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Because of our limited budget, publication of the Reviews and Abstracts mentioned on page 25, Vol. XV No. 3 has been postponed again. They will be combined with additional material intended for this issue and will appear in Vol. XIV No. 1, February 1945.

The subjects to be covered will include Apparatus and Methods, Bituminous Materials, Dispersions, Foam, Glass, General, Paints, Petroleum Products, Plastics, Polymers, Proteins, Solutions and Theory.

REPORT ON ANNUAL MEETING

SOCIETY OF RHEOLOGY

The Annual Meeting was held November 17 and 18th at the Hotel Pennsylvania in New York City. There was a total of 82 registrations for the three sessions which were held Friday morning, afternoon and Saturday morning. Fifteen papers were read and the discussions were most stimulating. The program has been published previously in the August issue of the Bulletin. T. Alfrey and P. Doty read papers 14 and 16, respectively, for the authors who were unable to be present.

At the business meeting on Friday afternoon the resignation of H. F. Wakefield as Publishing Editor was regretfully accepted. The office of Secretary-Treasurer was discontinued and H. F. Wakefield was elected to serve as Treasurer for the remaining term, while R. B. Dow continues as Secretary. The question of publication was thoroughly discussed at the Executive and business meetings. While a more complete journal of rheology is favored by many, it was felt that the present time was not a suitable one for a new venture, and that the present Bulletin would be continued until a more complete report was prepared by the Publication Committee. N. W. Taylor will continue as Editor, with T. Alfrey as Publishing Editor.

R. B. DOW

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Eugene C. Bingham

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260 Abere, J., Goldfinger, G., Mark, H. & Naidus, H. Ann. N. Y. Acad. Sci. 44, 267-96 (1943); cf. C.A. 37, 6529.
Recent results on the kinetics and elementary steps of polyreactions.
C.A. 38, 1161

261 Alfrey, T., Bartovics, A., & Mark, H. J. Am. Chem. Soc. 65, 2319-23 (1943)
Comparative osmotic and viscosity measurements with polystyrene fractions.
C.A. 38, 673

262 Arend, A. G. Silk and Rayon 17, 496-8 (1943).
Spinning-bath developments. (Continuous registration of temp., pH and viscosity in control room.)
C.A. 37, 6453

263 Bacon, R. F. & Fanelli, R. J. Am. Chem. Soc. 65, 639-48 (1943).
The viscosity of sulfur. (Minute amts. of hydrogen sulfide and persulfides profoundly affect the viscosity.) Data.
C.A. 37, 3312

264 Bartovics, A. & Mark, H. J. Am. Chem. Soc. 65, 1901-5 (1943).
Osmotic pressure and viscosity measurements with cellulose acetate fractions.
C.A. 38, 11

265 Beerbower, A., Sproule, L. W., Patberg, J. B. & Zimmer, J. C. Inst. Spokesman 6, No. 8, 4-7, No. 9, 1-7 (1942); No. 10, 6-7, No. 11, 2-4 (1943).
Flow characteristics of lubricating greases. (The appar. viscosity at a given rate of shear is mainly dependent on the viscosity of the mineral oil, the amt. and type of soap and the temp. Data important with launching greases and at subzero temps. in antifriction bearings.)
C.A. 37, 4556

266 Bingham, Eugene C. & Foley, Robert T. J. Phus. Chem. 47, 511-27 (1943); cf. C.A. 37, 36566.
Fluidity of electrolytes. II.
C.A. 38, 12

267 Blakeley, T. H. & Mitchell, J. G. J. Soc. Chem. Ind. 62, 179-81 (1943).
Control of tar viscosity by standard gravity and other means.
C.A. 38, 1863

268 Bondi, A. Petroleum Refiner 22, 287-94 (1943).
Physical properties of lubricating oils at low temperatures. (The cause of deviations is discussed.)
C.A. 37, 6443

269 Boow, J. and Turner, W. E. S. J. Soc. Glass Tech. 26, 215-37 (1942).
The viscosity and working characteristics of glasses. I. The viscosity of some commercial glasses at temperatures between approximately 500° and 1400°. (Factors have been derived for the oxides SiO_2, Al_2O_3, Fe_2O_3, CaO, MgO, Na_2O and PbO by which, within prescribed limits of compn., the viscosities of glasses contg. them

can be calcd.)
C.A. 37, 3572
(2) Boow, James and Turner, W. E. S. J. Soc. Glass Tech. 27, 94-112 (1943); cf. C.A. 37, 3573[1].
The viscosity and working properties of glass. II. The rate of cooling and setting of colorless and colored glasses.
C.A. 623

