

BARBARINA, T.M.; BUBYR', N.F.; BUTT, L.M.; VEL'SOVSKIY, V.N.;  
GORLOV, Yu.P.; GRIBANOVSKIY, V.G.; DROZDOV, I.Ya.;  
YEREMIN, I.A.; ZEZIN, V.G.; KEVESH, P.D.; KOCHAROV, E.P.;  
KOSYREVA, Z.S.; LEVIN, S.N.; MAKHOVICH, A.T.; MERZLYAK,  
A.N.; RODOV, E.S.; ROZHOV, A.I.; SEREBRYANSKAYA, B.I.;  
SUKHAREV, M.F.; USTENKO, A.A.; KHOMENKO, Z.S.; SHMIDT,  
L.M.; ETIN, A.O.; YAKHONTOVA, N.Ye.; KITAYTSEV, Vladimir  
Andreyevich, prof., doktor tekhn. nauk, red.; SKRAMTAYEV,  
B.G., glav. red.; TROKHIMOVSKAYA, I.P., zam. glav. red.;  
KRAVCHENKO, I.V., red.; KITAYGORODSKIY, I.I., red.;  
KRZHEMINSKIY, S.A., red.; ROKHVARGER, Ye.L., red.; BALAT'YEV, P.K.  
red.

[Manual on the manufacture of heat insulating and acous-  
tical materials] Spravochnik po proizvodstvu teploizo-  
liatsionnykh i akusticheskikh materialov. Moskva, Stroi-  
izdat, 1964. 524 p. (MIRA 18:1)

KHOMENKO, Z. S.

USSR/Chemistry - Hydrocarbons  
Chemistry - Catalysis

Feb 49

"Irreversible Catalysis and Catalytic Dehydro-genation of Hydrocarbons on Activated Carbon, G. A. Rudakov, N. P. Borisova, O. A. Yemel'yanova, I. G. Yeroshevskiy, N. F. Komshilov, A. N. Makarova, N. M. Merlis, Z. S. Khomenko. *Gen Sci Res Inst of Wook-Pulp Chem*, 18 $\frac{1}{2}$  pp

"*Zhur Priklad Khim*" Vol XXII, No 2

Investigation carried out on pure terpenes and a naphthene hydrocarbon, n-methane, showed that activated carbon brings about irreversible catalysis and dehydrogenation of hydrocarbons. This confirmed conclusions made long ago by Russian scientists working on pyrolysis of petroleum. Describes reactions in detail. Submitted 13 Mar 48.

PA 48/49T19

*KHOMENKO, Z. S.*

USSR/Chemistry - Catalysts

Card 1/1 Pub. 151 - 29/38

Authors : Rudakov, G. A., and Khomenko, Z. S.

Title : The nature of catalysts used for isomerization and polymerization of hydrocarbons. Part 1.- Cause for catalytic activity of titanic acid

Periodical : Zhur. ob. khim. 24/2, 337-343, Feb 1954

Abstract : The catalytic activity of titanic acid in the isomerization of pinene was compared with that of aluminum silicate catalysts. The activity of the titanic catalyst was found to be due mainly to its acid properties. The derivation of active titanic acid through electro-dialysis with sodium salt proves that the activity of the Ti-catalyst is caused mostly by the characteristics of the titanic acid and not by the presence of adsorbed acids or basic salts. The high catalytic activity and plainly expressed acidity make titanic acid closely related to aluminum silicates and not to its closest analogues - silicic acid and aqueous  $Al_2O_3$ . Fourteen references: 12-USSR; 1-USA and 1-English (1891-1953). Tables; graphs.

Institution : Central Scientific Research Forest-Chemical Institute

Submitted : July 6, 1953

*Khomenko, Z. S.*

USSR/ Chemistry - Catalytic isomerization

Card 1/1 : Pub. 151 - 31/37

Authors : Rudakov, G. A.; Khomenko, Z. S.; and Shestayeva, M. M.

Title : Mechanism of heterogeneous catalytic hydrocarbon isomerization over acid catalysts. Part 1.-

Periodical : Zhur. ob. khim. 24/3, 549-557, Mar 1954

Abstract : The mechanism of reaction between pinene, camphene and limonene with catalysts resulting in their isomerization (titanic acid and activated lime) was investigated. It was observed that all three hydrocarbons tested isomerize rapidly and two of them racemize when heated with titanic acid. Camphene and limonene formed during catalytic isomerization of pinene over activated lime (125°) and over titanic acid (135-160°) will not react with above mentioned catalysts until the pinene concentration in the reaction mixture is reduced to 25-35%. It was found that the isomerization reaction takes place only on the surface of the catalyst and does not penetrate into the volume. Seventeen references: 9-USSR; 2-USA; 2-German and 4-English (1891-1953). Tables; graphs.

Institution : Central Scientific Research Forest Chemical Institute

Submitted : July 21, 1953

KHOMENKO, Z. S.

USSR/Chemistry      Synthesis methods

Card                : 1/1      Pub. 151 - 30/33

Authors            : Rudakov, G. A., Shestaeva, M. M., Marchevskiy, A. T., and Khomenko, Z. S.

Title                : Mechanism of heterogeneous catalytic isomerization of hydrocarbons over acid catalysts. Part 2.- Formation of terpinolene and terpinenes during catalytic isomerization of pinene and limonene over titanitic acid.

Periodical         : Zhur. ob. khim. 24/8, 1452 - 1457, August 1954

Abstract            : The ionic scheme of formation of terpinolenes and terpinenes, as result of catalytic isomerization of pinene and limonene over a titanitic acid catalyst, is explained. Direct conversion of pinene and limonene into alpha-terpinene, without the formation of terpinolene as an intermediate product, was established. The increase of the alpha-terpinene content in monocyclic terpenes, after reducing the pinene content in the solution and its effect on the formation of alpha-terpinenes from terpinolene, are explained. Ten references: 5 USSR; 3 USA; 1 German and 1 English (1899 - 1954). Table; graph.

Institution         : Central Scientific-Research Wood Pulp Chemical Institute

Submitted          : January 13, 1954

KHOMENKO, Z. S.

KHOMENKO, Z. S. -- "Perfecting the Industrial Technique of Isomerization of Pinene to Produce Camphene." Min Higher Education USSR. Sverdlovsk, 1955. (Dissertation for the Degree of Candidate in Technical Sciences).

So.; Knizhnaya Litopis', No. 7, 1956.

KHOMENKO, Z. S.

4

Continuous production of isoborneol acetate from cam-  
 phene. G. A. Rudskoy, Z. S. Khomenko, and T. P.  
 Arhina. *Gibrotin i Lesokhin*, *Primo*, 6, No. 2, 1958, 1-4. (1958).--C, F

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Isoborneol acetate (I) was made by the reaction of cam-  
 phene (II) and glacial AcOH (III) in the presence of cation  
 exchange resins bearing sulfonic groups (IV); 2% water was  
 permissible in III, and a higher diln. was prevented by the  
 addition of 100% AcOH. The type of IV was of the utmost  
 importance, and under the favorable conditions the yield  
 was 80%. Esterification of II with H<sub>2</sub>O, II under the same  
 conditions was sluggish owing to the greater amt. of water  
 in H<sub>2</sub>O, II.

MA

(D)

1. Tsentral'nyy nauchno-issledovatel'skiy lesokhimicheskiy in-  
 stitut (Leshokhin) (Gomphana)

Z. S. Khomenko

Dist: 4243  
Acetic and formic esters of isoborneol. G. A. Rudakov,  
Z. S. Khomenko, and T. H. Arhina. U.S.S.R. 102,445.  
Mar. 20, 1966. The esters are obtained by treating cam-  
phene with an excess of a highly concd org. acid in the  
presence of a catalyst insol. in the reacting substances. As  
catalyst can be used cation exchange resins or sulfonated  
coal. After the completion of the reaction the excess acid  
is driven off. Cf. C.A. 50, 4852f. M. Hirsch

FM

5



KHOMENKO, Z.S.; OTLIVANCHIK, A.N.; KORCHAGINA, I.A.; MAKAROVA, M.M.

Fibrous slabs made of straw. Stroi. mat. 7 no.7:14-15 J1  
'61. (MIRA 14:7)

(Straw) (Building materials)

KHOMENKO, Z.S., kand. tekhn. nauk; BUKHAREVA, B.V., inzh.;  
GURVICH, E.A., red.; BRUSINA, L.N., tekhn. red.

[Structural fiber slabs of reeds and straw] Stroitel'nye  
voloknistye plity iz kamysha i solomy. Moskva, Gosstroi-  
izdat, 1963. 51 p. (MIRA 17:2)

KHOMENKO, Z.S., kand. tekhn. nauk; PROTOPOV, Yu.V., inzh.; BYKHAREVA, B.V.,  
inzh.

Producing fiberboards resistant to micro-organisms. Sbor. trud.  
(MIRA 17:11)  
VNIINSM no.7:59-64 '63.

KHOMENKO, F.S., kand. tekhn. nauk; ORLOVA, G.A., inzh.; SELENINA, B.V.,  
Inzh.

Manufacturing fiberboards from resin and reeds. Sbor. inform.  
soob. VNIIBSM no.14:27-34 '62. (MIRA 18:3)

KHOMENKOV, L.

Track Athletics

Path to victory, Mol. kolkh, No. 3, 1952.

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

KHOMENKOVA, I.G., inzhener.

Using the method of statistical control for evaluating shoe quality.  
Standartizatsiia no.4:42-45 Je-Ag '57. (MLRA 10:9)  
(Shoe industry) (Sampling (Statistics))

KHOMENKOVA, I.G., inzh.; GORSHKOV, S.I., kand.biol. nauk.

Physiological considerations for manufacturing more flexible shoes.  
Nauch.-issl. trudy TSNIKP no.28:131-137 '57. (MIRA 11:10)  
(Boots and shoes)

KHOMENKOVA, K. K.

3

$\beta$ -Alkoxyethylbis( $\beta$ -chloroethyl)amines K. K. Khomenkova and K. A. Korotsev. *Ukrain Khim Zh* 22, 843

*el*

(1958)(in Russian).—(CICH<sub>2</sub>CH<sub>2</sub>)<sub>2</sub>N heated with ROH forms the following RO(CH<sub>2</sub>)<sub>2</sub>N(CH<sub>2</sub>CH<sub>2</sub>Cl)<sub>2</sub> (R and m.p. of HCl salt given): Et, 134°; iso-Pr, 153°; Bu, 128°; EtMeCHCH<sub>2</sub>, 122.5°; C<sub>6</sub>H<sub>11</sub>, 115°; C<sub>6</sub>H<sub>11</sub>CHMe, 118.5°; CH<sub>2</sub>:CHCH<sub>2</sub>, 121.5°; cyclohexyl, 150°; PhCH<sub>2</sub>, 112-13°; [PhCH<sub>2</sub>O(CH<sub>2</sub>)<sub>2</sub>N(CH<sub>2</sub>)<sub>2</sub>Cl, 77-8°. The compds. may be useful in the treatment of malignant neoplasms.

