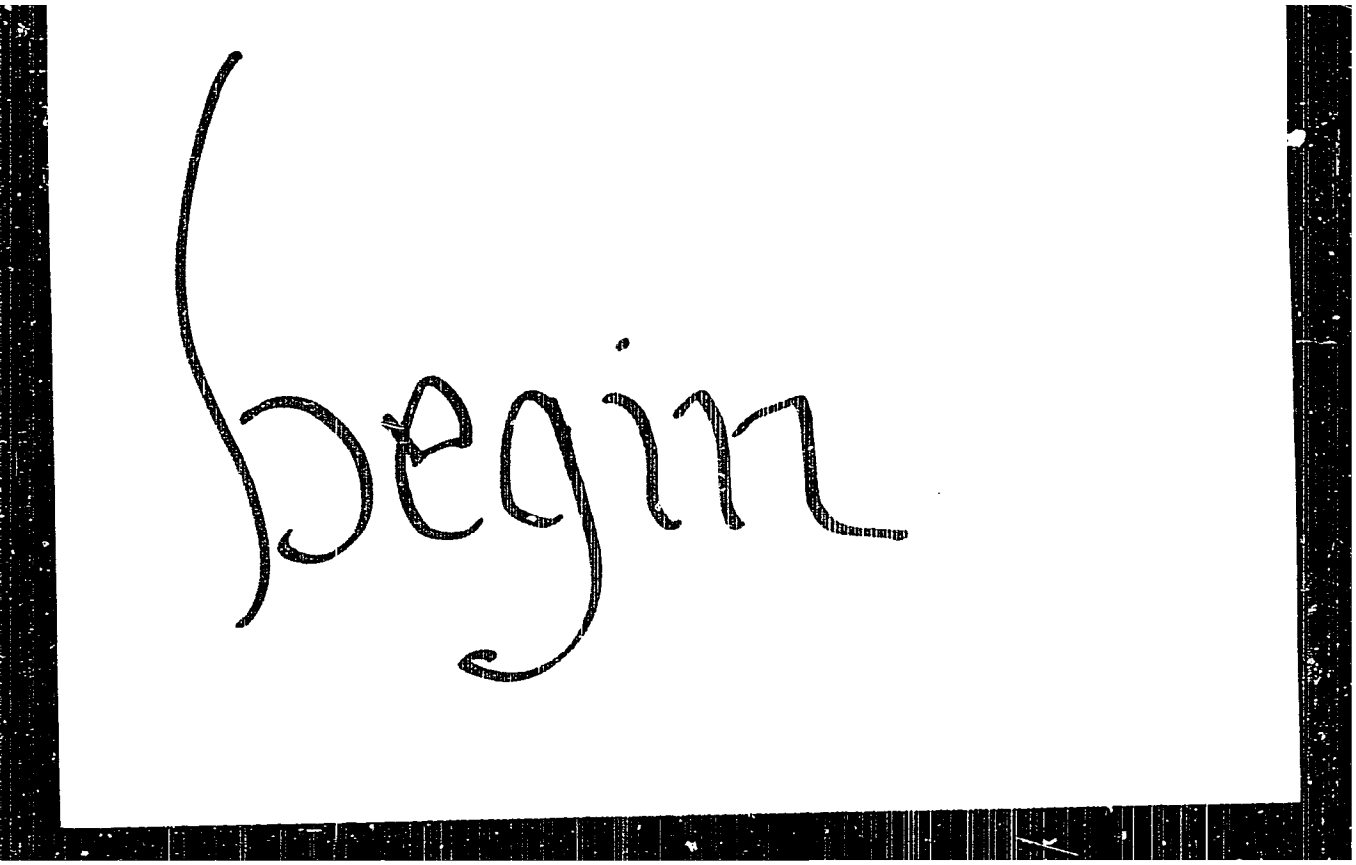

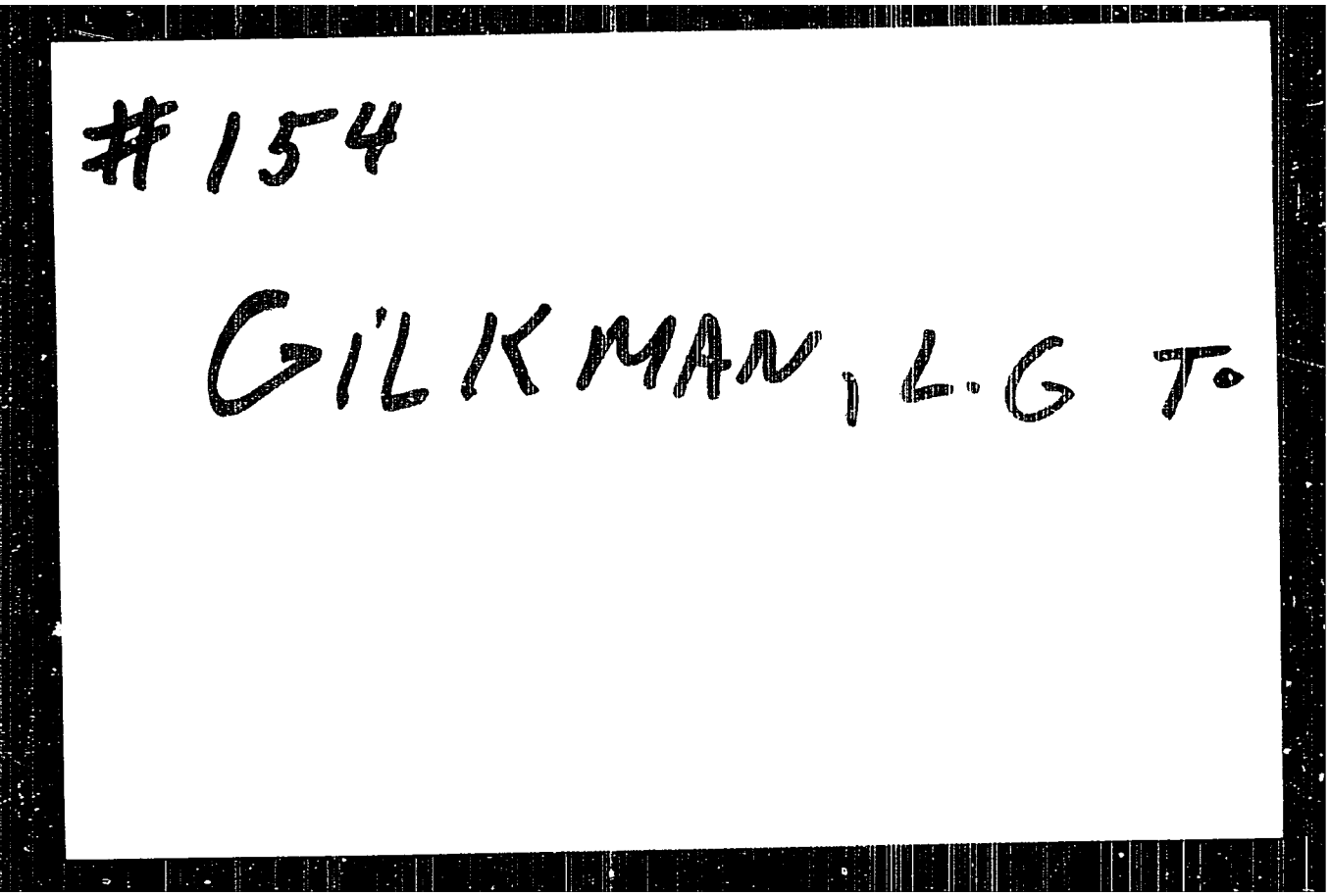

L 6956-66 EWT(1)/FCC/EWA(h) GW

ACC NR: AP5026229 SOURCE CODE: UR/0048/65/029/010/1865/1869

AUTHOR: Glikman, L.G.; Kel'man, V.M.; Yakushev, Ye.M.

ORGAN: Institute of Nuclear Physics, Academy of Sciences, KazSSR (Institut yadernoy fiziki Akademii nauk KazSSR)

TITLE: On the electromagnetic mechanism of cosmic ray acceleration /Report, All-Union Conference on Cosmic Ray Physics held at Apatity, 24-31 August 1964/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya. v. 29, no. 10, 1965, 1865-1869

TOPIC TAGS: Primary cosmic ray, particle acceleration, alternating magnetic field, relativistic particle

ABSTRACT: The relativistic equations of motion of a charged particle moving in the plane of antisymmetry of a varying axially symmetric magnetic field are solved for the case when the azimuthal component of the vector potential in the plane of antisymmetry has the form $f(r/(t - a))/r$, where f is an arbitrary function, r is the distance from the axis, t is the time, and a is a constant. Numerical solutions were computed for a field which alternately increases and decreases between finite limits and remains constant for a time at each limit. For the computations it was assumed that the field strength oscillates between 1.0×10^{-5} and 1.2×10^{-5} Oe with a period of 3.5×10^{5} sec. Some of these solutions are presented graphically and are discussed. The computations show that the ratio of particle energy to field strength is not constant and

Card 1/2

L 6956-66

ACC NR: AP5026229

that particles can be accelerated to high energies by variable magnetic fields which do not increase indefinitely in strength. Orig. art. has: 19 formulas and 4 figures.

SUB CODE: AA SUBM DATE: 00/--Oct65 ORIG. REF: 006 OTH REF: 000

Card 2/2

L 2194-66 EWT(1) IJP(c)

ACCESSION NR: AP5019234 UR/0056/65/049/001/0210/0213

AUTHOR: Glikman, L. G.; Kel'man, V. M.; Yakushev, Ye. M.

TITLE: Exact integration of the equations of motion of relativistic charged particles for a certain class of variable electromagnetic fields

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 49, no. 1, 1965, 210-213

TOPIC TAGS: motion equation, nonlinear differential equation, partial differential equation, first order differential equation, charged particle, relativistic particle

ABSTRACT: The authors obtain an exact solution for the equations of motion of relativistic charged particles in a variable electromagnetic field having rotational symmetry, in which there is a median plane that is perpendicular to the symmetry axis and is a plane of antisymmetry for the magnetic field and a plane of symmetry for the electric field. The motion of the particles in this plane is treated. It is assumed in addition that the charges produce no electric field and that the electrostatic potential is zero. The magnetic component of the field has only an azimuthal component in the median plane. The equations of motion are derived from the relativistic Hamiltonian-Jacobi equation and reduced to a first-order partial

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L 2194-66
ACCESSION NR: AP5019234

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differential equation, which is integrated by the Lagrange-Charpit method. Orig. art. has: 15 formulas.

ASSOCIATION: Institut yadernoy fiziki Akademii nauk Kazakhskoy SSR (Institute of Nuclear Physics, Academy of Sciences, Kazakh SSR)

SUBMITTED: 11Jan65 ENCL: 00 SUB CODE: GP, MA

NO REF SOV: 003 OTHER: 000

Card 2/2

L 10664-66 EWT(d)/EWT(l) IJP(c) GG

ACC NR: AP5028313 SOURCE CODE: UR/0057/65/035/011/1997/2003

AUTHOR: Glikman, L.G.; Kel'man, V.M.; Yakushev, Ye.M.

ORG: none

TITLE: Solution of the nonrelativistic equations of motion for a charged particle in a certain class of varying electromagnetic fields

SOURCE: Zhurnal tekhnicheskoy fiziki, v.35, no. 11, 1965, 1997-2003

TOPIC TAGS: charged particle, motion equation, electromagnetic field, mathematic method

ABSTRACT: The solution of the nonrelativistic equations of motion for a certain class of motions of a charged particle in a certain class of varying electromagnetic fields is reduced to quadratures and eliminations. The electromagnetic fields considered are those that are axially symmetric, have a median plane which is a plane of symmetry for the electric field and a plane of antisymmetry for the magnetic field, and for which the radial and axial components of the vector potential vanish in the median plane (in the gauge in which the scalar potential vanishes) and the azimuthal component of the vector potential in the median plane has the form $F(r^2/(at^2 + bt + d))/r$, where r is the distance from the axis, t is the time, a, b, and d are constants, and F represents an arbitrary function. The motions considered are those in which the particle remains in the median plane. The particular form of the vector

UDC: 537.533.3

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L 10664-66

ACC NR: AP5028313

potential was investigated because it leads simply to an integral of motion. The treatment is different depending on whether the polynomial $at^2 + bt + d$ does or does not vanish during the motion, and special discussion is required for the case in which the particle passes through the point r = 0. No applications are suggested for the results obtained. Orig. art. has: 38 formulas.

SUB CODE: 20 SUBM DATE: 12Apr65/ ORIG.REF: 003 OTH REF: 001

Card 2/2 pw

GLIKMAN, L. Sh.

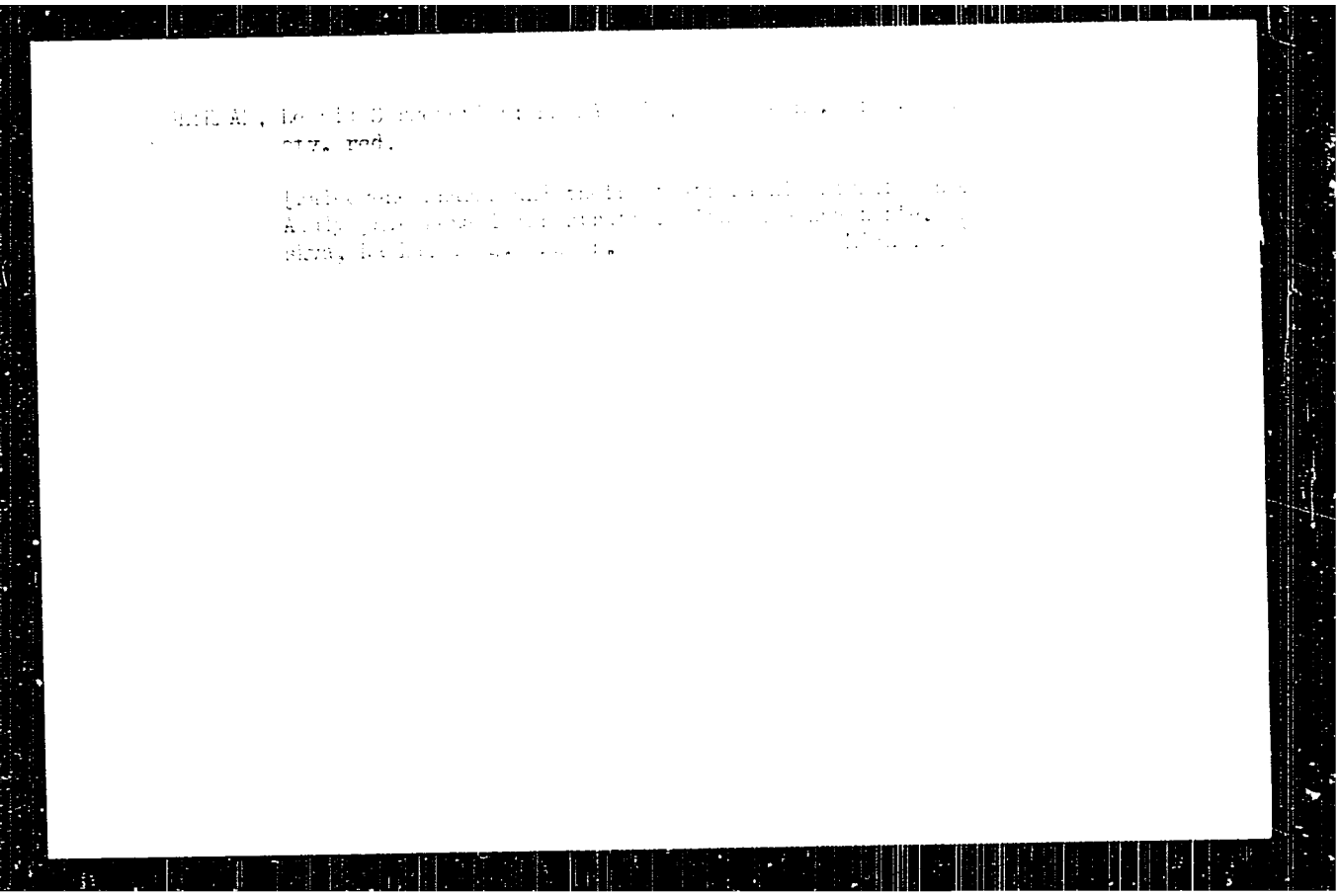
Effect of structure on the strength of twisted cotton yarn. Izv.vys. ucheb. zav.; tekh.tekst.prom. no.3:9-13 '60. (MIRA 13:7)

1. Yaroslavskiy tekhnologicheskiy institut.
(Cotton yarn)

GLIKMAN, L.S.; BOCHAROV, I.V.; VIKHMAN, G.L.; ABROSIMOV, B.Z.; KIRILOV, Ye.A.; MEL'NIKOV, S.M.; AGAFONOV, A.V.; SOSKIND, D.M.

Rebuilding catalytic cracking units with a combined reactor-regenerator. Khim. i tekh. topl. i masel 6 no.11:6-10 N '61. (MIRA 14:12)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut neftyanogo mashinostroyeniya.
(Cracking process)



GLIKMAN, L.S.; ROSHCHUPKIN, V.I.; PAVLOVSKAYA, Ye.I.

Powdered metal filters for retaining sand in oil recovery.
Neft.khoz. 37 no.12:30-36 D '59. (MIRA 13:5)
(Filters and filtration) (Sand)

GLIKMAN, L.S.

A visit of several days at petroleum industrial enterprises of Western Germany. Neft.khoz.34 no.4:74-79 Ap '56. (MLRA 9:7)
(Germany, Western--Petroleum industry)

GLIKMAN, L.S.; BERZHETS, G.N.

Basic trends in the creation of new oil and gas drilling units.
Neft.khoz. 37 no.2:22-31 F '59. (MIRA 12:4)
(Boring machinery)

GLIKMAN, L.S.; BERZHETS, G.N.

Basic trends in the creation of new oil and gas drilling units (conclusion). Neft.khoz. 37 no.3:15-25 Mr '59. (MIRA 12:5)

(Boring machinery)

SHATSOV, Makhmun Isaakovich, prof.; FEDOROV, Vasiliy Sergeyevich; KULIYEV, Saftar Mekhtiyevich; IOANNESYAN, Ruben Arsen'yevich; SHISHCHENKO, Roman Ivanovich; GLIKMAN, Leonid Solomonovich; BALETSKIY, Pavel Vladimirovich; TIMOFEYEV, N.S., inzh., retsenzent; ISAYEVA, V.V., vedushchiy red.; MUKHINA, E.A., tekhn.red.

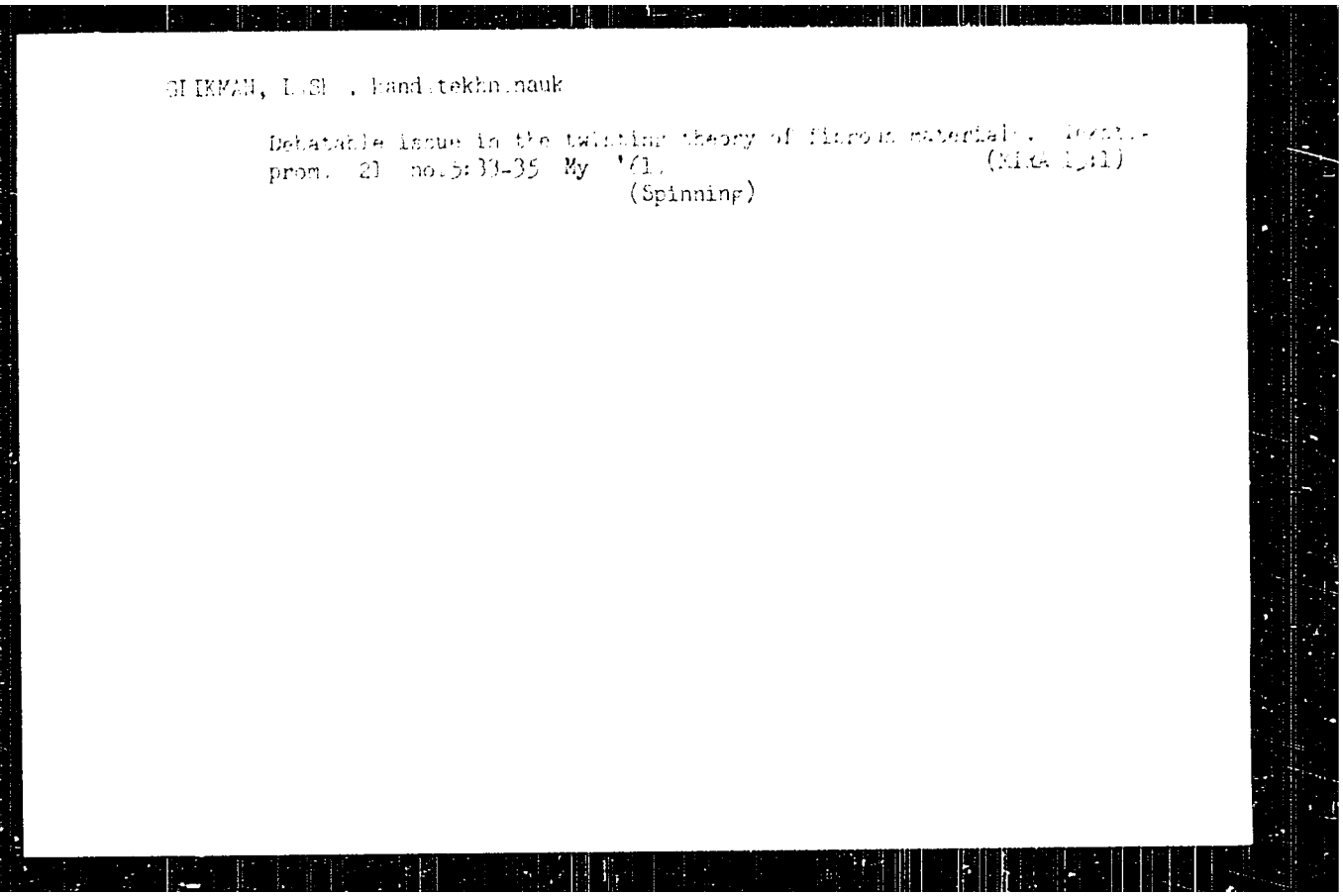
[Drilling oil and gas wells] Burenie neftianykh i gazovykh skvazhin. Pod obshchei red. M.I.Shatsova. Moskva, Gos.nauchno-tekhn.izd-vo neft. i gorno-toplivnoi lit-ry, 1961. 666 p. (MIRA 14:4)

(Oil well drilling)

GLIKMAN, L.Sh.

