treshchova (State Univ., Moscow). *Ibid.* 684-9; cf. C.A. 43, 6152f. EtMgBr with *1-chloro-2-butene* (b_{10} 84°, n_D^{20} 1.4350, d_4^{20} 0.9282) or *3-chloro-1-butene* (b_{10} 64°, n_D^{20} 1.4150, d_4^{20} 0.8990) in Et_2O for 12 hrs. at room temp. gave 17% *2-hexene*, b_{10} 67.5-7.7°, n_D^{20} 1.3940, d_4^{20} 0.6805; this gave the following Raman lines (4358 A. excitation): 293, 329, 388, 446, 494, 529, 587, 693, 769, 792, 857, 890, 910, 963, 1015, 1040, 1091, 1151, 1219, 1256, 1305, 1334, 1382, 1451, 1650, 1670 cm.$^{-1}$; the intensity ratio of the last 2 lines is 2:9, indicating 18% cis and 82% trans forms. Addn. of 16 g. $(MeCH:CH)_2$ in Et_2O to 36 g. Na in 250 ml. liquid NH_3 and stirring 5-6 hrs. gave 75% hydrocarbons (after treatment with maleic anhydride and distn. over Na), b_{10} 67-7.5°, n_D^{20} 1.3902, d_4^{20} 0.6902, which on the basis of Raman spectra indicated that H addn. takes place both at the 1,2- and 1,4-positions, yielding 60-5% *2-hexene* and 35-40% *3-hexene*, with about 30% cis and 70% *trans isomers*. **XI. Partial reduction of diene hydrocarbons with a conjugated double bond system by means of sodium in liquid ammonia.** R. Ya. Levina, V. R. Skvarchenko, E. A. Viktorova, V. M. Tatevskii, and E. G. Treshchova. *Ibid.* 690-5 (1950). *2,5-Dimethyl-1,5-hexadiene*, b_{10} 113-14°, n_D^{20} 1.4303, d_4^{20} 0.7505 (from Mg and $CH_2:CMeCH:CH$), passed over Cr oxide on Al_2O_3 in N at 250° at 0.15 ml./min. gave 81% *2,5-dimethyl-2,4-hexadiene* in the catalyzate, which was obtained in 83% conversion; the pure product, after distn. over Na, b_{10} 134-4.5°, n_D^{20} 1.4760, d_4^{20} 0.7630. This (15 g.) in Et_2O added to 24 g. Na in 250 ml. liquid NH_3 and treated as described earlier (cf. previous abstr.), gave 73% *hydrocarbon*, b_{10} 111.2-11.5°, n_D^{20} 1.4120, d_4^{20} 0.7182, identified as *2,5-dimethyl-2-hexene* on the basis of ozonolysis (yielding acetone peroxide, m. 130.5-1.0°, and $Me\text{-}CHCH_2CO_2H$, b. 174°, whose phenacyl ester m. 77°). The hydrocarbon differs substantially in its phys. properties from the previously made sample [from MeMgBr and $(MeCHClCH)_2$, cf. preceding abstr.] of the 3-hexene analog and its Raman lines are distinctly different; the most significant lines are at 324, 474, 1072, 1241, 1270, 1330, 1674 cm.$^{-1}$, and the remaining lines are 224, 266, 276-93, 373, 383-97, 424-46, 503, 547, 555, 587, 635, 671, 707, 746, 772, 796-809, 854, 891, 921, 947, 957, 985, 1015, 1086, 1107-17, 1144, 1170, 1200, 1354, 1382, 1440-60, 1571, 1620, 1652, 2877, 2930, 2967, 3051, 3141 cm.$^{-1}$, resp.

G. M. Kosolapoff

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Synthesis of hydrocarbons. IX. Diene hydrocarbons in the synthesis of olefin hydrocarbons with centrally located double bonds. R. Ya. Levina, V. R. Skvarchenko, E. G. Treshchova, and V. M. Tatevskii (Moscow State Univ.). *J. Gen. Chem. U.S.S.R.* 20, 443-8(1950)(Engl. translation). —See *C.A.* 45, 538*f*. R. M. S.

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Isomerization of unsaturated hydrocarbons on contact with metal oxides. IX. Isomerization of acetylenic hydrocarbons over chromium oxide on aluminum oxide. R. Ya. Levina and E. A. Viktorova (State Univ., Moscow). *Zhur. Obshchei Khim.* (J. Gen. Chem.) **20**, 677-81 (1950); cf. C. A. 44, 5704e. Addn of 39 g. $PrC:CH$ to 39 g. $NaNH_2$ under abs. Et_2O, refluxing 2 hrs., and treatment with 98 g. Me_2SO_4 gave after 2 hrs.' refluxing the $PrC:CMe$, b_{760} 85.5°, n_D^{20} 1.4190, d_4^{20} 0.7401. This (20.5 g.) passed over Cr oxide on Al oxide at 0.12-0.15 ml./min. in N at 250° gave 65% distillate, b. 79-84°, whose n was rather higher than expected for the formation of $(EtC:)_2$, but transmable for an admixt. of a conjugated diene (2,4-hexadiene); heating the crude material with *maleic anhydride* gave the *adduct*, m. 93-3.5°, identical with that of *2,4-hexadiene*; the n_D^{20} 1.4900 of the catalysate indicates 67% diene content; the portion of the product which failed to condense with maleic anhydride, b_{760} 82°, n_D^{20} 1.4170, d_4^{20} 0.7281, was identified as $(EtC:)_2$, as a result of oxidation to $EtCO_2H$ only (68% HNO_3-$HgNO_3$ oxidant). Thus, total isomerization took place, giving a 2:1 ratio of isomers. *1-Pentyne* (prepd. in 36% yield from $EtMgBr$ and allyl chloride, followed by bromination to *1,2-dibromopentane*, b_{10} 70-80°, n_D^{20} 1.5200, d_4^{20} 1.6708, and dehydrobromination by $NaNH_2$ in kerosene at 100-70°), b_{760} 39.7°, n_D^{20} 1.3880, d_4^{20} 0.6831, isomerized under identical conditions also gave complete destruction of the 1-isomer, with 73% distillate, of which 58% was *piperylene* (identified as the *maleic anhydride adduct*, m. 58°), the remainder being *2-pentyne*, b_{760} 55.5-5.5°, n_D^{20} 1.4033, d_4^{20} 0.7139. $EtCH_2Br$ CH_2Br (b.p. 10) 2°, n_D^{20} 1.5128, d_4^{20} 1.7988) with $NaNH_2$ in kerosene at 150-60°, followed by treatment of the 1-butyne with $NaNH_2$ in Et_2O with Me_2SO_4, gave 10% *2-pentyne*, b_{760} 55.5-6.5°, n_D^{20} 1.4025, d_4^{20} 0.7101; this, passed over the catalyst under identical conditions, gave 60% catalysate, contg. 50% *piperylene* (by n detn.), confirmed by the maleic anhydride reaction, the rest being unchanged pentyne. G. M. K.

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Synthesis of hydrocarbons. X. Partial reduction of conjugated-diene hydrocarbons by sodium in liquid ammonia. R. Ya. Levina, V. R. Shvarzbakh, V. M. Tatevskiy, and E. G. Trushcheva (*J. gen. Chem. USSR*, 1949, 19, 684—[illegible]) (U.S. transl., 721—[illegible]); (*C. A.*, 1950, 44, 176).—Partial reduction of (CHMe:CH)$_2$ by Na in liquid NH_3 affords a mixture of the 1 : 2- and 1 : 4-dihydro-compounds, CHMe:CHPr$^{\alpha}$ (60—65%) and (:CHEt)$_2$ (35—40%), and is thus unsuitable for the prep. of the latter; Raman-spectral analysis (details given and discussed) proves the presence of both *cis*- (30%) and *trans*-forms (70%). CHMe:CHPr$^{\alpha}$ is synthesised, for comparison purposes, from CHMe:CH·CH$_2$Cl and EtMgBr, a mixture of *cis*- (40%) and *trans*-forms (60%) being obtained.

Slow addition of (CHMe:CH)$_2$ (16 g.) in Et_2O to Na (36 g.) in liquid NH_3 at −60° to −80°, stirring for 5—6 hr., and keeping overnight afford a product, C_6H_{12} (75%), b.p. 67—67·5°/761 mm., d_4^{20} 0·6803, n_D^{20} 1·3968 (found from starting materials by (:CH·CO)$_2$O) which is analysed spectrographically (Raman-spectral lines tabulated). Reaction of aq. HCl with (CH$_2$:CH)$_2$ affords 1-chlorobut-2-ene, b.p. 84°/748 mm., d_4^{20} 0·9282, n_D^{20} 1·4380, and 3-chlorobut-1-ene, b.p. 64°/748 mm., d_4^{20} 0·8800, n_D^{20} 1·4180; both isomers react with EtMgBr in Et_2O in the usual manner and give identical products, viz., mainly *cis*- and *trans*-hex-2-ene, b.p. 67·5—67·7°/748·5 mm., d_4^{20} 0·6608, n_D^{20} 1·3840. R. S. Strasz.

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Synthesis of hydrocarbons. XI. Partial reduction of conjugated-
tione hydrocarbons by sodium in liquid ammonia. R. Ya. Levina,
V. R. Ekvarshenko, E. A. Viktorova, V. M. Tatevsky, and E. O.
Treshchova (J. gen. Chem. USSR, 1950, 20, 690—696 [U.S.
transl., 727—732]; cf. preceding abstract).—Partial reduction
of $(CMe_2:CH)_2$ by Na in liquid NH_3 affords $CHBu^t:CMe_2$ (73%)
and confirms that under these conditions 1 : 2-addition of nascent
H preferentially occurs (and not 1 : 4-addition as thought hitherto).
Isomerisation of $CH_2:CMe\cdot(CH_2)_2\cdot CMe:CH_2$, b.p. 113—114°/
755 mm., d_4^{20} 0·7605, n_D^{20} 1·4393 (from $CH_2:CMe\cdot CH_2Cl$ and Mg)
over Cr_2O_3–Al_2O_3 at 250° gives $(CMe_2:CH)_2$ (83%), b.p. 134—134·5°/
747 mm., d_4^{20} 0·7636, n_D^{20} 1·4760, which on addition to Na in liquid
NH_3 at −50° to −60° (5 hr.), and then at room temp. (overnight)
affords $CHBu^t:CMe_2$ (73%), b.p. 111·3—111·5°/747 mm., d_4^{20}
0·7182, n_D^{20} 1·4120. The structure of this is proved by Raman-
spectral analysis and by ozonisation (with 6% O_2; $CHCl_3$ solution),
which gives acetone peroxide, m.p. 130·5—131·5°, and $Bu^t\cdot CO_2M$,
b.p. 174° (phenylphenacyl ester, m.p. 77°). E. S. STERN.

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The isomerization of unsaturated hydrocarbons on contact with metal oxides. IX. The isomerization of acetylenic hydrocarbons over chromic oxide on aluminum oxide. R. Ya. Levina and K. A. Viktorova. *J. Gen. Chem. U.S.S.R.* 20, 713-19(1950)(Engl. translation). See C. 44, 7750d. R. M. S.

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Synthesis of hydrocarbons. XII. The hydrobromides of diene hydrocarbons in the synthesis of olefine and paraffin (alkane) hydrocarbons with a quaternary carbon atom. R. Ya. Levina and N. P. Shusherina (*J. gen. Chem. USSR*, 1950, 20, 868—873 [U.S. transl., 903—909]).—Condensation of COMeEt produces 3-methylhept-3-en-5-one which reacts with MeMgI to give 3 : 5-dimethylhept-3-en-5-ol, and this on dehydration affords a mixture of isomeric dienes. These react with HBr to give a single hydrobromide that reacts with Grignard reagents to give 3 : 5-dimethyl-5-alkylhept-3-enes, and regenerates some of the diene mixture. The olefines are hydrogenated to alkanes.