John Howe Scott

*JH*

1. Ukrainskiy nauchno-issledovatel'skiy sanitarno-khimicheskiy institut.



KORNEV, K.A.; KHOMENKOVA, K.K.

Synthesis of some chloroalkylamines of the pyrimidine series.  
Zhur.prikl.khim. 33 no.7:347-350 J1 '60.

(MIRA 13:7)

1. Ukrainskiy nauchno-issledovatel'skiy sanitarno-khimicheskiy  
institut.  
(Amines) (Pyrimidine)

ADROVA, N.A.; KHOMENKOVA, K.K.

Synthesis of some derivatives of p-vinylbenzoic acid. Zhur.ob.khim.  
32 no.7:2267-2268 JI '62. (MIRA 15:7)

1. Institut vysokomolekulyarnykh soyedineniy AN SSSR.  
(Benzoic acid)

ADROVA, N.A.; KHOMENKOVA, K.K.; DUBNOVA, A.M.

Synthesis of new derivatives of p-vinylbenzoic acid. Zhur.  
ob. khim. 34 no. 5:1545-1546 My '64. (MIRA 17:7)

1. Institut vysokomolekulyarnykh soyedineniy AN SSSR.

ACCESSION NR: AT4020708

S/0000/63/000/000/0195/0197

AUTHOR: Koton, M. M.; Adrova, N. A.; Khomenkova, K. K.

TITLE: Polymerization of some derivatives of p-vinylbenzoic acid

SOURCE: Karbotsepny\*rye vy\*sokomolekulyarny\*rye soyedineniya (Carbon-chain macromolecular compounds); sbornik statey. Moscow, Izd-vo AN SSSR, 1963, 195-197

TOPIC TAGS: polymerization, vinylbenzoic acid, vinylbenzoate, vinylbenzamide, polymer physical property, polyvinylbenzoate, dilatometry, azodiisobutyronitrile, butyl peroxide, block polymerization

ABSTRACT: Using a dilatometric method, the authors compared the block and liquid-phase polymerization rates of p-vinylbenzoic acid, its methyl and amyl esters, p-vinylbenzamide and its N-methyl, N,N-dimethyl and N-amyl derivatives, using 0.2 mol.% tert.-butyl peroxide or azodiisobutyronitrile as the initiators, respectively, at 120-180C. Some of the physical properties (thermal stability, solubility, weight loss during heating) of the polymers obtained were also studied. The polymerization rate of the derivatives of p-vinylbenzoic acid decreased in the following order: acid > amides > esters. It was found that the polymerized amides of p-vinylbenzoic acid have a higher softening point and a higher thermal stability than the corresponding polymerized esters. Orig. art. has: 1 figure

Card 1/2

ACCESSION NR: AT4020708

and 1 table.

ASSOCIATION: Institut vy\*sokomolekulyarny\*kh soyedineniy AN SSSR (Institute of Macromolecular Compounds, AN SSSR)

SUBMITTED: 18Jun62

DATE ACQ: 20Mar64

ENCL: 00'

SUB CODE: 0C

NO REF SOV: 002

OTHER: 004

Card 2/2

I. 19760-65 EPA(s)-2/EWT(m)/EPT(c)/EPR/ENP(j)/T Pc-L/Pr-L/Ps-L/Pt-10 RPL  
WW/RM/MLK

ACCESSION NR: AT4049864

S/0000/64/000/000/0257/0259

AUTHOR: Adrova, N. A., Koton, M. M., Khomenkova, K. K.

TITLE: Reaction of poly-p-vinylbenzoyl chloride with alcohols and amines

SOURCE: Khimicheskiye svoystva i modifikatsiya polimerov (Chemical properties and the modification of polymers); sbornik statey. Moscow, Izd-vo Nauka, 1964, 257-259

TOPIC TAGS: vinylbenzoic acid, polyvinylbenzoyl chloride, polyacyl chloride, esterification, amidation, polymer thermostability

ABSTRACT: Under reflux in tetrahydrofuran solution, poly-p-vinylbenzoyl chloride, prepared by polymerizing the monomer at 100C with 0.2 mol. % azodisobutyronitrile, gave polymeric methyl p-vinylbenzoate with dry methanol, and poly-N-n-nyl-p-vinylbenzamide<sup>7</sup> with n-nylamine. The thermal stability of the polyamide was improved by partial deamination. Yields from 1 g poly-p-vinylbenzoyl chloride and 5 ml n-nylamine or 10 ml methanol were 0.7 g of the benzamide or 0.8 g of the methyl ester, respectively. Triethylamine was added in both reactions to neutralize liberated HCl. Poly-N-n-nyl-p-vinylbenzamide was also prepared by a second route by polymerizing the monomer at 90C with azodisobutyronitrile in dimethylformamide solution, yielding after approximately 19% deamination by 2 hrs. of heating at 280-300C in argon under 8-10 mm Hg pressure, a

Card 1/2

L 19760-65

ACCESSION NR: AT4049864

yellow polymer with increased thermal stability. This polymer was insoluble in "ordinary" solvents, and its properties are ascribed to its crosslinked structure. Orig. art. has: 2 tables and 2 chemical equations. 2

ASSOCIATION: - Institutu vy\*sokomolekulyarny\*kh soyedineniy AN SSSR (Institute of High Polymers, AN SSSR)

SUBMITTED: 10Jun63

ENCL: 00

SUB CODE: OC

NO REF SOV: 003

OTHER: 003

Card

2/2

L 16173-66 EWT(m)/EWP(j)/T WW/RM

ACC NR: AF5025346

SOURCE CODE: UR/0366/65/001/010/1742/1743

AUTHOR: Chovnik, L. I.; Fazenko, Z. N.; Kornev, K. A.; Khomenkova, K. K.

63  
60  
8

ORG: Institute of Chemistry of High-Molecular-Weight Compounds, Academy of Sciences, Ukrainian SSR (Institut khimii vysokomolekulyarnykh soyedineniy Akademii nauk Ukrainskoy SSR)

TITLE: Synthesis of 5-alkyl-1,3-diallylisocyanurates

SOURCE: Zhurnal organicheskoy khimii, v. 1, no. 10, 1965, 1742-1743

TOPIC TAGS: copolymerization, copolymer, polymer, heat resistance, chemical reaction, heterocyclic base compound

ABSTRACT: The title compounds (I) are heavy liquids of a characteristic odor; they are of interest as potential grafting agents for the production of heat-resistant copolymers. The syntheses were carried out by the reaction of an alkyl bromide with a Na salt of a diallylisocyanurate in HCONMe<sub>2</sub>. E. g., 41.8 g diallylisocyanurate (see Franzier T.C., et al., J. Org. Ch. 25, 1944, 1960) was

2

Card 1/2

UDC: 547.491.3



L 16173-66

ACC NR: AP5025346 3

mixed with 130 ml water, 8 g NaOH were added, and the mixture was heated, filtered, and evaporated. The residue was dried at 90C to yield 45 g 1,3-diallylisocyanurate Na salt. This (56 g) was dissolved in  $\text{HCONMe}_2$  and the hot solution treated with 35 g  $\text{PrBr}$ . After 3-5 minutes of heating,  $\text{NaBr}$  was filtered off, and the filtrate evaporated under reduced pressure to give 56 g 5-propyl-1,3-diallylisocyanurate. Similarly were synthesized the following I (alkyl, % yield, b.p.C/mm,  $n_D^{20}$ ,  $d_4^{20}$  given): methyl, -, 124/2, 1.5145, 1.1956; ethyl, 94, 113/0.5, 1.5145, 1.1956; propyl, 90, 136/2, 1.5000, 1.1443; butyl, 72, 140/2, 1.4970, 1.1248; isobutyl, 67, 139/1 (m.p. 26), -, -; amyl, 82, 136/1 (m.p. 16), 1.4962, -, hexyl, 79, 156/2, 1.4940, 1.0909; heptyl, 89, 146/1, 1.4919, 1.0720; octyl, 96, 164/2, 1.4900, 1.0560; nonyl, 167/2, 1.4890, 1.0466; decyl, 58, 172/2, 1.4879, 1.0305. All the compounds synthesized were capable of copolymerization. Orig. art. has: 1 table.

SUB CODE: 071 SUBM DATE: 09Sep64/ ORIG REF: 001/ OTH REF: 003 44, 55Card 2/2 

KHOMENKOVA, N. G.

Shoe Industry

Efficient utilization of cheeks and faces of hides, Leg. prom., 12, No. 6, 1952.

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

*Handwritten:* KHOMENKOVA, N.G.

KHOMENKOVA, N.G., inzhener

Factors influencing the flexibility of welt shoes. Leg.prom.  
15 no.8:30-31 Ag '55. (MIRA 8:10)  
(Shoe industry)

KHOMENKOVA, N. G.

28-4-11/35

AUTHOR: Khomenkova, N.G., Engineer,  
TITLE: Application of Statistical Inspection Methods in the Evaluation  
of Footwear Quality (Primeneniye metodov statisticheskogo  
kontrolya pri otsenke kachestva obuvi)  
PERIODICAL: Standartizatsiya, 1957, # 4, pp 42-45 (USSR)

## ABSTRACT:

The present standards for footwear contain only technological norms and descriptions of material and finished product. Parameters for determination of flexibility (Ref. 2 and 3) have now been developed. The article contains a detailed description of a new device for testing this flexibility of shoes (Fig. 2).

An investigation proved that stiff shoes require more energy in walking and wear out faster than flexible shoes. The measuring device indicates the effort required to bend a shoe to a 25° angle. This method was applied in a mass 2-3 week test on 0.5% of the total output of welted or rand-soled men's shoes at the factories "Skorokhod", "Parizhskaya Kommuna" and imeni Kapranov. Altogether, 378 half-pairs of leather-soled shoes at "Skorokhod" and "Parizhskaya Kommuna" and 312 half-pairs of foam rubber soled shoes at "Parizhskaya Kommuna" and the factory imeni Kapranov were tested. All had approxi-

Card 1/2

KHOMENKOVA, N. G.: Master Tech Sci (diss) -- "Investigation of the strength of welt shoes and its effect on the wearing of leather soles". Moscow, 1958.  
10 pp (Min Higher Educ USSR, Moscow Technological Inst of Light Industry),  
130 copies (KL, No 4, 1959, 128)

KHOMENKOVA, N.G.