Distribution of stresses among the constituent elements of a twisted yar under load. Izv.vys.ucheb.zav.; tekh.tekst.prom. no.3:13-22 '61. (MIRA 14:7)

1. Yaroslavskiy tekhnologicheskiy institut.
(Yarn) (Spinning)



SHIKMAN, L.Sh. , kand.tekhn.nauk

Debatable issue in the twisting theory of fibrous materials. [illegible]
prom. 21 no.5:33-35 My '61. (MIRA 14:11)
(Spinning)

POLYAK, M.A.; GLIKMAN, L.Sh.; ZIMIN, I.A.; DEMIDOV, G.K.

Development and use of chafer fabrics with a new yarn structure in the manufacture of tires. Kauch. i rez. 22 no.10:50-52 O '63. (MIRA 16:11)

1. Yaroslavskiy tekhnologicheskiy institut i Yaroslavskiy shinnyy zavod.

GLIKMAN, L.S.; IOANNESYAN, Yu.R.; IOANNESYAN, R.A.

Using turbines with falling pressure lines as axial drill pumps. Neft. khoz. 41 no.2:13-19 F '63. (MIRA 17:2)

GLIKMAN, L.S.

The position occupied by lamnoid sharks in the system of Elasmobranchii. Dokl.AN SSSR 108 no.3:555-557 My '56.(MLRA 9:8)

1. Geologicheskiy muzey imeni A.P. Karpinskogo Akademii nauk SSSR, Leningrad. Predstavleno akademikom I.I. Shmal'gauzenom.
(Sharks) (Elasmobranchii)

GLIKMAN, L.S.

Phylogenitic development of the genus Anacorax. Dokl. AN SSSR 109 no.5:1049-1052 Ag. 1956. (MLRA 9:10)

1. Geologicheskiy muzey imeni A.P. Karpinskogo Akademii nauk SSSR. Predstavleno akademikom I.I. Shmal'gauzenom.
(Sharks, Fossil)

GLIKMAN, L.S.

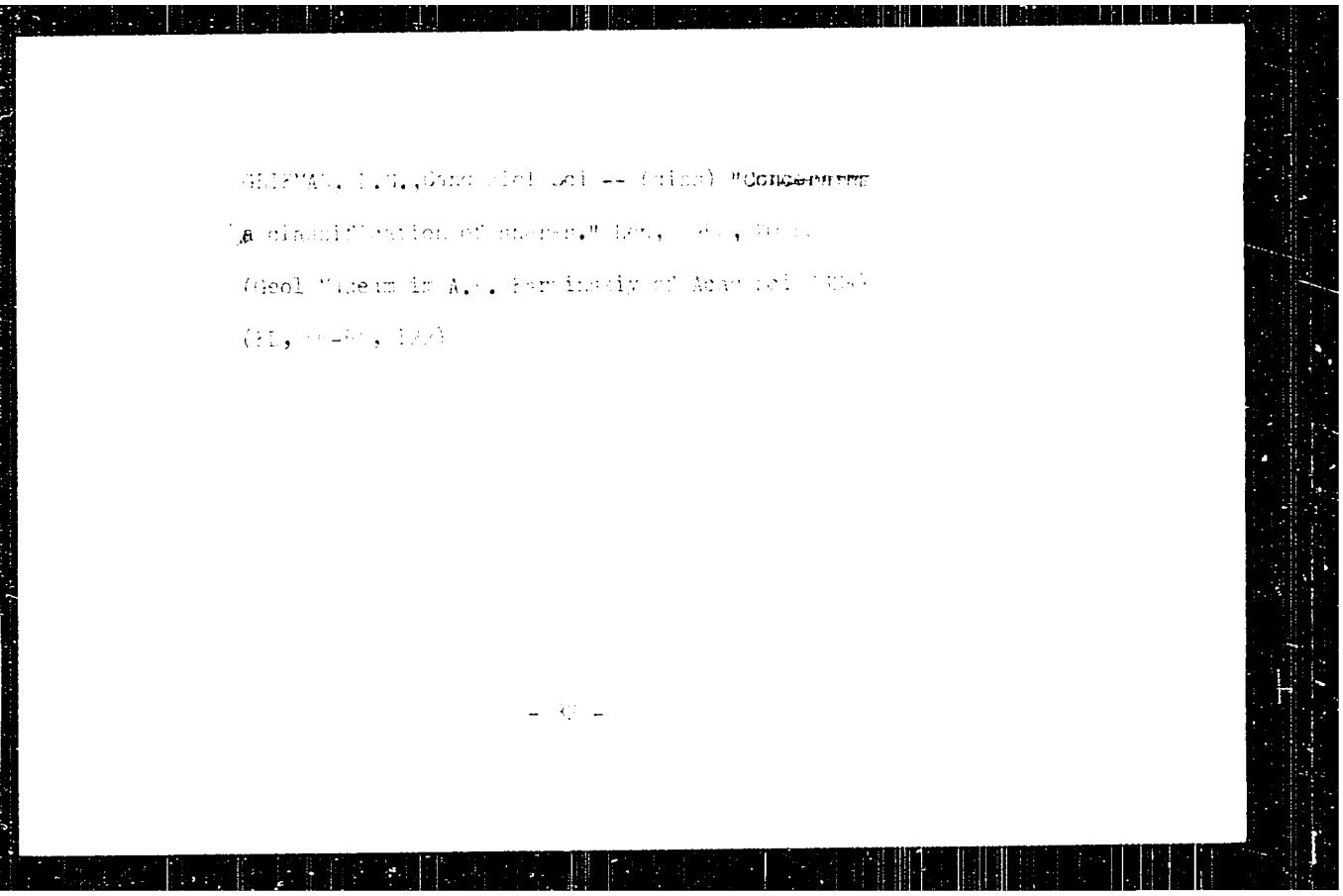
Importance of small auxiliary teeth in sharks of the Lamnidae and Scapanorhynchidae families in connection with the classification of shark teeth. Trudy Geol. muz. AN SSSR no.1:103-109 '57.
(Sharks) (MIRA 11:4)

GLIKMAN, L.S.

Genetic connection between the families Lamnidae, Odontaspidae, and new genera of upper Cretaceous lamnids. Trudy Geol. muz. AN SSSR no.1:110-117 '57. (MIRA 11:4)
(Sharks, Fossil)

GLIKMAN, L.S.

Age of the phosphorite horizon in the vicinity of Krasnyy Yar, Stalingrad Province. Trudy Geol. muz. AN SSSR no.1:118-120 '57. (MIRA 11:4)
(Stalingrad Province--Phosphorites)



17(0)
AUTHOR: Glikman, L. S. SOV/20-123-3-[illegible]/[illegible]

TITLE: On the Rate of Evolution of Lamnoid Sharks (O tempakh evolyutsii lamnoidnykh akul)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 123, Nr 3, pp [illegible] (USSR)

ABSTRACT: As a rule convergency is underrated by palaeontologists, if they are accustomed to ascribing a very long existence to recent and extinct species of the shark. Convergency can only be taken into consideration when examining the degree of evolution of single characteristics at different times. If the latter is not considered serious errors arise. Characteristics of recent forms are superimposed on fossil forms; in this way recent species are connected with fossil forms of only distantly related groups, whereas fossil species of closely related groups, when showing striking systematic differences, are separated from each other and united with distant groups. The author endeavours to prove these statements by the example of the sharks mentioned in the title. By comparing the fossil lamnides (Oxyrhina mantelli) with the Carcharhinidae, although they are genetically not connected with the lamnides, the author concludes that in

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various groups of sharks with incisors independent of each other teeth of the same type could develop. From the fact that in the recent lamnides the furthest posterior teeth are inclined to reduction, and that the teeth formula varies considerably, not only from species to species, but even within one species, the author concludes that all recent lamnidae [illegible] appeared not long ago in the course of evolution. [illegible] separate the recent lamnides sharply from the fossil mackerel, Cxyrhina mantelli. It originates from Isurus denticulatus, which itself originated from the genus Paraisurus. This whole group is united by the author into a new family Cretoxyrhinidae fam. nov., which probably descended from the family Orthacodidae. The likely ancestor of Cretoxyrhinidae Paraisurus macrorhiza (Pictet and Campiche) Glues lived only in the Albian. No species reached the present. All of them seem to have become extinct during the Upper Cretaceous Period. For O. mantelli the author establishes a new genus, Cretoxyrhina gen. nov. After morphological-phylogenetical observations the author describes another new genus, Cretolamna nov. gen. for the species already known - Lamna appendiculata from the Cenomanian of Saratov; this may possibly also belong to a special family. In conclusion,

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On the Rate of Evolution of Lamnoid Sharks SOV/20-123-3-[illegible]/54

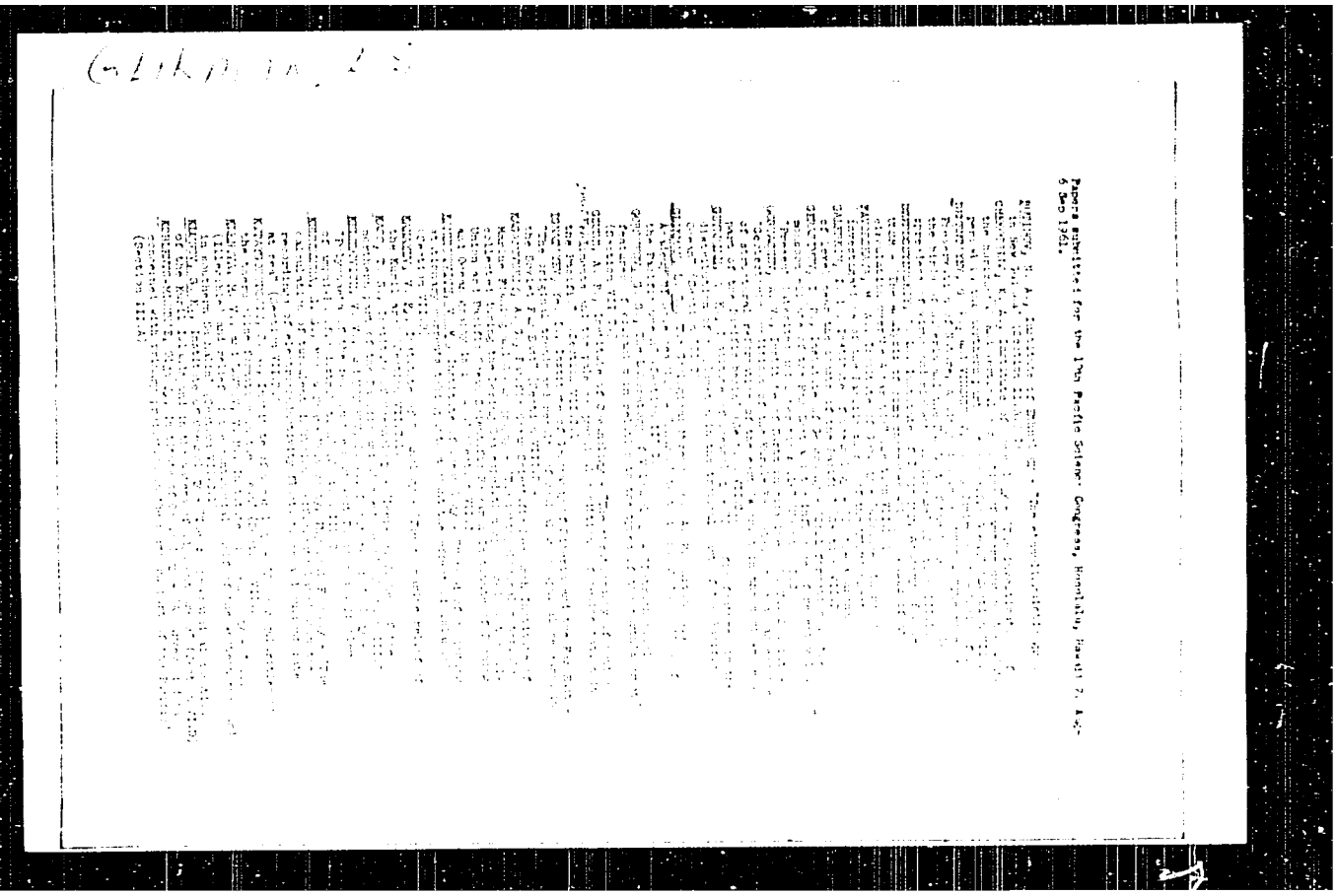
the teeth of the genus Carcharodon are compared with those of Cretoxyrhina denticulata (Cenomanian of Saratov), Lamna and Odontaspis (recent). Certainly the evolution of sharks has been turbulent, and the forms succeeded one another quickly. This is once more proved by the phylogenetic line Palaeocarax-Anacarax.

ASSOCIATION: Geologicheskiy muzey im. A. P. Karpinskogo Akademii nauk SSSR (Geological Museum imeni A. P. Karpinskiy of the Academy of Sciences, USSR)

PRESENTED: August 10, 1958, by I. I. Shmal'gauzen, Academician

SUBMITTED: July 14, 1958

Card 3/3



GLIKMAN, L.S., kand. biolog. nauk

Sharks, origin and evolution. Priroda 52 no.12 [illegible] '63.
(MIRA 17:3)

1. Geologicheskiy muzey im. A.P. Karpinskogo, Leningrad.

VERTSMAN, G.Z., kandidat tekhnicheskikh nauk; GLIKMAN, M.S., kandidat tekhnicheskikh nauk.

Overall planning of transportation centers. Zhel.dor.transp.39 no.1:42-45 Ja '57. (MLRA 10:2)
(Railroads--Stations) (Freight and freightage)

VERTSMAN, G.Z., kand. tekhn. nauk; GOMOLYAKO, I.M., kand. tekhn. nauk;
GLIKMAN, M.S., kand. tekhn. nauk; KORNAKOV, A.M., kand. tekhn. nauk

"Collected papers of the Moscow Research Institute of Railroad Engineering; designing railroad stations and yards." Reviewed by G.Z.Vertsman, Transp. stroi. 8 no. 7:31-32 Jl '58. (MIRA 11:7)
(Railroads--Stations)
(Railroads--Yards)

KORNAKOV, A.M., kand.tekhn.nauk; GLIKMAN, M.S., kand.tekhn.nauk

Modern designs of hump marshalling yards. Transp.stroi. 10 no.8:43-47 Ag '60. (MIRA 13:8)
(Railroads--Hump yards)

PEREYEZDCHIKOV, Vasiliy Mikhaylovich; ZOSIMOV, Dmitriy Mikhaylovich, glavnyy zootekhnik; GLIKMAN, N., red.; ISUPOVA, N., tekhn. red.

[Our experience in the loose housing of cows] Nash opyt bespriviaznogo soderzhaniia korov. Simferopol', Krymizdat, 1960. 21 p. (MIRA 14:12)

1. Direktor sovkhoza im. Timiryazeva, Krasnogvardeyskogo rayona (for Pereyezdchikov).

(Dairy barns)

GRIDINA, Aleksandra Vasil'yevna, doyarka; GLIKMAN, N., red.; FISENKO, G., tekhn. red.

[Five thousand kg. of milk from our cows] 5000 kg. moloka ot korovy. Simferopol', Krymizdat, 1960. 25 p. (MIRA 14:12)

1. Kolkhoz "Ukraina" Kirovskogo rayona (for Gridina).
(Milk)

RUBINA, Vera Aleksandrovna, kand. sel'khoz.nauk; GLIKMAN, N., red.; FESENKO, A., tekhn. red.

[Repair and restoration of vineyards] Remont i vosstanovlenie vinogradnikov. Simferopol', Krymizdat, 1960. 37 p. (MIRA 14:12)

(Viticulture)

BOLGAREV, Pavel Timofeyevich, prof., zasluzhennyy deyatel' nauki USSR; ZHILYAKOVA, O., red.; GLIKMAN, N., red.; PISENKO, A., tekhn. red.; ISUPOVA, N., tekhn.red.

[Viticulture] Vinogradarstvo. Simferopol'. Krymizdat, 1960. (MIRA 13:) 573 p.

1. Krymskiy sel'skokhozyaystvennyy institut im. M. I. Kalinina (for Bolgarev).

(Viticulture)

GALAKHIN, Aleksandr Ivanovich; GLIKMAN, N., red.; ISUPOVA, N., tekhn. red.

[Backyard apiary] Priusadebnaia paseka. Simferopol', Krym-izdat, 1960. 106 p. (MIRA 15:3)
(Bee culture)

NIKOLAYEV, Petr Ivanovich, starshiy nauchnyy sotr.; GLIKMAN, N., red.; ISUPOVA, N., tekhn. red.

[Pests and diseases of grapes] Vrediteli i bolezni vinograda. Izd. 2., perer. Simferopol', Krymizdat, 1961. 146 p. (MIRA 15:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut vinodeliya i vinogradarstva "Magarach" (for Nikolayev).
(Grapes--Diseases and pests)

MALAKHOVSKIY, V.F.; SHARGORODSKIY, S.D.; SUSHITSKIY, L.A.; GLINKAN, N., red.; FISENKO, A., tekhn. red.

[Mineral resources of the Crimea and their utilization in chemical industries] Mineral'nye bogatstva Kryma - khimicheskoi promyshlennosti. Simferopol', Krymizdat, 1959. 37 p. (MIRA 15:11)

(Crimea—Mines and mineral resources)
(Chemical industries)

POPOV, K.S., kand. tekhn. nauk; GAYVORONSKAYA, Z.I.; UMANETS, V.P.; NILOV, V.I.; VALUYKO, G.G.; OKHREMENKO, N.S.; ZHDANOVICH, G.A.; DATUNASHVILI, Ye.N.; SERHINOVA, N.I.; MARCHENKO, G.S.; KURAKSINA, N.K., TYURIN, S.T.; TYURINA, L.V.; KRINCHAR, M.S.; RAZUVAYEV, N.I.; OGORODNIK, S.T.; MIKHAYLOV, S.M.; ZHILYAKOVA, O., red.; GLIKMAN, N., red.; FISENKO, A., tekhn. red.;

[Wine making, manual for the workers of wineries on state and collective farms in the Crimea] Vinodelie; rukovodstvo dlia rabotnikov vinodel'cheskikh zavodov sovkhozov i kolkhozov Kryma. Simferopol', Krymizdat, 1960. 415 p. (MIRA 16:3)
(Crimea--Wine and wine making)

AKCHU[illegible], [illegible]; [illegible], [illegible], F.A.; ZEL[illegible], [illegible]; [illegible], [illegible], F.I.; [illegible], [illegible], A.F.; [illegible], S.I.; [illegible], A.I.; [illegible]; [illegible], A.F.; [illegible]; [illegible], N. [deceased]; [illegible]

[Manual for [illegible]] Simferopol', Krym, [illegible]

GLIKMAN, S.A.; AVER'YANOVA, V.M.; KHOMUTOV, L.I.

Structure of acetylcellulose solutions. Vysokom.soed. 5 no.4: 598-604 Ap '63. (MIRA 16:5)

1. Saratovskiy gosudarstvennyy universitet imeni N.G.Chernyshevskogo.
(Cellulose acetates)

GLIKMAN, S.A.

On globules, bundles, and gels. Koll. zhur. 25 no.4:500-502 Jl-Ag '63. (MIRA 17:2)

1. Saratovskiy universitet, kafedra fiziko-khimicheskikh polimerov.

GLIKMAN, S.A.; KOOT, L.A.

Volume effects of the dilution of high polymer solutions. Uch. zap. SGU 75:110-113 '62. (MIRA 17:3)

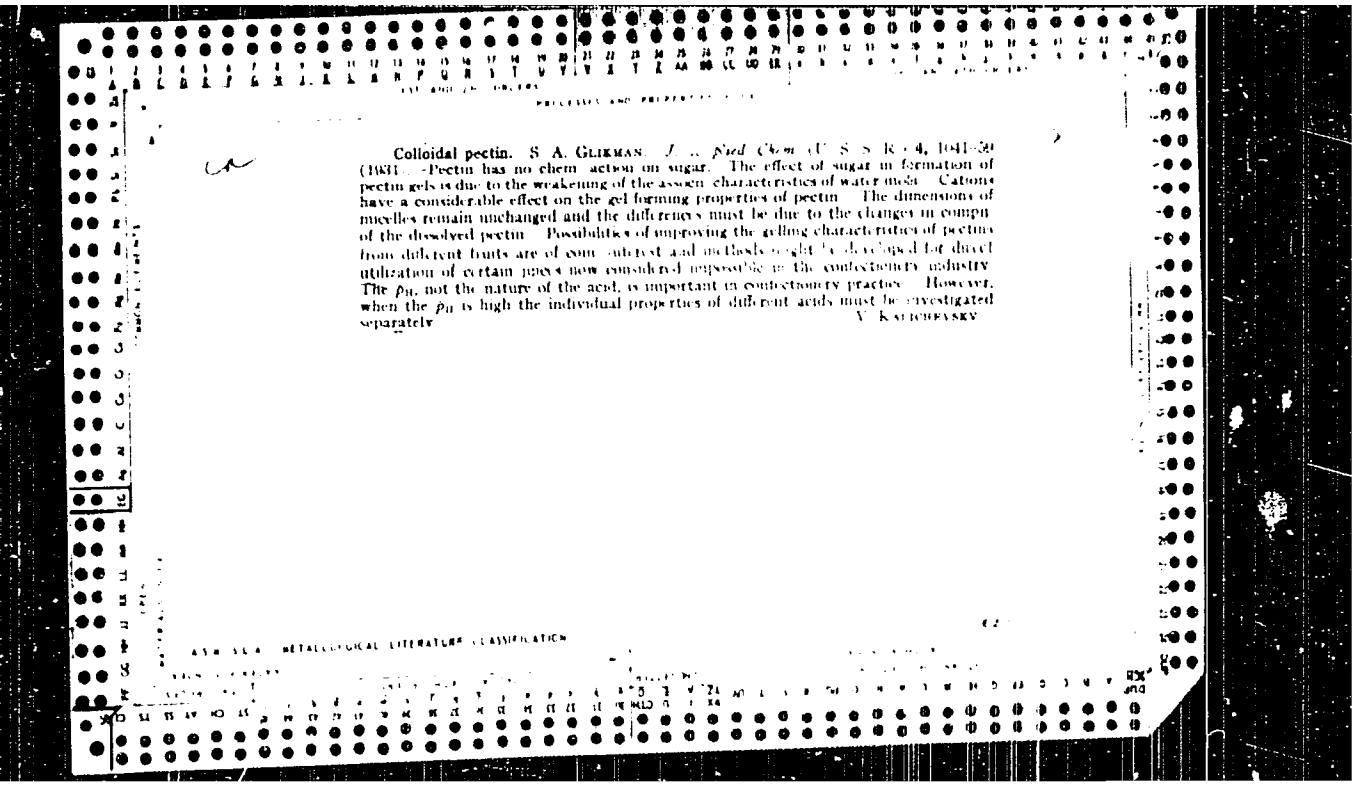
GLIKMAN, S.A.; SHUBTSOVA, I.G.