Treatment of COMeEt with CaC_2 in a Soxhlet apparatus and distillation of the excess ketone affords CMeEt:CH·COEt, b.p. 165—167° (lit., 164—165°), d_4^{20} 0·8560 (lit. d_4^{20} 0·8566), n_D^{20} 1·4476 (lit. n_D^{20} 1·4450), which is treated with MeMgI in Et_2O (heat 7 hr.) and the product decomposed with ice, affording, after distillation, 3 : 5-*dimethylhept-3-en-5-ol*, $C_9H_{18}O$ (I), b.p. 176—177°/750 mm., d_4^{20} 0·8531, n_D^{20} 1·4525. Simple heating of I dehydrates it and distillation of the product affords fractions containing chiefly 3 : 5-*dimethylhepta-2 : 4-diene*, C_9H_{16} (II), b.p. 137—138°, d_4^{20} 0·7660, n_D^{20} 1·4487, and 4-*methyl-2-ethylhexa-1 : 3-diene*, C_9H_{16} (III), b.p. 140—141°, d_4^{20} 0·7684, n_D^{20} 1·4502, neither of which interact with (:CH·CO)$_2$O. Treatment of II and III, together or separately, with gaseous HBr affords 5-*bromo-3 : 5-dimethylhept-3-ene*, $C_9H_{17}Br$ (IV), b.p. 63—63·5°/7 mm., d_4^{20} 1·1210, n_D^{20} 1·4704 (the two other structurally possible compounds are not homologues of allyl bromide and would not show the same mobility of the halogen atom), which is treated with MeMgI in Et_2O (~−40°, 2·5 hr., and heat 5 hr.) and poured onto ice to decompose the product, forming II and III (10% together), and 3 : 5 : 5-trimethylhept-3-ene, $C_{10}H_{20}$ (V) (31%), b.p. 151—152°/764 mm., d_4^{20} 0·7638, n_D^{20} 1·4350, the latter on oxidation with $KMnO_4$ in $COMe_2$ affords $CMe_2Et·CO_2H$, b.p. 186—187° (lit., 186—187°) [*p*-phenylphenacyl ester, m.p. 83° (lit., 86°)]. Hydrogenation of V on Ni-Al_2O_3 at 160—170° affords 3 : 3 : 5-trimethylheptane, $C_{10}H_{22}$, b.p. 153·5—153·7°/750 mm. (lit., 159·2°/767 mm., 156·8°), d_4^{20} 0·7440 (lit., 0·7516, 0·7480), n_D^{20} 1·4176 (lit., 1·4208, 1·4178). The Raman spectrum is consistent with the structure claimed. Action of EtMgBr on IV affords II, III, and 3 : 5-*dimethyl-5-ethylhept-3-ene*, $C_{11}H_{22}$ (31%), b.p. 173—173·3°/740 mm., d_4^{20} 0·7771, n_D^{20} 1·4408, the latter on hydrogenation (Ni-Al_2O_3) affords 3 : 5-*dimethyl-5-ethylheptane*, $C_{11}H_{24}$, b.p. 179—179·5°/748 mm., d_4^{20} 0·7626, n_D^{20} 1·4283, having a Raman spectrum consistent with the structure claimed.

E. J. H. Birch.

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Reaction of cyclopropane hydrocarbons with mercuric salts. R. Ya. Levina and B. M. Gladshtein (M. V. Lomonosov State Univ., Moscow). *Doklady Akad. Nauk S.S.S.R.* 71, 65-8(1950); cf. *C.A.* 44, 1037a. *1,1,2,2-Tetramethylcyclopropane* (I), b_{50} 75.5°, n_D^{20} 1.4004, d_4^{20} 0.7186 (6.4 g.), allowed to stand 4-5 days with a concd. aq. soln. of 20.8 g. $Hg(OAc)_2$, then filtered and concd., gave 76% *1-acetoxymercuri-2,2,3-trimethyl-3-butanol*, m. 69-70°, sol. in H_2O, Et_2O, $CHCl_3$, C_6H_6, and petr. ether; this with satd. aq. KCl gave the *1-chloromercuri analog*, m. 115-16° (from ligroin), which is readily obtained also by interaction of I with $HgCl_2$ for 10 days in H_2O with continuous neutralization of the resulting HCl. Reduction of 1.9 g. chloromercuri deriv. with 32 g. 2% Na-Hg with slow addn. of 35 ml. H_2O and stirring 2 hrs. gave on extn. with Et_2O *2,2,3-trimethyl-3-butanol hydrate* (II), b. 128-32°, m. 80°. To prove that the ring cleavage actually gave the 1,3-location of Hg and OH groups, 3 g. $Me_2CCMe:CH_2$ was added to a satd. aq. soln. of 9.6 g. $Hg(OAc)_2$, giving in 1.5 hrs. a ppt. of *1-acetoxymercuri-2,3,3-trimethyl-2-butanol*, m. 100.7-1.5° (from EtOH), which with KCl gave the *1-ClHg analog*, m. 135° (from heptane), while heating the AcO deriv. with concd. HCl in a current of steam gave $Me_2CCMe:CH_2$. Similar treatment of the AcOHg deriv. of the 2-butanol gave II. G. M. Kosolapoff

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

CA

Contact isomerization of an acetylenic hydrocarbon with the triple bond in central position. R. Ya. Levina, E. A. Viktorova, and P. A. Akishin. *Doklady Akad. Nauk S.S.S.R.* 71, 1065-7(1950).—By Raman spectra, the catalyzate obtained at 250° with $(HCCH_2Me)_2$ (I) on Cr_2O_3 on Al_2O_3, consists of approx. 40% unchanged I, 33% $(CH:CHMe)_2$, and, apparently, 17-18% $CH_2:CH\cdot CH:CHCH_2Me$. 2- and 1-Hexyne are absent; consequently, there is no isomerization with a mere shift of the triple bond. This would indicate that, in analogy with the butynes and pentynes, the 3-hexyne with the triple bond in central position has the least free energy of the 3 hexynes.

N. Thon

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CA

10

Synthesis of hydrocarbons. 2,3-Dimethyl-1,3-butadiene in the synthesis of 2,3-dimethyl 2 alkenes and 2,3 dimethyl alkanes. R. Ya. Levina, A. A. Fainzil'berg, and R. V. Itenberg. *Doklady Akad. Nauk S.S.S.R.* 75, 39-42(1950); cf. *C.A.* 44, 9336e.—2,3-Dimethylalkenes or alkanes are obtained from Grignard reagents with 2,3-dimethyl-1,3-butadiene hydrochloride or hydrobromide; the 2 halides exist in 2 forms representing an allylic system. $Me_2CXCMe{:}CH_2$ and $Me_2C{:}CMeCH_2X$; even at −20° with deficiency of RMgX most of the reaction product corresponds to the primary halide reaction. To 125 g. $[CMe_2OH]_2$ and 460 g. Ac_2O was added 4 g. H_3PO_4 in 30 g. Ac_2O; when the temp. rise ceased (40-50 min.) the mixt. was heated to 65° for 8 hrs. and after quenching in H_2O gave 65% *pinacol diacetate*, m. 65.5-2° (from petr. ether); 2 moles Ac_2O per mole pinacol gave the *monoacetate*, 75%, b_{10} 81-2°, n_D^{20} 1.4340, d_4^{20} 0.9962. Pyrolysis of the diacetate in a Pyrex tube with glass-wool tube filler at 420-30° in a N atm. gave 84% *2,3-dimethyl-1,3-butadiene*, b_{760} 68.6°, n_D^{20} 1.4390, d_4^{20} 0.7252; this (0.25 mole) with 0.18 mole HCl at −15° gave the *hydrochloride*, $C_6H_{11}Cl$, b_{10} 43-5°, n_D^{20} 1.4403, d_4^{20} 0.9031; treatment of this at −60° in Et_2O with EtMgBr, followed by 2.5 hrs. at −20° and heating 4 hrs., and standing overnight, gave 45% hydrocarbons, b. 117-21.5°, shown by Raman analysis to consist of 93% *2,3-dimethyl-2-hexene* and 7% *2,3,3-trimethyl-1-pentene*. Addn. of an equiv. amt. of HBr to 2,3-dimethyl-1,3-butadiene gave the hydrobromide, which was treated directly with RMgX; the alkenes were hydrogenated over Pt-C to yield the satd. analogs. The products obtained included: *2,3-dimethyl-3-hexene*, b_{760} 121-1.5°, n_D^{20} 1.4272, d_4^{20} 0.7404; *2,3-dimethyl-3-heptene*, b_{760} 145.3-5.4°, n_D^{20} 1.4310, d_4^{20} 0.7523; *2,3-dimethyl-2-octene*, b_{760} 169.1-9.2°, n_D^{20} 1.4350, d_4^{20} 0.7009; *2,3,6-trimethyl-3-heptene*, b_{760} 161.1-2.2°, n_D^{20} 1.4333, d_4^{20} 0.7561; *2,3-dimethylhexane*, b_{760} 115-15.3°, n_D^{20} 1.4012, d_4^{20} 0.7120; *2,3-dimethylheptane*, b_{760} 140°, n_D^{20} 1.4087, d_4^{20} 0.7258; *2,3-dimethyloctane*, b_{760} 164.4-4.6°, n_D^{20} 1.4182, d_4^{20} 0.7377; *2,3,6-trimethylheptane*, b_{760} 155-5.5°, n_D^{20} 1.4137, d_4^{20} 0.7360. G. M. K.

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

LEVINA, R. YA., FAYNZIL'BERG, A. A.,

Carbinols

"Contact dehydration of emethylallyl carbinol." Uch. zap. Mosk. un. No. 132, 1950.

Monthly List of Russian Accessions. Library of Congress, October 1952. UNCLASSIFIED.

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

USSR

Synthesis of hydrocarbons. XIV. Synthesis of cyclic hydrocarbons with extracyclic double bond. R. Ya. Levina and N. N. Mezentsova. *Uchenye Zapiski Moskov. Gosudarst. Univ. im. M. V. Lomonosova* No. 132, *Org. Khim.* 7, 241-7(1950); cf. *Vestnik Moskov. Univ.* No. 10, 109 (1949); *C.A.* 45, 4637*b*.—The following alcs. were prepd. by conventional Grignard syntheses: *cyclopentylcarbinol* (I), b_{16-18} 88-9°, n_D^{20} 1.4379, d_{20} 0.9332; *cyclohexylcarbinol*, b_{16-18} 88-9°, n_D^{20} 1.4656, d_{20} 0.9285 (II); *2-cyclopentylethanol* (III), b_{16-18} 74°, n_D^{20} 1.4379, d_{20} 0.9231; *2-cyclohexylethanol* (IV) b_{16} 99-100°, n_D^{20} 1.4613, d_{20} 0.9189. These were treated with Ac_2O yielding the corresponding *acetates*: I, b_{16} 85-6°, n_D^{20} 1.4378, d_{20} 0.9374; II, b_{16-18} 76-9°, n_D^{20} 1.4460, d_{20} 0.9606; III, b_{16-18} 75°, n_D^{20} 1.4403, d_{20} 0.9511; IV, b_{16} 97-8° n_D^{20} 1.4478, d_{20} 0.9500. These were pyrolyzed at 475-80° by passage through a hot tube filled with glass wool yielding respectively: *methylenecyclopentane* 70%, b_{760} 73-3.2°, n_D^{20} 1.4342, d_{20} 0.7803, *methylenecyclohexane*, 82%, b_{16} 99.8-100°, n_D^{20} 1.4498, d_{20} 0.8065; *vinylcyclopentane*, 70%, b_{760} 98.5-8.7°, n_D^{20} 1.4376 d_{20} 0.7834; *vinylcyclohexane*, 88%, b_{760} 125°, n_D^{20} 1.4470, d_{20} 0.8091. The characteristic Raman frequencies for these were: 1653, 1651, 1641, and 1641 cm.$^{-1}$ Reaction of $CH_2{:}CHCH_2Cl$ with RMgCl gave: 42% *allylcyclopentane*, b_{760} 124-4.5°,

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CA

Academician Nikolai Dmitrievich Zelinskii. K. Ya. Levina and Ya. K. Yur'ev. *Vestnik Moskov. Univ. 6, No. 2, Ser. Fiz.-Mat. i Estestvo. Nauk* No. 1, 7-35(1951).—Biography with several portraits and complete bibliography (348 references) on Zelinskii's work. G. M. K.

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

LEVINA, R. IA.

R. Ia. Levina, T. I. Tantsyreva, A. A. Fainsilberg and N. M. Mezentsova. Synthesis of hydrocarbons. XXIV. Synthesis of alkanes of isostructure. P. 161.

N. D. Zelinskii Lab.
of Organic Chem.
Moscow State Univ.
Dec. 1, 1950.

SO: Bulletin of the Acad. of Sciences, Izvestia (USSR) Section on Chemical Sciences, No. 2. (March-April 1951)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

CA

10

Synthesis of hydrocarbons XXVIII. Mechanism of the reaction between organomagnesium compounds and 1,4-dichlorides of conjugated diene hydrocarbons. R. Va. Levina and V. R. Skvarchenko (Moscow State Univ.) *Vestnik Moskov. Univ.*, 6, No. 5, *Ser. Fiz.-Mat. i Estestvoz. Nauk* No. 3, 91-5(1951); cf. *CA*, 45, 535f; 46, 878h, 1954e, 1955a.—Addn. of 29 g. $(ClCH_2CH:)_2$ to PrMgBr (from 77 g. PrBr) in a N atm. and stirring 18 hrs. gave 54% butadiene (absorbed and recovered as the tetrabromide, while the org. layer, after being washed, gave 50% hexane and 5% *5-decene*, b_{760} 170°, n_D^{20} 1.4200, d_4^{20} 0.7391, which yields *5,6-dibromodecane*, b_4 119°, n_D^{20} 1.4912, d_4^{20} 1.3484. A similar reaction with BuMgBr likewise gave butadiene, 30% octane, and 16% *6-dodecene*, b_{760} 95.6°, b_{760} 209°, n_D^{20} 1.4335, d_4^{20} 0.7573, yielding the *dibromide*, b_4 127°, n_D^{20} 1.4942, d_4^{20} 1.3013. Raman analysis gave the 1668 line, indicating that the dodecene had the transconfiguration; the presence of some 1-alkene was indicated by the low intensity 1640 line; this may be accounted for by allylic rearrangement of the intermediate alkene monohalide. The reaction of the dichloride with RMgX is believed to proceed by cleavage of the 2 Cl atoms, which, in reacting with RMgX, yield the twinned hydrocarbon, R_2, with generation of butadiene; the "normal" reaction is largely suppressed. G. M. Kosolapoff

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

LEVINA, R. Ya.