28-58-1-9/34

**AUTHORS:** Zakatova, N.D., and Gubarev, A.S., Candidates of Technical Sciences, and Khomenkova, N.G., Engineer

**TITLE:** A New System of Sampling Chrome Leather (Novaya skhema otbora prob khromovykh kozh)

**PERIODICAL:** Standartizatsiya, 1958, # 1, pp 29-30 (USSR)

**ABSTRACT:** The article describes a new system of sampling chrome leather, developed by the Tsentral'nyy nauchno-issledovatel'skiy institut khozhevenno-obuvnoy promyshlennosti (Central Scientific Research Institute of the Leather-and-Shoe Industry). The new system consists in using a slightly smaller size of samples, as shown in the illustration (Figure 1). Tests at 6 different plants showed, that this system reduces waste and gives a more correct evaluation of smaller hides. The article includes a chart showing test results. A corresponding amendment is suggested for the "GOST 938-45" standard.

Card 1/2

There are 2 figures and 1 chart.

SERGEYEV, M., prof.; KHOMENKOVA, N., inzh.

Hardness is an important indicator of the quality of shoes.  
Sov. torg. 34 no. 1:44-46 Ja '61. (MIRA 14:1)  
(Boots and shoes—Specifications)

KHOMENOK, V.P., kand.med.nauk, podpolkovnik med.sluzhby

Mechanism of the excoriation of the margins of a bullet wound  
caused by a point-blank shot from a Kalashnikov automatic gun;  
according to data of a high-speed motion picture. Sbor.nauch.  
trud.Kiev.okrugh.voen.gosp. no.4:353-356 '62. (MIRA 16:5)  
(GUNSHOT WOUNDS)



KHOMENOK, V.P. (Kiyev)

Method of study of the vessels of the heart and kidneys by  
means of liquid rubber injection and subsequent use of  
corrosive preparations. Arkh. pat. no.12:78-82 '62  
(MIRA 18:1)

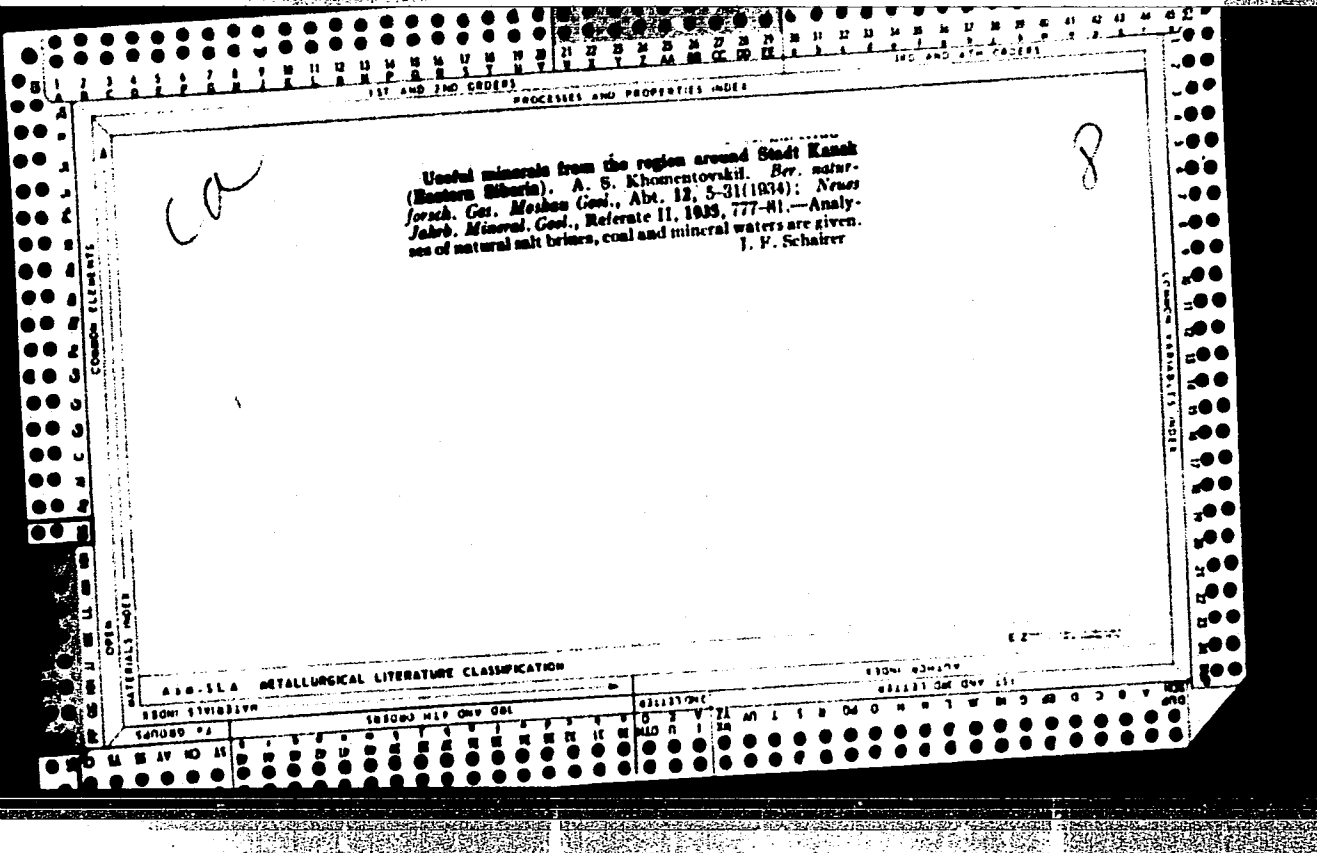
KHOMENTAUSKAS, T. [Homentauskas, T.]

More products for people. NTO 3 no. 1:31 Ja '61.

(MIRA 14:2)

1. Uchenyy sekretar' myaso-molochnoy seksii Litovskogo  
respublikansko promyshlennosti.

(Lithuania--Dairy products)



KHOMENTOVSKIY, A.S.

Khomentovskiy, A.S. "The carbonaceous deposits of the Chkalovsk oblast, their geography and mining prospects," *Izvestiya Chkal. otd. (Geogr. o-vø SSSR)*, Issue 1, 1948, p. 25-38 - Bibliog: 6 items

SO: U-2888, *Letopis Zhurnal'nykh Statey*, No. 1, 1949

KHOMENTOVSKIY, A.S.

Khomentovskiy, A.S. "The Gavrilovsk mineral deposit," Izvestiya Chkalov.  
otd. (Geog. o-v● SSR), Issue 1. 1948, p. 51-60

SO: U-2888, Letopis Zhurnal'nykh Statey, No. 1, 1949

KHOMENTOVSKIY, A. S.

42128 KHOMENTOVSKIY, A. S. - Predgornyye vpadiny i ugleznosnost.' (S primech. red) Trudy  
Geol.-issled. Byuro (M-vo ugol'noy prom-sti Zap. r-nov SSSR, Geol.-razvedoch. upr.),  
VYP. 4, 1948, c 17-26. - Bibliogr: 5 NAZV.  
*Work of Geol. Bureau Min Coal Ind. ugleznosnost' Predgornnyykh Padin.*  
SO: Letopis'Zhurnal'nykh Statey, Vol. 47, 1948

1. KHOMENTOVSKIY, A. S.
2. USSR (600)
4. Geology and Geography
7. Orenburg Steppes in the Works of P. I. Rychkov, E. A. Eversman, S. S. Neustruyev. By F. N. Milkov (Doctor of Geographical Sciences; editor, commentator and author of introduction). (Moscow, Geography Press, 1949). Reviewed by A. S. Khomentovskiy. Sov. Kniga, No. 5, 1950.

9. Report U-3081, 16 Jan. 1953. Unclassified.

KHOMENTOVSKIY, A. S.

"Some Data on the Geology of the Tumanshetskij Salt-Bearing Region,"  
Byul. Mosk. ob. Ispyt. Prir., Ot. Geol., 25, No.3, 1950, pp. 65-79

Description of origin of the thick strata of the Cambrian platform in the northern foothills of Eastern Sayan and in the downstreams of the Tumarshet and Tagul Rivers in Eastern Siberia, which platform is covered with a nonconforming angle by the Devonian. It is assumed that there is an accumulation of Cambrian deposits in a mobile depression arising at the end of the Proterozoic and Pre-Cambrian folding zone, which passed along the southwestern part of the Siberian platform. States that formation of Eastern Sayan is made up of two folded belts: northeast - Pre-Cambrian and southwest - Caledonian.

253T104



KHOMENTOVSKIY, A.S.

Most recent movements of the earth's crust within the limits of certain saline structures of the southern Ural foothills. Biul.MOIP. Otd.geol. 28 no.4:5-20 '53. (MLRA 6:9)  
(Ural Mountains--Subsidences (Earth movements) (Subsidences (Earth movements)--Ural Mountains)

KHOMENTOVSKIY, A. S.

Dissertation: -- "The Regularity of Arrangement of the Lignite Deposits of the Southern Ural Coal Fields in Relation to Its Structure and Tectonic Development."  
Dr Geol-Min Sci, Inst of Geological Sciences, Acad Sci USSR, 17 Jun 54. (Vechernyaya Moskva, Moscow, 8 Jun 54)