Methods of the physicochemical characteristics of agar. Uch. zap. SGU 75:113-116 '62. (MIRA 17:3)

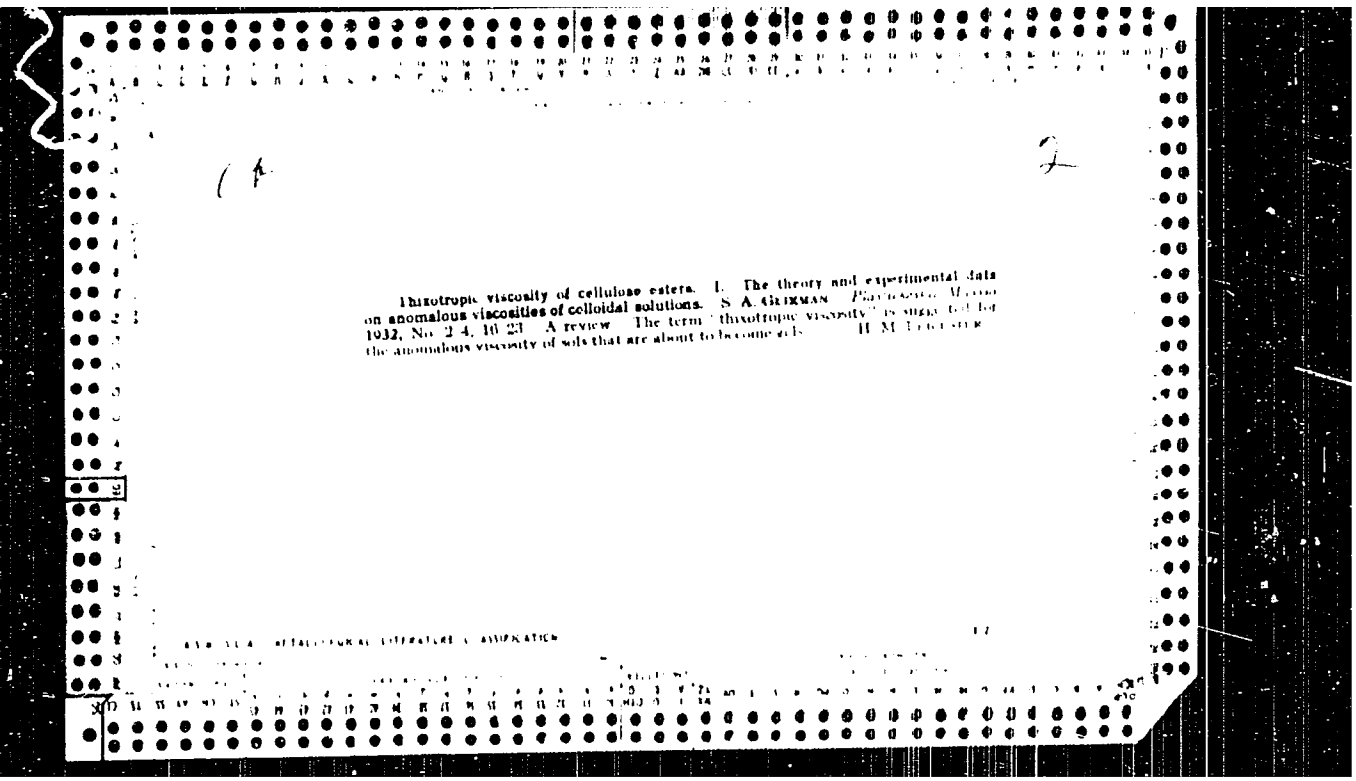
SHUBTSOVA, I.G.; KUDASHOVA, R.V.; GLIKMAN, S.A.; Prinimali uchastiye: Ponomareva, L.; CHERNIKOVA, Ye.; SHAKITA, N.

Effect of metal ions and of the anions of organic acids on the mechanical properties of agaroid gels. Koll.zhur. 25 no.6:728-731 N-D '63. (MIRA 17:1)

1. Saratovskiy universitet, kafedra fiziko-khimii polimerov.



Colloidal pectin. S. A. GLIKMAN. *J. Appl. Chem. (U.S.S.R.)*, 4, 1041–50 (1931).—Pectin has no chem. action on sugar. The effect of sugar in formation of pectin gels is due to the weakening of the assocn. characteristics of water molds. Cations have a considerable effect on the gel forming properties of pectin. The dimensions of micelles remain unchanged and the differences must be due to the changes in compn. of the dissolved pectin. Possibilities of improving the gelling characteristics of pectins from different fruits are of considerable interest and methods might be developed for direct utilization of certain juices now considered unsuitable in the confectionery industry. The p_H, not the nature of the acid, is important in confectionery practice. However, when the p_H is high the individual properties of different acids must be investigated separately. V. KARCHEVSKY.



Thixotropic viscosity of cellulose esters. I. The theory and experimental data on anomalous viscosities of colloidal solutions. S. A. GRIXMAN. *Physical Review*, 1932, No. 2 4, 10 23. A review. The term "thixotropic viscosity" is suggested for the anomalous viscosity of sols that are about to become gels. H. M. [illegible]

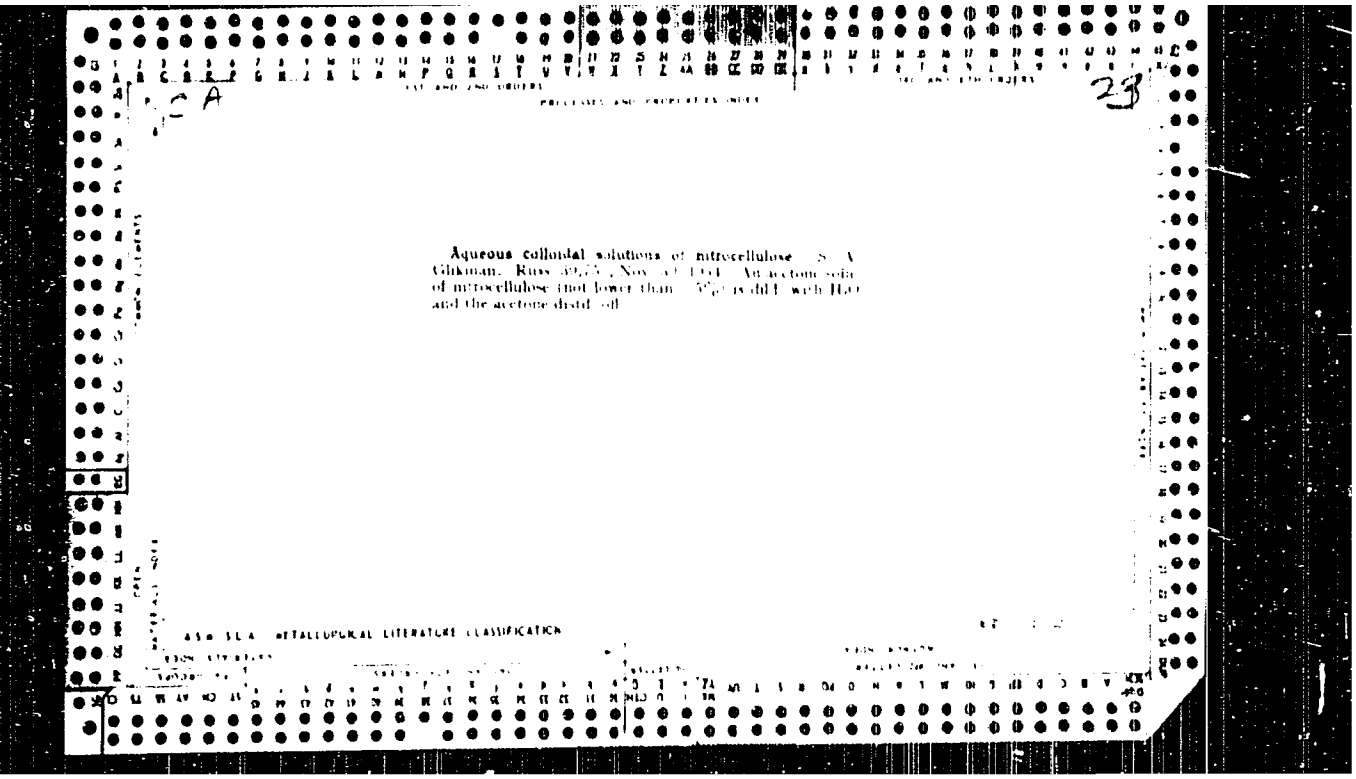
CA

2

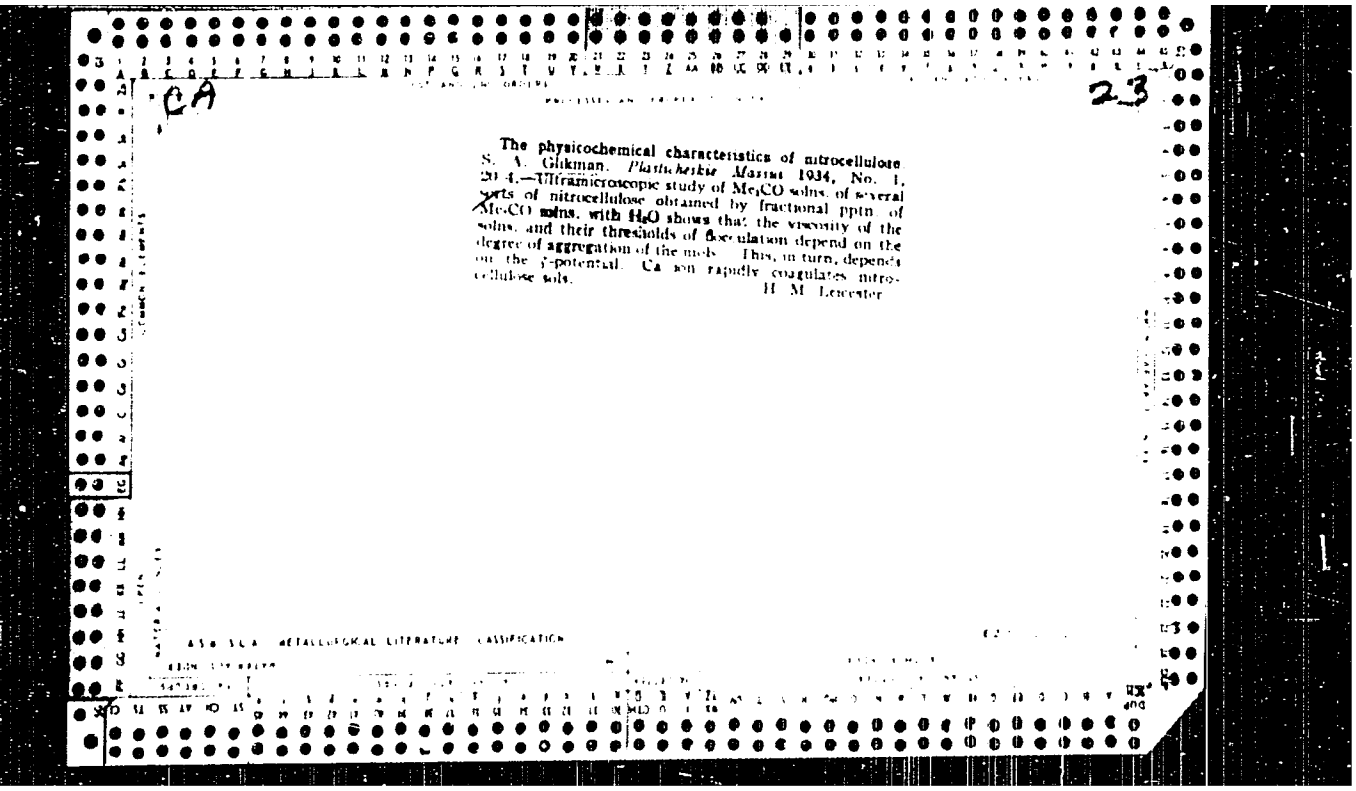
Buffer properties of pectin. S. A. Glikman. *J. Applied Chem.* (U. S. S. R.) 15, 628-33(1942); cf. C. A. 26, 3124.—Expts. show that the buffer action of pectin is due to cations in the mol. that are replaced by H to form a weakly ionized pectic acid.

V. Kaluzhsky

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Aqueous colloidal solutions of nitrocellulose. S. A. Glikman. Russ. [illegible], Nov. [illegible]. An acetone soln. of nitrocellulose (not lower than [illegible]) is shaken with H_2O and the acetone distd. off.



CA

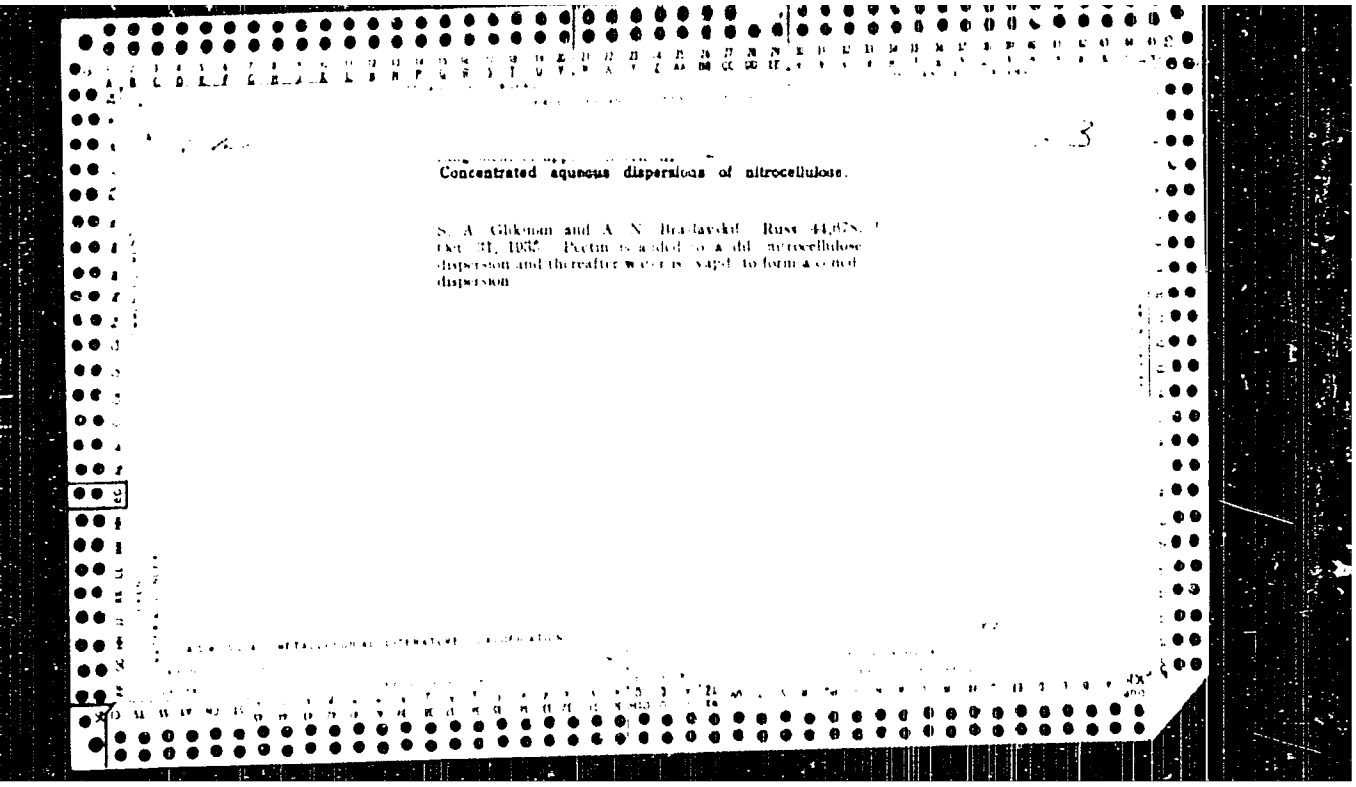
23

The physicochemical characteristics of nitrocellulose
S. A. Glikman. *Plasticheskie Massui* 1934, No. 1, 20-4.—Ultramicroscopic study of Me_2CO solns. of several sorts of nitrocellulose obtained by fractional pptn. of Me_2CO solns. with H_2O shows that the viscosity of the solns. and their thresholds of flocculation depend on the degree of aggregation of the micls. This, in turn, depends on the ζ-potential. Ca ion rapidly coagulates nitrocellulose sols.
H. M. Leicester

ASB STEEL METALLURGICAL LITERATURE CLASSIFICATION

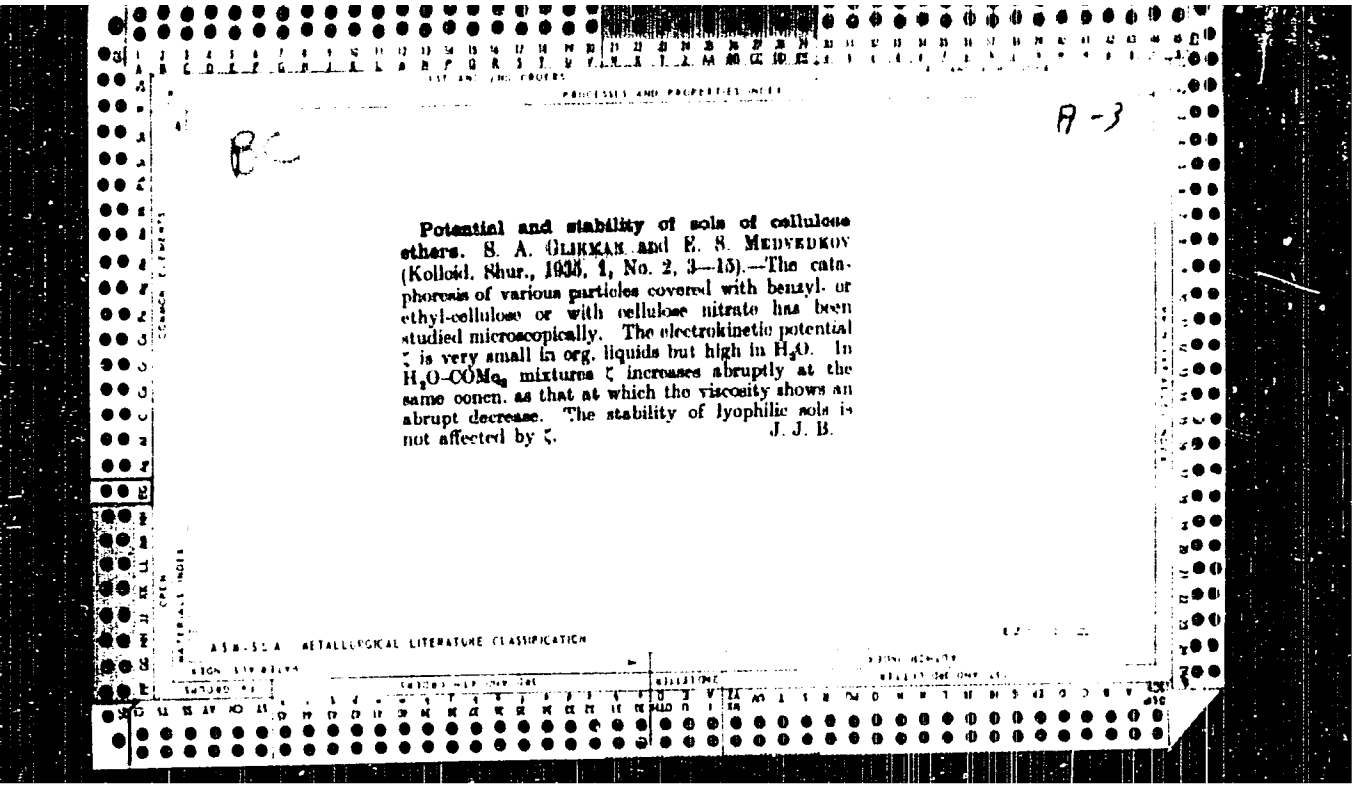
GLIKMAN S. A.

The structure of nitrocellulose solutions. S. A. Glikman. *Zhur. Fiz. Khim.* (J. Phys. Chem.) U. S. S. R. 8, 585 (1936).—Viscosity measurements on nitrocellulose, nitrocellulose acetate and nitrocellulose benzoate show that solns. having macro- or microscopic aggregates do not obey Poiseuille's law. Ca ions adsorbed on the nitrocelluloses (I) strongly increase the viscosity, but Na ions do so only slightly. With increasing concn. of I the ζ potential decreases. Addn. of salts of Ca or of acid also lowers the ζ potential, but alkali increases it. The viscosity of various fractions obtained by partial ppts. of the solns. (by adding water to the Me_2CO, $EtOAc$ or $CaCl_2$ solns. used) is not always in the same order as the size of the particles obtained, which constantly decreases, but depends also upon the concn. of the solns. From any sample of cellulose it is possible, by using a sol. Me_2CO soln. and slowly adding water, to prep. a hydrophilic sol. After concn. in vacuo a fairly stable 2% sol can be obtained. It is rapidly coagulated by mineral salts, and has a ζ potential strongly dependent on acids added. F. H. R.



Concentrated aqueous dispersions of nitrocellulose.