USSR/Chemistry - Hydrocarbons May/Jun 51

"Synthesis of Hydrocarbons. Communication No 3: Synthesis of Alkenes With a Quaternary Carbon Atom by Pyrolysis of Acetates," R. Ya. Levina, A. A. Faynzil'berg, E. I. Tantsyreva, Ye. G. Treshchova.

"Iz Ak Nauk SSSR, Otdel Khim Nauk," No 3, pp 321-327

Describes application of method of acetate pyrolysis for synthesis of 4, 4-dimethylhexene-2. Established (with aid of spectra of combination light dispersion) that pyrolysis of acetic acid ester of secondary alc of pinacolinic type (4, 4-dimethylhexanol-3) leads

LC 183T13

USSR/Chemistry - Hydrocarbons (Cont'd) May/Jun 51

principally (to extent of 96% of total, to formation of trans-form of the alkene, i.e. substance that has same carbon skeleton as initial alc.

LC 183T13

CIA-RDP86-00513R000929610011-2 APPROVED FOR RELEASE: 07/12/2001

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

CH

Reaction of cyclopentadiene 1,4-dichloride with organomagnesium compounds. R. Ya. Levina, V. R. Skvarchenko, and T. I. Tantsyreva. *Vestnik Moskov. Univ.* 6, No. 2, *Ser. Fiz.-Mat. i. Estestven. Nauk* No. 1, 137-8 (1951); cf. *C.A.* 45, 835f.—3,5-Dichlorocyclopentene (obtained by chlorination of cyclopentadiene in 60% yield), b_{5} 25°, b_{10} 50°, n_D^{20} 1.5026, d_4^{20} 1.2193, with MeMgBr gave 20% mixed cis-trans forms of *3,5-dimethylcyclopentene*, b_{10} 77-82°, n_D^{20} 1.4230, d_4^{20} 0.7590. G. M. Kosolapoff

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

CA

1

Academician Nikolai Dmitrievich Zelinskii. Yu. K. Yur'ev and R. Ya. Levina. *Zhur. Obshchei Khim.* (J. Gen. Chem.) 21, 201-32(1951).—Biography, with portrait, and summary of scientific work (348 references) on 90th jubilee.
O. M. Kosolapoff

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

LEVINA, R. YA.

176T11

USSR/Chemistry - Petroleum Hydrocarbons Feb 51

"Isomerization of Unsaturated Hydrocarbons Through Their Contact With Oxides of Metals. XII. Production of Methylpentadienes by Dehydration of Dimethallylcarbinol Over Chromium Oxide on Aluminum Oxide," R. Ya. Levina, A. A. Faynzil'berg, V. M. Tatevskiy, Ye. G. Treshchova, Lab Org Chem imeni Acad N. D. Zelinskiy, and Lab Mol Spectroscopy, Moscow State U

"Zhur Obshch Khim" Vol XXI, No 2, pp 233-239

Dehydrated dimethallylcarbinol over mixed catalyst of Cr and Al oxides to yield 2-methylpentadiene-1,4 (I) and pair with close bp composed

[redacted] 176T11

USSR/Chemistry - Petroleum Hydrocarbons Feb 51
(Contd)

of 2-methylpentadiene-2,4 (II) and 2-methylpentadiene-I, 3 (III) Isomerized I over catalyst of Cr and Al oxides into mixt of II and III. Yield 59% of theoretical. Compn checked by spectrography. Mechanism proposed.

[redacted] 176T11

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

LEVINA, R. Ya. 176T12

USSR/Chemistry - Acetylene Hydrocarbons Feb 51

"Synthesis of Hydrocarbons. XV. Synthesis of Al- kynes-3 (γ-Acetylene Hydrocarbons)," R. Ya. Levina, Ye. A. Viktorova, B. B. Berezina, Lab Org Chem imeni Acad N. D. Zelinskiy, Moscow State U

"Zhur Obshch Khim" Vol XXI, No 2, pp 240-242

Developed method for synthesis of alkynes-3 by alkylation of 1-sodiumalkynes-1 with diethylsulfate. Synthesized were hexyne-3, heptyne-3, octyne-3, nonyne-3, with respective yields of 50, 26, 41, and 31% of theoretical of theoretical.

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

LEVINA, R. Ya.

USSR/Chemistry - Antiknock Fuels Oct 51

"Spectra of Combination Scattering of Certain C_6-C_{11} Isoalkanes With Tertiary Carbon Atoms," Ye. G. Treschova, V. M. Tatevskiy, T. I. Tantsyreva, A. A. Faynsil'berg, R. Ya. Levina, Moscow State U imeni M. V. Lomonosov.

"Zhur Fiz Khim" Vol XXV, No 10, pp 1239-1247.

Measurements of number and intensity of lines in spectra of combination scattering of 2, 4-dimethylhexane, heptane, octane, and nonane, 2, 4, 5-trimethylhexane, 2, 4, 6-trimethylheptane, and 2, 4, 7-trimethyloctane, in agreement with theoretical conclusions of B. I. Stepanov, showed that different types of branchings of alkane C skeleton are represented by sp characteristics of spectrum.

PA 194T18

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

LEVINA, R.Ya.; SHUSHERINA, N.P.; TREBCHOVA, E.G.

Synthesis of hydrocarbons. XXX. Synthesis of 3,5-dimethylheptane. Vestnik Moskov. Univ. 7, No.2, Ser. Fiz. Mat. i Estestven. Nauk No.1, 105-8 '52.
(CA 47 no.13:6333 '53) (MLRA 5:7)

1. Moskovskiy universitet.

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

LEVINA, R. YA. : MEZENTSOVA, N. N.: AKISHIN, P. A.

Alkycyclohexene, ALKYLCYCLOPENTANE, Isomerism

Contact isomerization of unsaturated hydrocarbons. XVII. Isomerization of alkylcyclopentane and alkylcyclohexene in chrome oxide on aluminum oxide. Vest. Mosk. un., 7, No. 2, 1952.

9. Monthly List of Russian Accessions, Library of Congress, October, 1952 ~~1953~~. Unclassified.

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

LEVINA, R. YA.

Chemical Abst.
Vol. 48 No. 8
Apr. 25, 1954
Organic Chemistry

8-30-54

Contact isomerization of unsaturated hydrocarbons. XVIII. Isomerization of methylenecyclohexane through chromium oxide on aluminum oxide. N. N. Mezentsova, and R. A. Akishin (Moscow State Univ.). *Vestnik Moskov. Univ.* 7, No. 12, *Ser. Fiz.-Mat. i Estestven. Nauk* No. 8, 49-53(1952); cf. *C.A.* 47, 3218c.—Methylenecyclohexane, $CH_2:C_6H_{10}$, passed at 250° through Cr_2O_3 on Al_2O_3 (length 45 cm., diam. 1.6 cm.) at the rate of 0.06 g./min., gave 80-85% catalyzate consisting (by Raman-spectra analysis) of 60% 1-methylcyclohexene (I), 33% 3-methylcyclohexene (II), and possibly a small amt. of 4-methylcyclohexene. In a single pass, I and II undergo disproportionation to 2 methylcyclohexane + PhMe to the extent of 7%, and, on recycling, 21%. N. Thom-

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

LEVINA, R. YA.

Chem Abs v48
1-25-54
organic Chemistry

(2)

Methods of synthesis of acetylenic hydrocarbons (alkynes and alkadiynes). R. Ya. Levina and E. A. Viktorova. Uspekhi Khim. 21, 280-312(1952).—Review with 214 references. G. M. Kosolapoff

AF 7-13-54

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

LEVINA, R. YA.

Levina, R. Ya., Shusherina, N. P., Treshchova, E. G., and Tatevsky, V. M. - "Synthesis of Hydrocarbons XVII. Homomesitones in the Synthesis of Paraffin Hydrocarbons of Isomeric Structure." (p. 199)

SO: Journal of General Chemistry, (Zhurnal Obshchei Khimii), 1952, Vol. 22, No. 2

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

USSR/Chemistry - Hydrocarbons Mar 52

"Synthesis of Hydrocarbons. XVIII. Hydrobromides and Hydrochlorides of 2-Methylpentadiene-1,3 and of 4-Methylpentadiene-1,3 in the Synthesis of Hydrocarbons of Iso-Structure," R. Ya. Levina, A. A. Faynzil'berg, Ye. G. Treshchova, Lab of Org Chem imeni Acad N. D. Zelinskiy, Moscow Order of Lenin State U

"Zhur Obshch Khim" Vol XXII, No 3, pp 430-439

These tertiary allyl halides are characterized by the presence of a methyl group in the gamma position with reference to the mobile halogen atom. They are much more stable than the other tertiary allyl halides hydrobromides and hydrochlorides of isoprene

209T40

USSR/Chemistry - Hydrocarbons (Contd) Mar 52

and 2,3-dimethylbutadiene) which do not have a similar structure. Their stability in reactions with org magnesium compds allows their use in the synthesis of hydrocarbons with quaternary carbon atoms

209T40

LEVINA, P. Ya.

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

USSR/Chemistry - Hydrocarbons, Fuels Apr 52

"Synthesis of Hydrocarbons. XX. Synthesis of Alkenes and Alkanes With a Quaternary Carbon Atom," P. Ya. Levina, T. I. Tantsyreva, A. A. Faynzil'berg, Moscow Order of Lenin State U imeni M. V. Lomonosov, Lab of Org Chem imeni Acad N. D. Zelinskiy

"Zhur Obshch Khim" Vol XXII, No 4, pp 571-577

By the action of tertiary alkyl magnesium chloride on allyl bromide, 3 ethylene hydrocarbons with a quaternary C-atom were synthesized: 4,4-dimethylheptene-1, 4,4,5-trimethylhexene-1, and 4,4-dimethyloctene-1. By catalytic hydrogenation of the alkenes, alkanes with a quarternary C-atom were obtained:

224T31

4,4-dimethylpentane, 2,3,3-trimethylhexane, and 4,4-dimethyloctane. 4,4-dimethyloctene-1 and 4,4-dimethyloctane have not been described previously, while data on 4,4-dimethylheptane were incomplete.

224T31

LEVINA, R. YA.

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

LEVINA, R. YA.

USSR/Chemistry - Hydrocarbons, Fuels Apr 52

"Synthesis of Hydrocarbons. XXI. Hydrobromides of Diene Hydrocarbons in the Synthesis of Olefin and Paraffin Hydrocarbons With a Quaternary Carbon Atom," R. Ya. Levina, N. P. Shusherina, Moscow State U, Lab of Org Chem imeni N D. Zelinskiy

"Zhur Obshch Khim" Vol XXII, No 4, pp 577-585

The reaction between tertiary alkyl magnesium halides and unsatd tertiary bromides was used for the synthesis of high-mol alkenes. Two dodecenes and 2 tridecenes were synthesized and hydrogenated into the corresponding dodecanes and tridecanes. A total of 11 compds, not previously described in literature, was synthesized.

224T32

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

USSR/Chemistry - Hydrocarbons, Fuels Apr 52

"Synthesis of Hydrocarbons XXII. Conversion of Diene Hydrocarbons Into Cyclopropane Hydrocarbons," R. Ya. Levina, B. M. Gladshteyn, Moscow Order of Lenin State U

"Zhur Obshch Khim" Vol XXII, No 4, pp 585-591

A method was developed for obtaining cyclopropanes from conjugate dienes of iso-structure and using for synthesis of 3 homologues of cyclopropane with one or 2 quaternary carbon atoms. 1,1,2-Trimethylcyclopropane, and 1,2-dimethyl-1,2-diethylcyclopropane were prepd by this method. The last mentioned product has not been described previously. The opinion of

224T33

American chemists of the impossibility of cyclization of ditertiary 1,3-dibromides by the Gustavson reaction is refuted.

224T33

LEVINA, R. YA.

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

LEVINA, R. YA.