SO: Sum 318, 23 Dec. 1954

*KHOMENTOVSKIY, A.S.*  
 ABRAMOV, S.K., kand.tekhn.nauk; AVERSHIN, S.G., prof., doktor tekhn.nauk;  
 AMOSOV, I.I., doktor geol.-min.nauk; ANDRIYEVSKIY, V.D., insh.;  
 ANTOPOV, A.N., insh.; APANAS'YEV, B.L., insh.; BERGMAN, Ye.V.,  
 insh.; BLOKHA, Ye.Ye., insh.; BOGACHEVA, Ye.N., insh.; BUKRINSKIY, V.A.,  
 kand.tekhn.nauk; VASIL'YEV, P.V., doktor geol.-min.nauk; VINOGRADOV,  
 B.G., insh.; GOLUBEV, S.A., insh.; GORDIYENKO, P.D., insh.; GUSEV, N.A.,  
 kand.tekhn.nauk; DOROKHIN, I.V., kand.geol.-min.nauk; KALMYKOV, G.S.,  
 insh.; KASATCOCHKIN, V.I., doktor khim.nauk; KOROLEV, I.V., insh.;  
 KOSTLIVTSYV, A.A., insh.; KHATKOVSKIY, L.F., insh.; KRASHCHENNIKOV, G.F.,  
 prof. doktor geol.-min.nauk; KRIKUNOV, L.A., insh.; LEVIT, D.Ye., insh.;  
 LISITSA, I.G., kand.tekhn.nauk; LUSHNIKOV, V.A., insh.; MATVEYEV, A.K.,  
 dots., kand.geol.-min.nauk; MEFURISHVILI, G.Ye., insh.; MIRONOV, K.V.,  
 insh.; MOLCHANOV, I.I., insh.; NAUMOVA, S.N., starshiy nauchnyy sotrudnik;  
 NIKIFOROV, V.Ye., insh.; PAVLOV, P.F., doktor tekhn.nauk; PANYUKOV, P.N.,  
 doktor geol.-min.nauk; POPOV, V.S., insh.; PYATLIN, M.P., kand.tekhn.  
 nauk; RASHKOVSKIY, Ye.E., insh.; ROMANOV, V.A., prof., doktor tekhn.  
 nauk; RYHOV, P.A., prof., doktor tekhn.nauk; SHEL'YATITSKIY, G.A., insh.;  
 SPERANSKIY, M.A., insh.; TERENT'YEV, Ye.V., insh.; TITOV, N.G., doktor  
 khim.nauk; GONAROV, I.F., insh.; TROYANSKIY, S.V., prof., doktor geol.-  
 min.nauk; FEDOROV, B.D., dots., kand.tekhn.nauk; FEDOROV, V.S., insh.  
 [deceased]; KHOMENTOVSKIY, A.S., prof., doktor geol.-min.nauk; TROYANOV-  
 SKIY, S.V., otvetstvennyy red.; TERPIGOROV, A.M., red.; KRIKUNOV, L.A.,  
 red.; KUZYNETSOV, I.A., red.; MIRONOV, K.V., red.; AVERSHIN, S.G., red.;  
 BURTSOV, M.P., red.; VASIL'YEV, P.V., red.; MOLCHANOV, I.I., red.;  
 RYHOV, P.A., red.; BALANDIN, V.V., insh., red.; BLOKH, I.M., kand.  
 tekhn.nauk, red.; BUKRINSKIY, V.A., kand.tekhn.nauk; red.; VOLKOV, K.Yu.,  
 insh., red.; VOROB'YEV, A.A., insh., red.; ZVONAROV, K.A., prof. doktor  
 tekhn.nauk, red.

(Continued on next card)

ABRAMOV, S.K.--- (continued) Card 2.

ZDANOVICH, V.G., prof., doktor tekhn.nauk, red.; IVANOV, G.A., doktor geol.-min.nauk, red.; KARAVAYEV, N.M., red.; KOROTKOV, G.V., kand.geol.-min.nauk, red.; KOROTKOV, M.V., kand.tekhn.nauk, red.; MAKKAVEYEV, A.A., doktor geol.-min.nauk, red.; OMEL'CHENKO, A.N., kand.tekhn.nauk, red.; SENDERZON, E.M., kand.geol.-min.nauk, red.; USHAKOV, I.N., dots., kand.tekhn.nauk, red.; YABLOKOV, V.S., kand.geol.-min.nauk, red.; KOROLEVA, T.I., red.izd-va; KACHALKINA, Z.I., red.izd-va; PROZOROVSKAYA, F.L., tekhn.red.; NADEINSKAYA, A.A., tekhn.red.

[Mining; an encyclopedia handbook] Gornoe delo; entsiklopedicheski apravochnik. Glav. red. A.M.Terpigorev. Moskva, Gos.nauchno-tekhn. izd-vo lit-ry po ugol'noi promyshl. Vol.2. [Geology of coal deposits and surveying] Geologiya ugol'nykh mestorozhdenii i marksheiderskoe delo. Redkolegiia tova S.V.Troianskiy, 1957. 646 p. (MIRA 11:5)

1. Chlen-korrespondent AN SSSR (for Karavayev)  
(Coal geology~Dictionaries)

KHOMENTOVSKIY, A.S., nauchn. red.; SHPAKOVSKAYA, L.I., red.

[Geology and conditions governing sedimentation in the Suchan coal basin] Geologicheskoe stroenie i uslovia osadkonakopleniia na territorii Suchanskogo kamennougol'nogo basseina. Novosibirsk, Red.-izd. otdel Sibirskogo otd-niia AN SSSR, 1964. 231 p. (MIRA 18:1)

1. Akademiya nauk SSSR. Sibirskoye otdeleniye. 2. Chlen-korrespondent AN SSSR (for Khomentovskiy).

KHOMENTOVSKIY, A.S., otv. red.

[Geology and paleogeographic conditions governing the formation of Mesozoic and Cenozoic continental depressions in the southern part of the Far East] Geologiya i paleogeograficheskie usloviia formirovaniia mezo-kainozoiskikh vpadin iuzhnoi chasti Dal'nego Vostoka. Moskva, Nauka, 1965. 105 p.

(MIRA 18:4)

1. Akademiya nauk SSSR. Dal'nevostochnyy filial, Vladivostok. Geologicheskyy institut. 2. Chlen-korrespondent AN SSSR.

КИРДЕНОВИЧСКИЙ, В. В.

HARDLEY, A.J.; KELLER, B.M., translator; MOLCHANOVA, T.V., translator;  
RAAHEN, M.Ye., translator; KHOMENTOVSKIY, V.V., translator; SHATSKIY,  
N.S., akademik, redaktor; SVET, Ya.M., redaktor; KORNILOV, B.I.,  
tekhnicheskiy redaktor

[Structural geology of North America. Translated from the English by  
B.M.Keller and others] Strukturnaia geologiya Severnoi Ameriki.  
Perevod s angliiskogo B.M.Kellera i dr. Pod red. i s predislovien  
N.S.Shatskogo. Moskva, Izd-vo inostrannoi lit-ry, 1954. 665 p.  
(North America--Geology, Structural) (MIRA 8:3)

REPINA, L.N.; SEMIKHATOV, M.A.; KHOMENOVSKIY, V.V.

Stratigraphy of Cambrian deposits in the western regions of Eastern Sayan. Dokl.AN SSSR 110 no.1:133-136 S-O '56. (MLRA 9:11)

1. Institut geologicheskikh nauk Akademii nauk SSSR. Predstavleno akademikom N.S.Shatskim.  
(Sayan Mountains--Geology, Stratigraphic)



*Khomentovskiy, V.V.*

SEMIKHATOV, M.A. & ~~Khomentovskiy, V.V.~~

Stratigraphy of pre-Cambrian deposits of the western part of  
the Eastern Sayan. Dokl. AN SSSR 110 no.2:273-275 S '56.  
(MLBA 9:12)

1. Institut geologicheskikh nauk Akademii nauk SSSR. Predstavleno  
akademikom N.S. Shatskim.  
(Sayan Mountains--Geology, Stratigraphic)

*KHOMENTOVSKIY, V.V.*AUTHOR: Khomentovskiy, V.V.

11-7-1/23

TITLE: "On Tectonics of East Sayan" (K tektonike Vostochnogo Sayana)

PERIODICAL: "Izvestiya Akademii Nauk SSR" Seriya geologicheskaya, 1957,  
No. 7, pp. 3-26, (USSR)

ABSTRACT: The western section of the East Sayan presents a classic example of ancient layers, the formation of which can be studied due to their accessibility, simplicity of structure, undisturbed strata, well recognizable horizons levels and abundance of Cambrian faunal fossils. The Geologic Institute of the Academy of Sciences of the USSR assigned a group of geologists in 1953-55 to study the various stratigraphic complexes in order to clarify the existing contradictory views. Scant data are available on the Pre-Cambrian development of the explored sections of East Sayan. Although many geologic problems have yet to be solved, it can be stated that this area was subjected to great changes during the Archean and Lower Proterozoic as well as between the Lower and Upper Proterozoic eras. More definite data on geological structures of the East Sayan are available of the beginning of the Lower Cambrian period. When analyzing the facies of the Cambrian period it must be concluded that the anticlinorium formed a

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dry ridge dividing 2 sea basins during the entire Lower Cambrian period. Although concrete data on the continuation of the East Sayan geosyncline beyond the surveyed territory are not available at present, based on recently conducted studies, it can be assumed that Proterozoic layers extend several hundred km in south easterly direction from the boundaries of East Sayan. Judging by Cambrian deposits, it must be assumed that the entire area of the East Sayan anticlinorium was geanticline during the Cambrian period. In contrast to this, the Sisim synclinorium experienced an intense depression during the Cambrian period, and does not differ structurally in any way from the extensive Sayan-Altay geosyncline territory. The compositions of the Bellyksk White Mountains area's Lower Cambrian deposits differ essentially from the Sisim synclinorium, since they are almost void of effusions and consist predominantly of limestone formations. The available data indicate the originality of the geologic structure of the Mana synclinorium. The texture of the Cambrian deposits of which it is composed, have been influenced to some extent by Pre-Cambrian rock formations. In fact, the very simple texture of the Solbin syncline supports the assumption that it extends as a consolidated strata underneath the Arch-

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ean. The Zherzhul syncline is distinguished from the Solbin syncline not only by its more complicated structure, but also by its composition and the magnitude of Cambrian deposits. Thus, the vast Archean strip, extending over a vast distance in a north-westerly direction parallel to the East Sayan anticlinorium, covers a distance of almost 1 meridian. The meridian virgation of the East Sayan anticlinorium, superposed by unconformable Cambrian layers of the Mana synclinorium, are extended into the Yenisey ridge. Consequently, the Mana synclinorium represents a depression overlaying a very complex and heterogeneous Pre-Cambrian formation. The great magnitude of Cambrian deposits, intense deformation and great number of intrusions indicate the geosyncline structure of this depression. Cambrian layers, found on the northern slopes of the East Sayan resemble very much as to their magnitude, lithologic composition and stratographic sequence, deposits of the Lower Cambrian of the Mana synclinorium. When comparing various sections of the Angara-Kan depression, it will be noticed that the typical geosyncline characteristics diminish with increasing distance from the Mana synclinorium in the direction of the Siberian plateau. It follows that the Angara-Kan depression was formed at a time of intense sagging

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of the Sayan-Altay geosyncline area, preceded by heavy tectonic movement and erosion. The author lists the following subdivisions of geologic formations and periods:

1. Mana synclitorium: Ust'-Mana, Zherzhul Solbin syncline; Izysk and Beretsk anticline.
2. Lower Proterozoic era: Kozhelak, Derbino and Zhayminsk layers.
3. Upper Proterozoic era: Kuvaysk, Pavlovsk and Urmansk layers.
4. Mana synclitorium: Angul, Anastas'insk and Zherzhul layers.
5. Sisim synclitorium: Kameshkovsk, Balakhtisonk and Kizirsk layers.
6. Cambrian-Ordovicium: Badzheysk and Narvsk layers.

The article contains 7 maps, 1 figure, 1 diagram and 1 table. The bibliography lists 33 references, 30 of which are Slavic (Russian).

ASSOCIATION:

Geologic Institute of the Academy of Sciences USSR (Geologicheskii institut AN SSSR) Moskva.