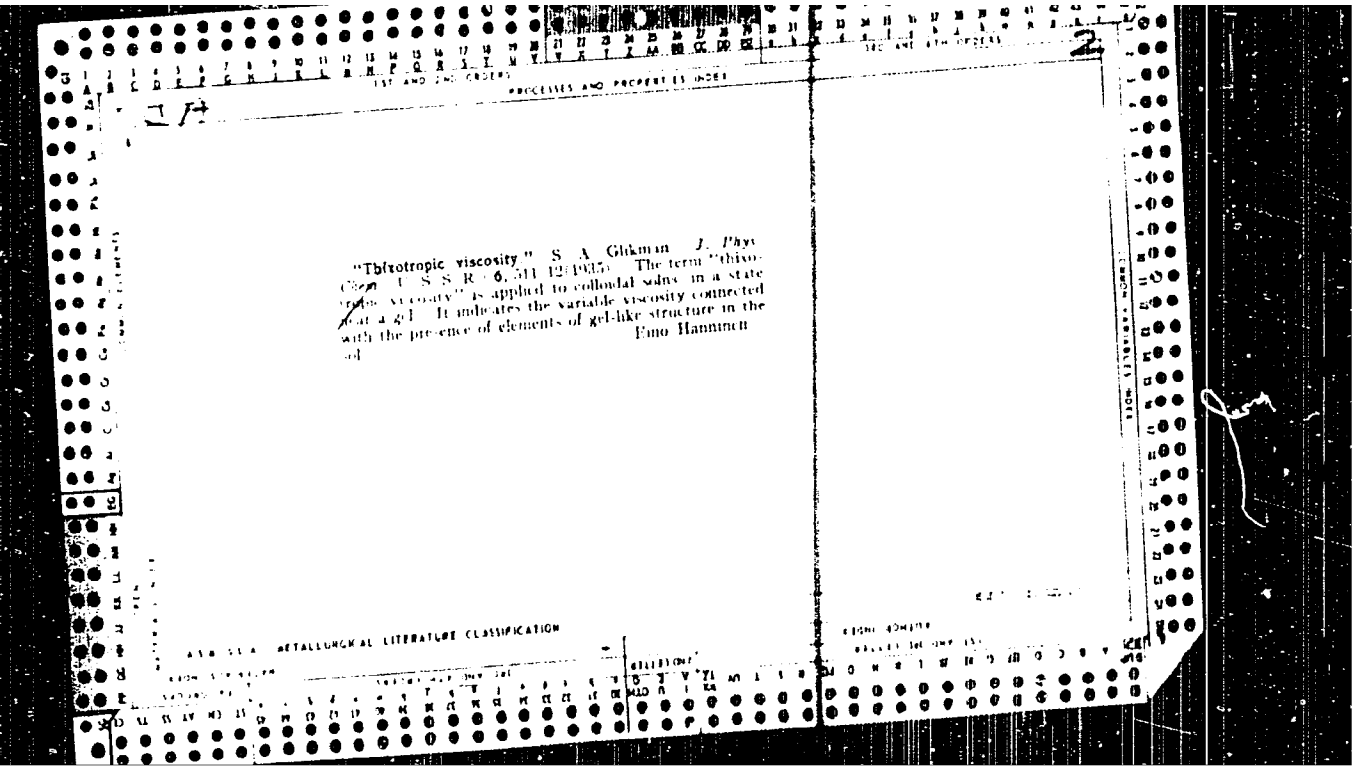
S. A. Glikman and A. N. Bratavskii. Russ 44,057. Oct. 31, 1935. Pectin is added to a dil. nitrocellulose dispersion and thereafter water is vapd. to form a concd. dispersion



A-3

B-

Potential and stability of sols of cellulose ethers. S. A. GLIKMAN and E. S. MEDVEDKOV (Kolloid. Shur., 1935, 1, No. 2, 3—15).—The cataphoresis of various particles covered with benzyl- or ethyl-cellulose or with cellulose nitrate has been studied microscopically. The electrokinetic potential ζ is very small in org. liquids but high in H_2O. In H_2O–$COMe_2$ mixtures ζ increases abruptly at the same concn. as that at which the viscosity shows an abrupt decrease. The stability of lyophilic sols is not affected by ζ. J. J. B.



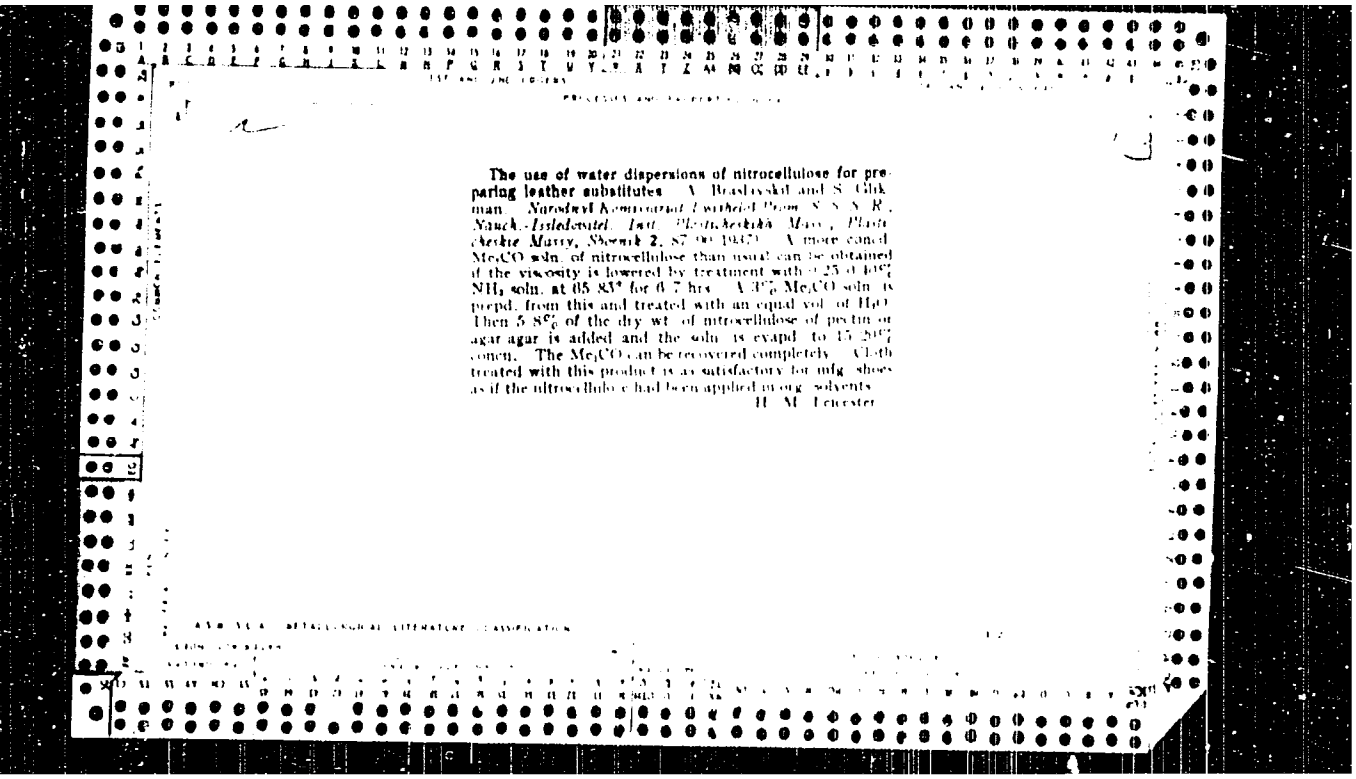
"Thixotropic viscosity." S. A. Glikman. *J. Phys. Chem. U.S.S.R.* 6, 511 12:1935. The term "thixotropic viscosity" is applied to colloidal solns. in a state near a gel. It indicates the variable viscosity connected with the presence of elements of gel-like structure in the sol.

Emo Hammen

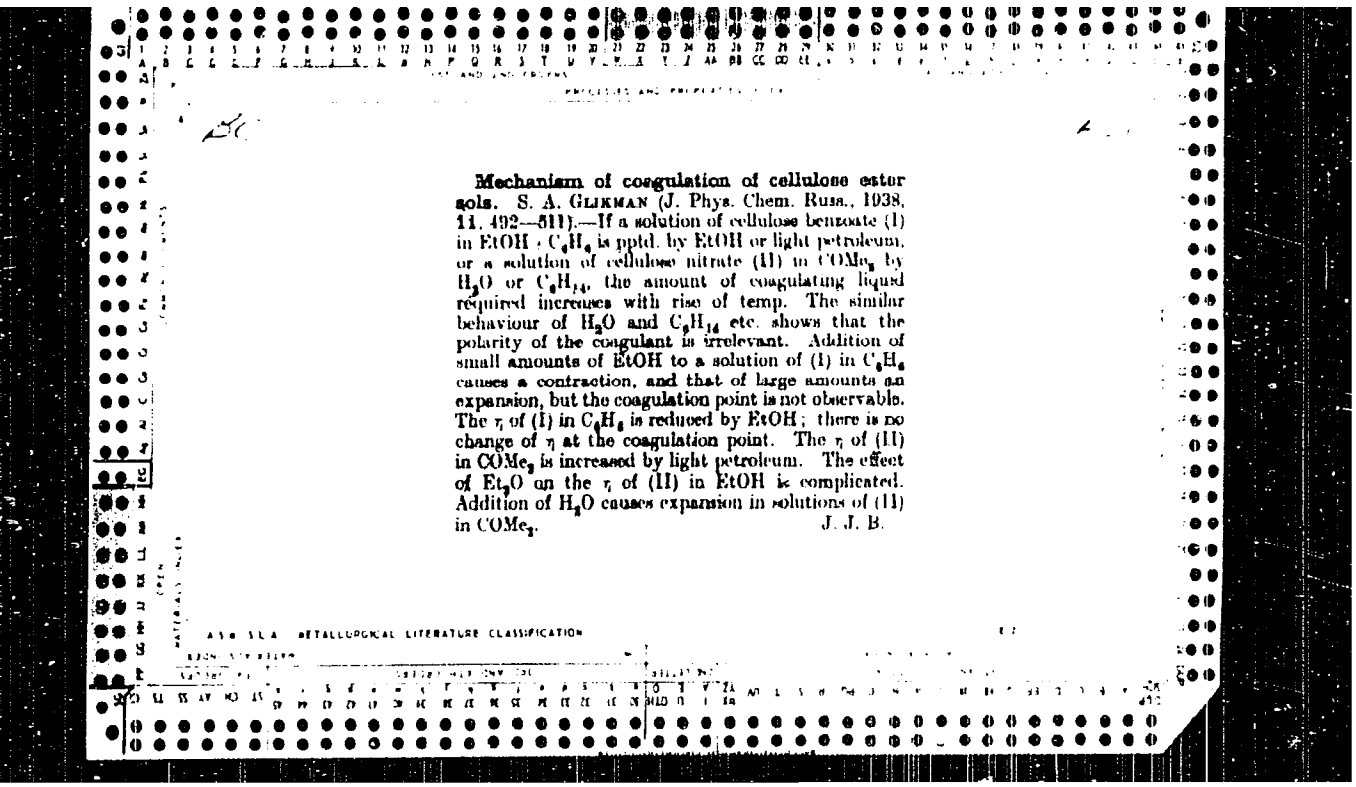
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

The nature of cellulose ether solutions S. A. Glikman. [illegible] *Kommunar* [illegible] [illegible] treated with alk. [illegible] in C_6H_6 and these solns. have lowered viscosity. Prolonged treatment with HCl causes considerable degradation. Fractional pptn. of the ether from $EtOH-C_6H_6$ solns. by EtOH gives fractions which differ little in degree of etherification, and there are no regularities in deviation from av. particle size. The viscosity and mech. properties decrease from the 1st to the last fraction. The properties of the 1st fraction are better than those of the original ether. These facts can be explained by the theory of Meyer and Mark. In coagulating the ether it is found that with rise in temp. more of the coagulating component must be added to cause pptn. When C_6H_6 solns. of the ether are treated with small amts. of EtOH, the viscosity falls sharply, and when [illegible] EtOH has been added to a 1% soln. of the ether or [illegible] to a 10% soln., the viscosity becomes const. until coagulation occurs. The stability of the solns. depends on an adsorption equil. Increase in the concn. of components poorly adsorbed by the nonpolar groups of the ether leads to partial desorption of the C_6H_6. As a result pptn. occurs, since the forces between the particles become greater than those between particles and solvent. A rise in temp. reverses this effect. H. M. Leicester

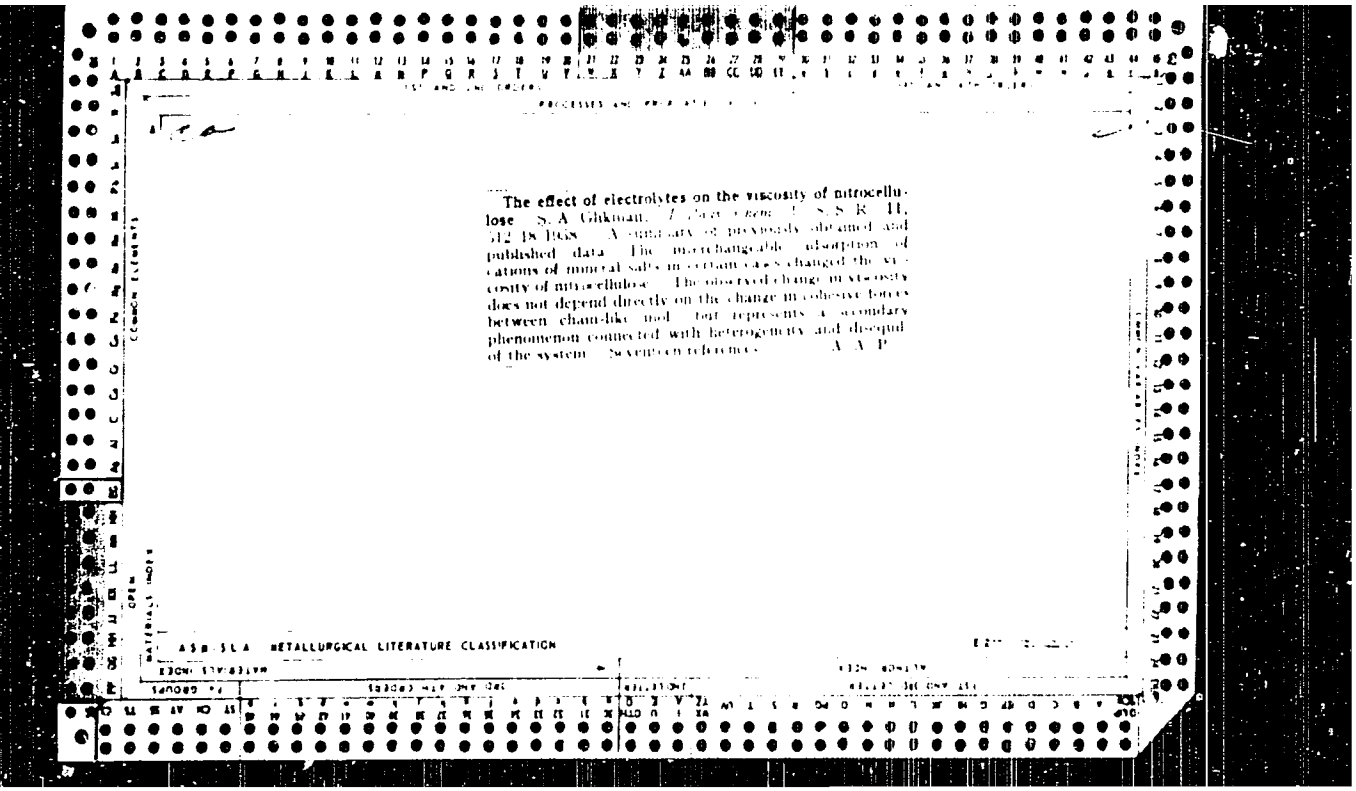
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



The use of water dispersions of nitrocellulose for preparing leather substitutes. V. Brashovskaĭ and S. Glikman. *Narodnyĭ Kommissariat Lyzhnoĭ Prom. S.S.S.R., Nauch.-Issledovatel. Inst. Plastícheskikh Mass., Plasticheskie Massy, Sbornik* 2, 87-90 (1940). A more concd. Me_2CO soln. of nitrocellulose than usual can be obtained if the viscosity is lowered by treatment with 0.25-0.05% NH_3 soln. at 85-85° for 6-7 hrs. A 3% Me_2CO soln. is prepd. from this and treated with an equal vol. of H_2O. Then 5-8% of the dry wt. of nitrocellulose of pectin or agar agar is added and the soln. is evapd. to 15-20% concn. The Me_2CO can be recovered completely. Cloth treated with this product is as satisfactory for mfg. shoes as if the nitrocellulose had been applied in org. solvents. H. M. Leicester.

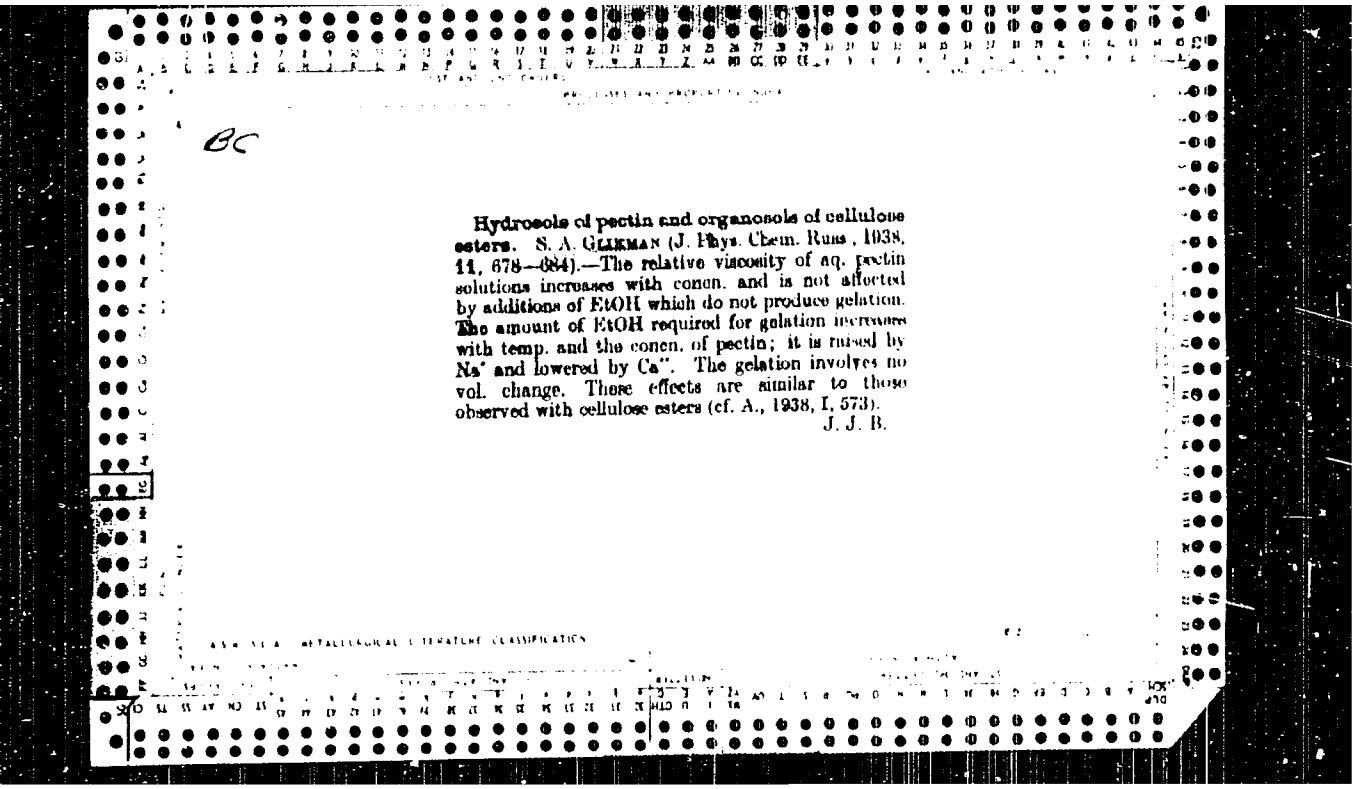


Mechanism of coagulation of cellulose ester sols. S. A. GLIKMAN (J. Phys. Chem. Russ., 1938, 11, 492—511).—If a solution of cellulose benzoate (I) in EtOH + C_6H_6 is pptd. by EtOH or light petroleum, or a solution of cellulose nitrate (II) in $COMe_2$ by H_2O or C_6H_{14}, the amount of coagulating liquid required increases with rise of temp. The similar behaviour of H_2O and C_6H_{14} etc. shows that the polarity of the coagulant is irrelevant. Addition of small amounts of EtOH to a solution of (I) in C_6H_6 causes a contraction, and that of large amounts an expansion, but the coagulation point is not observable. The η_i of (I) in C_6H_6 is reduced by EtOH; there is no change of η at the coagulation point. The η_i of (II) in $COMe_2$ is increased by light petroleum. The effect of Et_2O on the η_i of (II) in EtOH is complicated. Addition of H_2O causes expansion in solutions of (II) in $COMe_2$. J. J. B.