270 Boulton, J. & Jackson, D. L. C. J. Soc. Dyers Colourists 59, 21-6 (1943).
The fluidity of nylon solutions in m-cresol as a measurement of chemical damage in nylon textiles.
C.A. 37, 2582

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C.A. 37, 2978

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Friction and lubrication report No. 1. I. The theory of metallic friction and the role of shearing and ploughing.
C.A. 38, 320
(2) Bowden, F. P. & Tabor, D. Australia, Council Sci. Ind. Research Bull. No. 155, 24 pp (1942).
Friction and lubrication report No. 2. The lubricating effect of thin metallic films and the theory of the action of bearing metals.
C.A. 38, 320

273 Bradford, S. C. Phil. Mag. 34, 433-71 (1943).
The properties of fluids. (Maxwell's kinetic theory is extended so as to include the properties of assocd. liquids. Edser's law for mol. attraction dets. liquid properties. Viscosity data are calcd. for Me_2CO, Et_2O, n-hexane, C_6H_6, $CHCl_3$ and CCl_4.
C.A. 37, 6171

274 Bredée, H. L. J. prakt. Chem. 159, 146-52 (1941).
Calculation of the limiting value $\lim_{c \to 0} (\eta_{sp.}/c)$.

Cf. Schulz and Blaschke, J. prakt. Chem. 159, 153-4.
C.A. 37, 3987

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The relation between viscosity and concentration. VI. The meaning of the viscometric "extension factor".
C.A. 37, 4289

276 Buist, J. M. & Seymour, R. C. Trans. Inst. Rubber Ind. 19, 64-90 (1943).
Position of the rubberlike state on the plastic-elastic scale.
C.A. 38, 1907

277 Burgess, G. Foundry Trade J. 69, 197-204 (1943).
Factors influencing the fluidity of cast iron. (fluidity increases with temp., C content up to 4% and P content but decreases with S and Mn.)
C.A. 37, 6226

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The viscosity of suspensions. The effect of strong electrolytes on the viscosity of suspensions of starch and bentonite.
C.A. 38, 289

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An adaptation of the Atwood machine for viscosity determinations.
C.A. 38, 1398

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Relation between viscosity and temperature.
C.A. 38, 912

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Viscosity measurement and viscosity index. (Four labs. using the same seven oils obtained an average difference of 0.83 per cent).
C.A. 37, 4945

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Compounding Neoprene latex. I. Effect of various materials on viscosity. (Expts. point to methyl cellulose of low viscosity as the best thickening agent. Parlin cup used for testing.)
C.A. 37, 2616

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A pipet method of size analysis for the centrifuge. (A modification of Stokes' law.)
C.A. 37, 6162

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Plastic flow resulting from multi-axial stress in multicrystalline metals.
C.A. 38, 1457

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Some rheological properties of matter under hydrostatic pressure.
C.A. 38, 11

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Viscometric method of immunobiological analysis.
C.A. 37, 4127

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Boiling point and viscosity of gases.
C.A. 38, 286

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Lowering the pouring viscosity of gelatin solutions.
C.A. 38, 508

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Control of the degree of fluidity and electrical conductivity of portland cement clinker in the temperature interval 1300-1450 by fluxes (metal oxides and salts) and its technical significance. (Fluidity is increased at 1400° by addn. 1-3% of oxides -m following order Na_2O, CaO, MgO, Fe_2O_3, MnO, SiO_2 and Al_2O_3 decrease the fluidity.)
C.A. 37, 6429

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Viscosity on cylinder wear. (Wear decreases with increasing viscosity.)
C.A. 37, 6444

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Determination of the plasticity of rubber.
C.A. 37, 5275

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Viscosity of pitches.
(Capillary and falling coaxial cylinder. Saal penetration viscosities do not agree).
C.A. 37, 3248
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Viscosity of coal-tar residues - comparison of viscosity measurements and the A.S.T.M. penetration tests.
C.A. 37, 3587

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Rigidities of solutions of polymers.
C.A. 1162

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Dynamic hardness testing at elevated temperatures.
C.A. 38, 709

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Theory of the electroviscous effect.
C.A. 38, 290