SUBMITTED:

February 12, 1957

AVAILABLE:

Library of Congress

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## PHASE I BOOK EXPLOITATION 1199

Khomentovskiy, Vsevolod Vladimirovich

Geologicheskoye stroeniye i istoriya razvitiya Vostochno-Ural'skogo antiklinoriya na Srednem Urale (Geological Structure and History of the Development of the East Ural Anticlinorium in the Central Ural Region) Moscow, Izd-vo AN SSSR, 1958. 68 p. (Series: Akademiya nauk SSSR. Geologicheskiy institut. Trudy, vyp. 7) 1,600 copies printed.

Chief Ed.: Shatskiy, N.S., Academician; Resp. Ed.: Shtreys, N.A.; Ed. of Publishing House: Kotlyarevskaya, P.S.; Tech. Ed.: Rylyna, Yu.V.

PURPOSE: This monograph is intended for professional geologists, petrographers, and students of the structural geology of the principal metallogenetic provinces in the USSR.

COVERAGE: Referring to numerous earlier studies of the Urals, the author reports on recent mapping achievements, the stratigraphic, structural, and petrographic studies compiled on extrusive rock massifs in the heart of the industrial Urals, and their distribution

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and configuration. The effects of volcanism and the Hercynian regional trend bearing on the regional structural pattern of the area is also discussed. The following are mentioned as having contributed to the study of this area: Borodayevskaya, M.B. - dike formations and small intrusions; Nalivkin, D.V. - stratigraphy of the Urals; Librovich, L.S., Gorskiy, I.I., Kuznetsov, Ye.A., Romanov, M.B. and Matveyev, V.I. - the geological structure of the eastern slope of the Urals; Shteynberg, D.S. and Borodayevskiy, N.I. - surveys of the environs of Berezovsk for large scale mapping; Shtreys, N.A. - stratigraphy of greenstone series of the Central Urals; Sergiyevskiy, V.M. - volcanism in the Urals; Sobolev, I.D., Aladinskiy, P.I., Burdina, O.V., Dianova, T.V., Kudrina, N.I., Nenakhov, Ye.M., Nechayeva, A.P., Nechayev, P.N. and Spasskiy, N.A. - cross-sections of the Central Urals; Stepanenko, A.F. and Khalilbeyli, Ch. A. - petrographic studies; Pavlova, T.G., Zavodchikov, S.G., Zakhvatkin, V.A. and Sidorenko, N.F. - field studies of Central Urals; and Kashin, S.A., Keller, B.M., Mennner, V.V. and Kueraskov, N.P. - editorial advisors. The text is accompanied by 6 diagrams and 38 Soviet references.

TABLE OF CONTENTS:

Card 2/3

AUTHORS: Keller, B.M. and Khomentovskiy, V.V. ~~SCV/5-58-4-22/43~~

TITLE: The Differentiation of the Rifey Group (O raschlenenii rifeyской группы)

PERIODICAL: Byulleten' Moskovskogo obshchestva ispytateley prirody, Otdel geologicheskii, 1958, Nr 4, pp 148-149 (USSR)

ABSTRACT: This is a summary of a report given by the authors at a conference of the Moscow Society of Naturalists on 29 April 1958. The study of profiles of the European part of the USSR and Siberia shows that two distinctly different complexes can be distinguished in the composition of the Rifey group (as established by N.S. Shatskiy for the late Pre-Cambrian period): 1) the Lower or Sinian complex and 2) the Upper or ~~Timanskiy~~ complex. The authors describe these two groups in detail.

1. Geology

Card 1/1

AUTHORS: Repina, L.N., Khomentovskiy, V.V. SOV/5-58-4-23/43

TITLE: Basic Stratigraphical Problems of the Lower Cambrian Stage  
(Osnovnyye voprosy stratigrafii nizhnego kembriya)

PERIODICAL: Byulleten' Moskovskogo obshchestva ispytateley prirody,  
Otdel geologicheskoy, 1958, Nr 4, pp 149-150 (USSR)

ABSTRACT: This is a summary of a report given by the authors at a conference of the Moscow Society of Naturalists on 29 April 1958. The authors consider and explain new data on the stratigraphy of the Lower Cambrian Stage in Siberia and America, and come to the conclusion that according to its importance, the Lower Cambrian Stage should be regarded as a separate system in future geological studies.

1. Geology 2. Geological time--Determination

Card 1/1



3(0)

AUTHORS:

Zhuravleva, I. T., Repina, L. N., Khomentovskiy, V. V. SOV/20-123-6-37/50

TITLE:

New Data Concerning the Stratigraphy of Lower Cambrian of the Mariinskaya Tayga (Novyye dannyye po stratigrafii nizhnego kembriya Mariinskoy taygi)

PERIODICAL:

Doklady Akademii nauk SSSR, 1958, Vol 123, Nr 6, pp 1092-1095 (USSR)

ABSTRACT:

By interpreting the profile at the middle part of the Kiya river, on which all the stratigraphic constructions of the Lower Cambrian of the northern Kuznetskiy Alatau are based, occur still several not fully solved problems: 1) The age of the limestones containing Archaeocyathen is very contradictory determined; 2) There is no agreement about the existence and the stratigraphical position of the limestone mass, which is characterized by alga of the Newlandia type (Refs 1,2). The geological structure of the above mentioned district is illustrated by figure 1. Here one can separate four natural sediment-complexes. The Archaeocyathen limestones, which are widespread here, are massive and give hardly essential facts for the determination of the inner structure. Therefore, the

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New Data Concerning the Stratigraphy of Lower Cambrian of the Mariinskaya Tayga

paleontological method becomes very important in this area. An idea of the full stratigraphical extent of these limestones could be gained by the construction of two actual profiles at the Kiya river. The authors separate five layers in these Archaeocyathen limestones (total thickness 2300 respectively 1300 m). These limestones comply with the Bazaikhskiy horizon of the Lena stage, according to the results. The upper part of the mentioned limestones belongs to the higher lying Sanashtykgol'skiy horizon, while the lowermost part and the platelike limestones belong to the Kameshkovskiy horizon. This fact complies (Ref 3) with the upper part of the Aldanskiy stage as well as with the Sinskiy, Tolbochanskiy, and one part of the Olekminskiy horizon of the Lena stage in the plateau. The under-lying black limestones and schists (at least 2000 m thick) are connected to the Archaeocyathen limestones by gradual transitions. Therefore, they can only be compared with the Aldanskiy stage of the Lower Cambrian. The finding of alga of the type Newlandia (determination by P. S. Krasnopeyeva) cannot prove the pre-Cambrian age of the rocks containing them. The

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New Data Concerning the Stratigraphy of Lower Cambrian of the Mariinskaya  
Tayga

tuffogenic suite covers the uppermost strata of the  
Archaeocyathen limestones without an apparent discordance.  
Their age can be determined as the upper part of the Lena stage,  
although a part of it is possibly already encroaching on Middle  
Cambrian. Their age is not greater than Middle Cambrian.  
L. V. Alabin collected and delivered the Archaeocyathen. There  
are 1 figure and 6 Soviet references.

PRESENTED: April 29, 1958, by N. S. Shatskiy, Academician

SUBMITTED: April 24, 1958

Card 3/3

KHOMENTOVSKIY, V. V.: Master Geolog-Mineralog Sci (diss) -- "The Proterozoic and Cambrian deposits of the western portion of the eastern Sayan". Moscow, 1959. 20 pp (Acad Sci USSR, Geol Inst), 150 copies (KL, No 12, 1959, 127)

REPINA, L.N.; KHOMENTOVSKIY, V.V.

Stratigraphy of the lower Cambrian. *Izv.vys.ucheb.zav.;*  
*geol.i razv.* 2 no.10:3-19 0 '59. (MIRA 13:6)

1. Institut geologicheskikh nauk AN SSSR.  
(Geology, Stratigraphic)

3(5)

SOV/11-59-10-4/16

AUTHOR: Khomentovskiy, V. V.

TITLE: Structural-Facial Lower Cambrian and Riphean Zones of the South-Western Framing of the Siberian Plateau

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya geologicheskaya, 1959, No. 10, pp 42-49 (USSR)

ABSTRACT: The above zone is described by the author who studied it together with I.T. Zhuravleva and L.N. Repina. Other parts of the Sayan-Alatay folded zone have already been studied and described by V. A. Kuznetsov, S.V. Obruchev, A.S. Khomentovskiy, V.M. Yaroshevich and Yu. G. Shcherbakov. A large miogeosyncline borders the Siberian Plateau from the southwest (figure 1). It is composed of Lower-Cambrian strata similar to those of the Siberian Plateau, only less thick. In both cases, the Cambrian strata non-conformingly overlie the Riphean formations. The Plateau and the miogeosyncline are delimited by a long bending flexure. On the Yeniseyskiy mountain ridge, the structure of those Riphean formations on both sides of the flexure are different. In the east, carbonaceous strata are

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Structural-Facial Lower Cambrian and Riphean Zones of the Southwestern  
Framing of the Siberian Plateau

predominant, and in the west - mainly terrigenous and effusive strata. Farther to the southwest, the miogeosynclinal cross-section type of the Lower-Cambrian strata is replaced by one of a eugeosynclinal type characterized by large effusive strata often intensively metamorphized and faulted by numerous intrusions. The East-Sayan anticlinorium forms a border between the mio- and eugeosynclines. In the eugeosynclinal part of the Sayan-Altay folded zone, two different cross-sections of the Lower-Cambrian and Upper--Paleozoic strata were found, one - essentially carbonaceous, and the other - essentially effusive. The author gives a detailed description of the region from which it appears that the internal part of the Sayan-Altay folding zone was filled with carbonaceous facies of Upper-Riphean and Lower-Cambrian formations forming a huge triangle bordered on each side by a narrow stretch of effusive formations of the same age. These facial zones are at the same time structural zones, as the effusive formations are thicker than the carbonaceous formations, the regions of their development

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Structural-Facial Lower Cambrian and Riphean Zones of the Southwestern Framing of the Siberian Plateau

form depressions or troughs, and a linear folding is observed in these depressions filled with effusive rocks. The regions where the carbonaceous facies are developed were characterized by large brachy and box-folds of various form and orientations. The structure of facial zones especially stands out when specific belts associated with the central parts are examined. These belts are characterized by their association with the widely metamorphized and deformed strata of the Paleozoic era. These belts were presumably formed in places of plutonic ruptures, which explains their expansion (up to 700 km). Their connection with magmatic hearths explains the degree of metamorphosis of strata forming these belts. Sharply defined limits of metamorphosis in these belts proves, says the author, that they were formed along the plutonic ruptures which explains their "longevity". The geosynclinal troughs, originated in places of plutonic ruptures, have existed at least since Upper-Paleozoic times. Thus, the peculiarity of these ruptures was that they formed highly penetrable belts

Card 3/4



KELLER, B.M.; KHOMENTOVSKIY, V.V.