1

Combination scattering spectra of hydrocarbons of various classes. III. Combination scattering spectra of several alkadienes with a system of isolated or conjugated double bonds. E. G. Treshchova, V. M. Tatevskii, R. Ya. Levina, A. A. Fakhrilberg, and E. A. Viktorova (M. V. Lomonosov State Univ., Moscow). *Zhur. Fiz. Khim.* 26, 1266-71(1952); cf. *C.A.* 43, 7345i(1949).—Raman spectra have been studied of 2-methyl-1,4-pentadiene (I), 2-methyl-2,4-pentadiene (II), 2,3-dimethyl-1,3-butadiene (III), 2,4-pentadiene (IV), 2,4-octadiene (V), and 2,4-hexadiene (VI). The b.p., n_D^{20}, and d_4^{20} in that order are for I, 56.5°, 1.4053, 0.6932; II, 76.3°, 1.4520, 0.7200; III, 68.6°, 1.4390, 0.7262; IV, 105°, 1.4477, 0.7323; V, 132°, 1.4580, 0.7439. Wave nos. and corresponding intensities for I-V are tabulated between 240 and 3131 cm.$^{-1}$ The characteristic lines of II and III are 1630 and 1654 cm.$^{-1}$, resp., with intensities of 678 and 1060 units, resp. IV has 2 characteristic lines at 1654 and 1653 cm.$^{-1}$ with intensities of 1200 and 1050 units, resp. It is concluded that in the 1600-1680-cm.$^{-1}$ region alkadienes with isolated double bonds have either 2 lines or a single line, the total intensity being about twice that of the corresponding alkene line. The characteristic lines in the 1600-1680-cm.$^{-1}$ region of alkadienes with conjugated double bonds are stronger than those of alkenes. IV, V, and VI have spectra almost identical in wave nos. and rather similar in relative line intensities.

J. W. L., Jr.

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USSR/Chemistry - Organomagnesium Compounds

21 May 52

"The Reaction of 1,4-Dichlorbutyne-2 With Organomagnesium Compounds -- Synthesis of Alkines With the Central Position of the Triple Bond," R. Ya. Levina, Yu. S. Shabarov

"Dok Ak Nauk SSSR" Vol LXXXIV, No 3, pp 509-512

The reaction between methylmagnesiumbromide and acetylene dichloride (of the propargyl type, e.g., 1,4-dichlorbutyne-2) was utilized for the synthesis of acetylene hydrocarbons of normal structure with a centrally placed triple bond, like octyne-4, decyne-5

225T3

and dodecyne-6. This reaction is shown by:

$ClCH_2-C-C-CH_2Cl + 2RMgBr \rightarrow RCH_2-C-C-CH_2R$, where R equals C_2H_5, C_3H_7 and C_4H_9. The simplicity with which the reaction proceeded shows that it may lend itself to the synthesis of less readily accessible alkines with a central triple bond. Presented by Acad A. N. Nesmeyanov 26 Mar 52.

225T3

LEVINA, R. YA.

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

LEVINA, R. Ya.

232T4

USSR/Chemistry - Acetylene Derivatives 1 Jun 52

"A New Method of Synthesizing Iso-Alkynes With a Central Triple Bond - Di-(Sec-Alkyl)-Acetylenes," R. Ya. Levina, Yu. S. Shabarov

"Dok Ak Nauk SSSR" Vol 84, No 4, pp 709-712

In previous work, it was shown that Grignard reagents act on di-primary acetylenes. The same reaction is now applied to di-sec-acetylenic 1,4-dichlorides with the chlorine atoms being substituted by the alkyl group of the Grignard reagent. The secondary dichlorides used as starting

232T4

materials are easily obtained by the action of thionyl chloride on the corresponding acetylenic gamma-glycols which in turn are easily prepd by the Iotsich reaction. In this manner (glycols→ dichloride→ dialkyl-acetylene) many products which are otherwise difficult to prep were synthesized, such as 2,5-dimethylhexyne-3, 3,6-dimethyloctyne-4, and 4,7-dimethyldecyne-5. Presented by Acad A. N. Nesmeyanov 26 Mar 52.

232T4

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

Levina, R. Ya.

USSR/Chemistry - Hydrocarbons 1 Jul 52

"Cyclopentadiene and Cyclohexadiene in the Synthesis of Bicyclic Hydrocarbons," R. Ya. Levina, T. I. Tantsyreva, V. N. Vinogradova, Ye. G. Treshchova

"Dok Ak Nauk SSSR" Vol LXXXV, No 1, pp 107-110

The reaction between magnesium and the hydrogen chloride adducts of cyclopentadiene and cyclohexadiene-1,3 was used for the synthesis of Δ 2,2'-dicyclopentenyl and Δ 2,2'-dicyclohexanyl, which were treated with mercuric acetate and then KCl to obtain the corresponding HgCl derivs. Presented by Acad A. N. Nesmeyanov 30 Apr 52.

224T15

(CA 47 no.15:7448 '53)

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LEVINA, R. YA., SHUSHERINA, N.P., KAMINSKAYA, T.A.

Ketones

Cyanethylated ketones in the synthesis of unsaturated δ-lactones. Dokl. AN SSSR 86 No.1, 1952.

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

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

YUR'YEV, Yu.K.; LEVINA, R.Ya.

[Life and work of Academician N.D. Zelinskii] Zhizn' i deiatel'nost' Akademika Nikolaia Dmitrievicha Zelinskogo. Moskva, Izd-nie Moskovskogo obshchestva ispytatelei prirody, 1953. 115 p. (MLRA 7:7)
(Zelinskii, Nikolai Dmitrievich, 1861-) (Chemistry, Organic)

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Synthesis of hydrocarbons. XLIII. Partial reduction of diene hydrocarbons with conjugated system of double bonds by sodium in liquid ammonia. B. Ya. Levina, V. R. Skvarchenko, V. N. Kostin, E. G. Treshchova, and A. S. Okunevich (Moscow State Univ.). *Sbornik Statei Obshchei Khim., Akad. Nauk S.S.S.R.* 1, 355-61(1953); cf. *C.A.* 47, 12210*d*.—Reduction by Na-NH_3 of 2,3-dimethyl-1,3-butadiene results in addn. of H mainly (95-9%) in the 1,4-positions, and to a minor extent in the 1,2-positions. With the unsym. diene, 2-methyl-2,4-pentadiene, 1,4-addn. predominates also (93-4%). To 67 g. Na in 500 ml. liquid NH_3 was added with stirring an Et_2O soln. of 39 g. 2,3-dimethyl-1,3-butadiene; after 2 hrs. the mixture was dild. with Et_2O, evapd. at room temp., washed and dried, yielding 58% total reduction products, which were send. into 3 g. crude material, b_{760} 50-72.1°, and 19 g. *2,3-dimethyl-2-butene*, b_{760} 72.1-2.2°, n_D^{20} 1.4134, d_{20} 0.7077; the Raman spectrum of the product had a 1674 cm.$^{-1}$ line characteristic of the above structure. Raman spectrum of the forerun showed the presence of 2,3-dimethyl-1-butene. Similar reduction of 25 g. 2,4-dimethyl-1,3-pentadiene with Na-NH_3 gave 72% reaction products composed of material, b_{760} 81.9°, n_D^{20} 1.4038, d_{20} 0.6917, whose Raman spectrum showed the absence of any contaminant in the *2,4-dimethyl-2-pentene* produced (for comparison a specimen was prepd. by pyrolysis of diisopropylcarbinol acetate; the product, b_{760} 82.1-2.2°, n_D^{20} 1.4072, d_{20} 0.6927, Raman spectrum given. Similar Na-NH_3 reduction of 2-methyl-2,4-pentadiene (b_{760} 76.3°, n_D^{20} 1.4520, d_{20} 0.7200) gave 2 fractions: 50% *2-methyl-2-pentene*, b_{760} 57.5-8.5°, n_D^{20} 1.3905, d_{20} 0.6663, and about 8% material, b_{760} 58.5-67°, which also contained some 2-methyl-3-pentene, confirmed by Raman spectrum of this mixt. in comparison with that of a pure synthetic specimen. Satn. of MeCH:CHCH:CH_2 (25 g.) with 30 g. dry HBr with cooling, followed by addn. of the crude resulting bromide to MeMgBr (from 39 g. MeBr) and stirring 1.5 hrs. in the cold and 6 hrs. at reflux, gave 40% pure *2-methyl-3-pentene*, b_{760} 57.5-8.5°, n_D^{20} 1.3905, d_{20} 0.6665, whose Raman spectrum was not given in the paper; that of the specimen prepd. by Na-NH_3 reduction is given. Similarly, 24 g. CH_2:CMeCH:CH_2 treated with dry HBr and the resulting bromide treated with MeMgBr gave 13 g. (43%) *2-methyl-2-pentene*, b_{760} 67°, n_D^{20} 1.4025, d_{20} 0.6919, Raman spectrum given.

G. M. Kosolapoff

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LEVINA, P. Ya. Prof.

"Certain New Reactions in the Chemistry of Hydrocarbons," a paper given at the All-University Scientific Conference "Lomonosov Lectures", Vest. Mosk. Un., No.8 1953.

Translation U07895, 1 Mar 56

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LEVINA, R. Ya.

USSR.

The synthesis of hydrocarbons. XXXIV. The reaction of bitertiary acetylenic 1,4-dichloride with organomagnesium compounds. R. Ya. Levina and Yu. S. [illegible] (Moscow State Univ.). Vestnik Moskov. Univ. 8, No. 2, Ser. Fiz.-Mat. i Estestven. Nauk No. 1, 77-82(1953); cf. C.A. 47, 6333f, 7448g.—Attempts to prep. the biquaternary acetylenic hydrocarbons by the reaction of MeMgBr (I) with 2,5-dimethyl-2,5-dichloro-3-hexyne (II) failed (Hennion and Banigan, C.A. 40, 5694[7]). Instead of effecting condensation I eliminated HCl from II and gave probably 2,5-dimethyl-1,5-hexadien-3-yne and 1-chloro-2,5-dimethyl-5-hexen-3-yne. II was prepd., mixed with the 3,4-dichloro-2,5-dimethyl-2,4-hexadiene (III), by the action of HCl (d. 1.19) on $[(CC(OH)Me_2]_2$ (Babayan, C.A. 40, 3394[8]). Of the two isomers the lower-boiling (b_{15} 65-7°) is II, because it was isomerized by heating (48 hrs. at 50-60°) with NH_4Cl and Cu_2Cl_2 to III (C.A. 38, 1478[8]). III does not react by long heating with I. I and II mixed at −16°, and stirred 2 hrs. with cooling and 2 hrs. at room temp. yielded, after the usual hydrolytic treatment and distn., a 13-g. fraction, b. 120-45°, n_D^{20} 1.4950, which in a short time polymerized, plus a high-boiling residue. A. Sementsov

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LEVINA, R YA

Raman spectra of acetylenic hydrocarbons. P. A. Akishin, L. G. Mal[illegible], [illegible] A. [illegible] and R. Ya. Levina. [illegible] exhibited [illegible] and [illegible] cm [illegible] (C C) in I and III with [illegible] and 250 units, resp. [illegible] cm [illegible] (C CCH) and [illegible] for CH attached to C [illegible] in II and IV with 70 and 470 units, resp., the doublet at 2232-2300 cm [illegible] for C C in II, IV and V showed a constancy in the sum (250 units) of the intensities of both lines. The intensities were measured photometrically.

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LEVINA, R.Ya.; SHABAROV, Yu.S.

Synthesis of hydrocarbons, part 35. Reaction of 1,4-diphenoxybutene-2 with magnesium organic compounds. Vest.Mosk.un. 8 no.3:115-118 Mr '53. (MLRA 6:6)

1. Kafedra organicheskoy khimii. (Butenes) (Magnesium organic compounds)

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LEVINA, R.YA.