The effect of electrolytes on the viscosity of nitrocellulose S. A. Glikman. *Zhur. Prikl. Khim. S.S.S.R.* 11, 512-18 1938. A summary of previously obtained and published data. The interchangeable adsorption of cations of mineral salts in certain cases changed the viscosity of nitrocellulose. The observed change in viscosity does not depend directly on the change in cohesive forces between chain-like mol., but represents a secondary phenomenon connected with heterogeneity and disequil. of the system. Seventeen references. A. A. P.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



BC

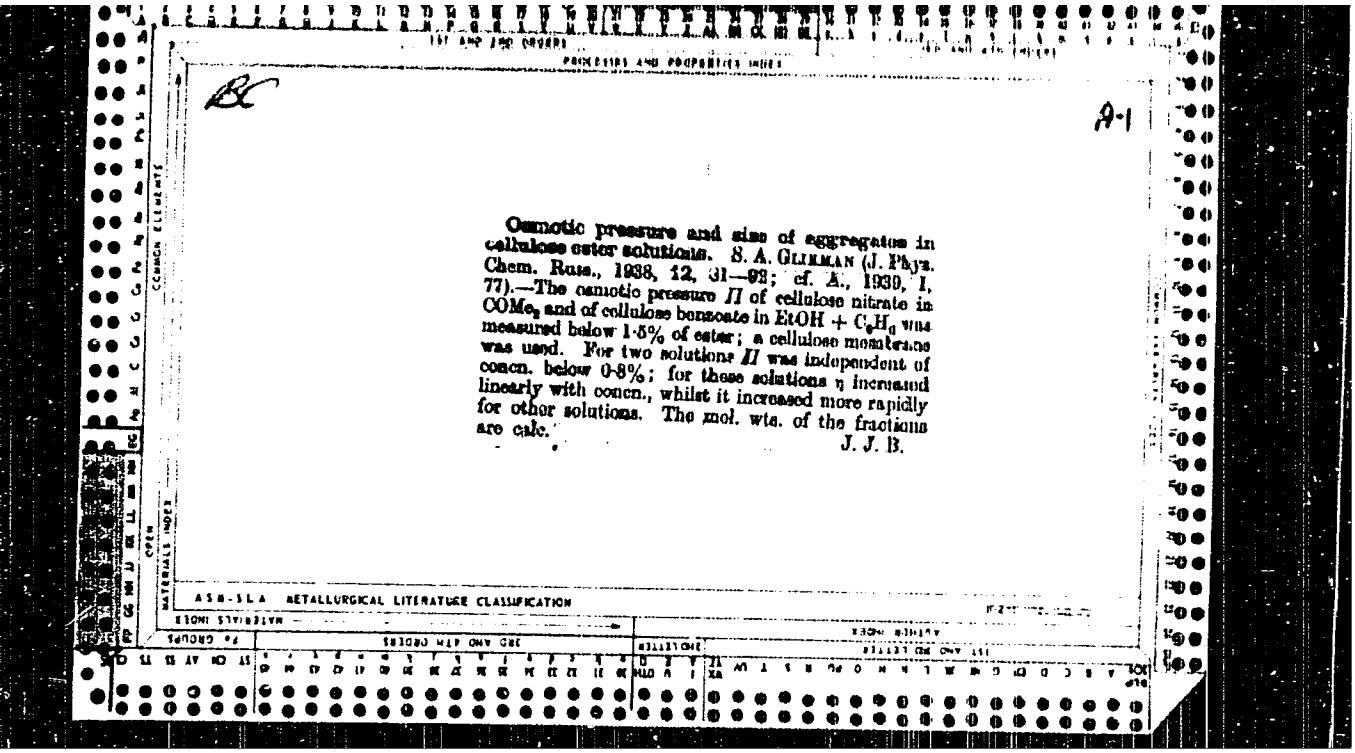
Hydrosols of pectin and organosols of cellulose esters. S. A. GILKMAN (J. Phys. Chem. Russ., 1938, **11**, 678—684).—The relative viscosity of aq. pectin solutions increases with concn. and is not affected by additions of EtOH which do not produce gelation. The amount of EtOH required for gelation increases with temp. and the concn. of pectin; it is raised by $Na^{\cdot}$ and lowered by $Ca^{\cdot\cdot}$. The gelation involves no vol. change. These effects are similar to those observed with cellulose esters (cf. A., 1938, I, 573).

J. J. B.

The threshold of structural viscosity of cellulose ether solutions. S. A. Glikman. *J. Phys. Chem.* (U. S. S. R.) 11, 825-30(1938); cf. C. A. 31, 1108. For the investigation there were used solns. of fractions I and IV of OXK nitrocellulose in Bu acetate and in nitrobenzene, fractions I and IV of medium viscous French benzylcellulose in a 1:4 mixt. of alc. and benzene, and one sample of the nonfractionated high viscosity nitrocellulose in acetone and nitrobenzene. The results showed that the beginning of the anomalous flow (threshold of structural viscosity) coincides with the break in the coordination curve, and that the relationships $P = pr/2l$ and $100V_{rel} = a[(Q/t) \div r^3]\eta_0$ obtained by Reiner (C. A. 28, 394; 29, 1301), and by Rabinowitsch (C. A. 28, 394) for solns. of lyophilic colloids also hold true for sols of nitrocellulose and of benzylcellulose. Here a = viscometer correction, p = pressure in dynes/sq. cm., r and l = radius and length of the capillary in cm., Q = vol. of the ball in cc., t = time in sec., η_0 = viscosity of the solvent in abs. units. Reiner's hypothesis about the lower limit of anomalous flow does not apply for sols of the cellulose ethers. In cellulose ethers the lower limit corresponds to that stage where the velocity of recombination of the associates is less than the velocity of their destruction. The detn. of viscosity changes from pressure (performed in Ostwald's viscometer with different capillaries) showed that the limiting flow velocity corresponding to the threshold of structural η is higher for benzylcellulose sols than for nitrocellulose sols at equal size of the particles. It is higher for the lower fractions of an ether, for the lower concn., and for the solns. in better solvents. All these relationships, as well as the change of the limiting pressure displacement and the degree of the viscosity drop, are explained by Reiner's hypothesis. Six plots, two tables and ten references are given.

W. R. Henn

A S M - S L A METALLURGICAL LITERATURE CLASSIFICATION

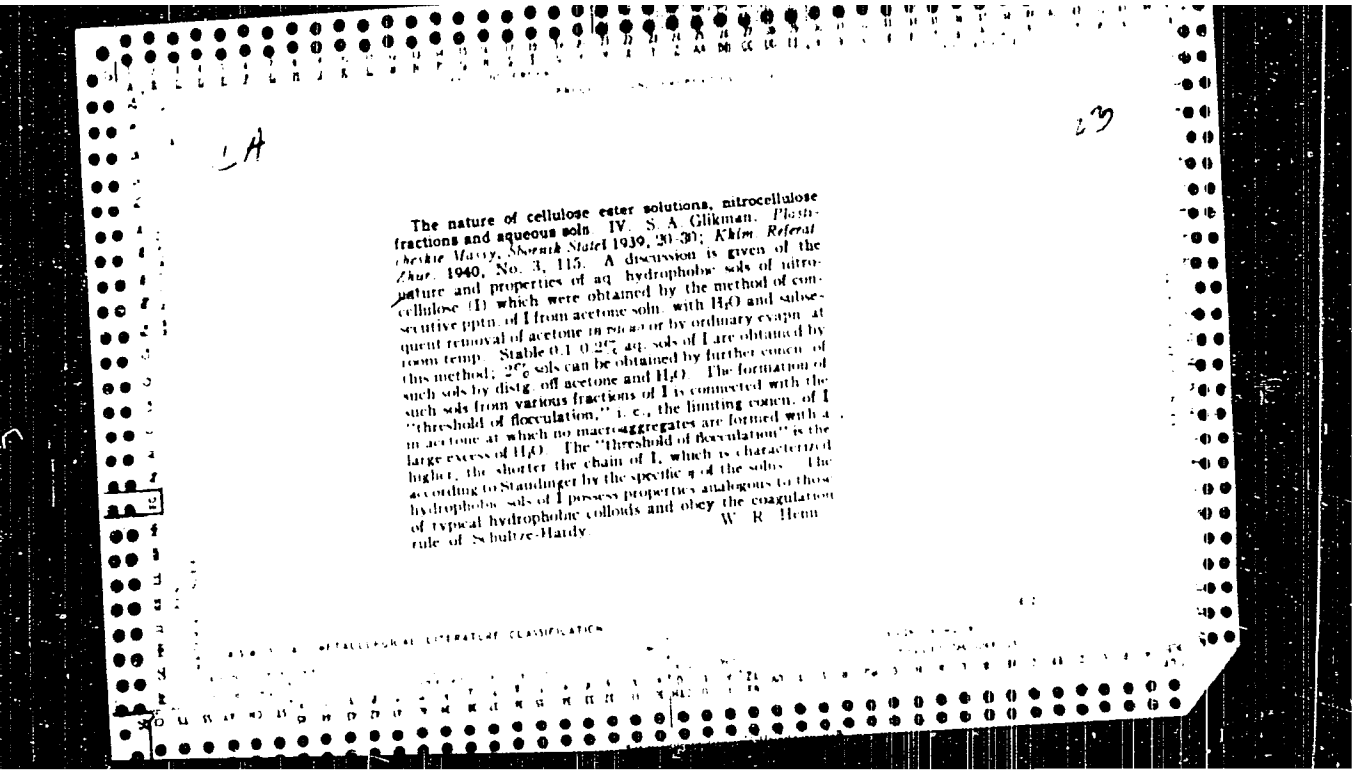


A-1

Osmotic pressure and size of aggregates in cellulose ester solutions. S. A. GLIKMAN (J. Phys. Chem. Russ., 1938, 12, 31—92; cf. A., 1939, I, 77).—The osmotic pressure Π of cellulose nitrate in $COMe_2$ and of cellulose benzoate in EtOH + C_6H_6 was measured below 1·5% of ester; a cellulose monoacetate was used. For two solutions Π was independent of concn. below 0·8%; for these solutions η increased linearly with concn., whilst it increased more rapidly for other solutions. The mol. wts. of the fractions are calc.

J. J. B.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

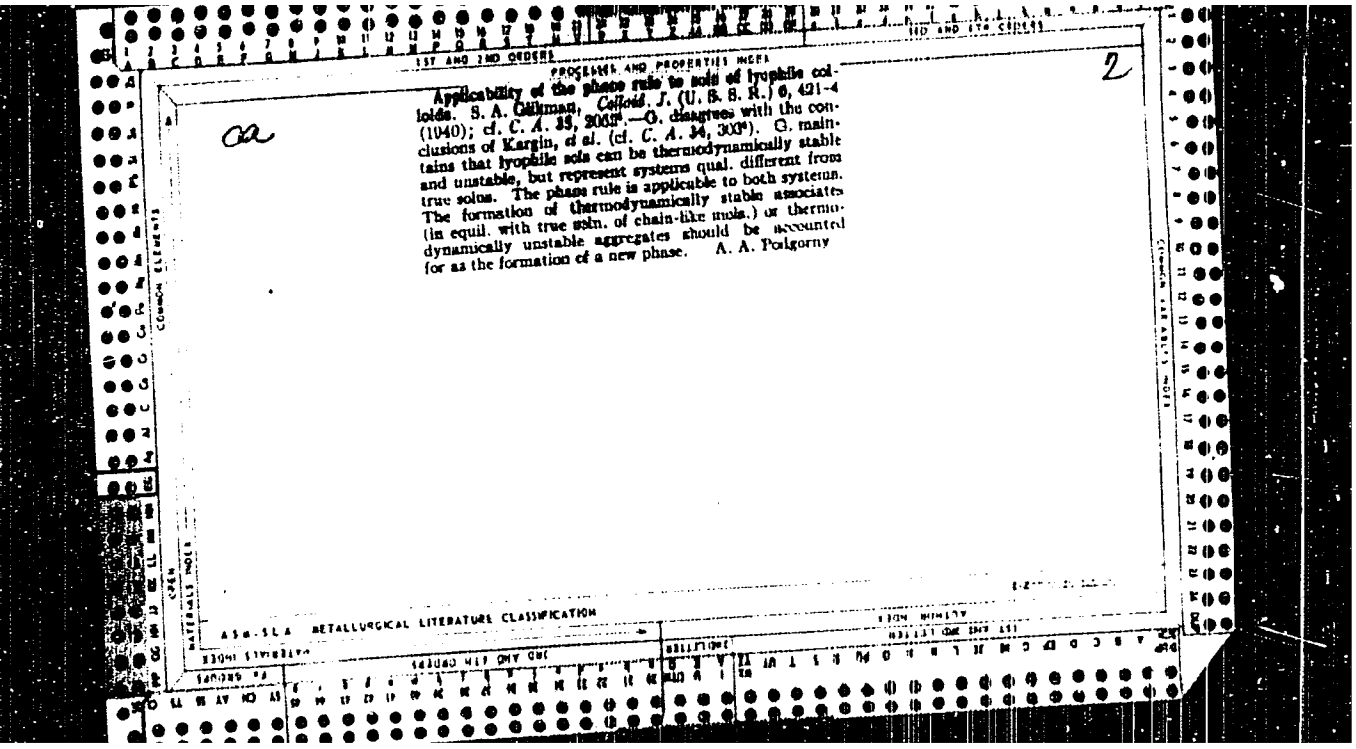


1A

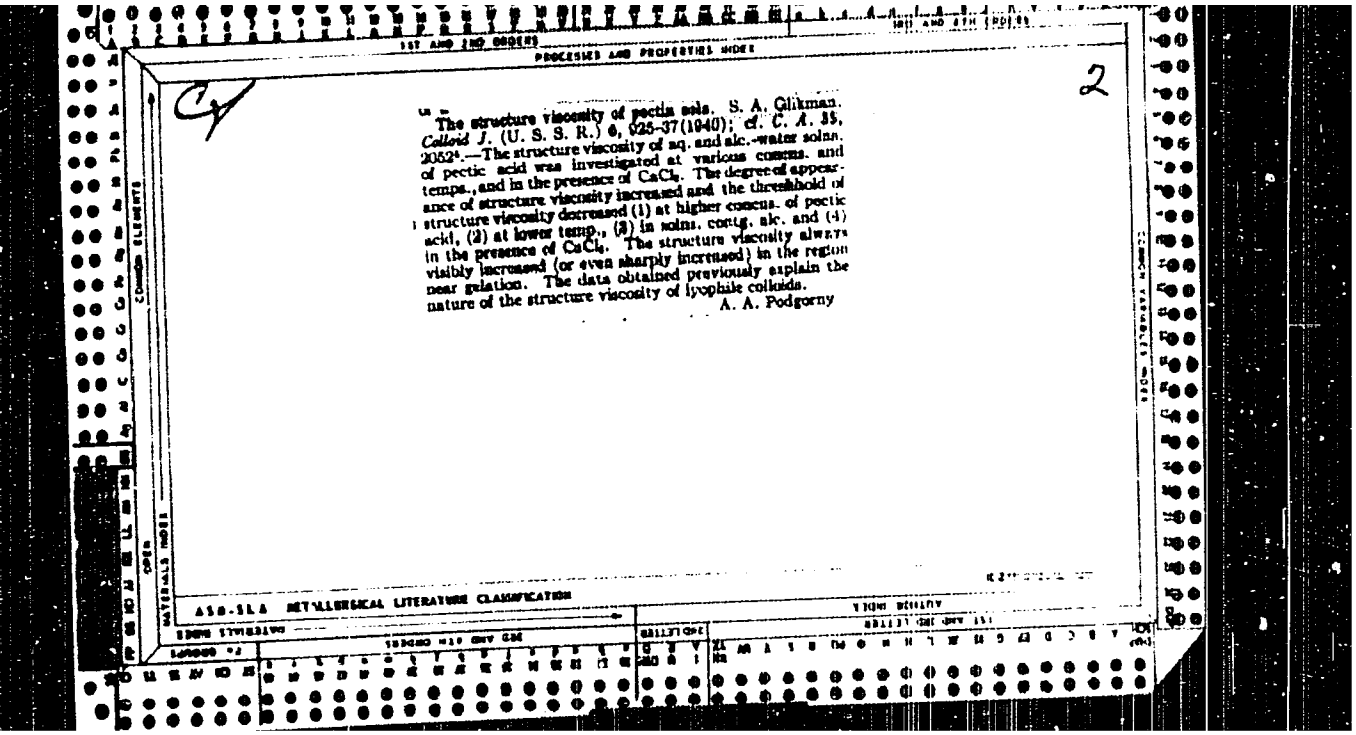
13

The nature of cellulose ester solutions. nitrocellulose fractions and aqueous soln IV. S. A. Glikman. *Plasticheskie Massy, SNovaia Stateĭ* 1939, 30-39; *Khim. Referat. Zhur.* 1940, No. 3, 115. A discussion is given of the nature and properties of aq. hydrophobic sols of nitrocellulose (I) which were obtained by the method of consecutive pptn. of I from acetone soln. with H_2O and subsequent removal of acetone in vacuo or by ordinary evapn. at room temp. Stable 0.1-0.2% aq. sols of I are obtained by this method; 2% sols can be obtained by further concn. of such sols by distg. off acetone and H_2O. The formation of such sols from various fractions of I is connected with the "threshold of flocculation," i. e., the limiting concn. of I in acetone at which no macro-aggregates are formed with a large excess of H_2O. The "threshold of flocculation" is the higher, the shorter the chain of I, which is characterized according to Staudinger by the specific η of the sols. The hydrophobic sols of I possess properties analogous to those of typical hydrophobic colloids and obey the coagulation rule of Schulze-Hardy.

W. R. Henn

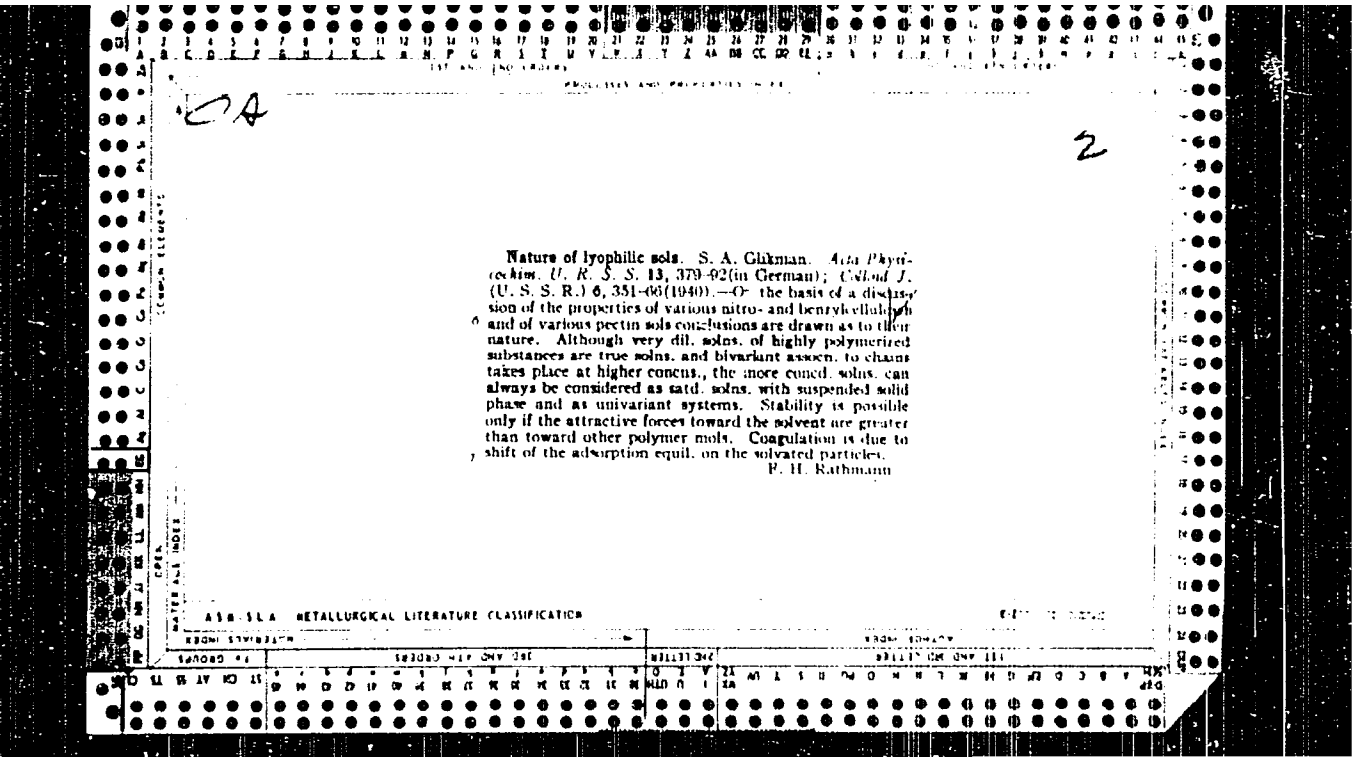


Applicability of the phase rule to sols of lyophile colloids. S. A. Gilkman, *Colloid. J.* (U. S. S. R.) 6, 421-4 (1940); cf. *C. A.* 35, 2003⁹.—G. disagrees with the conclusions of Kargin, *et al.* (cf. *C. A.* 34, 303⁹). G. maintains that lyophile sols can be thermodynamically stable and unstable, but represent systems qual. different from true solns. The phase rule is applicable to both systems. The formation of thermodynamically stable associates (in equil. with true soln. of chain-like mols.) or thermodynamically unstable aggregates should be accounted for as the formation of a new phase. A. A. Polgorny



The structure viscosity of pectin sols. S. A. Glikman. *Colloid J.* (U. S. S. R.) 6, 925-37(1940); cf. *C. A.* 35, 2052⁸.—The structure viscosity of aq. and alc.-water solns. of pectic acid was investigated at various concns. and temps., and in the presence of $CaCl_2$. The degree of appearance of structure viscosity increased and the threshhold of structure viscosity decreased (1) at higher concns. of pectic acid, (2) at lower temp., (3) in solns. contg. alc. and (4) in the presence of $CaCl_2$. The structure viscosity always visibly increased (or even sharply increased) in the region near gelation. The data obtained previously explain the nature of the structure viscosity of lyophile colloids.

A. A. Podgorny



CA

2

Nature of lyophilic sols. S. A. Glikman. *Acta Physicochim. U. R. S. S.* **13**, 379-92(in German); *Colloid J.* (U. S. S. R.) **6**, 351-66(1940).—On the basis of a discussion of the properties of various nitro- and benzylcelluloses and of various pectin sols conclusions are drawn as to their nature. Although very dil. solns. of highly polymerized substances are true solns. and bivariant assocn. to chains takes place at higher concns., the more concd. solns. can always be considered as satd. solns. with suspended solid phase and as univariant systems. Stability is possible only if the attractive forces toward the solvent are greater than toward other polymer mols. Coagulation is due to shift of the adsorption equil. on the solvated particles.
P. H. Rathmann

A S M - S L A METALLURGICAL LITERATURE CLASSIFICATION

PA 78T5

GLIKMAN, S. A.