Abstract of Carl Dunbar and John Rodgers' book "Principles of  
stratigraphy," *Biul. MOIP. Otd. geol.* 34 no.5:150 S-0 '59.  
(MIRA 14:6)

(Geology, Stratigraphic)  
(Dunbar, Carl)  
(Rodgers, John)

KHOMENTOVSKIY, Vasvolod Vladimirovich; SEMIKHATOV, Mikhail Aleksandrovich;  
REPINA, Lada Nikolayevna; SHATSKIY, N.S., akademik, glavnyy red.;  
MORNER, V.V., samostitel' glavnogo red.; KELLER, B.M., red.toma;  
VERSTAK, G.B., red.isd-va; KASHINA, P.S., tekhn.red.

[Areal geology of the U.S.S.R.] Regional'naya stratigrafiya SSSR.  
Glav.red.N.S.Shatskii. Moskva. Vol.4. [Pre-Cambrian stratigraphy  
and lower Paleozoic sediments of the western part of the Eastern  
Sayan Mountains] Stratigrafiya dokembriiskikh i nizhnepaleozoiskikh  
otlozhenii zapadnoi chasti Vostochnogo Saiana. [Lower and middle  
Cambrian trilobite complexes in the western part of the Sayan  
Mountains] Komplekxy trilobitov nizhnego i srednego kembriya sa-  
padnoi chasti Vostochnogo Saiana. 1960. 235 p. (MIRA 13:4)

1. Akademiya nauk SSSR. Geologicheskiy institut.  
(Sayan Mountains--Geology, Stratigraphic)  
(Sayan Mountains--Trilobites)

ZHURAVLINA, I.T.; REPINA, L.N.; KHOMENOVSKIY, V.V.

Continuous carbonate section of the Lena stage of the lower Cambrian in the Altai-Sayan mountain country and its paleontological characteristics. Dokl.AN SSSR 132 no.5:1160-1162 Je '60.  
(MIRA 13:6)

1. Geologicheskii institut Akademii nauk SSSR. Predstavleno akademikom N.S. Shatskin.

(Altai Mountains--Rocks, Carbonate)

(Sayan Mountains--Rocks, Carbonate)

(Paleontology, Stratigraphic)

REFINA, L.N.; KHOMENTOVSKIY, V.V.

Subdivision of the lower Cambrian. Izv. AN SSSR. Ser.geol. 26  
no.8:83-87 Ag '61. (MIRA 14:9)

1. Geologicheskii institut AN SSSR, Moskva.  
(Siberian platform--Geology, Stratigraphic)

KHOMENTOVSKIY, V.V.

Formation of structural and facies zones in southwestern Siberia  
and minerals associated with them. Zakon.razm.polezn.iskop.  
3:7-87 '60. (MIRA 14:11)

1. Geologicheskii institut AN SSSR.  
(Siberia, Western--Minerals)

KHOMENTOVSKIY, V.V.; ZHURAVLEVA, I.T.; REPINA, L.N.; ROZANOV, A.Yu.

Lower Cambrian in the Gornyy Altai. Izv.AN SSSR.Ser.geo. 27  
no.3:55-71 Mr '61. (MIRA 15:2)

1. Geologicheskii institut AN SSSR, Moskva.  
(Altai Mountains--Geology, Stratigraphic)

ZHURAVLEVA, I.T.; REPINA, L.N.; KHOMENTOVSKIY, V.V.

Plan for dividing Lower Cambrian sediments in the Sayan-Altai  
folded region. Geol.i geofiz. no.1:21-41 '62. (MIRA 15:4)

1. Institut geologii i geofiziki Sibirskogo otdeleniya AN SSSR,  
Novosibirsk.

(Sayan Mountains—Geology, Stratigraphic)

(Altai Mountains—Geology, Stratigraphic)

(Folds (Geology))

SEMIKHATOV, Mikhail Aleksandrovich; KHOMENTOVSKIY, V.V., otv.red.;  
SHEYNMAN, V.Z., red.izd-va; NOVICHKOVA, N.D., tekhn.red.

[Riphean and Lower Cambrian in the Yenisey Ridge] Rifei i  
nizhnii kembrii Eniseiskogo kriázha. Moskva, Izd-vo Akad.  
nauk SSSR. 1962. 239 p. 18 plates. (Akademiia nauk SSSR.  
Geologicheskii institut. Trudy, no.68). (MIRA 16:2)  
(Yenisey Ridge—Geology)



REPINA, L.N.; KHOMENOVSKIY, V.V.; ZHURAVLEVA, I.T.; ROZANOV, A.Yu.;  
SOKOLOV, B.S., *otv. red.*; VANIN, V.S., *red.izd-va*;  
IL'INA, N.S., *red.izd-va*; DOROKHINA, I.N., *tekh.red.*

[Lower Cambrian biostratigraphy of the Sayan-Altai fold  
area] Biostratigrafiia nizhnego kembriia Saiano-Altaiskoi  
~~skladchatoi oblasti.~~ [By] L.N.Repina i dr. Moskva, Izd-vo  
"Nauka," 1964. 363 p. (MIRA 17:3)

ALEKSEYEVA, R.Ye.; BETSENTINA, O.A.; VOZZHENNIKOVA, T.F.; GRATSIANOVA, R.T.;  
DUBATOLOV, V.N.; YILKIN, Ye.A.; ZAKHAROV, V.A.; IVANOVSKIY, A.B.;  
SIDYACHENKO, A.I.; KUL'KOV, N.P.; NYAGKOVA, Ye.I.; OBUT, A.M.;  
SAKS, V.H.; TESAKOV, Yu.I.; FURSENKO, A.V.; KHOZENTOVSKIY, V.V.;  
YUFEREV, O.V.

Corresponding Member of the Academy of Sciences of the U.S.S.R.  
Boris Sergeevich Sokolov; 1914 - ; on his 50th birthday. Geol.  
i geofiz. no.8:140-147 '64 (MIRA 18:2)

SEMIKHATOV, M.A.; KHOMENTOVSKIY, V.V.

Geological prerequisites of the bauxite potential of sediments  
of the Wendish complex of the Manskoye synclinorium (Eastern  
Sayan). *Biul. MOIP. Otd. geol.* 39 no.3:41-56 My-Je '41.  
(MIRA 17:12)

SEMIKHATOV, M.A.; KHOMENTOVSKIY, V.V.

Stratigraphy of the Upper Cambrian in the western part of the Eastern Sayan Mountains. Geol. i geofiz. no.7:97-102 '64.

(MIRA 18:8)

1. Institut geologii i geofiziki Sibirskogo otdeleniya AN SSSR,  
Novosibirsk.

26462

S/140/61/000/003/008/009

C111/C333

No. 3/00

AUTHOR: Khomenyuk, V. V.

TITLE: On systems of ordinary differential equations with generalized-homogeneous right sides

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Matematika, no. 3, 1961, 157-164

TEXT: The author gives necessary and sufficient conditions for the asymptotic stability of the homogeneous solution of the system

$$\frac{dx_i}{dt} = X_i(x_1, \dots, x_n) \quad (i = 1, \dots, n)$$

where the right sides are generalized-homogeneous.

The matrix

$$A(x_1, \dots, x_n, c) = \| a_{ij}(x_1, \dots, x_n, c) \| \quad (i, j = 1, \dots, n), \quad (1.1)$$

where  $c \in (-\infty, \infty)$  is a parameter,  $a_{ij}$  are holomorphic functions

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On systems of ordinary differential ...  
of  $x_1, \dots, x_n \in E_n$ ,  $E_n$  a linear space and  $A = E$  for  $c = 1$ , where  
 $E$  -- unit matrix, is assumed to define the system of differential  
equations

$$c \frac{dz_i}{dc} = \varphi_i(z_1, \dots, z_n) \quad (i = 1, \dots, n) \quad (1.2)$$

where

$$\varphi_i(z_1, \dots, z_n) = c \sum_{j=1}^n \frac{\partial a_{ij}(x_1, \dots, x_n, c)}{\partial c} x_j \quad (1.3)$$

The  $x_i$  are determined from

$$z_i = \sum_{j=1}^n a_{ij}(x_1, \dots, x_n, c) x_j \quad (i=1, \dots, n) \quad (1.4)$$

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On systems of ordinary differential ... C111/C333

as functions of the  $z_1, \dots, z_n$ .

The matrices  $A(x_1, \dots, x_n, c)$  are considered such that magnitudes (1.3) do not explicitly contain  $c$ . Moreover, let

1.) The  $\varphi_i(z_1, \dots, z_n)$  be representable in the form

$$\varphi_i(z_1, \dots, z_n) = \sum_{j=1}^n p_{ij} z_j + \phi_i(z_1, \dots, z_n) \quad (1.5)$$

where  $p_{ij}$  are real constant numbers,  $\phi_i$  holomorphic in  $z_1, \dots, z_n$  for  $|z_s| < \rho$  ( $s = 1, \dots, n$ ); the expansions of  $\phi_i$  are assumed to contain no linear terms in  $z_1, \dots, z_n$  or constants.

2.) To the roots  $\lambda_1, \dots, \lambda_n$  of

$$\begin{vmatrix} p_{11} - \lambda & \dots & p_{1n} \\ \dots & \dots & \dots \\ p_{n1} & \dots & p_{nn} - \lambda \end{vmatrix} = 0 \quad (1.6)$$

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On systems of ordinary differential ... there are assumed to correspond simple elementary divisors.

3.)  $\lambda_1, \dots, \lambda_n$  are positive rational,  $\lambda_i = \frac{a_i}{b_i}$ , where  $a_i$  and  $b_i$  are odd integers. For arbitrary  $m_1, \dots, m_n$ ,  $m_1 + \dots + m_n > 1$ , let

$$m_1 \lambda_1 + \dots + m_n \lambda_n \neq \lambda_j \quad (j = 1, \dots, n) \quad (1.7)$$

Definition 1: A continuous scalar function  $f(x_1, \dots, x_n)$  given in  $E_n$  is called generalized-homogeneous function of the class  $A(x_1, \dots, x_n, c)$  of the order  $\sigma > 0$  if it holds

$$f\left(\sum_{j=1}^n a_{1j}(x_1, \dots, x_n, c) x_j, \dots, \sum_{j=1}^n a_{nj}(x_1, \dots, x_n, c) x_j\right) \equiv \sigma f(x_1, \dots, x_n). \quad (1.8)$$

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C111/C333

On systems of ordinary differential ...

for every  $c \in (-\infty, \infty)$ .

Theorem 1: In order that a continuously differentiable function  $f(x_1, \dots, x_n)$  given in  $E_n$  be generalized-homogeneous of the class  $A(x_1, \dots, x_n, c)$  of the order  $\sigma \geq 0$ , it is necessary and sufficient that it satisfies the linear partial differential equation

$$\sum_{i=1}^n \varphi_i(x_1, \dots, x_n) \frac{\partial f}{\partial x_i} = \sigma f(x_1, \dots, x_n) \quad (1.10)$$

Definition 2: Continuous functions  $f_1(x_1, \dots, x_n), \dots, f_n(x_1, \dots, x_n)$  given on  $E_n$  are called generalized-homogeneous functions of the class  $A(x_1, \dots, x_n, c)$  of the order  $\sigma \geq 0$  if

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On systems of ordinary differential ...

$$f_i \left( \sum_{j=1}^n a_{ij}(x_1, \dots, x_n, c) x_j, \dots, \sum_{j=1}^n a_{nj}(x_1, \dots, x_n, c) x_j \right) = \\ = c^2 \sum_{l=1}^n b_{il}(x_1, \dots, x_n, c) f_l(x_1, \dots, x_n) \quad (i=1, \dots, n), \quad (1.11)$$

is satisfied for every  $c \in (-\infty, \infty)$ , where

$$b_{ij} = a_{ij} + \sum_{k=1}^n x_k \frac{\partial a_{ik}}{\partial x_j} - \sum_{k=1}^n \frac{\partial (a_{ik} x_k)}{\partial x_j} \quad (i, j=1, \dots, n). \quad (1.12)$$

The author considers the system

$$\frac{dx_i}{dt} = X_i(x_1, \dots, x_n) \quad (i=1, \dots, n) \quad (2.1)$$

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On systems of ordinary differential ... C111/C333

where the  $X_i$  are given in  $E_n$ , are holomorphic in  $x_1, \dots, x_n$  and belong to the class  $A(x_1, \dots, x_n, c)$  in the sense of definition 2, where  $\sigma > 0$  is rational,  $\sigma = \frac{p}{q}$ ,  $q$  is odd. Let  $X_i(0, \dots, 0) = 0$  ( $i = 1, \dots, n$ ).

Through every point

$X^0 = \begin{pmatrix} x_1^0 \\ \vdots \\ x_n^0 \end{pmatrix}$  of the  $E_n$  there goes an integral curve  $X = X(t, X^0)$ ,  $X = \begin{pmatrix} x_1 \\ \vdots \\ x_n \end{pmatrix}$

of (2.1) such that  $X(t, X^0) = X^0$  for  $t = 0$ .

Theorem 2: If the vector function  $X(t, X^0)$  is an integral curve of (2.1), then the vector function

$$Y(t) = A(X(c^\sigma t, X^0), c) X(c^\sigma t, X^0) \quad (2.2)$$

is a family of integral curves of (2.1) such that

$$Y(t) = A(X^0, c) X^0 \text{ for } t = 0.$$

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Therefore

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$$Y(t) = X(t, A(X^0, c)X^0) \quad (2.3)$$

Theorem 3: 1.) The zero solution of (2.1) can be asymptotically stable for arbitrary complex perturbations only for  $\sigma = 0$ .

2.) For real perturbations the zero solution of (2.1) can be asymptotically stable only for

$$\sigma = \frac{2k}{q} > 0, \quad q \text{ -- integer and odd.}$$

Theorem 4: a.) Assume that the zero solution of (2.1) is asymptotically stable and that positive numbers  $\alpha$  and  $\beta$  exist such that

$$|x(t, X^0)| \leq \beta t^{-\alpha} \text{ for } t > T(\alpha), |X^0| = 1 \quad (3.1)$$

Then there exist two continuous functions  $V$  and  $W$  defined in  $E_n$  with the properties:

1.)  $V(x_1, \dots, x_n)$  is positive definite,  $W(x_1, \dots, x_n)$  is negative

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definite,  $V(0, \dots, 0) = W(0, \dots, 0) = 0$ .

2.)  $V$  and  $W$  are generalized-homogeneous, belong each to the class  $A(x_1, \dots, x_n, c)$  and have the orders  $m - \epsilon$  and  $m$ .

3.)  $V(x_1, \dots, x_n)$  is continuously differentiable along the integral curves of (2.1), where  $\frac{dV}{dt} = W$ .

b.) If there exist functions  $V$  and  $W$  which satisfy the conditions 1.) - 3.), then the zero solution of (2.1) is asymptotically stable.

Theorem 5: In order that the zero solution of (2.1) be asymptotically stable, it is necessary and sufficient that the domain of the asymptotic stability of the zero solution of

$$\frac{dy_i}{dt} = -f_i(y_1, \dots, y_n, \tau - X_i y_1, \dots, y_n) \quad (i=1, \dots, n) \quad (3.16)$$

is bounded. The functions  $f_i(y_1, \dots, y_n, \tau)$  are determined from the following system of linear algebraic equations  
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$$B(Y, e^{\tau}) F(Y, \tau) = \Phi(A(Y, e^{\tau}) Y), \quad (3.17)$$

where

$$Y = \begin{pmatrix} y_1 \\ \vdots \\ y_n \end{pmatrix}, \quad F = \begin{pmatrix} f_1 \\ \vdots \\ f_n \end{pmatrix}, \quad \Phi = \begin{pmatrix} \varphi_1 \\ \vdots \\ \varphi_n \end{pmatrix}.$$

The author thanks V. J. Zubov for subject and guidance of the paper.

There are 3 Soviet-bloc references.

SUBMITTED: February 10, 1959

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24.212026137  
S/040/61/025/004/016/021  
D274/D306

AUTHORS: Stepanov, K.N. and Khomenyuk, V.V. (Khar'kov)  
 TITLE: Notes on the energy principle in magnetohydrodynamics  
 PERIODICAL: Prikladnaya matematika i mekhanika, v. 25, no. 4,  
 1961, 760-763

TEXT: Theorems are proved on the stability of equilibrium states of an ideal conducting fluid, by means of Lyapunov functions. The equations of motion of an ideal, non-viscous, conducting fluid, with small displacements  $\xi(r, t)$  from the equilibrium position, are

$$\rho \dot{\xi}_i = F_i(\xi) \quad (i = 1, 2, 3) \quad (1)$$

where  $F$  denotes a linear self-conjugated operator

$$F(\xi) = \nabla(\xi \cdot \nabla p) + \gamma \nabla(p \operatorname{div} \xi) + \frac{1}{4\pi} (\operatorname{rot} \operatorname{rot}(\xi \times H) \times H) + \frac{1}{4\pi} \operatorname{rot} H \times \operatorname{rot}(\xi \times H)$$

It is assumed that the fluid occupies a finite volume  $V$ , bounded by

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Notes on the energy...

S, and that the density  $\rho$  and the displacements vanish on S. Eq. (1) has the energy integral  $E = T + U = \text{const}$  (2)

where  $T[\xi] = \frac{1}{2} \int_V \rho \xi^2 dr$ ,  $U[\xi] = -\frac{1}{2} \int_V \xi F(\xi) dr$  (3)

Let  $\xi$  and  $\dot{\xi}$  be solutions of Eq. (1), satisfying the initial conditions  $\xi = \xi_0(r)$ ,  $\dot{\xi} = \dot{\xi}_0(r)$  for  $t = 0$

Further, stability, asymptotic stability, and instability are defined. Thereupon, theorem 1, (the necessary condition for stability) is formulated: In order that the equilibrium state  $\xi = 0$ ,  $\dot{\xi} = 0$  be stable, it is necessary that  $U(\xi) \geq 0$ . The theorem is proved by reductio ad absurdum. It follows from the theorem that if there are  $\xi$ 's for which  $U(\xi(r)) < 0$ , then the considered equilibrium is unstable. It can be readily shown that the equilibrium state of an ideal non-viscous conducting fluid cannot be asymptotically stable. Further, the effect of viscosity on stability is investigated.

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Notes on the theory...

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Theorem 2. If there is such a  $\xi(r)$  so that  $U(\xi(r)) < 0$ , then the equilibrium is unstable even in the presence of viscous forces. Again, the theorem is proved by an assumption leading to a contradiction. Theorem 2 is analogous to Kelvin's theorem on the effect of dissipation on stability of a system of material points. The functionals involved in the proof of both theorems are analogous to the Lyapunov functions used by N.G. Chetayev in his proof of stability theorems (Ref. 5: Ustoychivost' dvizheniya (Stability of Motion) Gostekhteorizdat, M., 1955). There are 11 references: 6 Soviet-bloc and 5 non-Soviet-bloc. The references to the English-language publications read as follows: S. Lundquist, On the Stability of Magneto-hydrodynamics. Ark. Fys. 1952, v. 5, no. 15; I.B. Bernstein, E.A. Friedman, M.D. Kruskal, R.M. Kulsrud, An energy principle for hydromagnetic stability problems. Proc. Roy. Soc., 1958, v. A244, no. 1236; A. Hare, The effect of viscosity on the stability of incompressible magnetohydrodynamic systems. Phil. Mag., 1959, v. 4, no. 48.

SUBMITTED: January 28, 1961

Card 3/3

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S/040/62/026/003/008/020  
D407/D301

24.6714  
26.1410

AUTHORS: Stepanov, K.N., and Khomenyuk, V.V. (Khar'kov)

TITLE: On stability conditions for magnetohydrodynamic equilibrium configurations

PERIODICAL: Prikladnaya matematika i mekhanika, v. 26, no. 3, 1962, 466 - 470

f

TEXT: Stability of an ideally conducting fluid is defined, the definition differing from that given by the authors in an earlier work. Necessary and sufficient stability criteria are established, which are related to the well-known energy principle. With small displacements  $\xi(r, t)$ , of the fluid, the equations of motion are

$$\rho \ddot{\xi}_i = F_i(\xi) + f_i(\dot{\xi}) \quad (i=1, 2, 3) \quad (1.1)$$

where

$$F(\xi) = \nabla(\xi \nabla p) + \gamma \nabla(p \operatorname{div} \xi) -$$

$$- \frac{1}{4\pi} \mathbf{H} \times \operatorname{rot} \operatorname{rot}(\xi \times \mathbf{H}) + \frac{1}{4\pi} \operatorname{rot} \mathbf{H} \times \operatorname{rot}(\xi \times \mathbf{H}) \quad (1.2)$$

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$$f_i(v) = \frac{\partial}{\partial x_k} \left[ \eta \left( \frac{\partial v_i}{\partial x_k} + \frac{\partial v_k}{\partial x_i} - \frac{2}{3} \delta_{ik} \frac{\partial v_l}{\partial x_l} \right) \right] + \frac{\partial}{\partial x_i} \left( \tau \frac{\partial v_i}{\partial x_i} \right) \quad (1.3)$$