Some new reactions in the chemistry of carbons. Vest.Mosk.un. 8 no.10: 67-77 O '53. (MLRA 7:1)

(Carbon compounds)

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Chemical Abst.
Vol. 48
Apr. 10, 1954
Organic Chemistry

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Contact isomerization of unsaturated hydrocarbons. XIX. Isomerization of unsaturated five- and six-membered cyclic hydrocarbons with a double bond in the ring or in the side chain. R. Ya. Levina, N. N. Mezentsova, and P. A. Akishin (Moscow State Univ.). *Zhur. Obshchei Khim.* 23, 562-9(1953); cf. *Vestnik Moskov. Gos. Univ.* 10, 109(1949); *C.A.* 45, 536a; 47, 3248c; 48, 4455d.—Passage of alkenylcyclopentanes over Cr_2O_3 on Al_2O_3 at 250° leads to the double bond shifting from the side chain to the ring and remaining at the C atom which joins the side-chain. Methylene- and vinylcyclopentanes are completely converted to 1-alkylcyclopentenes. With allylcyclopentane there was also detected, besides 1-propylcyclopentene, some *trans*-propenylcyclopentane, an intermediate in the process. Alkenylcyclohexanes (methylene, vinyl, and allyl) similarly rearrange to 1-alkylcyclohexenes which are in part transformed to 1-alkyl-2-cyclohexenes in a subsequent reaction. 1-Alkyl-2-cycloalkenes passed over the above catalyst at 250° are 40-50% isomerized to 1-alkylcycloalkenes, which are more stable to the above catalyst at. Alkylcyclohexenes with other positions of unsatn. in the ring under these conditions undergo, to a slight extent, a transformation into alkylbenzene and alkylcyclohexane. The hydrocarbons with unsatd. side chain were prepd. by pyrolysis of the acetates of the corresponding alcs., obtained by the Grignard route. For the following compds. are given % yield, b.p., n^{20}_D, and d_4^{20}: *cyclopentylcarbinol*, 30, b_{12-13} 88-9°, 1.4579, 0.9333 (*acetate*, 70, b_{10} 85-6°, 1.4378, 0.9574); *cyclohexylcarbinol*, 35, b_{11-13} 88-9°, 1.4650, 0.9285 (*acetate*, 73, b_{14-15} 75-6°, 1.4160, 0.9605; *cyclopentylethanol*, 40, b_{12-13} 74°, 1.4578, 0.9231 (*acetate*, 75, b_{12-13} 75°, 1.4408, 0.9504); *cyclohexylethanol*, 33, b_{13} 99-100°, 1.4649, 0.9189 (*acetate*, 80, b_{13} 97-8°, 1.4478, 0.9500)). 1-Ethyl-2-cyclopentene and -hexene were prepd. in 50-4% yield from EtMgBr and 1-chloro-2-cyclopentene or 1-bromo-2-cyclohexene, resp. 1-Ethylcyclopentene and -hexene were obtained by dehydration of the tertiary alcs. [In the following, all values of *n* and *d*. are for n^{20}_D and d_{20}.] Methylenecyclohexane, b_{760} 99.8-100°, *n* 1.4498, d. 0.8066 (Raman line characteristic of double bond at 1681 cm.$^{-1}$), gave a catalyzate contg. 60% 1-methylcyclohexene (Raman line 1676), 33% 1-methyl-2-cyclohexene (1651), 1.5-2% MePh (1003), and about 5% methylcyclohexane (770). *1-Methylcyclohexene*, b_{760} 109-9.2°, *n* 1.4508, d. 0.8124, (double-bond Raman line 1676). *Vinylcyclohexane*, b_{760} 125°, *n* 1.4470, d. 0.8091 (1641), gave a catalyzate contg. 3% original substance, 75% 1-ethylcyclohexene (1671), 13% 1-ethyl-2-cyclohexene (1653), 3% EtPh (1003), and 6% ethylcyclohexane. *1-Ethylcyclohexene*, b_{760} 135.2-5.5°, *n* 1.4562, d. 0.8150 (1671), gave a catalyzate contg. 78% starting material, 17% 1-ethyl-2-cyclohexene (1651), 2% EtPh (1004), and 4% ethylcyclohexane. *1-Ethyl-2-cyclohexene*, b_{760} 131.7-2.0°, *n* 1.4500, d. 0.8101 (1651), gave a catalyzate contg. 25% starting material, 50% 1-ethylcyclohexene (1671), 8% EtPh, and 17% ethylcyclohexane. *Allylcyclohexane*, b_{760} 151.2-1.5°, *n* 1.4500, d. 0.8135 (1641), gave a catalyzate contg. 15% starting material, 79% 1-propylcyclohexene (1671), 2% 1-propyl-2-cyclohexene (1653), 2% PrPh (1001), and 4% propylcyclohexane. *1-Propylcyclohexene* b_{760} 153.5-4.0°, *n* 1.4573, d. 0.8270 (1670). *Methylenecyclopentane*, b_{760} 73.3-2°, *n* 1.4342, d. 0.7803 (1653), gave catalyzate of pure 1-methylcyclopentene, b_{760} 73.2-4.5°, *n* 1.4314, d. 0.7781 (1657). *1-Methylcyclopentene* b_{760} 74.3-4.4°, *n* 1.4326, d. 0.7765 (1657). *Vinylcyclopentane*, b_{760} 98.5-8.7°, *n* 1.4375, d. 0.7834 (1641), gave a catalyzate of pure 1-ethylcyclopentene. *1-Ethylcyclopentene*, b_{760} 105°, *n* 1.4414, d. 0.8015 (1654), is unchanged by passage over the catalyst. *1-Ethyl-2-cyclo-*

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SIDE 2/2 R. Ya. LEVINA

pentene, b_{760} 96.7-6.8°, n 1.4319, d. 0.7835 (1617), gave a catalyzate with 60% starting material and 40% 1-ethylcyclopentene (1653). *Allylcyclopentane*, b_{760} 124-4.5°, n 1.4400, d. 0.7912 (1641), gave a catalyzate with 33% unchanged material, 30% 1-propylcyclopentene (1653), and 36% *trans*-propenylcyclopentane (1672); recycling over the catalyst gave 57% 1-propylcyclopentene and 43% *trans*-propenylcyclopentane. *1-Propylcyclopentene* b_{760} 129.5-30°, n 1.4430, d. 0.7959 (1653).

G. M. Kosolapoff

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USSR.

Contact isomerization of unsaturated hydrocarbons. XIX. Isomerization of unsaturated five- and six-membered cyclic hydrocarbons with a double bond in the ring or in the side chain. R. Ya. Levina, N. N. Mezentsova, and P. A. Akishin. J. [redacted] S.R. 23, 581-7(1953)(Engl. translation). — See C.A. 48, 6970c H. L. H.

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

LEVINA, R. YA.

Synthesis of hydrocarbons. XXXIX. The dichloride of 2,3-dimethyl-1,3-butadiene in the synthesis of alkenes with iso-structure and central location of the double bond. R. Ya. Levina, V. N. Skvarchenko, A. S. Okunevich, and E. G. Treshchova (Moscow State Univ.). *Zhur. Obshchei Khim.* 23, 725-8(1953); cf. C.A. 45, 5357, 48, 3885h. — Lowering of the temp. of chlorination of $(CMe:CH_2)_2$ (I) does not affect the yield of the product; chlorination was best run at −75° in abs. Et_2O until the theoretical gain in wt. was reached, and evapn. of the solvent gave 32% I *dichloride* (II), b_{10} 80-1°, n_D^{20} 1.45, and also a lower-boiling fraction and 23% unchanged I. To 3M MgBr from 120 g. MeBr in 300 ml. Et_2O was added with cooling 89 g. II, and the mixt. allowed to stand overnight, stirred 6 hrs. at room temp. and refluxed 2 hrs., decompn. with 10% AcOH gave 40% I and 23% *3,4-dimethyl-3-hexene*, b_{10} 110-19.5°, b_{760} 110.2-19.4°, n_D^{20} 1.4275, d_4^{20} 0.7415, whose Raman spectrum contained the following lines: [illegible] (1), 31(10), 109(3), 421(0.5), 455(0.8), 458(2), [illegible], 555(0.5), 588(2), 600(1.5), 679(10), 749(0), 798(0.5), 846(1.5), 907(0), 912(0), 958(3.5), 970(1), 998(1.5), 1018(1), 1058(2.5), 1074(5), 1101(12), 1144(1), 1170(1.5), 1199(1.8), 1290(0), 1237(1.5), 1308(2), 1322(5), 1388(5), 1446(2), 1458(10), 1640(0.5) and 1664(20). The 1640 line indicates an impurity of an α-ethylenic hydrocarbon. PrMgBr (from 123 g. PrBr) with 17.5 g. II similarly gave [illegible] I, 17% hexane, and 11% *3,6-dimethyl-3-hexene*, b_{10} 41-1.2°, n_D^{20} 1.4440, d_4^{20} 0.7782, Raman spectrum (cm.$^{-1}$) 270(1), 313(0.8), 397(0.5), 410(1), 491(1), 522(1), 580(1.5), 603(0.5), 677(0.5), 695(1.5), 735(0.5), 759(1), 792(1), 821(2.5), 847(0.5), 873(3), 895(4), 925(1), 959(1), 998(1), 1050(1), 1073(1), 1089(1), 1102(1), 1133(0.5), 1170(0.5), 1184(1.5), 1241(1), 1280(1.5), 1301(2.5), 1329(1.5), 1382(3), 1408(1), 1451(10), 1456(3), 1640(1.5), and 1665(12). The [illegible] indicate a 10% admixt. of an α-ethylenic hydrocarbon that might have formed by allylic shift of the intermediate monoCl deriv. during the reaction. Thus, I is [illegible] to $(CH:CH_2)_2$ in that their

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dichlorides yield the α-ethylenic by-products with RMgX (C.A. 46, 3941i). XL. **Reaction of the dichloride of cyclopentadiene with organomagnesium compounds.** R. Ya. Levina, T. I. Tantsyreva, and E. G. Treshchova. *Ibid.* 729-35.—To 33 g. cyclopentadiene (I) in 1 vol. Et_2O was added with ice-NaCl cooling 35.4 g. Cl_2; distn. gave 60% *dichloride*, $C_5H_6Cl_2$ (presumably the 3,5-Cl_2 compd. although the *3,4-analog* might be present), b_5 35°, b_{10} 50°, n_D^{20} 1.5020, d_{20} 1.2193, darkens in air and even in N_2. Much high-boiling matter was also formed. To MeMgBr (from 520 g. MeBr) was added with ice-NaCl cooling 120 g. of the dichloride, the mixt. being stirred 3 hrs. at room temp. and 4 hrs. at reflux. Decompn. with dil. AcOH and distn. over Na gave 20% C_7H_{12}, composed of some 60-70% *1,5-* and 30-40% *1,4-dimethylcyclopentene* which resulted from allylic shift during the reaction. The mixt. could not be sepd. into components and the whole b_{760} 81.2°, n_D^{20} 1.4390, d_{20} 0.7614. The presence of the Raman line at 1613 cm.$^{-1}$ indicated the cyclopentene structure with Me groups not at the double bond. The mixt. hydrogenated over Ni-Al_2O_3 at 150° yielded *mixed 1,2-* and *1,3-dimethylcyclopentanes*, b_{760} 89.5-90.5°, n_D^{20} 1.4113, d_{20} 0.7457; the compn. of the mixt. was deduced from known consts. of the ingredients (Bazhulin, *et al.*, C.A. 42, 6238*i*; Kazanskii, *et al.*, C.A. 42, 4535*b*). Similarly EtMgBr gave 12% *mixed 3,4 and 3,5-diethyl-1-cyclopentenes*, b_{760} 140.3°, n_D^{20} 1.4390, d_{20} 0.7922 [it is suggested that the supposedly pure 3,5-di-Et deriv. cited by Barber and English, C.A. 46, 440g, is also a similar mixt.], and 5% *3-ethylcyclopentene*, b_{760} 97°, n_D^{20} 1.4310, d_{20} 0.7928 (C.A. 47, 3240*e*). PrMgBr gave apparently only *3-propylcyclopentene* (although some 4-Pr analog might have been present), b_{760} 125°, n_D^{20} 1.4370, d_{20} 0.7918, in 7% yield. Such a product can arise from formation of alkylcyclopentylmagnesium bromides, which with H_2O yield the above material. G. M. Kosolapoff.

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

LEVINA, R.Ya.: TANTSYREVA, T.I.: TRESHCHOVA, Ye.G.

Synthesis of hydrocarbons. Part 40. Reaction of cyclopentadiene dichloride with organomagnesium compounds. Zhur.ob.khim. 23 no.5:729-735 My '53. (MLRA 6:5)

1. Moskovskiy Gosudarstvenniy universitet. Laboratoriya organicheskoy khimii imeni N.D. Zelinskogo. (Organomagnesium compounds) (Cyclopentadiene)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

LEVINA, R. YA.

USSR/Chemistry - Mercury Organic Compounds Jun 53

"Interaction of Hydrocarbons of the Cyclopropane Group With Mercury Salts. II. New Organomercury Compounds from 1,1,2,2-Tetramethylcyclopropane (I)," R. Ya. Levina, V.N. Kostin, Moscow State U im M.V. Lomonosov

Zhur Obshch Khim, Vol 23, No 6, pp 1054-1059

Investigated the products of the reaction of mercuric acetate on I.

273127

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

USSR.

Reaction of cyclopropane hydrocarbons with salts of mercuric mercury. II. New organomercury compounds from 1,1,2,2-tetramethylcyclopropane. R. Ya. Levina and V. N. Kostin. J. Gen. Chem. U.S.S.R. 23, 1107-10(1953)(Engl. translation).—See C.A. 48, 8171e. H. L. H.

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

LEVINA, R.Ya.; YERSHOV, V.V.; SHABAROV, Yu.S.