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Statistical mechanics of cross-linked polymer networks. I. Rubberlike elasticity.
C.A. 38, 291
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Statistical theory of chain configuration and physical properties of high polymers.
C.A. 38, 1162

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Solution viscosities of the anyloses components of starch.
C.A. 37, 3296

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The viscosity at the boiling point.
C.A. 38, 1408
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Viscosities and rheochors of HNO_3, nitro paraffins and isomeric nitrites.
C.A. 38, 140

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Flow properties of cellulose esters.
C.A. 38, 1637

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Sedimentation volumes and anomalous flow in lyophobic suspensions.
C.A. 38, 10
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Sedimentation volumes and rigidity in suspensions of Na soaps in mineral oils.
C. A. 38, 1676

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Consistency tests. Aluminum cone vs. standard steel cone.
C.A. 37, 4557

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The heat capacity and viscosity of liquids.
C.A. 38, 1680

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Laminar flow of oil-coal suspensions. (There is viscous flow at concs. below a certain point where plasticity begins with appreciable yield value).
C.A. 37, 3304

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A tensiometer stiffness test for elastomers at low temperatures.
C.A. 37, 6491

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The effect of milling on the softness of rubber. I. Temperature and friction.
C.A. 38, 891

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Cupriethylenediamine as a solvent for precise determination of cellulose viscosity.
C.A. 38, 1638

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Estimation of the viscosity-temperature behavior of lubricating oils by means of a conventional slide rule.
C.A. 38, 1626

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Fast and slow extension of some plastic materials.
C.A. 38, 1157

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Slag systems. The viscosity determination of blast furnace slags.
C.A. 37, 1961

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Plasticity and workability of ballclays.
C.A. 37, 2150

311 Hersberger, A. B. and Overbeck, C. Am. Soc. Testing Materials (1942).
Estimating the A.S.T.M. ring-and-ball softening point of asphalts. (Uses three baths for conditioning and 3 for test each at constant temp.
C.A. 37, 2169

312 Höppler, F. Mitt. Dachpappen-Ind. 14, 179-87 (1941).
The rheological behavior of coal tar and coal-tar pitches, from bituminous coal. (Fundamental similarity to the bitumens.)
C.A. 37, 4228
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Rheometry and colloidal nature of the system, sodium cellulose glycolate and water.
C.A. 37, 4952
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Colloidal and flow properties of lubricating greases and of calcium-oleate-mineral oil mixtures.
C.A. 37, 6444.
(4) Hoppler, F. Z. Untersuch. Lebensm. 85, 54-9 (1943).
Viscosity behavior of malt extracts.
C.A. 38, 455

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The formation of chain aggregations during coagulation.
C.A. 38, 1160

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Creep experiments in lead crystals. (Creep in single crystal depends on the plasticity of the crystal = 10^{-4}% per hr.)
C.A. 37, 4285

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The viscosity-concentration relation in concentrated solutions of high polymers. (Significance of formulas of the type log $\eta = C_v^a$.)
C.A. 37, 4289

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Viscosity of pentane.
C.A. 903

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Thermodynamic properties of solutions of high polymers. The empirical constant in the activity equation.
C.A. 38, 1162
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The vitreous state: some semiquantitative considerations.
C.A. 38, 287

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The vitreous state.
C.A. 1158

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Symposium on testing and classification of ball clays. A critical analysis of Stokes' law as a basis for the determination of particle size of clays and non-plastic materials.
C.A. 37, 2149

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Determination of viscosity. (Wide range claimed).
C.A. 37, 3303

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The viscosity function.
C.A. 38, 7
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The viscosity function. IV. Non-ideal systems.
C.A. 37, 4944

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Conductimetric behavior of solutions of lithium chloride.
Cf. C.A. 24, 3417; 3418; and 34, 7686
Visc. 18° to 100° at 8 concns.
C.A. 37, 3321

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Statistical treatment of imperfectly flexible chains.
C.A. 38, 288

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Diffusion and hydration of cupric and nickel ions in aqueous solutions.
C.A. 37, 3320

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Viscosity and molecular decomposition of the proteins. (Denaturing and degradation of proteins by acid, alkali and heat. Numerous tables. Sphero-proteins first increase in viscosity and then decrease due to unwinding of the mol. ball.
C.A. 37, 3994

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Heat transfer and superfluidity of He II.
C.A. 38, 1157