USSR/Chemistry - Colloids
Chemistry - Polymers

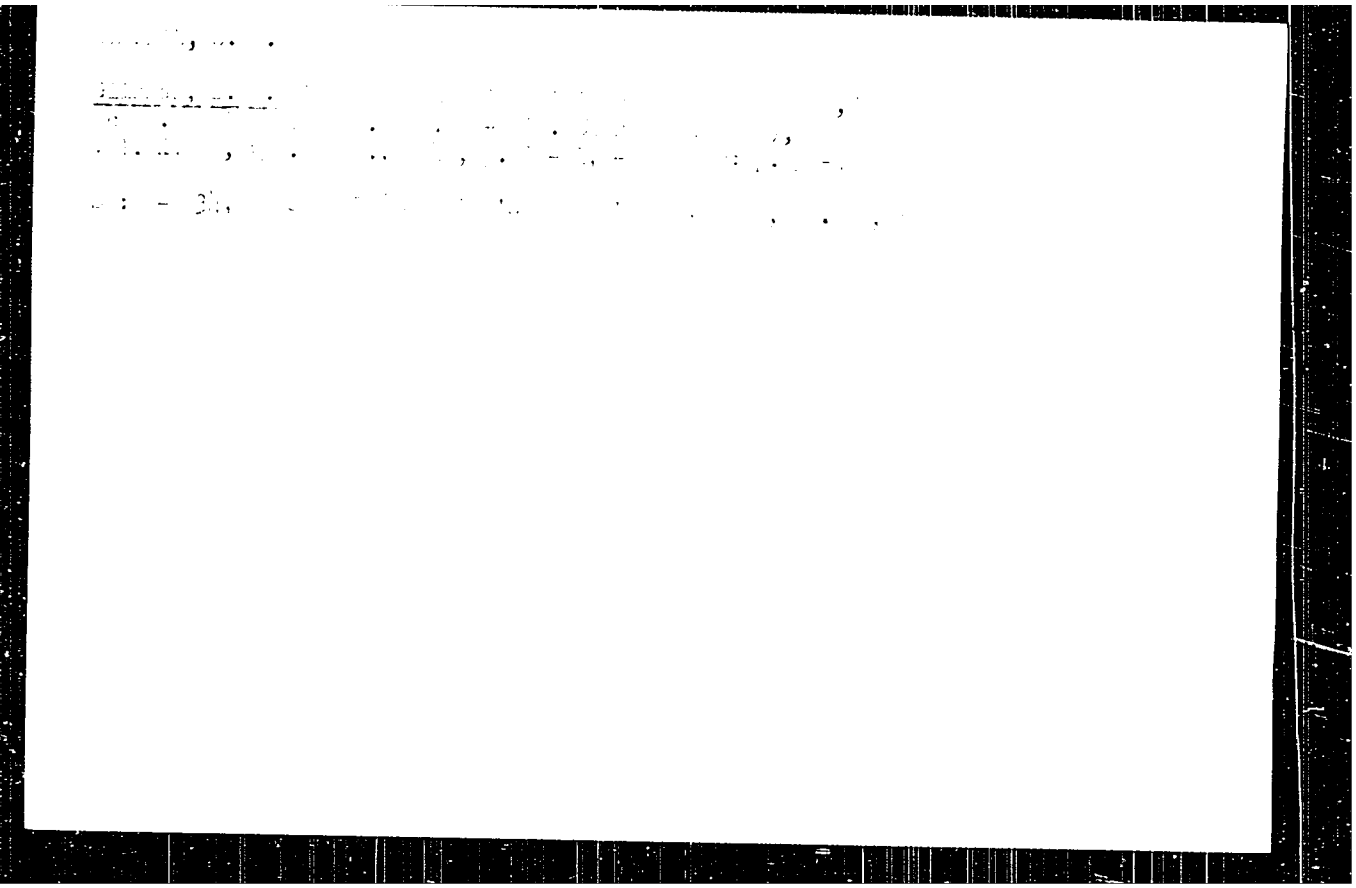
May/Jun 1948

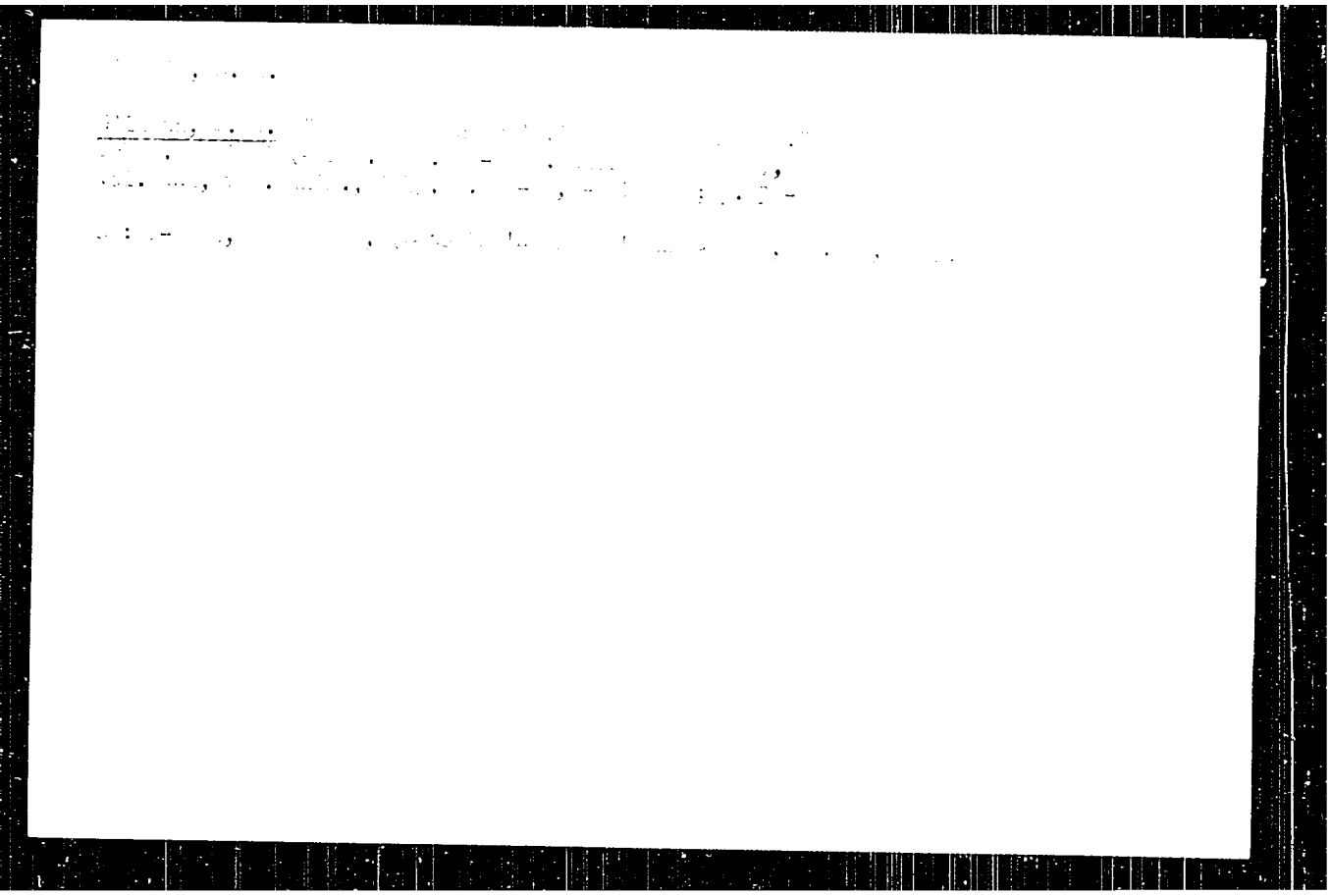
"Research on the Lyophilic Colloid Systems, II, Lyophilic and Lyophobic Sols of High Polymers," S. A. Glikman, L. V. Komarova, Lab of Colloidal Chem, Saratov State U, 13 pp

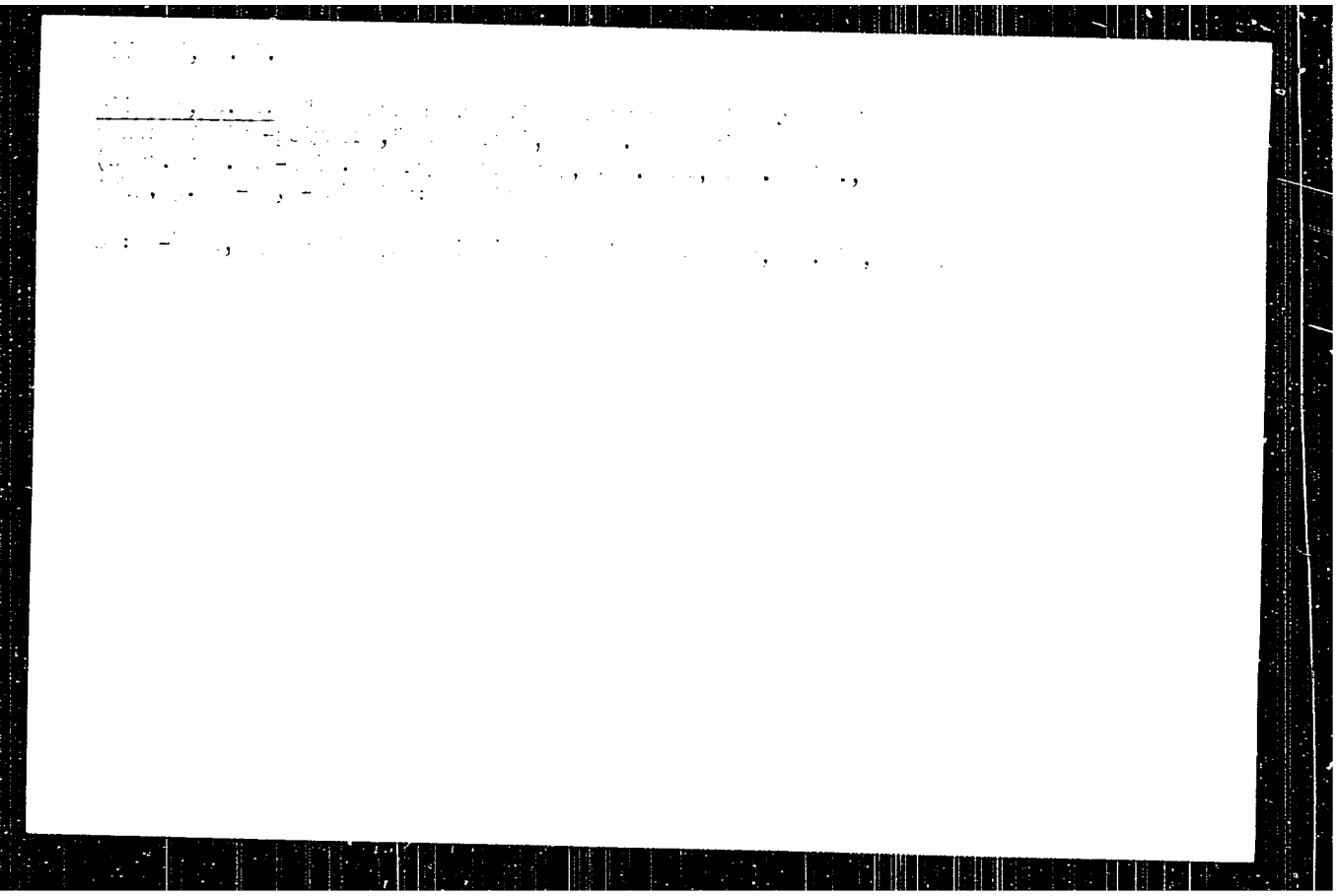
"Kolloid Zhur" Vol X, No 3

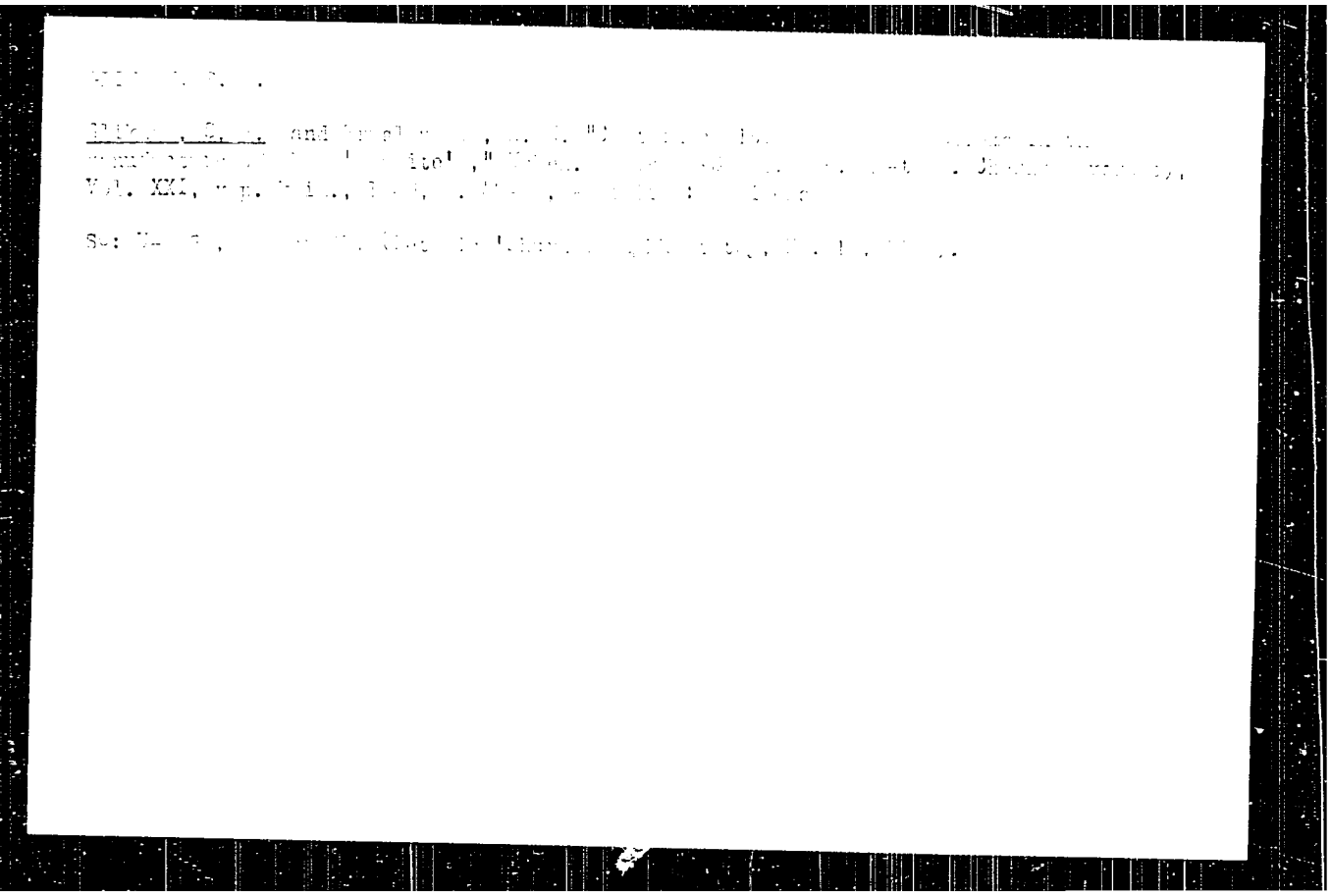
Details studies of the lyophobic colloidal systems of high polymers. Used nephelometric system to determine the degree of dispersion in the sols. Submitted 26 Dec 1946.