Synthesis of hydrocarbons. Part 41. Diisobutylacetylene and diisoamyl acetylene. Zhur.ob.khim. 23 no.7:1124-1128 Jl '53. (MLRA 6:7)
(Acetylene derivatives)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

LEVINA, R. YA.

n_D^{20} 1.4400, d_{20} 0.7912 (Raman frequency 1641 cm.$^{-1}$), and 80 *allylcyclohexane*, b_{120} 151–1.5°, n_D^{20} 1.4500, d_{20} 0.8135 (Raman frequency 1641 cm.$^{-1}$). Cf. Arnold and Dowdall, (*C.A.* 42, 8169e). XLIIIA. New reaction of tetrahydrophthalic anhydrides (products of diene synthesis) with phosphorus pentoxide. R. Ya. Levina, V. R. Skvarchenko, N. S. Kataeva, and E. G. Treshchova (Moscow State Univ.). *Zhur. Obshchei Khim.* 23, 1998–2001(1953); cf. *C.A.* 48, 9939e; 49, 829e.—The reaction of various substituted tetrahydrophthalic anhydrides with P_2O_5 does not go through the formation of a ketene, and the decarbonylation step is simultaneous with dehydration, in which the α-H atoms participate. Heating 20 g. 2,3-dimethyl-1,3-butadiene with 35 g. citraconic anhydride in C_6H_6 9 hrs. gave 33% *1,4,5-trimethyl-1,2,3,6-tetrahydrophthalic anhydride*, b_{2-3} 175–7°, n_D^{20} 1.4780, d_{20} 1.1052. This (19.4 g.) treated with 14.4 g. P_2O_5 and heated gently, entered a vigorous reaction (temp. rose to 200°); the mixt. was then heated to 290° and finally to 350°, yielding a distillate of 65% pure *1,2,4-trimethylbenzene*, b_{120} 168.5°, n_D^{20} 1.5030, d_{20} 0.8770; the Raman spectrum also agreed with that of the pure substance. No indications of mesitylene or 1,2,3-trimethylbenzene were found. If the reaction went through the ketene stage, the presence of H atoms in the 1 and 2 positions would have been necessary.

G. M. Kosolapoff

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

USSR.

Combination scattering spectra of hydrocarbons of various classes. IV. Spectra of combination scattering of several branched alkanes with tertiary carbon atoms. E. O. Trubchova, V. M. Tatevskii, A. A. Fainsil'berg, N. P. Chusherina, and R. Ya. Levina (M. V. Lomonosov State Univ., Moscow). *Zhur. Fiz. Khim.* 27, 1664-71(1953); cf. *C.A.* 47, 4200a; 49, 6832b.—The Raman spectra were observed of 2,3-dimethylhexane (I), 2,3-dimethylheptane (II), 2,3-dimethyloctane (III), 2,3,6-trimethylheptane (IV), 3,5-dimethylheptane (V), and 3-methyl-5-ethyloctane (VI). The b.p., n_D^{20}, d_4^{20}, and molar refraction in that order were for I, 115-5.3° (758 mm.), 1.4015, 0.7120, 38.96; for II, 140° (760 mm.), 1.4087, 0.7258, 43.66; for III, 164.4-4.6° (764 mm.), 1.4152, 0.7377, 48.32; for IV, 155-5.3° (764 mm.), 1.4137, 0.7360, 48.28; for V, 134.8-5.0° (760 mm.), 1.4070, 0.7199, 43.86; for VI, 176-6.5° (765 mm.), 1.4204, 0.7486, 52.88. The wave nos. and intensities of the Raman lines in the interval 290-3200 cm.$^{-1}$ are tabulated for I-VI. The spectrographic data are compared with the predictions of Stepanov (*C.A.* 41, 2334f); the latter are in the main fulfilled in the doubly branched compds. I, II, and III. However, the Raman spectra of I, II, and III contain some lines which in the theory of S. are characteristic of quaternary C atoms, as well as singly branched chains, while those of V and VI contain some lines proper to doubly branched chains and some lines proper to quaternary C. Predictions of S. with regard to CH_3 groups are not always fulfilled.

J. W. Lawsberg, Jr.

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

Levina, R. Ya.

1566. New method of synthesis of spiro-(4,4)-nonadiene-(1,3)- and spiro-(4,4)-nonane. R. Ya. Levina and T. I. Tsukerman. Doklady Akad. Nauk S.S.S.R., 1953, 89, 897-9.—cyclopentadiene added to soln of Na in liq NH_3 at −70° C. followed by 1,4-dibromobutane, yielded 21-22% (on dibromobutane) of spiro-(4,4)-nonadiene-(1,3) (b.p. 105.2° C., n_D^{20} 1·4700, d_4^{20} 0·8849, adduct with maleic anhydride m.p. 96° C) which hydrogenated (80% yield) to spiro-(4,4)-nonane. V. B.

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APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

LEVINA, R. Ya.

(1)

Synthesis of hydrocarbons. New reaction of tetrahydrophthalic anhydrides (products of diene synthesis) with phosphorus pentoxide. R. Ya. Levina, V. R. Skvarchenko, V. N. Kostin and N. S. Kataeva. *Doklady Akad. Nauk S.S.S.R.* 91, 95-8(1953).—Tetrahydrophthalic anhydrides heated with P_2O_5 split off 2 moles CO and H_2O, forming aromatic hydrocarbons. Thus, 29 g. 3,6-dimethyltetrahydrophthalic anhydride (I) treated in the molten state with 23 g. P_2O_5 and heated carefully to 110-20° reacted vigorously with heat evolution and distn. of the product (completed by heating to 230°); washing and distn. gave 80% *p*-xylene, identified by oxidation to *p*-$C_6H_4(CO_2H)_2$. Similarly the 3,5-di-*Me isomer* of I gave 60% pure *m*-xylene, and the 4,5-isomer (II) gave 40% pure *o*-xylene. Heating II with 10% KOH, evapn., and acidification gave *4,5-dimethyltetrahydrophthalic acid* (III), decomp. 135°, which heated similarly with P_2O_5 gave 80% *o*-xylene. II treated with dry HCl in abs. EtOH gave 72% *di-Et ester* of III, b_1 153°, n^{20}_D 1.4670, d_{20} 1.0450, which heated with P_2O_5 similarly gave 31% *o*-xylene, with CO and C_2H_4. O. M. Kosolapoff

1. AKADEMIYA NAUK SSSR (FOR NESMEYANOV).
(PHTHALIC ANHYDRIDES) (PHOSPHORUS PENTOXIDE)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

The Committee on Stalin Prizes (of the Council of Ministers USSR) in the fields of science and inventions announces that the following scientific works, popular scientific books, and textbooks have been submitted for competition for Stalin Prizes for the years 1952 and 1953 (Sovetskaya Kultura, Moscow, No. 22-40, 20 Feb - 3 Apr 1954)

Name	Title of Work	Nominated by

SO: W-30604, 7 July 1954

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

LEVINA, R. Ya.

ZELINSKIY, N.D., akademik; KOCHESHKOV, K.A., redaktor; KAVERZNEVA, Ye.D., dokter khimicheskikh nauk, redaktor; LEVINA, R.Ya., redaktor; YUR'YEV, Yu.K., redaktor.

[Collected works] Sobranie trudov. Moskva, Izd-vo Akademii nauk SSSR. Vol. 1. 1954. 514 p. (MLRA 7:8)

1. Chlen-korrespondent AN SSSR (for Kocheshkov)
(Chemistry--Collected works)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

LEVINA, R. YA.

USSR/Chemistry

FD-1246

Card 1/1 : Pub. 129-8/25

Author : Levina, R. Ya; Shabarov, Yu. S.; Skvarchenko, V. R.

Title : Hydrocarbon synthesis XLIV. Formation of alkanes resulting from the reaction of magnesium-organic compounds with un-saturated 1, 4-dichlorides.

Periodical : Vest. Mosk. un., Ser. fizikomat. i yest. nauk, 9, No 1, 63-67, Feb 1954

Abstract : Established that the formation of paraffin hydrocarbons from the reaction of a Grignard Reagent with ethylenic and with acetylenic 1, 4-dichlorides is similar. The yield is dependent on the structure of the radical in the Grignard Reagent, the normal type giving a greater yield than those of the iso structure. One table; equations, thirteen references, four foreign.

Institution : Chair of Organic Chemistry

Submitted : July 7, 1953

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

LEVINA, R. Ya.

Contact isomerization of unsaturated hydrocarbons. XX Isomerization of 1-octyne over chromium oxide on aluminum oxide. R. Ya. Levina, E. A. Viktorova, and P. A. Akishin. *Vestnik Moskov. Univ.* 9, No. 12, *Ser. Fiz.-Mat. i Estestven. Nauk* No. 8, 71-4(1954); cf. *C.A.* 47, 2121*i*; 49, 4540*i*.—A single pass of 1-octyne over Cr oxide on Al_2O_3 at 250° results in complete isomerization, yielding 30% 2-octyne and 60-70% 2,4-octadiene, with possible inclusion of a little 1,3-octadiene. The products were identified by means of the Raman spectra. Passage of 2-octyne over the catalyst yields mainly 2,4-octadiene. G. M. Kosolapoff

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APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

LEVINA, R. Ya.

USSR/ Chemistry Synthesis methods

Card : 1/1 Pub. 151 - 30/35

Authors : Levina, R. Ya., and Godovikov, N. N.

Title : Barbituric acids. Part 1.- Synthesis of methylene-bis-5-alkylbarbituric acids

Periodical : Zhur. ob. khim. 24, Ed. 7, 1242 - 1248, July 1954

Abstract : A series of hitherto unknown methylene-bis-5-alkylbarbituric acids were synthesized by the reaction of urea with methylene-bis-alkylmalonic esters and the chemical formulas of the derived acids are presented. The results of alkylation of methylene-bis-malonic ester in the presence of sodium ethylate and alkyl halides, are tabulated. Eight German, 5 USA, 3 USSR and 1 Swiss references. Tables.

Institution : State University, Moscow

Submitted : February 8, 1954

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

USSR/ Chemistry Synthesis methods

Card : 1/1 Pub. 151 - 27/33

Authors : Levina, R. Ya., Shusherina, N. P., and Lurye, M. Yu.

Title : Cyanethylated ketones in the synthesis of unsaturated delta-lactones Part 2.- Synthesis and properties of unsaturated delta lactones obtained from gamma-acetylvaleronitrile

Periodical : Zhur. ob. khim. 24/8, 1439 - 1444, August 1954

Abstract : A new method for the synthesis of unsaturated delta-lactones, by using cyanethylated ketones in the role of basic substances, is described. The position of the double bond in the synthesized lactones was determined by means of the bromination reaction. Some new derivatives of gamma-acetylvaleric acid and their chemical properties, are listed. Nine references: 4 USA; 4 USSR and 1 French (1902 - 1953).

Institution : State University, Moscow

Submitted : February 16, 1954

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

LEVINA, R. YA.

USSR/Chemistry - Synthesis

Card 1/1 : Pub. 151 - 13/42

Authors : Levina, R. Ya.; Shusherina, N. P.; Dyay Gir, Kim.; and Treshchova, E. G.

Title : Synthesis of hydrocarbons Part 45.- Synthesis of cyclohexene and cyclohexane hydrocarbons with quaternary carbon atom on a 1,3-dimethyl-cyclohexadiene-1,3 base

Periodical : Zhur. ob. khim. 24/9, 1551-1557, Sep 1954

Abstract : The development of a new method of synthesizing cyclohexene hydrocarbons with two alkyl groups and one carbon atom - 1,3-dimethyl-1-alkyl-cyclohexene-2 (alkyl - CH_3, C_2H_5, C_3H_7), is announced. The new method consists of three stages, which are explained. The structure of the synthesized cyclohexene hydrocarbons was established by their physical properties, by the combined light diffusion spectra of one of the hydrocarbons and by their stability in conditions of irreversible catalysis. The latter factor confirms the presence of a quaternary carbon atom in the cycle. Eight references: 4-USSR; 1-USA; 2-German and 1-French (1894-1952). Tables.

Institution : State University, Moscow

Submitted : March 26, 1954

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

LEVINA, R. YA.

USSR/Chemistry

Card 1/1 : Pub. 151 - 18/42

Authors : Levina, R. Ya., and Godovikov, N. N.

Title : Barbituric acids. Part 2.- Synthesis of methylene-bis-5-alkenyl barbituric acids

Periodical : Zhur. ob. khim. 24/9, 1572-1575, Sep 1954

Abstract : The reaction between methylene-bis-sodiomalonic ester with primary unsaturated chlorides - allyl chloride and methallyl chloride -, was investigated. The synthesis of hitherto unknown methylene-bis-5-allylbarbituric acid, methylene-bis-5-methallylbarbituric acid and 5-secondary-pentenylbarbituric acid, is described. The behavior of alkenyl allyl halides in this reaction was found to be similar to that of alkyl halides. The secondary reaction, namely, the splitting of the intermediate product, which takes place during allylation or alkylation of the methylene-bis-malonic ester is analyzed. Six references: 1-USSR; 3-German and 2-USA (1882-1954). Table.

Institution : State University, Moscow

Submitted : March 26, 1954

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

LEVINA, R. Ya.

USSR/Chemistry - Reagents

Card 1/1 : Pub. 22 - 22/44

Authors : Levina, R. Ya., and Kostin, R. R.

Title : Reaction of cyclopropane hydrocarbons with mercuric salts

Periodical : Dok. AN SSSR 97/6, 1027-1030, Aug 21, 1954

Abstract : The derivation of mercuri-organic compounds from 1,1,2-trimethylcyclopropane during the reaction of the latter with mercuric acetate, is described. The splitting of the three-membered cycle, which takes place between the alkylated and non-alkylated carbon atoms, is explained. The mercuri-organic compounds, described for the first time in this report, were found to be gamma-mercurated alcohols and their ethers of crystalline structure and high-melting point. Nine references: 6-USSR; 2-USA and 1-German (1911-1953). Table.

Institution : The M. V. Lomonosov State University, Moscow

Presented by: Academician A. N. Nesmeyanov, April 14, 1954.

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

USSR/Chemistry - Synthesis

Card 1/1 Pub. 22 - 32/56

Authors : Skvarchenko, V. R.; Levina, R. YA.; and Okhlobistin, O. Yu.

Title : Synthesis of hydrocarbons. New method of synthesizing symm.octahydrophenanthere (octanehtrene), 4,5-cyclopentanoindan and their homologues.

Periodical : Dok. AN SSSR 99/5, 789-792, Dec 11, 1954

Abstract : The reaction of splitting tetrahydropthalic anhydrides under the effect P_2O_5 was used in the drivation of tricyclic condensed hydrocarbons: symm. octahydrophenanthere (octanethrene), 4,5-cyclopentanoindan and their homologues. The basic diene hydrocarbons were found to be 1,1'-dicyclohexenyl and 1,1'-dicyclopentenyl, the first of which conbined with maleic anhydride yielded 1,2,3,4,5,6,7,8-octahydrophenanthrene. Other hydrocarbons derived from 1,1'-dicyclopentenyl mixed with maleic, citraconic and pyrocinchonine anhydrides, are listed. Twelve references: 4-USA;4-USSR and 4-German (1873-1953).

Institution : The M. V. Lomonosov State University, Moscow

Presented by: Academician A. N. Nesmeyanov, July 16, 1954

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

LEVINA, R. YA.

ZELINSKIY, Nikolay Dmitriyevich, 1861-1953 [deceased] KAZANSKIY, B.A., akademik; BALANDIN, A.A., akademik; KOCHESHKOV, K.A.; SHUYKIN, N.I.; KAVERZNEVA, Ye.D, doktor khimicheskikh nauk; LEVINA, R.Ya., doktor khimicheskikh nauk; PLATE, A.F., doktor khimicheskikh nauk; RUBINSHTEYN, A.M., doktor khimicheskikh nauk; YUR'YEV, Yu.K., doktor khimicheskikh nauk; KISELEVA, A.A., tekhnicheskiy redaktor.

[Collected works] Sobranie trudov, Moskva, Izd-vo Akademii nauk SSSR. Vol. 2. 1955. 743 p. (MLRA 8:11)

1. Chlen-korrespondent AN SSSR(for Kocheshkov and Shuykin) (Hydrocarbons) (Petroleum)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

LEVINA, R. Ya.

ZELINSKIY, N.D.; KAZANSKIY, B.A., akademik; BALANDIN, A.A., akademik; KOCHESHKOV, K.A.; SHUYKIN, N.I.: KAVERZNEVA, Ye.D., doktor khimicheskikh nauk; LEVINA, R.Ya., doktor; khimicheskikh nauk; PLATE, A.F.; doktor khimicheskikh nauk; RUBINSHTEYN, A.M. doktor khimicheskikh nauk; YUR'YEV, Yu.K., doktor khimicheskikh nauk.

[Collected works] Sobranie trudov. Moskva, Izd-vo Akad.nauk SSSR. Vol. 3 1955 719 p. (MIRA 8:8)

1. Chlen-korrespondenty AN SSSR (for Kocheshkov, Shuykin).

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

Levina, R. Ya.

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

LEVINA, R. YA.

8

Chem 3

Synthesis of hydrocarbons. LII. Pyrolysis of diacetates of saturated 1,4-diols. R. Ya. Levina, Yu. S. Shabarov, and G. B. Gasieva. Vestnik Moskov. Univ. 10, No. 12, Ser. Fiz. Mat. i Estestven. Nauk No. 8, 95-101(1955); cf. C.A. 50, 7732i.—The following diacetates were pyrolyzed in a quartz tube filled with glass wool at 490-515°. 2,5-Hexanediol diacetate gave 28.5% C_6H_6. 2,5-Dimethyl-2,5-hexanediol diacetate gave 10% MePh and some *p*-xylene. Diallyl gave a very little conversion to some low-boiling materials. Dipropenyl gave a similar result. Cyclohexanol acetate gave cyclohexene. Pyrolysis of mixed cyclohexene and AcOH gave unchanged cyclohexene. Cyclohexadiene gave 40% C_6H_6. Numerous unidentified by-products formed in the above examples, along with gas.

O. M. Kosolapoff

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APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

KAZANSKIY, B.A.; LEVINA, R.Ya.; YUR'YEV, Yu.K.

The chemistry of hydrocarbons and heterocyclic compounds in the works of N.D.Zelinskii and his school. Vest. Mosk. un. 10 no.45:145-167 Ap-My '55. (MLRA 8:8)

(Hydrocarbons) (Zelinskii, Nikolai Dmitrievich, 1861-1953)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

LEVINA, R.Ya., doktor khimicheskikh nauk

Hydrocarbons. Nauka i zhizn' 22 no.9:11-14 S '55. (MLRA 8:12)

1. Professor Moskovskogo gosudarstvennogo universiteta imeni M.V. Lomonosova

(Hydrocarbons)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

LEVINA, R. Ya.

Subject : USSR/Chemistry AID P - 1568

Card 1/1 Pub. 119 - 3/5

Author : R. Ya. Levina and N. P. Shusherina (Moscow)

Title : Methods for the synthesis of paraffins (alkanes)

Periodical : Usp. khim., 24, no.2, 181-219, 1955

Abstract : Methods for production of alkanes by: catalytic hydrogenation and hydropolymerization of unsaturated hydrocarbons; preparation of alkanes from halides, alcohols, aldehydes, ketones, and acids, and by alkylation of organic magnesium compounds with alkyl halides are reviewed. 315 references: (127 ref.1867-1953)

Institution: None

Submitted : No date

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

LEVINA Ya. R.,
R.Ya

CH

Synthesis of hydrocarbons. XLVII. Synthesis of cyclohexene and cyclohexane hydrocarbons with a quaternary carbon atom from 1,3,5-trimethyl-1,3-cyclohexadiene. R. Ya. Levina, Kim Dyal Giz, and N. P. Shusherina (Moscow State Univ.). *Zhur. Obshchei Khim.* 25, 765–72. *J. Gen. Chem. U.S.S.R.* 25, 735–8(1955)(Engl. translation); cf. *C.A.* 48, 4423*a*; 49, 11571*f*.—1,5-Dimethyl-1-cyclohexen-3-one (b_{15} 73°, n^{20}_D 1.4848, d_{20} 0.9362) treated with MeMgI (cf. above refs. for technique) gave 77% hydrocarbon, b_{760} 145–50°. Fractionation gave *1,3,5-trimethyl-1,3-cyclohexadiene*, b_{760} 146–7°, n^{20}_D 1.4740, d_{20} 0.8279. This with ice cooling was treated with dry HBr, 1 mole of which was taken up. The bromide thus formed was directly allowed to react with RMgX, yielding resp.: *1,3,5-trimethyl-1-ethyl-2-cyclohexene*, b_{760} 175°, n^{20}_D 1.4525, d_{20} 0.8099, and *1,3,5-trimethyl-1-propyl-2-cyclohexene*, b_{760} 192°, n^{20}_D 1.4563, d_{20} 0.8139. In both cases 17–18% *1,3,5-trimethyl-2-cyclohexene*, b_{760} 140–2°, n^{20}_D 1.4422, d_{20} 0.7955, was also isolated. Hydrogenation over Pt-C at 160–70° gave the 2 *stereoisomers of: 1,3,5-trimethyl-1-ethylcyclohexane*, b_{760} 176.5–6.7°, n^{20}_D 1.4410, d_{20} 0.7968, and b_{760} 178.5–9°, n^{20}_D 1.4442, d_{20} 0.8038, and *1,3,5-trimethyl-1-propylcyclohexane*, b_{760} 194.7–5°, n^{20}_D 1.4441, d_{20} 0.7904, and b_{760} 198.5–8.7°, n^{20}_D 1.4472, d_{20} 0.8087.

G. M. Kosolapoff

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LEVINA, R.Ya.; KIM CHAN-GIL; SHUSHERINA, N.P.

Synthesis of hydrocarbons. Part 47. Synthesis of cyclohexene and cyclohexane hydrocarbons with a quaternary carbon atom, based on 1,3,5-trimethylcyclohexadiene-1,3. Zhur.ob.khim. 25 no.4:768-772 Ap '55. (MIRA 8:7)

1. Moskovskiy Gosudarstvennyy universitet.
(Cyclohexane) (Cyclohexene) (Cyclohexadiene)

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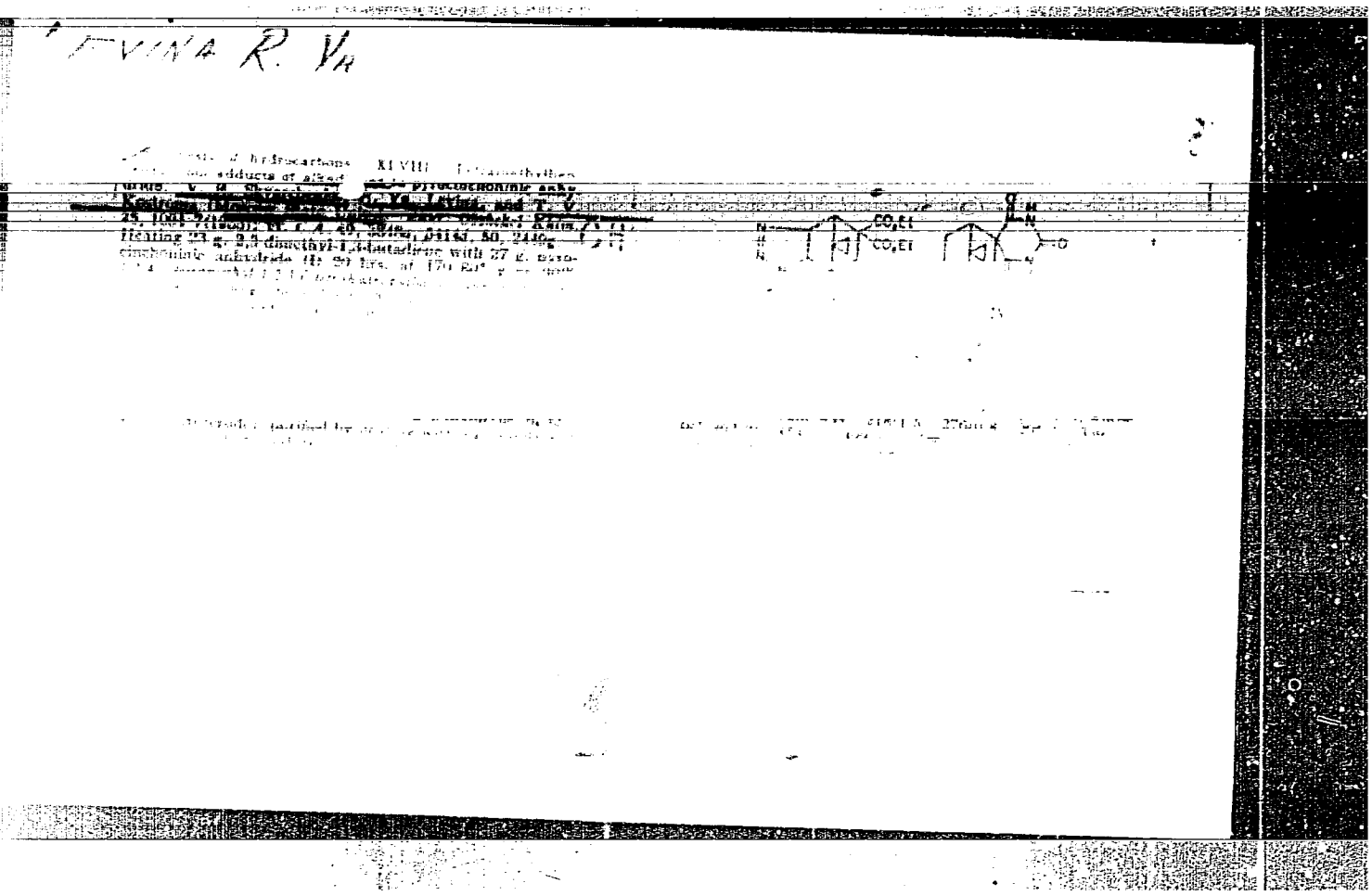

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LEVINA, R.Ya.; MEZENTSOVA, N.N.; LEBEDEV, O.V.

Synthesis of hydrocarbons. Part 49. Spiro-(2,4)-heptadiene-1,3 and spiro-(2,4)-heptane. Zhur.ob.khim.25 no.6:1097-1100 Je'55. (MLRA 8:12)

1. Moskovskiy Gosudarstvennyy universitet
(Heptadiene) (Heptane) (Spiro compounds)

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LEVINA, R.Ya.; SKVARCHENKO, V.R.; OKHLOBYSTIN, O.Yu.

Synthesis of hydrocarbons. Part 50. Synthesis of 1,1'-dicyclopentenyl. Zhur. ob. khim. 25 no.8:1466-1469 Ag '55.(MLRA 9:2)

1.Moskovskiy gosudarstvennyy universitet.
(Cyclopentenyl)

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Barbituric acids ... of carbobarbituric acids

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Barbituric acids. IV. Synthesis of *spiro*barbituric acid. R. Ya. Levina, N. N. Godovikov and F. K. Valichko (*ZA. obshch. Khim.*, 1955, 25, 2522--2527).—In an earlier investigation methylenemalonic ethers were reacted with *cyclo*pentadiene and *cyclo*hexadiene. Saturated and unsaturated *spiro*barbituric acids were obtained, containing *endo*methylenic or *endo*ethylenic bridges in carbocyclic radicals. Further study was made of reactions between methylenemalonic ethers and diene hydrocarbons with open chains of carbon atoms, e.g., penta-1 : 3-diene, isoprene and 2 : 4-dimethylpenta-1 : 3-diene. In the usual conditions of diene synthesis, the following were obtained: 1 : 1-dicarbethoxy-2-methyl-, 1 : 1-dicarbethoxy-4-methyl- and 1 : 1-dicarbethoxy-2 : 2 : 4-trimethyl-*cyclo*hex-3-ene, in yields of 25, 27 and 24%, respectively, showing that in all conditions of diene synthesis methylenemalonic ethers behave as dienophiles. With alkadienes of different configuration, under the same conditions, adducts are formed of similar characteristics but in low yields. Esters of *cyclo*hexene- and *cyclo*hexane-1 : 1-dicarboxylic acids behave in the manner of disubstituted malonic esters and are transformed by urea in the presence of NaOEt into barbituric acids of *spiro*-form. It was noted that strong dienophiles like malonic anhydrides react with penta-1 : 3-diene with less ease than with isoprene and not at all with 2 : 4-dimethylpenta-1 : 3-diene, indicating that methylmalonic ethers are stronger dienophiles than malonic anhydrides. A. L. B.

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LEVINA, R.Ya.; MEZENTSOVA, N.N.; TRESHCHOVA, Ye.G.

Synthesis of hydrocarbons; synthesis of hem-dimethylcyclopentane from cyclopentadiene. Dokl.AN SSSR 104 no.4:549-551 O '55. (MLRA 9:2)

1.Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova. Predstavlene akademikom A.N.Nesmeyanovym.
(Cyclopentane)

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

Synthesis of hydrocarbons. LVIII *gem*-Dialkylcyclopentanes. I. R. Ya. Levina and N. N. Mezentsova. *Vestnik Moskov. Univ., Ser. Mat., Mekh., Astron. Fiz. i Khim.* 11, No. 1, 265-7(1956); cf. *C.A.* 82, 6270k, 61416. *gem*-Dialkylcyclopentanes are prepd. by the action of $CH_3:CHCH_2MgBr$ on 1-chloro-1-alkylcyclopentanes in the presence of $HgCl_2$ (Khromov, *et al.*, *C.A.* 48, 9930g). 1-Ethylcyclopentanol (114 g.) was treated at 0° with 800 ml. concd. HCl, the layers sepd., and the 1-chloro-1-ethylcyclopentane (I) washed with soda, dried with $CaCl_2$, and vacuum distilled, 60% yield, b_{10} 53°, n_D^{20} 1.4525, d_{20} 0.9548. An ether soln. of 132 g. I was slowly added to an ether soln. of 24 g. Mg, 109 g. EtBr, and 4 g. $HgCl_2$, refluxed 10 hrs., the ether distd., the residue refluxed 8 hrs. with dry toluene at 110°, decompd. with H_2O and HOAc, the toluene boiled off, and the residue refluxed 2 hrs. with Na metal and distilled yielding 20% 1,1-diethylcyclopentane, b_{10} 149°, n_D^{20} 1.4388, d_{20} 0.8015, MR_D 41.40 (calcd. 41.56). The Raman spectrum shows lines at 374(3), 406(0.8), 470(1.3), 556(1), 603(0.6), 699(7), 769(0.2), 833(0.8), 883(2), 907(6), 931(1), 970(1.5), 996(1.5), 1022(2), 1040(2.5), 1080(1.5), 1094(6)(0.8), 1220(0.5), 1270(3), 1296(2), 1323(1), 1354(1.5), 1380(2.5), and 1440-1462(10) cm^{-1}. 1,1-Di-*n*-propylcyclopentane was prepared similarly from 140 g. 1-*n*-propylcyclopentanol by way of 1-chloro-1-*n*-propylcyclopentane (57%, b_{10} 78-80, n_D^{20} 1.4570) and *n*-$PrMgBr$ (3 g. $HgCl_2$ in 12% yield, b_{10} 167-187°, n_D^{20} 1.4480, d_{20} 0.8128, MR_D 50.80 (calcd. 50.79). [illegible]

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LEVINA, R.Ya.; YUR'YEV, Yu.K.

Academician S.S. Nametkin's studies in the field of chemistry of alicyclic hydrocarbons and their derivatives; on the occasion of the 80th anniversary of his birth. Vest. Mosk. un. Ser. mat. mekh., astron., fiz., khim. 11 no.2:121-133 '56. (MIRA 10:12)

1. Kafedra organicheskoy khimii Moskovskogo gosudarstvennogo universiteta.

(Nametkin, Sergei Semenovich, 1876-)
(Alicyclic compounds)

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

Synthesis of hydrocarbons [illegible] of saturated 1,4-diols. [illegible] Vestnik Moskov. [illegible] 11, No. [illegible] Nauk No. [illegible] of 2,5-hexanediol [illegible] 0.45 mole diol [illegible] ether and stirred [illegible] was added and the [illegible] after standing overnight, [illegible] dried over $CaCl_2$ [illegible] and vacuum dist[illegible] 2,5-hexanediol (I) diacetate was [illegible] adding 7.5 g Ac_2O and 0.5 g H_3PO_4 [illegible] in ether, heating 1 hr at 90° and keeping [illegible] ing the ether [illegible] diacetate [illegible] (III) [illegible]

Thus, 1 g. 10% H_3PO_4 [illegible] in 0.15 mole Ac_2O, stirred 3 hrs. below 25°, neutralized with 2N NaOH, extd. with ether, and the [illegible] dried [illegible] and vacuum dist[illegible] II diacetate in cold alc. contg. Pt [illegible] (V) diacetate [illegible]

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R. Ya. Levina, V.R. [illegible]

R. Ya. Levina, Kim. [illegible]
Ibid. [illegible]
1,3-dimethyl[illegible]
dibromo[illegible]
EtOH to [illegible] g. Zn dust [illegible] after completion of
the reaction by 2 hrs. on a [illegible]
were fractionated yielding [illegible]
the following were isolated [illegible]
bicyclohexane [illegible]
spectrum cm [illegible]
(2), 621(0.5), 677(15) [illegible]
978(0.5) [illegible]
1200(1), 1304 [illegible]
1,3-dimethylcyclohexane, contaminated with [illegible]
cyclohexene or 1-methyl-3-[illegible]
dimethyl[illegible]
1,3-diene [illegible]
trimethylcyclohexane [illegible]
(Raman spectrum [illegible]
504(4.6), 547(0.5) [illegible]
(0.5), 833(1.8) [illegible]
1050(1), 1093(7), 1183(2), 1196(2) [illegible]
1322(0.7), 1382(1), 1440 [illegible]
trimethyl-1,3-cyclohexadiene [illegible]
which treated with Zn dust [illegible]
methyl(0,1,3)-cyclohexane [illegible]
0.7004 (Raman spectrum cm [illegible]
(1.2), 417(1.5) [illegible]
693(12), 808 (2), 843(1), 890(5) [illegible]
1037(1), 1056(0), 1083(1.8), [illegible]
1183 (3)(2), 1227(6), 1277(7) [illegible]
(10); numerous other [illegible]

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LEVINA, R.YA.

E-2

USSR/Organic Chemistry - Synthetic Organic Chemistry

Abs Jour : Referat Zhur - Khimiya, No 2, 1957, 4358

Author : Shusherina, N.P., Levina, R.Ya., Lur'ye, M.Yu.

Title : Cyanoethylated Ketones in the Synthesis of Unsaturated Delta-Lactones. V. Synthesis and Properties of Unsaturated Delta-Lactones from Monocyanoethylated Acetone and Cyclohexanone.

Orig Pub : Zh. obshch. khimii, 1956, 26, No 3, 750-755.

Abstract : By hydrolysis of monocyanoethylated cyclohexanone (I) and acetoacetic ester (II) (in the latter case there takes place concurrently with hydrolysis a decarboxylation) were prepared cyclohexanone-2-beta-propionic (III) and gamma-acetylbutyric (IV) acids, lactonization of which results, respectively, in delta^{9,10}-hexahydrocoumarine (V) and 6-methyl-3,4-dihydro-alpha-pyrone (VI). Structure of I and VI is established by their conversion, respectively, to III and IV (hydrolysis), their esters

Card 1/4

USSR/Organic Chemistry - Synthetic Organic Chemistry

E-2

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011

Abs Jour : Referat Zhur - Khimiya, No 2, 1957, 4358

(alcoholysis and amides (ammonolysis). On hydrogenation of V and VI over PtO_2 ($\sim$ 20°) were obtained beta-cyclohexylpropionic (VII) and caproic (VIII) acids. To 5 mole cyclohexanone and 2 ml 40% solution of NaOH in CH_3OH is added, with stirring, at a temperature < 40°, 1 mole acrylonitrile (IX); obtained I, yield 47%, BP 146-147°/6 mm, $n^{20}D$ 1.4697, d_4^{20} 1.0215. Mixture of 24.5 g I, 40 ml concentrated HCl and 20 ml water boiled 2 hours, III extracted with ether, yield 85.5%, BP 180-181°/10 mm, MP 60-61° (from benzene); semicarbazide, MP 184° (decomposes; from aqueous alcohol). Mixture of 10 g III and 18 g $(CH_3CO)_2O$ heated 4 hours; obtained V, yield 83%, BP 117-118°/5 mm, $n^{20}D$ 1.5050, d_4^{20} 1.1166. On heating with 10% solution of NaOH (0.5 hours) V is quantitatively converted to III. Solution of 5 g V in 50 ml absolute alcohol saturated with gaseous HCl, poured into water, extracted with ether; obtained ethyl ester of III, BP 134-135°/7 mm,

Card 2/4

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

LEVINA, R.Ya.; KIM CHAE-GIL.; TRESHCHOVA, Ye.G.

Synthesis of hydrocarbons. Part 54. Conversion of hydrocarbons of the cyclohexadiene series into bicyclic hydrocarbons containing a three-membered ring ; (0,1,3)-bicyclohexanes. Zhur.ob.khim. 26 no.3:920-926 Mr '56. (MLRA 9:8)

1. Moskovskiy gosudarstvennyy universitet.
(Bicyclohexane) (Cyclohexadiene)

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

Synthesis of hydrocarbons. LIV. Transformation of hydrocarbons of cyclohexadiene series into bicyclic hydrocarbons containing a three member ring. [illegible] bicyclohexanes. R. Ya. Levina, [illegible] 20 [illegible] (see [illegible] 50, 145[illegible]

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610011-2

Synthesis of hydrocarbons. LVII Partial reduction of diene hydrocarbons with a conjugated system of double bonds by means of sodium in liquid ammonia. R. Ya. Levina, V. R. Skvarchenko, M. G. Kuzhin, and F. G. Treshchova. *J. Gen. Chem. U.S.S.R.* 26, 2453-7(1956) (English translation).—See *C.A.* 51, 4927b. B. M. R.

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