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Consistency of lubricating greases and oils at low temperatures. (Greases from low viscosity oils show the least change in penetration with reduced temp.).
C.A. 37, 4557

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Rotation viscometer.
C.A. 37, 3980

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Viscosity and structure of pure hydrocarbons.
C.A. 38, 1409

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A method of testing the elasticity of synthetic rubbers at low temperatures.
C.A. 37, 5278

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Adhesivity.
C.A. 38, 627

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Surface consistency characteristics of asphalts.
C.A. 38, 242

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Viscometer.
C.A. 37, 1903

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The "brittleness" of liquids.
(Tammann assumed the boundary at 10^{12} to 10^{13} poises but it depends upon the rate of deformation.)
C.A. 37, 6172

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Deformation and orientation of isotropic nitrocellulose threads. III. Double refraction of swollen and imbibed threads.
C.A. 37, 6453

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The coiling of fiber molecules in flowing solutions.
C.A. 38, 673

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Work of the physics of solids in the U. S. S. R.
(Crystn. of supercooled liqs., plasticity and strength of ionic crystals, plastic deformation of polycryst. metals, brittleness of steel, phys. foundations of metal cutting, etc.)
C.A. 37, 3313

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Theory of superfluidity of He II.
C.A. 38, 1157
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Theory of superfluidity of helium II.
A quantized liquid at absolute zero may possess superfluidity but at higher temperatures both superfluid and normal flow. Cf. Kapitza.
C.A. 37, 1312

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Grease consistency investigations. (Sinclair pressure viscometer and Knopf consadometer used. Consistency of grease can be detd. if the P. D. consistencies at 35° and 80°F. are known).
C.A. 37, 4557

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Experimental facts pertaining to the viscosity,

molecular size and molecular shape.
C.A. 37, (1912)

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Flow deformation of metals.
C.A. 37, 4998

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Viscometer (falling ball).
C.A. 37, 2962

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Plastic working of Magnesium-alloy sheet.
C.A. 37, 6233

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The gelatin viscosity reduction method of measuring proteolytic activity.
C.A. 38, 758

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Slag viscosity and refining problems. III
C.A. 37, 1961

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Viscosity of pure liquids. Influence of temperature and constitution. (Spherical molecules have higher temp. coeff. of viscosity. The absorption band at 9622 A. connected with association of alcohols and acids.)
C.A. 37, 3987

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The technical cohesive strength and other mechanical properties of metals at low temperatures. (Strength, ductility and temp.).
C.A. 37, 6224

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Viscosity of pectin solutions and its relation to gelling ability. (There seems to be a certain proportionality.)
C.A. 37, 4280

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The nature of viscosity of fluids, particularly lubricating oils.
C.A. 37, 4951

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Starch viscosity or strength. (The fluidity funnel is not a true viscometer).
S.A. 46A, 1349

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Notes on the rheology of paints. (Yield value is lower with vehicles of high viscosity and those which give low sedimentation volumes. Thixotropic suspensions usually show smaller sed. vols. as well as slower rate of sedimentation. Tack is closely related to yield value, developing sharply with the latter.)
C.A. 37, 2591

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Structure and mechanical behavior of high polymers.
C.A. 38, 906
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Some scientific aspects of the synthetic rubber problem.
C.A. 37, 5277

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Methods of testing consistency of refractory mortars and protective masses. (The Abramson app. with a cone and the Cohn ball-impression app. described.)
C.A. 37, 4575

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Chain transfer in the polymerization of styrene: the reaction of solvents with free radicals.
C.A. 38, 909

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Plastic deformations of metals. II. Some characteristics of plastic deformation of metals.
C.A. 37, 4998

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Rotation viscometer for measuring structural viscosity.
C.A. 37, 3980

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Ger. 713, 990, Oct. 23, 1941 (Cl. 421. 7.01).
Viscometer.
C.A. 38, 1670

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Brittle points of natural and synthetic rubber stocks.
C.A. 37, 6490

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On the nature of a polished surface.
S.A. 45A, 1616

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Effect of concentration and pH on the viscous and electrochemical properties of H bentonites.
C.A. 38, 672

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Anomalous viscosity shown in oil flow through engine bearings.
C.A. 38, 1625

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Plastic deformation of cast iron. (Pressing at 850-1000° raises strength, hardness and density; removes strains.)
C.A. 37, 1967

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Eugene C. Bingham

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