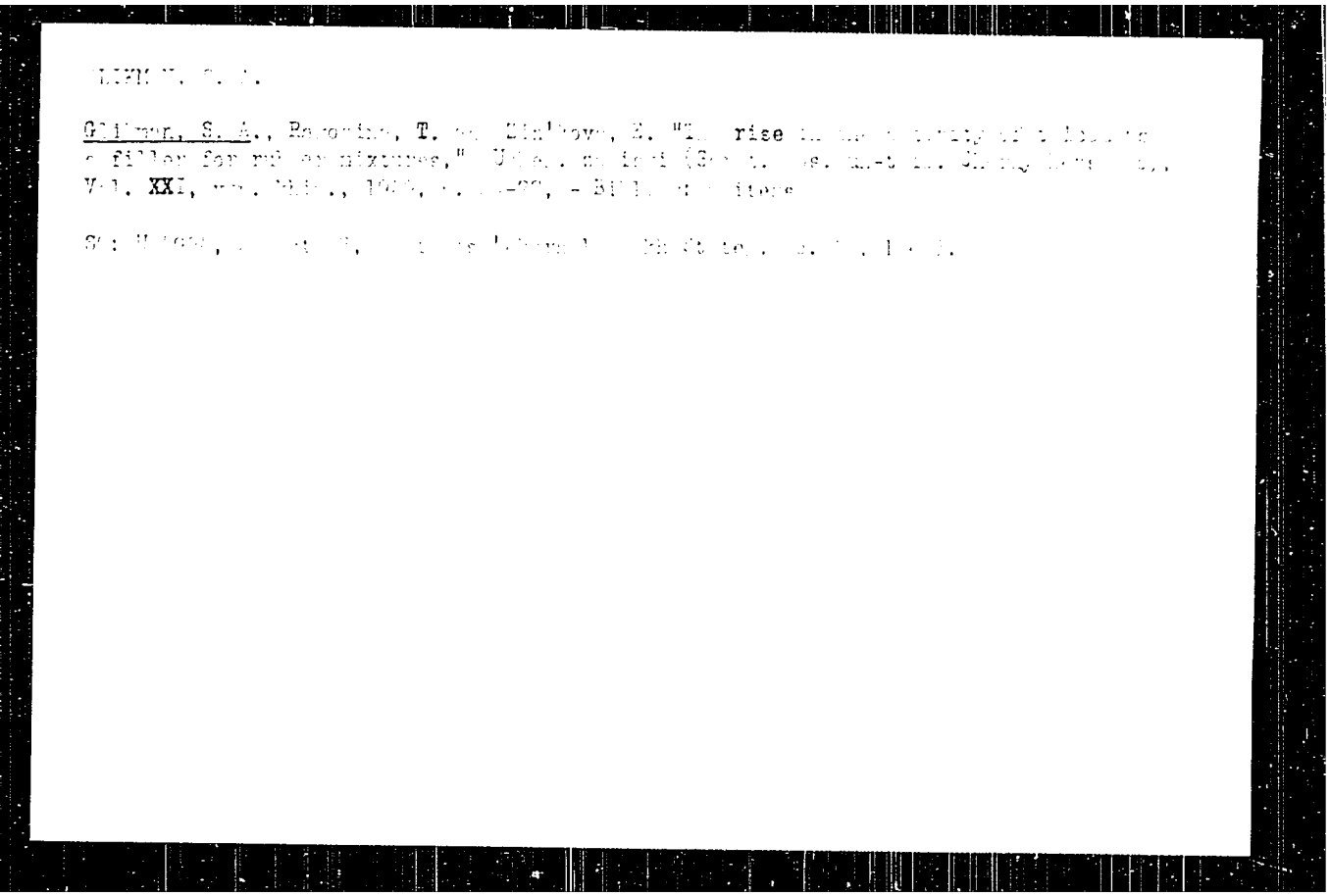
78T5

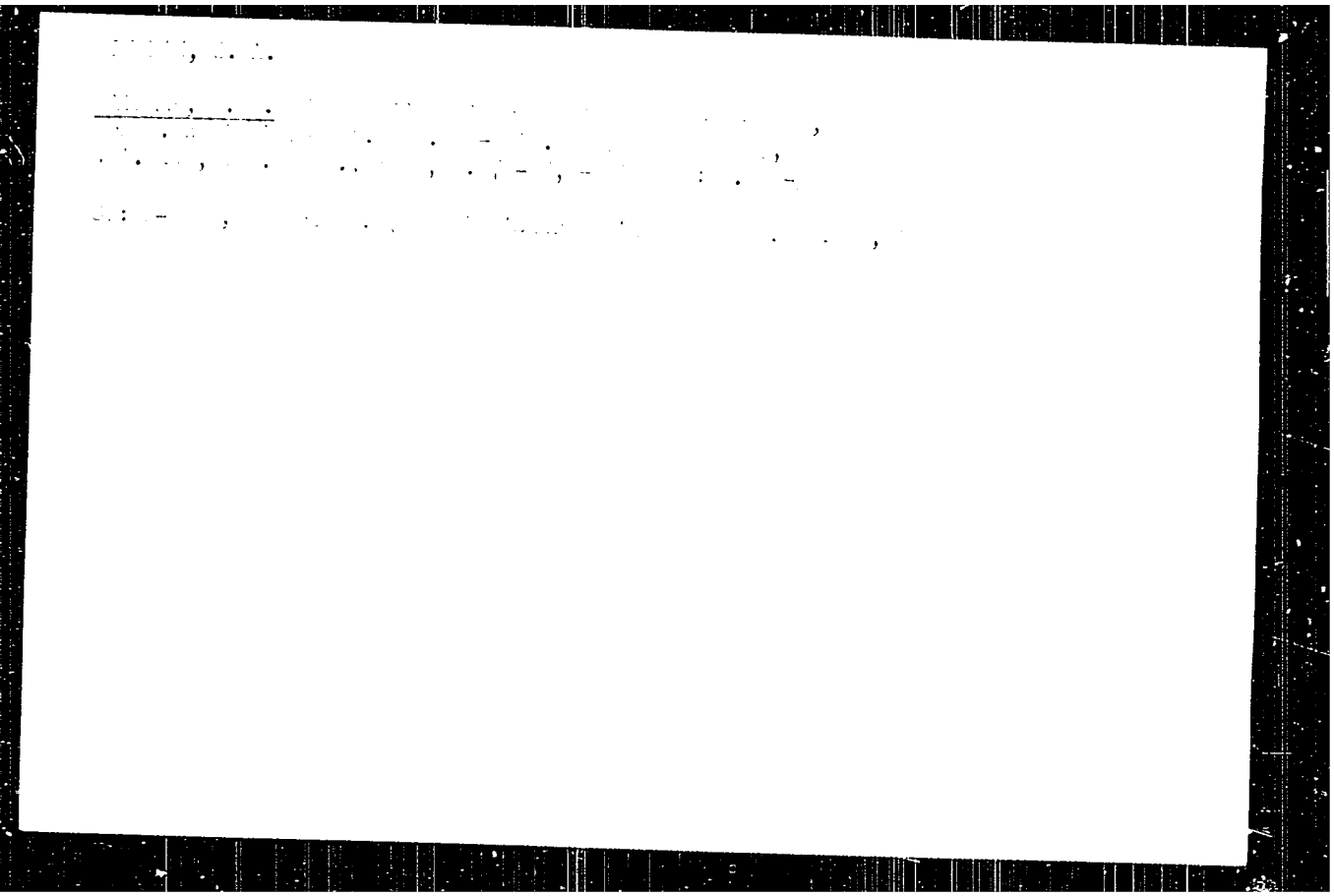


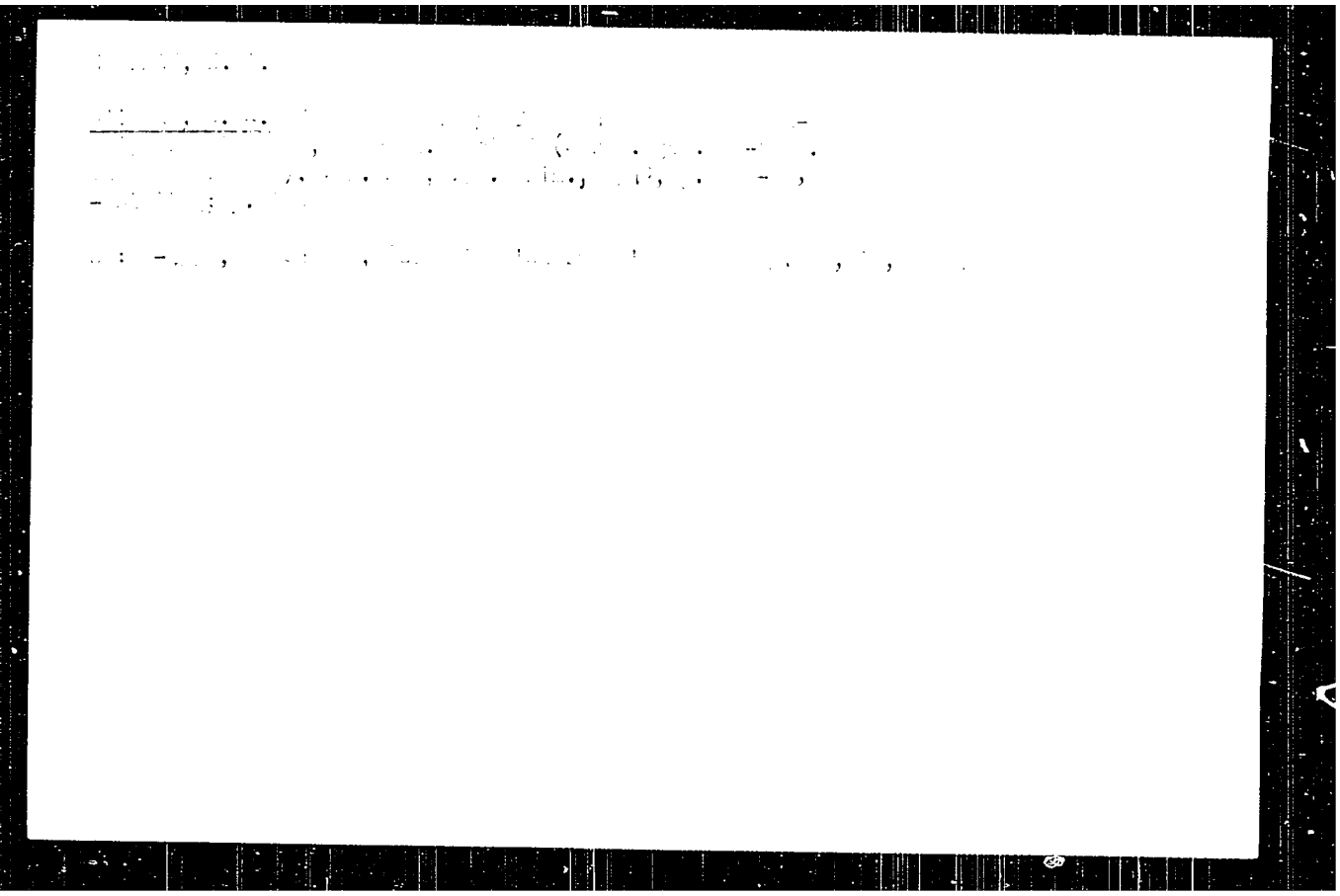












USSR/Chemistry - Dilatometers Apr 49
Chemistry - Heat of Dilution, of Polymers

"Characteristic Curves of the Energy Effect of Diluting High Polymers by the Dilatometric Method," S. A. Glinkman, L. A. Root, Saratov State U imeni N. G. Chernyshevskiy, 4 pp

"Dok Ak Nauk SSSR" Vol LXV, No 5

Changes in heat content have previously been determined calorimetrically or indirectly, using temperature coefficient of osmotic pressure. Authors studied volume effect, an index of energy effect, by dilatometric method. Results for the systems nitrocellulose-acetone, nitrocellulose-

[redacted] 39/49T17

USSR/Chemistry (Contd) Apr 49

ethylacetate, and ethylcellulose-ethylacetate show substantial energy effect of dilution in certain regions of low concentration, and a marked change of certain physical characteristics of the solutions, e.g., viscosity. Submitted by Acad A. N. Frumkin, 12 Feb 49.

[redacted] 39/49T17

PA 150T89

USSR/Physics - Test Techniques 21 Jul 49
Viscosity

"Use of the Method of Falling Balls for the Characteristics of Structural Viscosity and Thixotropy," [illegible] A. [illegible], [illegible] Perepelkina, [illegible] Chernyshe[illegible] pp

Dok Ak Nauk SSSR Vol LXVII, No 3

Used method of falling balls suggested by Phipps in 1924 to determine dependence of apparent viscosity upon shear stress. Used seven steel balls of different radius (0.0[illegible] - 0.3591 cm) to determine structural viscosity of ethylcellulose sols and

150T89

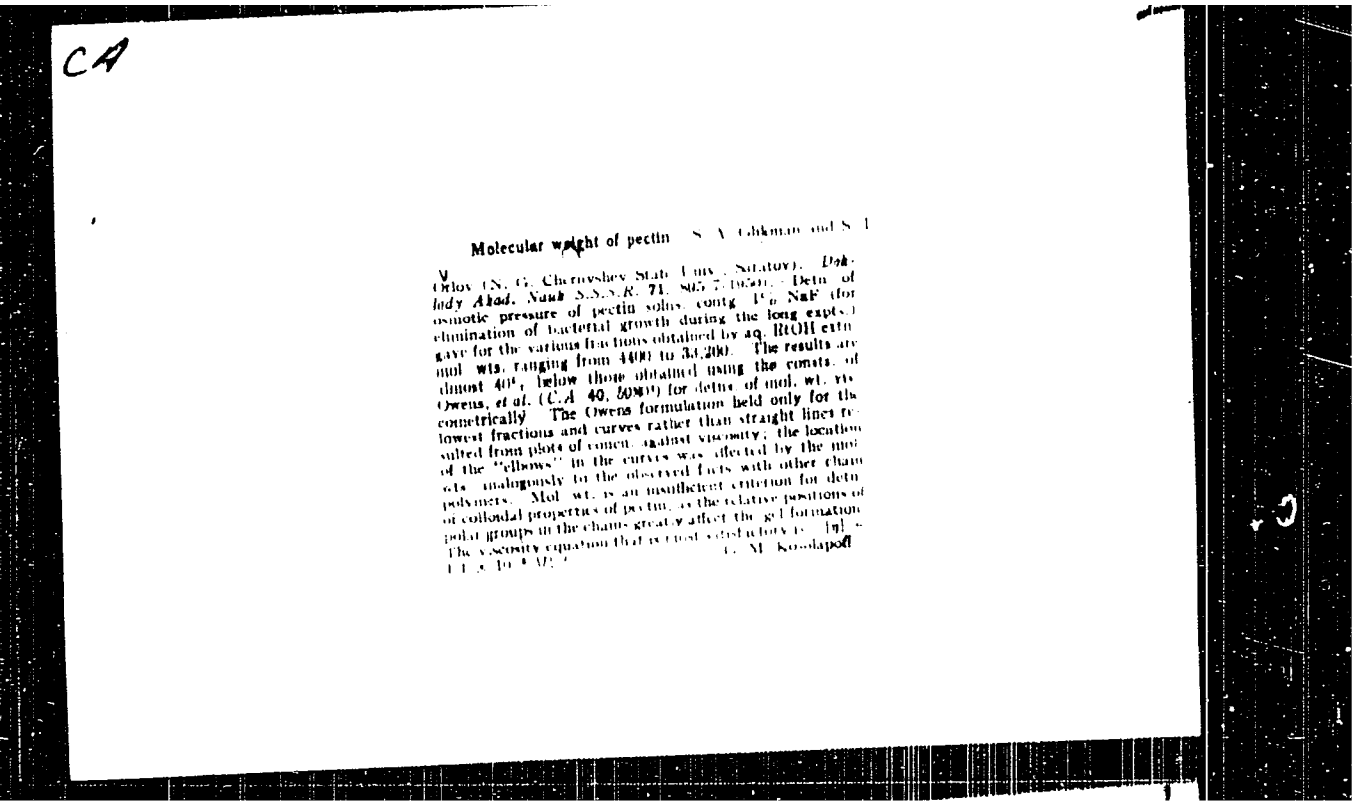
[redacted]

USSR/Physics - Test Techniques (Contd) 21 Jul 49

concentration dependency of the viscosity of ethylcellulose and nitrocellulose sols. Gives table of dependence of apparent viscosity upon weight of falling balls in solutions of ethylcellulose in benzene. Submitted by Acad P. A. Rebinder 23 May 49.

150

.IKMAN, S. [redacted] A.

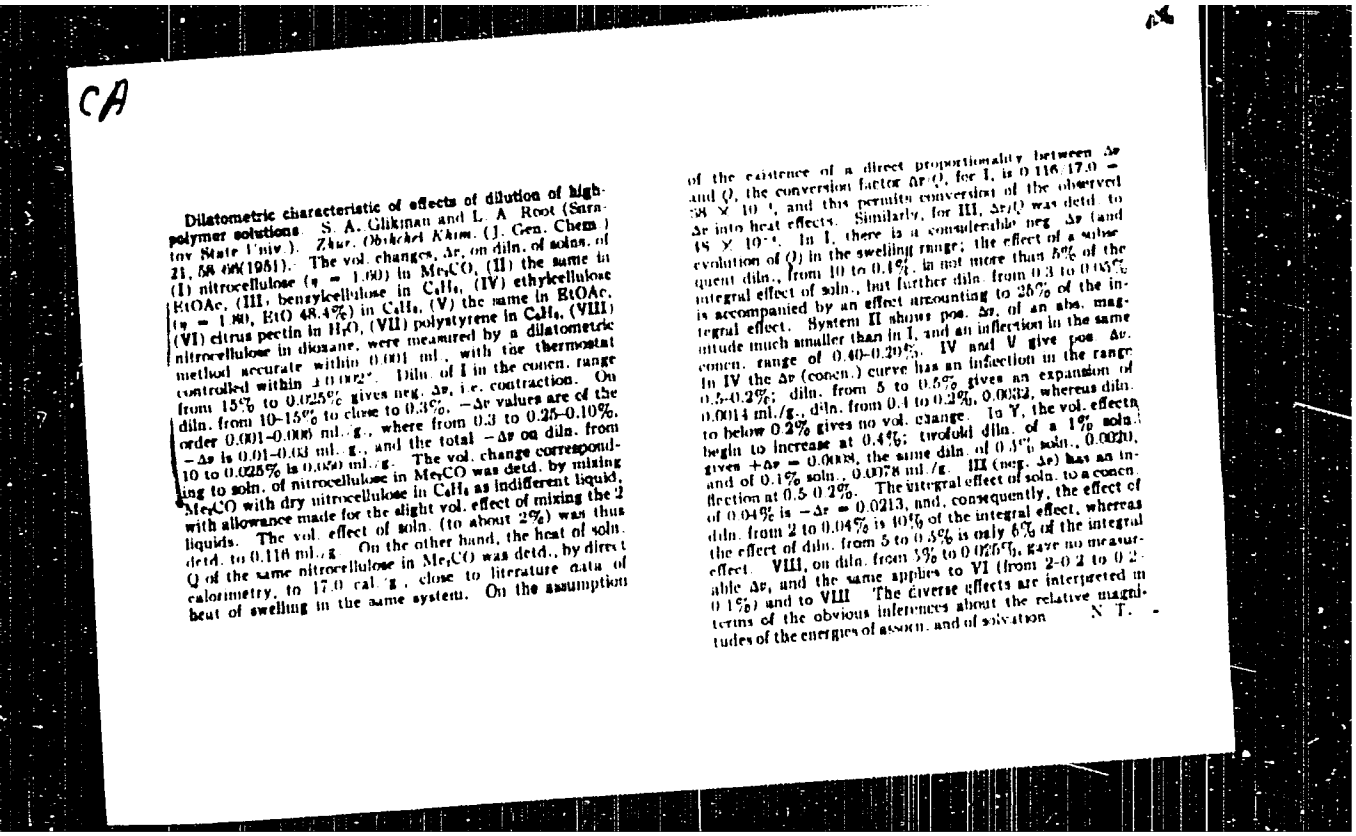


CA

Molecular weight of pectin S. V. Gibkman and S. I. V[illegible]

Orlov (N. G. Chernyshev State Univ., Saratov). *Dokl. Akad. Nauk S.S.S.R.* 71, 505-7 (1950).—Detn. of osmotic pressure of pectin solns. contg. 1% NaF (for elimination of bacterial growth during the long expts.) gave for the various fractions obtained by aq. EtOH extn. mol. wts. ranging from 4400 to 34,200. The results are almost 40% below those obtained using the constants of Owens, *et al.* (*C.A.* **40**, 5080) for detns. of mol. wt. viscometrically. The Owens formulation held only for the lowest fractions and curves rather than straight lines resulted from plots of concn. against viscosity; the location of the "elbows" in the curves was affected by the mol. wts. analogously to the observed facts with other chain polymers. Mol. wt. is an insufficient criterion for detn. of colloidal properties of pectin, as the relative positions of polar groups in the chains greatly affect the gel formation. The viscosity equation that is most satisfactory is $[\eta] =$ [illegible]

G. M. Kondapoff
U. S. Inst. Agr.



CA

Dilatometric characteristic of effects of dilution of high-polymer solutions. S. A. Glikman and L. A. Root (Saratov State Univ.). *Zhur. Obshchei Khim.* (J. Gen. Chem.) 21, 58-66(1951). The vol. changes, Δv, on dilu. of solns. of (I) nitrocellulose (η = 1.60) in Me_2CO, (II) the same in EtOAc, (III) benzylcellulose in C_6H_6, (IV) ethylcellulose (η = 1.80), EtO 48.4%) in C_6H_6, (V) the same in EtOAc, (VI) citrus pectin in H_2O, (VII) polystyrene in C_6H_6, (VIII) nitrocellulose in dioxane, were measured by a dilatometric method accurate within 0.001 ml., with the thermostat controlled within ±0.002°. Dilu. of I in the concn. range from 15% to 0.025% gives neg. Δv, i.e. contraction. On dilu. from 10–15% to close to 0.3%, $-\Delta v$ values are of the order 0.001–0.008 ml./g., where from 0.3 to 0.25–0.10%, $-\Delta v$ is 0.01–0.03 ml./g., and the total $-\Delta v$ on dilu. from 10 to 0.025% is 0.050 ml./g. The vol. change corresponding to soln. of nitrocellulose in Me_2CO was detd. by mixing Me_2CO with dry nitrocellulose in C_6H_6 as indifferent liquid, with allowance made for the slight vol. effect of mixing the 2 liquids. The vol. effect of soln. (to about 2%) was thus detd. to 0.116 ml./g. On the other hand, the heat of soln. Q of the same nitrocellulose in Me_2CO was detd., by direct calorimetry, to 17.0 cal./g., close to literature data of heat of swelling in the same system. On the assumption of the existence of a direct proportionality between Δv and Q, the conversion factor $\Delta v/Q$, for I, is 0.116/17.0 = 68×10^{-4}, and this permits conversion of the observed Δv into heat effects. Similarly, for III, $\Delta v/Q$ was detd. to 48×10^{-4}. In I, there is a considerable neg. Δv (and evolution of Q) in the swelling range; the effect of a subsequent dilu., from 10 to 0.4%, is not more than 5% of the integral effect of soln., but further dilu. from 0.3 to 0.05% is accompanied by an effect amounting to 25% of the integral effect. System II shows pos. Δv, of an abs. magnitude much smaller than in I, and an inflection in the same concn. range of 0.40–0.20%. IV and V give pos. Δv. In IV the Δv (concn.) curve has an inflection in the range 0.5–0.2%; dilu. from 5 to 0.5% gives an expansion of 0.0014 ml./g., dilu. from 0.4 to 0.2%, 0.0032, whereas dilu. to below 0.2% gives no vol. change. In V, the vol. effects begin to increase at 0.4%; twofold dilu. of a 1% soln. gives $+\Delta v$ = 0.0008, the same dilu. of 0.5% soln., 0.0020, and of 0.1% soln., 0.0078 ml./g. III (neg. Δv) has an inflection at 0.5–0.2%. The integral effect of soln. to a concn. of 0.04% is $-\Delta v$ = 0.0213, and, consequently, the effect of dilu. from 2 to 0.04% is 40% of the integral effect, whereas the effect of dilu. from 5 to 0.5% is only 6% of the integral effect. VIII, on dilu. from 5% to 0.025%, gave no measurable Δv, and the same applies to VI (from 2–0.2 to 0.2–0.1%) and to VIII. The diverse effects are interpreted in terms of the obvious inferences about the relative magnitudes of the energies of assocn. and of solvation. N. T.

CA 2

Effect of metal ions on the elasto-plastic characteristics of ethylcellulose. S. A. Glikman and [illegible] Eremova. *Doklady Akad. Nauk S.S.S.R.* **81**, [illegible](1951). Ethylcellulose was freed from inorg. matter through repeated pptn. with distd. H_2O from Me_2CO solns. [illegible] HCl. Metal ions were introduced, [illegible] from [illegible] to 0.240%, by [illegible] treatments of the soln. in Me_2CO with small amts. of dil. solns. of $FeCl_3$, a dialyzed colloidal soln. of $Fe(OH)_3$, and a satd. soln. of $Ca(OH)_2$, followed by coagulation with distd. H_2O. Incorporation of the metal ions did not alter the viscosity η of the solns. in dioxane, C_6H_6, and EtOH-C_6H_6 mixts., but did increase the slope of the η_{sp}/c – C curves, particularly in C_6H_6 solns., and the dependence of the effective η on the velocity gradient. The elasto-plastic characteristics were detd., in the magnitudes introduced by Rebinder and Segalova (C.A. **44**, [illegible]) and by the method of Veller and Rebinder (C.A. **40**, [illegible]) for gels of [illegible]% ethylcellulose in dibutyl phthalate, without and with Fe^{+++} and Ca^{++} ions. The elasticity moduli E_1 and E_2, the viscosities η and η_2, and the limiting shearing stress P, are consistently higher in gels contg. the metal ions. This is attributed to a replacement of H bonds between COOH groups by ionic bonds formed by the multivalent metal ions.

N. Thon

GLUCK, S. A.

High Molecular Weight Compounds

A. A. Tager's reply to the report of his book "Solutions of high molecular weight compounds." Kol. zhur. 17 No. 4, 1955.

Monthly List of Russian Accessions, Library of Congress, September 1955. UNCLASSIFIED.

GLIKMAN, S. A.

USSR/ Chemistry

Card : 1/1 Pub. 151 - 24/33

Authors : Glikman, S. A., Efremova, O. G., and Averyanova, V. M.

Title : Effect of metal ions on the properties of ethyl-cellulose. Part 3.- Dependence of the elastic-plastic properties of ethyl-cellulose upon its sodium-ion content

Periodical : Zhur. ob. khim. 24/8, 1427 - 1432, August 1954

Abstract : The effect of Na^+ ions on the viscosity and other properties of ethyl-cellulose, was investigated. It was established that all elastic-plastic characteristics (elastic limit, modulus of elasticity and viscosity) of ethyl-cellulose increase during the introduction of Na^+. The effect of Ca^{++} ions on the properties of ethyl-cellulose was found to be greater than that of Na^+. Six references: 5 USSR and 1 USA (1938 - 1952). Tables; graphs.

Institution : State University, Saratov

Submitted : July 13, 1954

USSR/Chemical Technology. Chemical Products and Their Application -- Wood chemistry products. Cellulose and its manufacture. Paper, I-23

Abst Journal: Referat Zhur - Khimiya, No 2, 1957, 6278

Author: Yefremova, O. G., Glikman, S. A.

Institution: Saratov University

Title: Effect of Metal Ions on Properties of Ethyl Cellulose

Original Publication: Nauch. yezhegodnik za 1954 g. Saratovsk. un-t., Saratov, 1956, 554-556

Abstract: See also Referat Zhur - Khimiya, 1955, 38999, 50686; 1956, 20951

Card 1/1

GLIKMAN, S.A.

9103. Dilatometric study of the swelling of acrylonitrile rubbers and of polyvinyl butyral. L. A. Rose and S. A. Glikman. *Ezhegodnik* [illegible] 1953, 558–60; *Referat. Zhur. Khim.*, 1956, abs. 68493. The authors studied the swelling of SKN-20 and SKN-40, and the swelling and dissolving of polyvinyl butyral. Reducing the volume of the system SKN-benzene, i.e. absorption of benzene on the nitrile groups takes place with partial destruction of their mutual bonds after rolling or swelling in methanol, which solvates the nitrile groups. The solvation and adsorption explain the different volume effects during the solution of polyvinyl butyral in benzyl alcohol and its swelling in benzene with water.

3(2)(8)(MSA)L.663(61)

AID P - 3732

Subject : USSR/Chemistry

Card 1/1 Pub. 152 - 12/16

Authors : Glikman, S. A., O. G. Yefremova, M. S. Kudryashova, and A. B. Markman

Title : Effect of sodium and calcium ions on the thermostability of ethyl cellulose

Periodical : Zhur. prikl. khim. 28, 8, 877-880, 1955

Abstract : Treatment with HCl (0.5%) at 60°C for 2 hrs. decreased the thermostability of cellulose significantly. The viscosity of cellulose was 0.23. Addition of Na-or Ca-ions increases the thermostability of ethyl cellulose, which is ascribed to neutralization of the carboxyl groups present in ethyl cellulose. Two diagrams, 4 references, 1 Russian (1951).

Institution : None

Submitted : Ja 9, 1954

GLIKMAN, S. A.; Root, I.I.

"On the Nature of the Solvation of High Polymers in Mixtures of Solvents" (O prirode sol'vatatsii vysokomolimerov v smesyakh rastvoriteley) from the book Trudy of the Third All-Union Conference on Colloid Chemistry, pp. 471-474 In. AN SSSR, Moscow, 1956

(Report given at above Conference, Minsk, 11-4 Dec 53)

Authors: Saratov State University im. N. G. Chernyshev

GLIKMAN, S.A.