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$\rho$ ,  $p$  and  $H$  being the equilibrium values of the density, pressure and magnetic field,  $\gamma$  - the adiabatic index,  $\eta$  and  $\zeta$  - viscosity coefficients. The solutions of Eq. (1.1), satisfying the boundary and initial conditions, are denoted by  $\xi$ . Expressions are obtained for the kinetic- ( $T$ ) and potential energy ( $U$ ). The notations

$$\rho_1\{\xi(r)\} = \int \xi^2 dr + \alpha \sum_{k=1}^3 \int \left(\frac{\partial \xi}{\partial x_k}\right)^2 dr, \quad \rho_2\{\xi(r)\} = \int \rho \xi^2 dr \quad (2.1)$$

are introduced. By definition, the equilibrium is stable, if for any positive  $\epsilon$ , it is possible to find positive  $\delta$ , so that if

$$\rho_1\{\xi_0(r)\} < \delta_1, \quad \rho_2\{\xi_0(r)\} < \delta_2 \quad (2.2)$$

then for all  $t \geq 0$

$$\rho_1\{\xi(t, r, \xi_0(r), \dot{\xi}_0(r))\} < \epsilon_1, \quad \rho_2\{\xi(t, r, \xi_0(r), \dot{\xi}_0(r))\} < \epsilon_2 \quad (2.3)$$

Instability is also defined, as well as the positive-definite functionals  $V$  and  $T$ . Theorem 3.1: (The necessary stability-condition): In order than an ideally conducting inviscid fluid be stable, it is necessary that  $U(\xi) \geq 0$  for all allowed  $\xi(r)$ . Theorem 3.2: (The sufficient stability-condition): If  $U(\xi)$  is a positive-definite func-

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On stability conditions for ...

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tional in the metric  $\rho_1(\xi)$ , then the equilibrium of the fluid is stable. The theorem is proved. It is analogous to Lagrange's well-known theorem, whose generalization was proposed by A.A. Movchan (in the references) in stability investigations of elastic systems and continua. Further, the stability of viscous ideally conducting fluids is considered. Two theorems and a corollary give the stability (respectively instability-) conditions. The theorems are analogous to Kelvin's well-known theorems on the effect of dissipative forces on the equilibrium of material systems. The most important English-language reference reads as follows: A. Hare, The effect of viscosity on the stability of incompressible magnetohydrodynamic systems. Phil. Mag., 1959, v. 4, no. 48. f

SUBMITTED: December 2, 1961

Card 3/3

DEM'YANOV, V.F. (Leningrad); KHOMENYUK, V.V. (Leningrad)

Solution of a linear problem on optimum control. Avtom. i telem.  
24 no.9:1174-1177 S '63. (MIRA 16:9)

(Automatic control)

E 48957-65 EWT(d)/EWP(v)/T/EWP(h)/EWP(k)/EWP(l) Pf-4 IJP(c)

ACCESSION NR: AP5011903

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18  
17  
8

AUTHOR: Baranov, A. Yu. (Leningrad); Khomenyuk, V. V. (Leningrad)

TITLE: The solution of the linear problem of minimizing the quadratic functional in Hilbert space

16

SOURCE: Avtomatika i telemekhanika, v. 26, no. 4, 1965, 615-620

TOPIC TAGS: quadratic functional minimum, Hilbert space functional, optimum control, linear minimizing problem

ABSTRACT: Let  $H_1, H_2,$  and  $H_3$  be real Hilbert spaces,  $A$  and  $B$  - distributive operators (V. I. Smirnov, Kurs vysshey matematiki, v. 5, Fizmatgiz, 1959), with regions of definition  $D(A) \subset H_1$  and  $D(B) \subset H_2$ , respectively.  $B$  is a bounded operator while  $Ax \in H_3$  and  $Bu \in H_3$  if  $x \in D(A), u \in D(B)$ , and  $f \in H_3; \|f\| < \infty$ . The authors study the equation

$$Ax = Bu + f, \tag{1}$$

in  $H_3$ , where  $x$  is the sought element in  $D(A)$ , and control  $u$  is an arbitrary element of the convex closed set  $U \subset D(B)$ . Equation (1) is assumed to have a unique solution for arbitrary control  $u \in U$ , i.e., there exist a and inverse bounded

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ACCESSION NR: AP5011903

operator  $A^{-1}$  defined within the region  $D(A^{-1}) \subset H_3$  such that for an arbitrary  $u \in U$

$$Bu + f \in D(A^{-1}), \quad (2)$$

and at the same time  $\|A^{-1}(Bu + f)\|^2 \leq 1^2$ . The problem solved in the paper consists of the calculation of an optimum  $U_{opt} \in U$  which conveys the smallest possible value to the functional

$$J(u) = \|x(u)\|^2 = \|A^{-1}(Bu + f)\|^2 \quad (3)$$

where  $x(u)$  is the solution of (1) with  $u \in U$ , and  $\|x\|$  is the norm of the element  $x$  of  $H_1$ . The quadratic functional was minimized by successive approximations representing a generalization of the V. P. Dem'yanov approach (PMM, v. XXVII, no. 3, 1963). The convergence of the functional towards its optimum value is proved and the authors apply the method to a specific example of analysis and design of a system of automatic control. Orig. art. has: 44 formulas.

ASSOCIATION: None

SUBMITTED: 15May64

ENCL: 00

SUB CODE: IE, MA

NO REF SOV: 002

OTHER: 000

Card 2/2

E 0245 1-67 EMT(X)/EWT(D)/EWT(d)/EMT(1)/EMT(v)

ACC NR: AP6010277

SOURCE CODE: UR/0103/66/000/003/0005/0017

AUTHOR: Khomenyuk, V. V. (Leningrad)

ORG: none

36  
B

TITLE: Synthesis of programmed control in a linear system based on a single coordinate

SOURCE: Avtomatika i telemekhanika, no. 3, 1966, 5-17

TOPIC TAGS: linear automatic control, automatic control design, automatic control R and D

ABSTRACT: Based on the proof of several control theorems, the author analyzes conditions and restraints for the synthesis of a control in a linear system based on a single coordinate. Such a system can be described by a system of ordinary differential equations

$$\frac{d}{dt}X(t) = A(t)X(t) + \sum_{j=1}^r B_j(t)u_j(t) + F(t), \quad (1)$$

and initial conditions  $X(0) = X_0$ , where  $A(t)$  is a square  $n \times n$  matrix,  $F(t)$  and  $B_j(t)$  ( $j=1, \dots, r$ ) are  $n$ -dimensional vectors. The elements in these matrices are essentially piecewise continuous and given for  $[0, T]$  function;  $u(t)$  is also essentially piecewise continuous, known for  $[0, T]$  and satisfies  $u_j(t) < 1$  ( $j=1, \dots, r$ ).  $T > 0$  is the fixed

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ACC NR: AP6010277

control time. Let  $X(t,u) = (x_1(t,u), \dots, x_p(t,u))$  be the solution of the system (1) for given initial conditions for the selected control  $u(t) = (u_1(t), \dots, u_p(t))$ ,  $U_T$ .

The control function  $u(t)$  has to be selected such that starting from the initial conditions the object will assume the state  $x_1(T,u) = x_1^*$  during  $T > 0$ , where  $x_1^*$  is given. Let also  $Q_1(x_0, T)$  be the plurality of values of  $x_1(T,u)$  for all possible  $u(t) \in U_T$ . Then: Theorem 1: The solution to the problem exists if and only if

$$x_1^* \in Q_1(X_0, T) \quad (2)$$

Theorem 2: Assuming (2) is true, then  $u(t)$  which provides the solution to the problem is in the form

$$u(t) = \alpha \bar{u}(t) + (1 - \alpha) \underline{u}(t),$$

where

$$\alpha = \frac{x_1^* - \underline{x}}{\bar{x} - \underline{x}}, \quad \text{if } \bar{x} \neq \underline{x},$$

and  $\alpha$  is an arbitrary number from the interval  $[0,1]$ , if  $\bar{x} = \underline{x}$ . The third theorem deals with the conditions which  $x_1^*$  must satisfy to make the solution of the problem possible and the fourth theorem provides the expressions for  $u_j(t)$  which provide the solution.

Theorem 5 postulates that  $u(t)$  cannot be determined by the principle of maximum and the sixth theorem deals with the fast system response. The author also investigates

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ACC NR: AP6010277

the conditions of controllability and other limitations for  $u(t)$ . Orig. art. has: 73  
formulas, 3 figures.

SUB CODE: 12,13/

SUBM DATE: 120ct65/

ORIG REF: 002

Card 3/3 *gd*

L 16113-66 EEC(k)-2/EWP(k)/EWT(d)/EWP(h)/EWP(l)/EWP(v) BC

ACC NR: AF5025115

SOURCE CODE: UR/0208/65/005/005/0894/0902

AUTHOR: Baranov, A. Yu. (Leningrad); Kazarinov, Yu. F. (Leningrad); Khomenyuk, V. V. (Leningrad)

ORG: none

TITLE: Gradient methods for solving problems of terminal guidance in linear systems of automatic control

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ABSTRACT: The authors consider the problem of minimizing the strongly convex functional of the terminal stage of an object whose motion is described by a linear system of ordinary differential equations

$$\frac{dX(t)}{dt} = A(t)X(t) + \sum_{j=1}^r B_j(t)u_j(t) + f(t)$$

with initial conditions  $X(0) = X^0$ , where  $X, B_j$  ( $j = 1, \dots, r$ ),  $f$  are  $n$ -dimensional vectors with respective coordinates  $x_1, \dots, x_n$ ;  $b_{1j}, \dots, b_{nj}$ ;  $f_1, \dots, f_n$ , and

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$A = (a_{ik})$  is an  $n$  by  $n$  matrix. It is assumed that  $b_{ij}(t)$ ,  $f_i(t)$  and  $a_{ik}(t)$  are real-valued and continuous for  $t \in (0, T)$  where  $T > 0$  is the given period of guidance. The authors determine the  $r$ -dimensional vector-function  $u(t) = (u_1(t), \dots, u_r(t))$  satisfying the condition  $|u_j(t)| \leq 1$ , ( $j = 1, \dots, r$ ),  $t \in [0, T]$  which minimizes the functional  $g(X(T, u))$ . In the latter  $g(X)$  is a real-valued, twice continuously differentiable and strongly convex function such as

$$\sum_{i,k=1}^n \frac{\partial^2 g(X)}{\partial x_i \partial x_k} z_i z_k \geq m \sum_{i=1}^n z_i^2,$$

where  $m > 0$  is a constant and  $X(t, u)$  is the solution of the system under consideration corresponding to the solution  $u$ . The use of the gradient method for the solution of the problem is also studied. The authors thank V. I. Zubov for advice. Orig. art. has: 1 figure and 37 formulas.

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