CZECHOSLOVAKIA/Chemical Technology - Chemical Products and Their Application. Carbohydrates and Refinement. I-11

Abs Jour : Ref Zhur - Khimiya, No 1, 1958, 2803

Author : Glikman, S.A., Shubtsova, I.G.

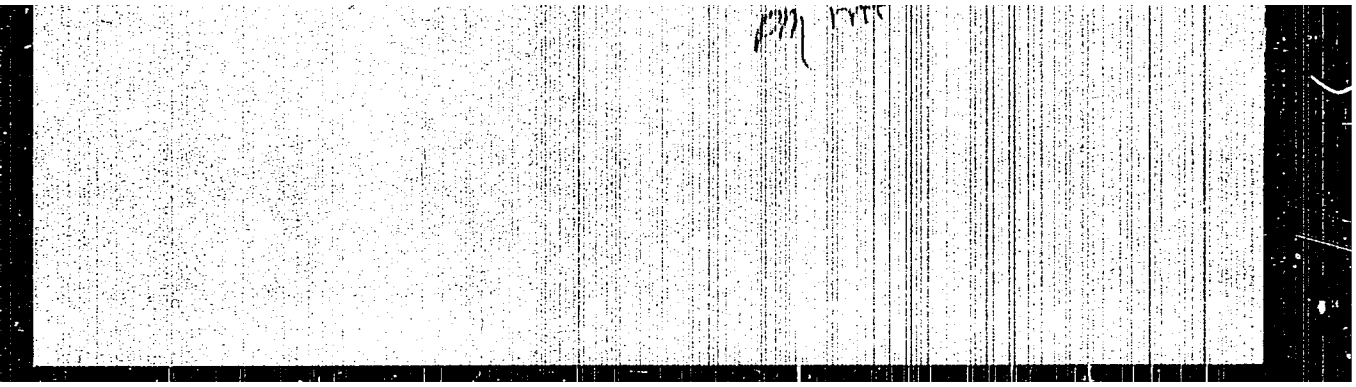
Inst : Slovak Chemical Society

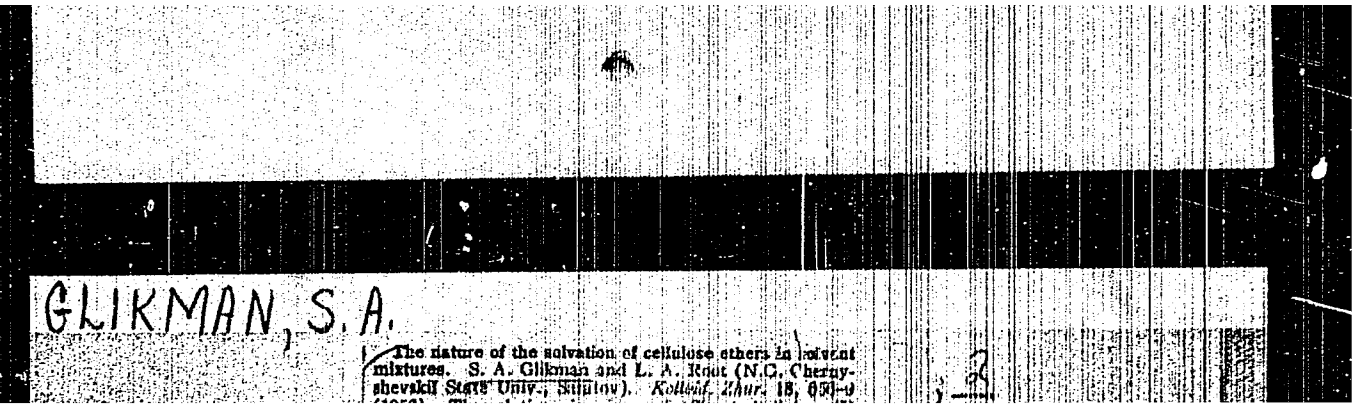
Title : The Heterogenous Nature of Agar.

Orig Pub : Vest. Slov. kem. drustva, 1956, 3, No 1-2, 19-27

Abstract : It was ascertained that it is possible to carry out a fractionation of agar by successive extraction with a liquid of constant composition at increasing temperature levels. Agar was divided into fractions that differ greatly in viscosity and degree of esterification. The possibility is shown of eliminating the effect of electroviscosity in agar solutions and of determining the true values of limit viscosity $[\eta]$.

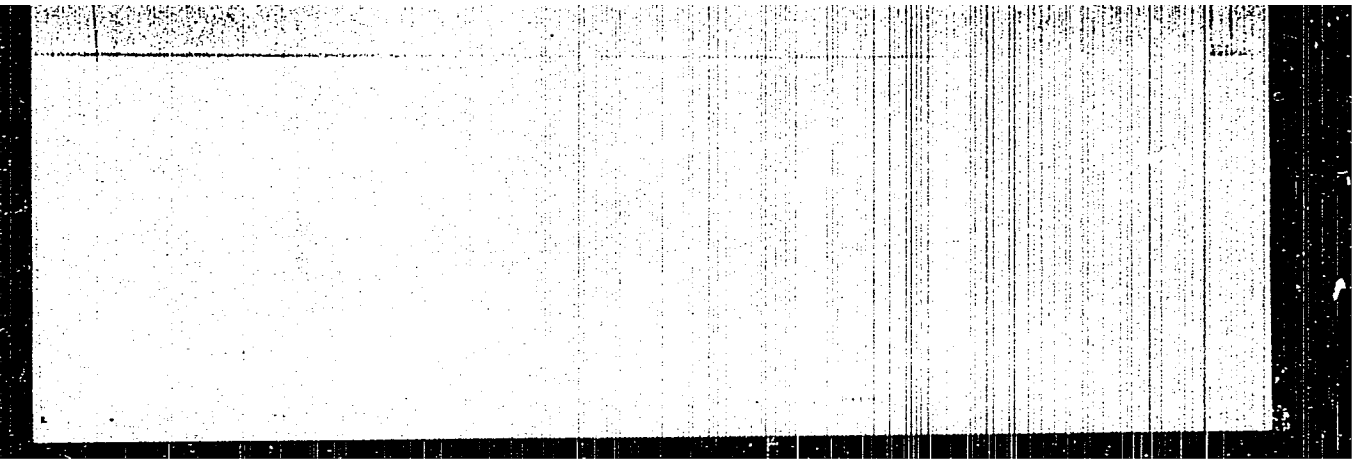
Card 1/2





GLIKMAN, S. A.

The nature of the solvation of cellulose ethers in solvent mixtures. S. A. Glikman and L. A. Knut (N.C. Chernyshevskii State Univ., Saratov). *Kolloid. Zhur.* 18, 651–9



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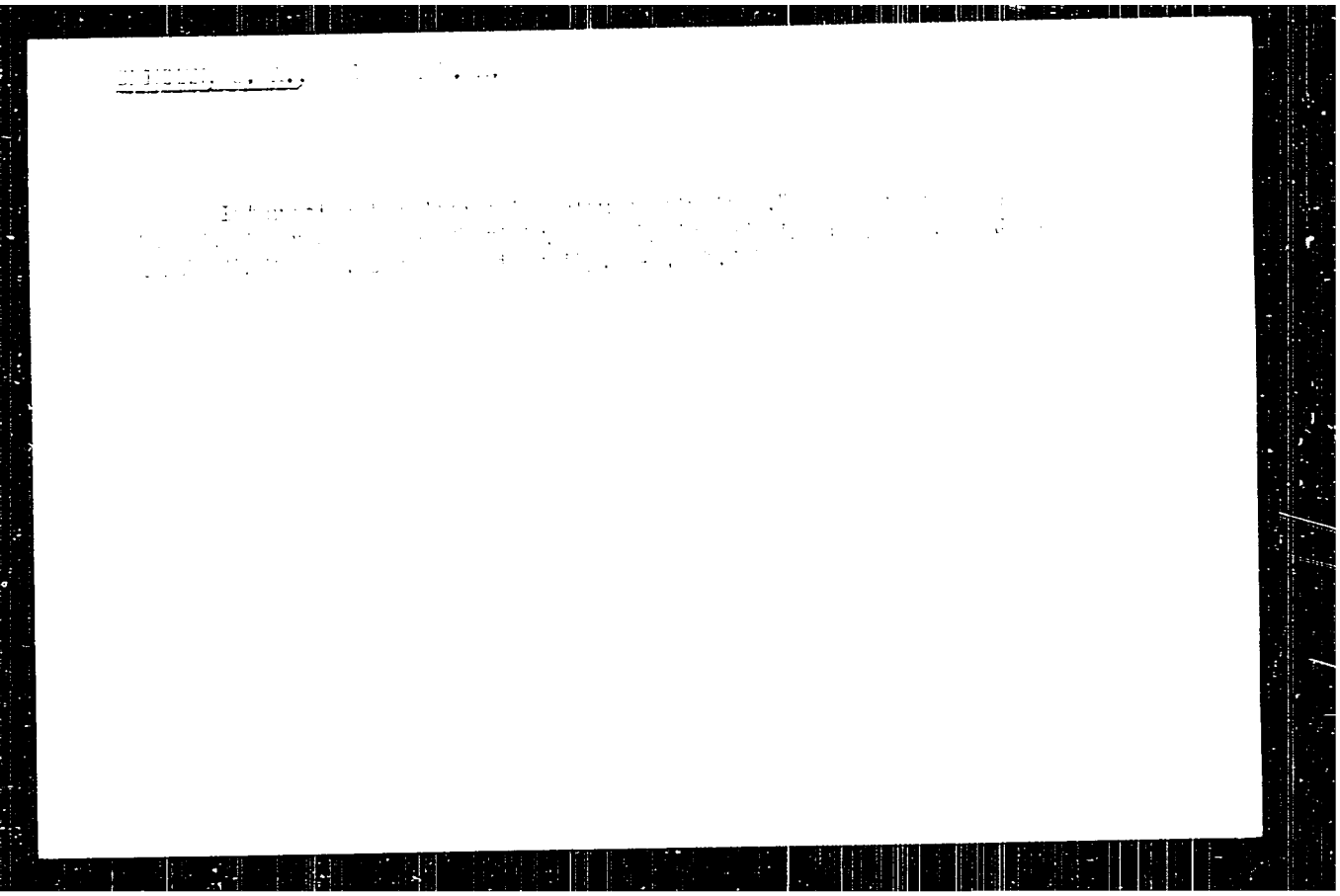


GLIKMAN, S. A.

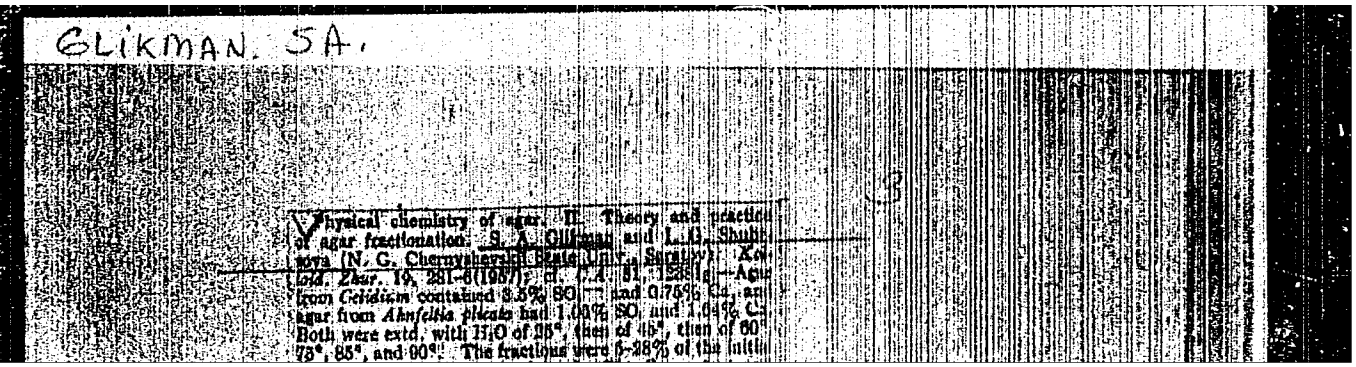
Coagulation of synthetic rubber. S. A. Glikman and E. S. Korcharina. U.S.S.R. 106,807, July 15, 1957. To facilitate coagulation with NaCl in the production of rubber strips, PhOH is added to the latex and the coagulation is carried out as usual. For best results 4-8 parts by wt. PhOH are added per kg. of latex. M. Hoenb.

GLIKMAN, S.A.

GLIKMAN, S.A.; SHUBTSOVA, I.G.

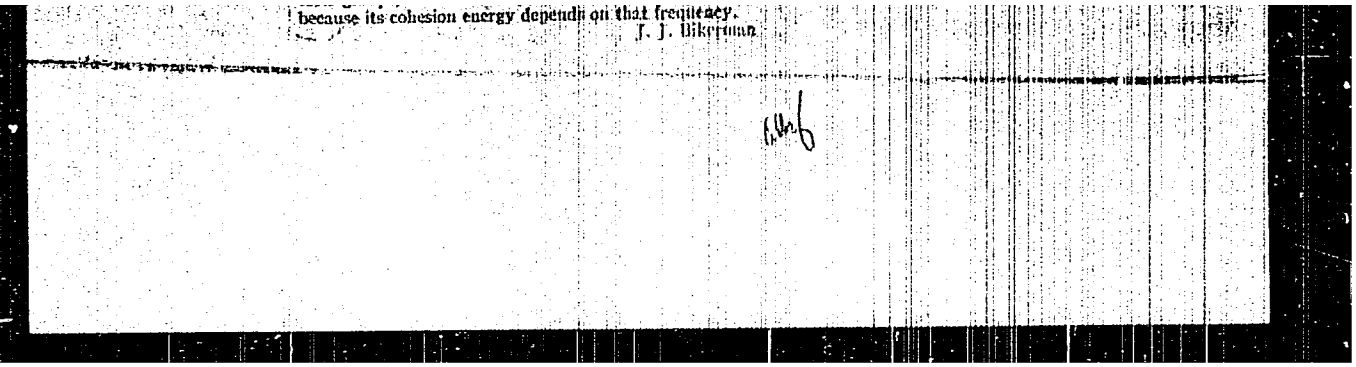
Studies on the physical chemistry of agar. Part 1. On the method of determining the intrinsic viscosity of agar. Koll.zhur. 19 no.2: 172-177 Mr-Ap '57. (MLRA 10:5)

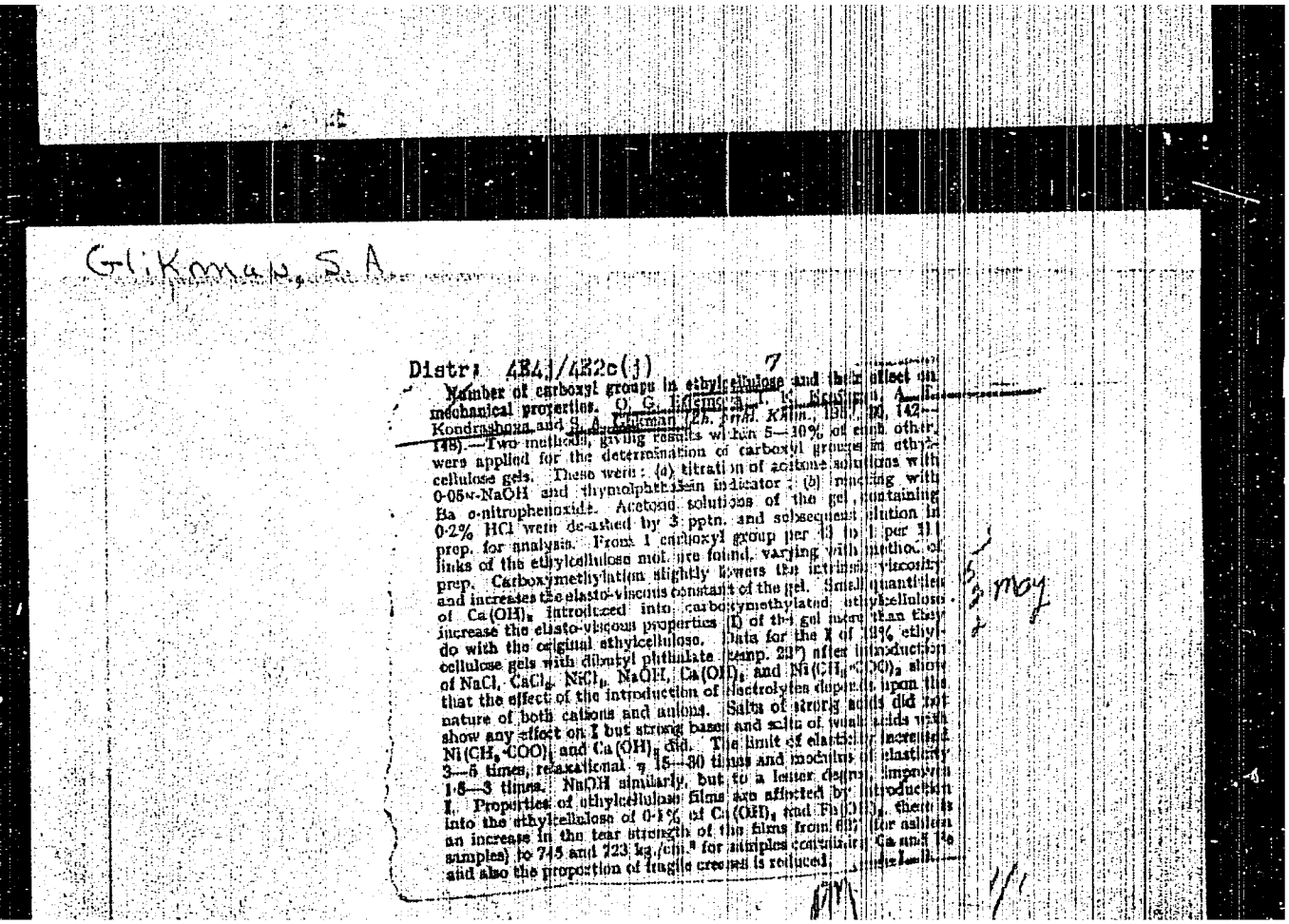
1.Saratovskiy gosudarstvennyy universitet.
(Viscosity) (Agar)



GLIKMAN, SA.

Physical chemistry of agar. II. Theory and practice of agar fractionation. S. A. Glikman and L. D. Shubina (N. G. Chernyshevskii State Univ., Saratov). *Kolloid. Zhur.* 19, 281–8 (1957).—Agar from *Gelidium* contained 8.5% SO_4^{--} and 0.75% Ca^{++}, an agar from *Ahnfeltia plicata* had 1.03% SO_4^{--} and 1.04% Ca^{++}. Both were extd. with H_2O of 25°, then of 45°, then of 60°, 75°, 85°, and 90°. The fractions were 6–28% of the init.





Gl'Koman, S. A.

Distr: 4E4j/4E2c(j) 7

Number of carboxyl groups in ethylcellulose and their effect on mechanical properties. O. G. Larionov, A. L. Klenina, A. [illegible] Kondrashova and S. A. Gl'koman. *Zh. Prikl. Khim.*, 1957, 30, 142–148).—Two methods, giving results within 5—10% of each other, were applied for the determination of carboxyl groups in ethylcellulose gels. These were: (a) titration of acetone solutions with 0·05*N*-NaOH and thymolphthalein indicator; (b) reacting with Ba *o*-nitrophenoxide. Acetone solutions of the gel, containing 0·2% HCl were de-ashed by 3 pptn. and subsequent dilution in prep. for analysis. From 1 carboxyl group per 13 to 1 per 21 links of the ethylcellulose mol. are found, varying with method of prep. Carboxymethylation slightly lowers the intrinsic viscosity and increases the elasto-viscous constant of the gel. Small quantities of $Ca(OH)_2$ introduced into carboxymethylated ethylcellulose increase the elasto-viscous properties [illegible] of the gel more than they do with the original ethylcellulose. Data for the I of 3% ethylcellulose gels with dibutyl phthalate (temp. 20°) after introduction of NaCl, $CaCl_2$, $NiCl_2$, NaOH, $Ca(OH)_2$, and $Ni(CH_3COO)_2$ show that the effect of the introduction of electrolytes depends upon the nature of both cations and anions. Salts of strong acids did not show any effect on I but strong bases and salts of weak acids with $Ni(CH_3COO)_2$ and $Ca(OH)_2$ did. The limit of elasticity increased 3—5 times, relaxational η 15—30 times and modulus of elasticity 1·5—3 times. NaOH similarly, but to a lesser degree, improves I. Properties of ethylcellulose films are affected by introduction into the ethylcellulose of 0·1% of $Ca(OH)_2$ and $Fe(OH)_3$, there is an increase in the tear strength of the films from 611 (for unalloyed samples) to 745 and 723 kg./cm.² for samples containing Ca and Fe and also the proportion of fragile crystals is reduced.

GLIKMAN, S.A.; YEFREMOVA, O.G.; KOSYREVA, I.K.; SOKOVA, A.I.

Conditions for the production of "thermally stable" ethylcellulose. Zhur. prikl. khim. 31 no.7:1087-1091 Jl '58.
(Cellulose) (MIRA 11:9)

5(4) PHASE I BOOK EXPLOITATION SOV/3444

Glikman, S. A.

Vvedeniye v fizicheskuyu khimiyu vysokopolimerov (Introduction to the Physical Chemistry of High Polymers) [Saratov] Izd-vo Saratovskogo univ., 1959. 378 p. 10,000 copies printed. Errata slip inserted.

Ed.: E. I. Korobova; Tech. Ed.: A. G. Druzhinin.

PURPOSE: This textbook is intended for students of institutions of higher education.

COVERAGE: The textbook reviews basic principles of rheology and physical chemistry. Structures and motion of molecules of high polymers are described and definitions of terms such as elasticity, fluidity, plasticity, deformation, mechanical strength, brittle point, impact resistance, frost and heat resistance are given along with an explanation of relaxation phenomena and the effect of orientation molecules, temperature and other factors on the mechanical properties of polymers. The swelling process and its kinetics are described as well as properties of gels and the thermodynamics of solutions. The author also analyzes the osmotic

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pressure of high polymer solutions, results of dilution, statistical theory of entropy and the solubility of high polymers. Problems of polymolecularity, colloidal electrolytes, and structural viscosity are reviewed along with the optical properties of solutions, diffusion of light, depolarization of diffused light and refraction of a ray in a fluid. Each chapter is accompanied by references.

TABLE OF CONTENTS: