PETRUNIN, A.M.; LOKTIONOVA, N.A.; AL'TMAN, M.B., rukovoditel' raboty; Prinimali uchastiye: LOZHICHEVSKIY, A.S.; SHKROB, V.A.; POSTNIKOV, A.S.; ARBUZOV, B.A.; PANTYUSHKOVA, N.S.; POBOCHINA, T.V.; PATRUSHEV, L.M.

Mastering the production of large A18 alloy castings. Alium. splavy no.1:150-159 '63. (MIRA 16:11)

ARBUZOV, B.A.; GORBUNOV, A.M.

Casting aluminum alloys in permanent molds using shell-molded cores. Alium. splavy no.1:160-176 '63. (MIRA 16:11)

ARBUZOV, B.A.; VINBERG, L.I.; GOLUBOVICH, M.P.; STEPANOVA, N.M.; NEYFAK, Ye.V.; TSAREVSKIY, N.I.

Casting into chill molds from wooden patterns. Alium. splavy no.1:182-194 '63. (MIRA 16:11)

OVCHINNIKOV, Yu.F.; SOYFER, D.V.; CHIKHACHEV, O.P.; Prinimali uchastiye: ARBUZOV, B.A.; GORBUNOV, A.M.; KLEYNER, L.M.

Making aluminum alloy parts with intricate internal channels. Alium. splavy no.1:195-201 '63. (MIRA 16:11)

ARBUZOV, B.A.; VINOGRADOVA, V.S.; POLEZHAYEVA, N.A.; SHAMSUTDINOVA, A.K.

Esters of β-ketophosphinic acids. Report No.12: Structure of the products of interaction of some aromatic α-halo ketones with triethyl phosphite and sodium diethyl phosphite. Izv.AN SSSR. Ser.khim. no.8:1380-1389 Ag '63. (MIRA 16:9)

1. Nauchno-issledovatel'skiy khimicheskiy institut im. A.M.Butlerova Kazanskogo gosudarstvennogo universiteta im. V.I.Ul'yanova-Lenina.
(Ketones) (Phosphorous acid)

ARBUZOV, B.A.; BUTENKO, G.G.; YABLOKOV, Yu.V.

Study of some polyene ketones by the electron paramagnetic resonance method. Izv.AN SSSR.Ser.khim. no.8:1511-1514 Ag '63. (MIRA 16:9)

1. Kazanskiy gosudarstvennyy universitet im. Ul'yanova-Lenina i Fiziko-tekhnicheskiy institut Kazanskogo filiala AN SSSR.
(Ketones--Spectra)

ARBUZOV, B. A.

"The Michaeles-Arbuzov-Perkov-Reactions."

report read at the Symp on Organo-Phosphorus Compounds, Heidelberg, 20-22 May 64.

L 16080-65 EWT(m)/EPF(c)/EWP(j) Pc-4/Pr-4 SSD/AFWL JXT(CZ)/RM
ACCESSION NR: AP5001947 S/0020/64/158/001/0137/0140

AUTHOR: Arbuzov, B. A. (Academician); Dianova, E. N.; Vinogradova, V. S.; Shamsutdinova, A. K.

TITLE: Reaction of sodium diethylphosphide with 1, 2-dibromocyclohexane and 1, 2-dibromomethane

SOURCE: AN SSSR. Doklady, v. 158, no. 1, 1964, 137-140

TOPIC TAGS: phosphorus compound, hexane, bromine, organosodium compound, distillation

Abstract: The reaction of sodium diethylphosphide with 1, 2-dibromocyclohexane was studied to determine which phosphorus derivatives are formed. The following compounds were found after distillation of the resulting cyclohexane and phosphorus-containing products: 1) diethylphosphorous acid; 2) a fraction with a 61-61.5° boiling point (2.5 mm), which proved to be a mixture of dibromocyclohexane (60%) with triethylphosphate (40%); 3) tetraethylpyrophosphite; 4) tetraethyl ester of subphosphoric acid; 5) a fraction with a 131-134° (2 mm) boiling point, which may prove to be tetraethylpyrophosphate, although its physical constants differed somewhat from pyrophosphate constants. It was thus found that organophosphorus

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L 16080-65
ACCESSION NR: AP5001947

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compounds obtained in the reaction of dibromocyclohexane with sodium diethylphosphide proved to be the same as those for the reaction of sodium diethylphosphide with bromine. Orig. art. has 3 articles and 1 figure.

ASSOCIATION: Nauchno-issledovatel'skiy institut im. A. M. Butlerova (Scientific Research Institute); Kazanskogo gosudarstvennogo universiteta im. V. I. Ul'yanova-Lenina (Kazan' State University)

SUBMITTED: 09May64 ENCL: 00 SUB CODE: OC, GC

NO REF SOV: 005 OTHER: 007 JPRS

Card 2/2

L 12974-65 EWT(m)/EPF(c)/EPR/EWP(j)/EWP(b) Pc-4/Pr-4/Ps-4 RPL
RDW/RM/WW/JD

ACCESSION NR: AP4045101 S/0020/64/158/001/0167/0169

AUTHOR: Pudovik, A. N.; Kashevarova, E. I.; Arbuzov, B. A. (Academician) B

TITLE: Selenium-containing derivatives of acrylic and methacrylic acids

SOURCE: AN SSSR. Doklady*, v. 158, no. 1, 1964, 167-169

TOPIC TAGS: benzeneselenol, methacryloyl chloride, selenium containing polymer, organoselenium compound, diphenyl phosphochloridoselenoate, potassium acrylate, potassium methacrylate, phosphorus containing polymer, organophosphorus compound

ABSTRACT: A study has been made of the reaction of benzeneselenol with methacryloyl chloride. This work was done because there are no data in the literature on selenium-containing derivatives of acrylic and methacrylic acids. The reaction was conducted in an ethyl ether solution in the presence of triethylamine with the reactants taken in a 1/1 molar ratio. Two reaction products were obtained:

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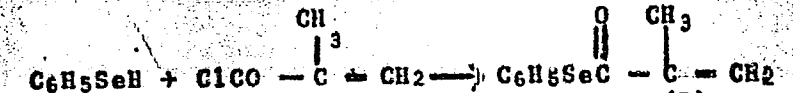
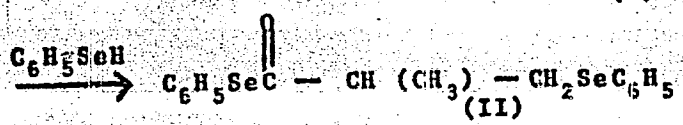
L 12971-65

ACCESSION NR: AP4045101





Compounds I and II were identified by chemical analysis, infrared spectroscopy, and molar refraction. Compound I is a low-viscosity yellow liquid. Compound II, whose yield is one third that of I, is a viscous liquid. Both I and II are soluble in acetone, ethyl ether, and ethyl alcohol. To prove the presumed course of the reaction, II was also prepared from I and benzeneselenol. Preliminary polymerization experiments showed that I polymerizes in the presence of benzoyl peroxide at 80C to a rubber-like product and in the presence of azobisisobutyronitrile at 80C to a solid brittle polymer with mp of 120—125C and at 100C to a polymer with mp of 60—64C. Also

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ACCESSION NR: AP4045101

studied was the reaction of O,O-diphenyl phosphorochloridoselenoate with potassium acrylate or methacrylate to form the mixed anhydrides (mp, 58-59 and 74-75C) in ~ 50% yields:

$$(C_6H_5O)_2P(Se)Cl + KOOC-CR=CH_2 \longrightarrow (C_6H_5O)_2P(Se)OCO-CR=CH_2,$$

where R = H, CH_3. These anhydrides are soluble in most organic solvents and polymerize in the presence of azobisisobutyronitrile. Orig. art. has: 2 formulas.

ASSOCIATION: Kazanskiy gosudarstvenny*y universitet im. V.I. Ul'yanova-Lenina (Kazan State University)

SUBMITTED: 29Feb64 ATD PRESS: 3109 ENCL: 00

SUB CODE: IC, OC NO REF SOV: 001 OTHER: 004

Card 3/3

ARBUZOV, B.A.; VERESHCHAGIN, A.N.

Interaction of chlorine-substituted ethylenes with cyclic dienes and the structure of the formed adducts. Izv. AN SSSR. Ser. khim. no.6:1004-1013 Je '64. (MIRA 17:11)

1. Kazanskiy gosudarstvennyy universitet im. V.I. Ul'yanova-Lenina.

L 40728-65 EWT(m)/EPF(c)/EWP(j) Pc-4/Pr-4 RWH/IM

ACCESSION NR: AP5012396 UR/0020/64/157/006/1420/1423

AUTHOR: Aminova, R. M.; Arbuzov, B. A. (Academician)

TITLE: Molecular-orbital theory of diamagnetism of cyclic molecules. Calculation of magnetic anisotropy of cyclopropane

SOURCE: AN SSSR. Doklady, v. 157, no. 6, 1964, 1420-1423

TOPIC TAGS: molecule, molecular theory, diamagnetism, magnetic anisotropy, magnetic field, cyclic group, propane, intramolecular mechanics, physical chemistry

Abstract: In this paper, the molecular-orbital (m. o.) theory of diamagnetism proposed by Pople for simple noncyclic compounds is developed for cyclic molecules and, from the formulas derived, calculations are made of the magnetic anisotropy of cyclopropane. The m. o. method is used in a single-electron approximation of the linear combination of atomic orbital method with the magnetic field accounted for. If in the absence of a magnetic field H, the linear combination of atomic orbitals / l. c. a. o./ theory gives approximate solutions of ψ_i of the Schroedinger wave equation in the form of a linear combination of atomic orbitals, then in the magnetic field atomic orbitals of the following form must be used.

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L 40728-65
ACCESSION NR: AP5012396

$$\chi_{\mu} = \Phi_{\mu} \exp\left[-(ie/hc) A_{\mu} \cdot r\right],$$

where Φ_{μ} = atomic orbital belonging to the atom μ with a vector-radius R_{μ}, and A_{μ} = the value of vector potential at the nucleus of this atom. Using a series of approximations, Pople obtained the second equation listed in the paper for change in total energy of the molecule in a magnetic field in the second order of the theory of excitations. After extended derivations, calculations showed that contributions to the magnetic susceptibility of the molecule from carbon atoms, calculated from formulas derived, are almost isotropic and equal: $\chi_d \approx 9 \cdot 10^{-6}$ cm^3/mol, and $\chi_P^C = 0.1034$ $\left\langle (4R)^{-1} \right\rangle \cdot 10^{-15}$ cm^3/mole. The principal contribution to the anisotropy of cyclopropane is made by interatomic effects. Orig. art. has 3 figures and 24 formulas.

ASSOCIATION: Kazanskiy gosudarstvennyy universitet im. V. I. Ul'yanova-Lenina (Kazan' State University)

SUBMITTED: 06Mar64 ENCL: 00 SUB CODE: GC, OC

NO REF SOV: 004 OTHER: 017 JPRS

Card 2/2

ARBUZOV, B.A.; YEFREMOV, Yu.Ya.; TAL'ROZE, V.L.

Mass spectroscopy of the oxides of some bicyclic terpenes.
Dokl. AN SSSR 158 no.4:872-875 O '64.
(MIRA 17:11)

1. Institut organicheskoy khimii AN SSSR, Kazan', i Institut khimicheskoy fiziki AN SSSR.

L 55915-65 EWT(m)/EPF(c)/EWP(j) Pc-4/Pr-4 RM
ACCESSION NR: AP5018337 UR/0020/64/158/005/1105/1107

AUTHOR: Arbuzov, B. A. (Academician); Vizel', A. O.

TITLE: Monomeric cyclic trihalophosphoranes and some of their transformations. Syntheses based on phosphorus tribromide

SOURCE: AN SSSR. Doklady, v. 158, no. 5, 1964, 1105-1107

TOPIC TAGS: phosphorus halide, bromide, ester, organic phosphorus compound

ABSTRACT: Phosphorus dihalides react with dienes considerably more vigorously than organic derivatives, and adducts — representatives of a previously unknown class of organophosphorus compounds — cyclic trihalides — are formed in good yield. Phosphorus tribromide reacts with dienes more vigorously than the trichloride; tribromophosphoranes are formed in better yields and in purer form than trichlorophosphoranes. The reactions with phosphorus trichloride are generally accompanied by great resinification. The reaction of equimolar amounts of the diene

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L 55915-65
ACCESSION NR: AP5018337

and phosphorus trihalide was conducted at 10-30°C, with copper stearate as inhibitor, under moisture-free conditions; the duration of the process varied from several hours to a month, depending on the nature of the diene. The tribromophosphoranes synthesized were found to react smoothly with acetic anhydride, forming bromides of cyclophosphinic acids in close to quantitative yield. Esters were produced by the reaction of the cyclophosphinyl bromides with alcohols in the presence of organic bases. The structures of the compounds obtained were confirmed by a study of their nuclear magnetic resonance spectra. Orig. art. has: 2 tables, 3 figures.

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

SUBMITTED: 22Jun64 ENCL: 00 SUB CODE: OC, GC

NR REF SOV: 006 OTHER: 003 JPRS

Card 2/2

ARBUZOV, B.A., akademik; VIZEL', A.O.; SAMITOV, Yu.Yu.; IVANOVSKAYA, K.M.

Derivatives of phosphacyclopentene. Synthesis and structure of isomers. Dokl. AN SSSR 159 no.3:582-585 N '64 (MIRA 18:1)

1. Institut organicheskoy khimii AN SSSR, Kazan'.

ARBUZOV, B.A., akademik; ISAYEVA, Z.G.; POVODYREVA, I.P.

Structure of unsaturated alcohol acetates from the reaction of Δ^3-carene oxide with acetic anhydride. Dokl. AN SSSR 159 no.4:827-830 D '64 (MIRA 18:1)

1. Nauchno-issledovatel'skiy khimicheskiy institut im. A.M. Butlerova pri Kazanskom gosudarstvennom universitete im. V.I. Ul'yanova-Lenina.

ARBUZOV, B.A., akademik; SAMITOV, Yu.Yu.; VIZEL', A.O.; ZYKOVA, T.V.

Structure and certain features of proton nuclear magnetic resonance spectra of phosphacyclopentene derivatives with non-symmetrically located substituents in the cycle. Dokl. AN SSSR 159 no.5:1062-1065 D '64 (MIRA 18:1)

1. Institut organicheskoy khimii AN SSSR, Kazan', i Kazanskiy gosudarstvennyy universitet im. V.I. Ul'yanova-Lenina.

ARBUZOV, Boris Afanas'yevich; KANTOR, P.I., red.

[Efficient methods of preparing coated mixtures] Ratsional'nye sposoby prigotovleniia plakirovannykh smesei. Leningrad, 1965. 23 p. (MIRA 18:10)

ARBUZOV, B.A.; ISAYEVA, Z.G.; POVOLYREVA, I.P.

Structure of acetates of unsaturated alcohols obtained in the reaction of α-pinene oxide with acetic anhydride. Izv.AN SSSR.Ser.khim. no.12:2144-2152 '65.

(MIRA 18:12)

1. Nauchno-issledovatel'skiy khimicheskiy institut im. A.M.Butlerova Kazanskogo gosudarstvennogo universiteta im. V.I.Ul'yanova-Lenina. Submitted August 5, 1963.

25780
S/020/61/139/002/010/017
B104/B205

24.4400

AUTHORS: Arbuzov, B. A., Tavkhelidze, A. N., and Faustov, R. N.

TITLE: The problem of the fermion mass in a γ^5-invariant model of the quantum-field theory

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 139, no. 2, 1961, 345-347

TEXT: A model has been studied, in which a divergence is absent and the system of fermion fields interacts with the real field vector in the two-dimensional space-time continuum. The model of interaction of a massless fermion with vectorial mesons having a mass has been discussed in several articles (V. Glaser, B. Jakšić, Nuovo Cim., 11, 877 (1959); I. Soln, Nuovo Cim., 18, 914 (1960)). It could be shown that, by using a canonical transformation, this model can be transformed into a problem without interaction. Therefore, the Green function has no poles other than $p^2 = 0$. This method is applied here since the results obtained can be compared with exact calculations. The Lagrangian of the system under consideration reads

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The problem of the fermion mass ...

$$\mathcal{L}(x) = \mathcal{L}_0(x) + \mathcal{L}_1(x),$$

$$\mathcal{L}_0(x) = \frac{i}{2}\sum_n \left\{ :\bar{\psi}(x)\gamma^n \frac{\partial \psi}{\partial x^n}: - :\frac{\partial \bar{\psi}}{\partial x^n}\gamma^n \psi(x): \right\} -$$

$$- \frac{l}{2}\sum_{k,n} g^{kk} g^{nn} :\frac{\partial A_k}{\partial x^n}\frac{\partial A_k}{\partial x^n}: + \frac{\mu^2}{2}\sum_n g^{nn} : A_n(x) A_n(x): \qquad (2)$$

$$\mathcal{L}_1(x) = g\sum_n :\bar{\psi}(x)\gamma^n \psi(x) A_n(x):, \qquad n, k = 0, 1.$$

where ψ is the operator of the fermion field, and A_n are the operators of the real field vector. The infinitely small term $-\lambda : \bar{\psi}(x)\psi(x)$ is now introduced, and the Lagrangian is written in the form

$$\mathcal{L}(x) = \mathcal{L}_0'(x) + \mathcal{L}_1'(x),$$

$$\mathcal{L}_0'(x) = \mathcal{L}_0(x) - m :\bar{\psi}(x)\psi(x):, \qquad (3)$$

$$\mathcal{L}_1'(x) = \mathcal{L}_1(x) + (m - \lambda) :\bar{\psi}(x)\psi(x):.$$

The requirement that the total of mass corrections be zero leads to the

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The problem of the fermion mass ...

equation $\Sigma(p)\big|_{p^2 = m^2} = \lambda \cdot m + \Sigma^*(p)\big|_{p^2 = m^2} = 0$, where $\Sigma(p)$ is the total mass operator obtained from the interaction Lagrangian $\mathcal{L}_I'$. This equation is called the compensation equation. Using, $\psi \longrightarrow e^{\alpha\gamma^5}\psi$, $\bar{\psi} \longrightarrow \bar{\psi}e^{\alpha\gamma^5}$, and (3), it can be shown that the compensation equation is invariant with respect to the group of γ^5-invariant transformations. For the compensation equation one obtains:
$m\exp\left\{-\frac{g^2}{2\pi\mu^2}\ln(\mu^2/m^2)\right\} = 0$. This relation has only zero solutions, as follows from the exact solution of the model. The method described here is applied to a two-fermion model with vectorial coupling and with the interaction Lagrangian

$$\mathcal{L}_1 = \sum_n : \left\{g_1\bar{\psi}\Gamma^n\psi + g_2\bar{\chi}\Gamma^n\chi + \frac{g}{\sqrt{2}}\left(\bar{\chi}\Gamma^n\psi + \bar{\psi}\Gamma^n\chi\right)\right\} A_n :, \qquad (7)$$

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ψ and χ are the operators of the two different spin fields. As compensation equations one obtains

$$\Sigma_1(p)|_{p^2=m_1^2} = \lambda_1 - m_1 + \Sigma_1^*(p)|_{p^2=m_1^2} = 0,$$
$$\Sigma_2(p)|_{p^2=m_2^2} = \lambda_2 - m_2 + \Sigma_2^*(p)|_{p^2=m_2^2} = 0, \quad (8)$$

where $\Sigma_{1,2}(p)$ are the total mass operators of the ψ and χ fields. The system

$$m_1 - \lambda_1 = \frac{g_1^2 m_1}{2\pi\mu^2} \ln \frac{\mu^2}{m_1^2} + \frac{g^2 m_2}{2\pi\mu^2} \ln \frac{\mu^2}{m_2^2},$$
$$m_2 - \lambda_2 = \frac{g_2^2 m_2}{2\pi\mu^2} \ln \frac{\mu^2}{m_2^2} + \frac{g^2 m_1}{2\pi\mu^2} \ln \frac{\mu^2}{m_1^2}. \quad (9)$$

of compensation equations is investigated for g_1^2/μ^2, g_2^2/μ^2, $g^2/\mu^2 \ll 1$. The non-trivial solutions to these equations can be written with logarithmic

The problem of the fermion mass ...

accuracy: $$m_1^2 - m_2^2 \sim m^2 = \mu^2 \exp\left\{-\frac{\pi\mu^3}{g_1^2 g_2^2 - g^4}\left(g_1^2 + g_2^2 - \sqrt{(g_1^2 - g_2^2)^2 + 4g^4}\right)\right\}, \qquad (10).$$

$$\frac{m_1^2}{m_2^2} = \frac{g_1^2 - g_2^2 + \sqrt{(g_1^2 - g_2^2)^2 + 4g^4}}{g_2^2 - g_1^2 + \sqrt{(g_1^2 - g_2^2)^2 + 4g^4}}.$$

Here, m^2 is much greater than μ^2, and the solution has a "superconductive" character. Within the framework of the theory of superconductivity, N. N. Bogolyubov (O model'nom gamiltoniane v teorii sverkhprovodimosti \On a Hamilton model in the theory of superconductivity)), preprint of the Joint Institute of Nuclear Research, P-511), has shown that for a Bardeen Hamilton model, the solution to the compensation equation agrees asymptotically with the exact solution. This supports the authors' opinion that the solution of the compensation equation reflects the exact solution. Academician N. N. Bogolyubov and A. A. Logunov are thanked for discussions and also for their interest in the work. There are 6 references: 3 Soviet-bloc and 3 non-Soviet-bloc.

Card 5/6

24.2500

AUTHOR: Arbuzov, B. A.

66410
SOV/20-128-6-14/63

TITLE: On the Asymptotic Behavior of a Photon Propagator in Quantum Electrodynamics

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 128, Nr 6, pp 1149-1152 (USSR)

ABSTRACT: Papers by Redmond (Ref 1), by N. N. Bogolyubov, A. A. Logunov, and D. V. Shirkov (Ref 2) dealt with the structure of the propagation functions in the quantum field theory in connection with the condition of existence of spectral representations. These papers showed that taking this condition into account means the elimination of the pole in the propagation function of the boson, and that additional terms appear which are nonanalytical for $e^2 = 0$. The present paper explains the asymptotic behavior of a photon propagator by solving Schwinger-Nambu's approximation equations (Ref 3). To determine the approximate spectral representations of the Nambu type, an information is used, which is contained in the generalized identity by Ward: $(p - q)_\nu G(p)\Gamma^\nu(p,q)G(q) = G(p) - G(q)$. The first section of the present paper deals with the derivation of the approximate spectral representations. The above formula gives information

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On the Asymptotic Behavior of a Photon Propagator in Quantum Electrodynamics

concerning only that part of function $G(p)\Gamma^{\nu}(p,q)G(p)$, which is nonorthogonal to $(p - q)$. The author restricts himself to this part, and he investigates the significance of this approximation. The above formula directly supplies the asymptotic behavior of $\Gamma^{\nu}(p,q)$, if $p^2 \gg q^2$ holds, or inversely; the double logarithmic asymptotics, however, cannot be derived from it. The approximation investigated here holds when considering only the one-logarithmic terms in the vertex function. Function $G\Gamma^{\nu}G$ is then separated into an orthogonal and a nonorthogonal part. The spectral representations of the vertex functions are derived by means of the well-known formulas:

$$G(p) = \int_0^\infty \frac{\hat{p}\rho_1(x^2) + \rho^2(x^2)}{x^2 - p^2 - i\varepsilon}\, dx^2, \quad D_{mn}(k) = \left(g_{mn} - \frac{k_m k_n}{k^2}\right) D(k^2),$$

where $D(k^2) = \int_0^\infty \frac{\rho_3(a^2)da^2}{a^2 - k^2 - i\varepsilon}$ holds. The asymptotics of the photon propagator is derived in the second part. An approximation equa-

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On the Asymptotic Behavior of a Photon Propagator in Quantum Electrodynamics

tion is derived, which contains the radiation corrections to the vertex function and to the electron propagator. The author here restricts himself to the investigation of the approximation equation which considers the radiation corrections of the photon lines only. The final equation has the form

$$\rho_3(\omega) = \delta(\omega) + \frac{e^2}{12\pi^2} \frac{\vartheta(\omega - 4m^2)}{1 - \frac{e^2}{12\pi^2} \ln \left|\frac{\omega-4m^2}{4m^2}\right|} \int \frac{\rho_3(\omega')d\omega'}{\omega - \omega'}$$

and its solution reads

$$\rho_3(\omega) = \delta(\omega) + \frac{e^2}{12\pi^2} \frac{\vartheta(\omega - 4m^2)}{\left(1 - \frac{e^2}{12\pi^2} \ln \left|\frac{\omega-4m^2}{4m^2}\right|\right)^2 + \left(\frac{e^2}{12\pi}\right)^2} \left(\frac{1}{\omega} + \frac{1}{K_o}\right).$$

The propagation function reads

$$D(k^2) = \frac{1}{1 - \frac{e^2}{12\pi^2} \ln \frac{4m^2-k^2}{4m^2}} \left(\frac{1}{k^2} + \frac{1}{K_o}\right).$$

In the explicit form it contains no pole, and exhibits the

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known form with small k^2. A nonanalytical additional term thus appears not only in the propagator $D(k^2)$, but also in the spectral function $\rho_3(\omega)$. The result found here is a further illustration of the nonuniqueness in the summation of a series of simple diagrams, as shown by N. N. Bogolyubov and others (Ref 2).
The author thanks A. A. Logunov and D. V. Shirkov for supervision and for interest displayed. There are 8 references, 3 of which are Soviet.

PRESENTED: June 20, 1959, by N. N. Bogolyubov, Academician

SUBMITTED: June 15, 1959

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Card 4/4

ARBUZOV, B.A.; LOGUNOV, A.A.; TAVKHELIDZE, A.N.; FAUSTOV, R.N.; FILIPOV, A.T.; ZARUBINA, I.S.[transletor]; SARANTSEVA, V.R., tekhn.red.

Regge poles and perturbation theory. Dubna, Ob"edinennyi in-t iadernykh issledovanii, 1962. 4 p.
(No subject heading)

ARBUZOV, B.A.; KLADNITSKAYA, Ye.N.; PENEV, V.N.; FAUSTOV, R.N.

Elastic scattering of Λ -hyperons and K_1^0 -mesons on hydrogen. Dubna, Ob"edinennyi in-t iadernykh issledovanii, 1962. 11 p.
(No subject heading)

S/056/62/042/004/009/037
B108/B102

AUTHORS: Arbuzov, B. A., Kladnitskaya, Ye. N., Penev, V. N., Faustov, R. N.

TITLE: Elastic scattering of Λ-hyperons and K_1^o-mesons by hydrogen

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 42, no. 4, 1962, 979-984

TEXT: Λ and K_1^o particles were obtained from interactions of π^--mesons with a momentum of 7-8 Bev/c with hydrogen and carbon in a propane bubble chamber placed in a constant magnetic field of 13,700 oe. 20 Λ-p and 16 K_1^o-p scattering events were selected from 70,000 photographs according to energy, momentum, and co-planarity criteria. The elastic scattering cross sections of Λ-p and K_1^o-p interaction averaged over the entire spectrum of momenta are (36 ± 14) mb and (22 ± 9) mb, respectively. The angular distribution of K_1^o-mesons in the c.m.s. has

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Elastic scattering of ...

S/056/62/042/004/009/037
B108/B102

a sharp maximum for forward scattering. The Λ-hyperons show a greater trend to back-scattering. This is indicative of the exchange of a scalar K-meson during Λ-p scattering. There are 5 figures.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy
(Joint Institute of Nuclear Research)

SUBMITTED: November 5, 1961

Card 2/2

S/056/63/044/004/039/044
B102/B186

AUTHORS: Arbuzov, B. A., Logunov, A. A., Tavkhelidze, A. N., Faustov, R. N., Filippov, A. T.

TITLE: A quasioptical model and the asymptotic behavior of the scattering amplitude

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 44, no. 4, 1963, 1409 - 1411

TEXT: As shown in Ref. 1 (Preprint OIYaI, E-1145, 1962), a two-particle system may be described in quantum field theory by a Schrödinger-type equation with generalized complex potential, which in the case of scalar particles reads

$$V^{\pm}(q, q', E) = \frac{1}{\pi}\int_{\mu^2}^{\infty} \frac{U^{\pm}(E, \nu)}{\nu + (q-q')^2} d\nu, \qquad (2).$$

This quasioptical treatment yields the scattering matrix and also the structure of bound and resonance states. The wave function is only a function of transferred three-momenta (q,q'), and the energy

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$$(E^2 - q^2 - m^2)\,\psi_\pm(q) = \frac{1}{\sqrt{q^2+m^2}} \int V^\pm(q, q'; E)\,\psi_\pm(q')\,d^3q', \qquad (1),$$

$V^{+(-)}$ is the potential for even (odd) states with respect to cos θ; $U(E,\nu)$ is the spectral function which is complex in the region $E^2 > m_1^2$. The amplitude $M(E,t)$ of the process is assumed to satisfy the dispersion relation and its projection onto even and odd states is given by

$M^{\pm}(E,t) = \int_{\mu^2}^{\infty} \frac{\sigma^{\pm}(E,\nu)}{\nu+(q-q')^2}\,d\nu$. The imaginary part of V characterizes inelastic scattering. Regge has shown that when the potential is a superposition of Yukawa potentials, the scattering amplitude with $t \to \infty$ may be given by

$$M(E, t) = g(E)\,t^{\alpha(E)}, \qquad t = -(q-q')^2, \qquad (4),$$

where q and q' are initial and final momenta. It is now shown that a

potential of type (2) leads to Regge asymptotic behavior (4). The solution of the amplitude equation

$$T^{\pm}(q, q') = V^{\pm}((q-q')^2, E) + \int \frac{V^{\pm}((q-p)^2, E)\, T^{\pm}(p, q')}{[(E+ie)^2 - m^2 - p^2]\sqrt{p^2+m^2}}\, d^3p. \qquad (5)$$

is sought as a function like

$$T^{\pm}(q, q') = \frac{1}{\pi}\int_0^{\infty} \frac{\tau^{\pm}(q'^2, q^2, \nu)}{\nu - s}\, d\nu. \qquad (6).$$

The equation of the spectral function τ for the asymptotic region ($s\to\infty$) has a solution of the form

$$\tau^{\pm}(q'^2, q^2, \nu, E) = \tau_{\alpha}^{\pm}(q'^2, q^2, E)\,\nu^{\alpha(E)}. \qquad (9),$$

where τ_{α} will satisfy

$$\tau_\alpha^{\pm}(u, s, E) = \int R_\alpha^{\pm}(u, u', s, E) \frac{\tau_\alpha^{\pm}(u', s, E)}{(E^2 - m^2 - u')\sqrt{u' + m^2}}\, du'.$$

$$R_\alpha^{\pm}(u, u', s, E) = \int U^{\pm}(E, \nu)\, d\nu \int_0^1 \frac{dx \cdot x^\alpha}{(1-x)^{1/2}} \frac{\theta(u' - ux - \nu x/(1-x))}{[u' - ux - \nu x/(1-x)]^{1/2}}. \qquad (10).$$

From the latter relation the eigenfunction τ_α and the eigenvalue α, which is a function of E, can be determined. For $E^2 < m_1^2$, $U(E,\nu)$ is real and therefore also α. Eq. (6) together with (9) yields

$$T(q'^2, q^2, s, E) = s^{\alpha(E)} \tau_\alpha(q'^2, q^2, E) \frac{[1 + e^{-i\pi\alpha(E)}]}{\sin \pi\alpha(E)}. \qquad (11)$$

for large s. A similar result is obtained from (1) in partial-wave representation.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research)

SUBMITTED: January 3, 1963

ACCESSION NR: AP4031148 S/0056/64/046/004/1266/1280

AUTHORS: Arbuzov, B. A.; Logunov, A. A.; Filippov, A. T.; Khrustalev, O. A.

TITLE: The Fredholm method in the relativistic scattering problem

SOURCE: Zh. eksper. i teor. fiz., v. 46, no. 4, 1964, 1266-1280

TOPIC TAGS: particle scattering, relativistic particle, particle spin, Fredholm method, Regge pole, asymptotic property

ABSTRACT: The investigation of the analytic properties and asymptotic form of the amplitudes for elastic scattering of two spinless particles with equal masses, obtained from solutions found by the Fredholm method, are described. The motivation is to develop a method for studying the analytic properties of the scattering amplitude and its asymptotic behavior as a function of the cosine of the scattering angle in the c.m.s. directly, without assuming the exis-

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ACCESSION NR: AP4031148

ASSOCIATION: Ob"yedinenny*y institut yaderny*kh issledovaniy (Joint Institute of Nuclear Research)

SUBMITTED: 20Jul63 DATE ACQ: 07May64 ENCL: 00

SUB CODE: NP NR REF SOV: 008 OTHER: 011

Card 3/3

ACCESSION NR: AP4031150 S/0056/64/046/004/1285/1294

AUTHORS: Arbuzov, B. A.

TITLE: On the possibility of a geometrical interpretation of weak lepton interactions

SOURCE: Zh. eksper. i teor. fiz., v. 46, no. 4, 1964, 1285-1294

TOPIC TAGS: lepton interaction, weak interaction, spinor, space time curvature, covariance, electromagnetic interaction, vector axial model

ABSTRACT: In order to demonstrate the proposed connection between weak interactions and changes in the structure of space-time curvature over small distances, a model is proposed wherein weak interactions of leptons are interpreted as an effect of space-time curvature over a distance on the order of $\ell \sim (G/\hbar c)^{1/2} \sim 6 \times 10^{-7}$ cm (G -- weak interaction constant). The main assumptions of the model is

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ACCESSION NR: AP4031150

that the physical four-space is regarded as some surface with a given metric in multidimensional pseudoeuclidean space, the geometrical quantities which define the surface are constructed with the aid of spinors in multidimensional space in which the physical four-space is a surface, and the leptons are described by a unique spinor in the same space. The surface goes over into a plane at large distances. The equations of this surface are constructed in a self-consistent manner from the values of the spinor on that surface and with allowance for the condition of being euclidean at infinity. A covariant zero-mass equation is postulated, for the values of the spinor on the surface which make it possible to introduce electromagnetic interactions and which yields in first approximation a description of the weak interactions. The conditions that lead to V-A type weak interactions are discussed. The model does not contain the mass, but it can be hoped that the charged-particle mass can be obtained in a self-consistent manner from the interaction. Some future problems to be discussed in connection with this model

ACCESSION NR: AP4031150

are indicated. "In conclusion the author is deeply grateful to N. N. Bogolyubov, S. S. Gershteyn, V. G. Kady*shevskiy, A. A. Logunov, V. I. Ogiyevetskiy, A. N. Tavkhelidze, A. T. Filippov, and O. A. Khrustalev for numerous and fruitful discussions." Orig. art. has: 48 formulas.

ASSOCIATION: Ob"yedinenny*y institut yaderny*kh issledovaniy (Joint Institute of Nuclear Research).

SUBMITTED: 30Aug63 DATE ACQ: 07May64 ENCL: 00

SUB CODE: NP NR REF SOV: 002 OTHER: 004

Card 3/3

L 21067-65 EPF(c)/EPR/EPA(s)-2/EWP(j)/EWT(m)/T Pc-4/Pr-4/Ps-4/Pt-10/Pa-4
RPL RM/WW

ACCESSION NR: AP4044184 S/0020/64/157/006/1413/1415

AUTHOR: Maklakov, A. I.; Pimenov, G. G.; Arbuzov, B. A.

TITLE: Nuclear magnetic resonance in pyrolysed polyacrylonitrile

SOURCE: AN SSSR, Doklady*, v. 157, no. 6, 1964, 1413-1415

TOPIC TAGS: polyacrylonitrile, pyrolysis, NMR spectra, pyrolysed polyacrylonitrile

ABSTRACT: Verification of the proposed 2-stage pyrolysis of polyacrylonitrile (PAN) (I-formation of the cyclic structure and conjugation of the C=N bonds) and II-reduction of the number of hydrogen atoms and conjugation of the C=C bonds) was sought in this investigation. The NMR spectra of PAN, pyrolysed under 9×10^{-3} mm Hg at 210 and 320C for 3, 6 and 10 hours, were obtained in the -150 to +200C temperature interval. From the analysis of the secondary moment-temperature relationships it was concluded that PAN pyrolysed for 3 hours at 210C had already undergone cyclization to I; the second stage of the reaction started to appear on prolonged pyrolysis at this temperature. The role of the

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L 21067-65
ACCESSION NR: AP4044884

product formed by stage II predominated at 320C. Since H_2^2 was independent of time of pyrolysis at 320C, there was no change in the hydrogen structure of the product obtained; the increased specific conductance was attributed to partial graphitization of the material. Orig. art. has: 1 equation and 1 figure

ASSOCIATION: Kazanskiy gosudarstvenny*y universitet (Kazansk State University)

SUBMITTED: 08Apr64 ENCL: 00 SUB CODE: OC, NP

NR REF SOV: 003 OTHER: 004

Card 2/2

VERESHCHAGIN, A.N.; ARBUZOV, B.A.

Dipole moments and structure of adducts of acrylonitrile with cyclic dienes. Izv. AN SSSR Ser. khim. no.1:35-42 '65.
(MIRA 18:2)

1. Kazanskiy gosudarstvennyy universitet im. V.I. Ul'yanova-Lenina.

ARBUZOV, B.A.; VERESHCHAGIN, A.N.; VOL'FSON, S.G.

Dipole moments and the structure of methacrylonitrile adducts with some cyclic dienes. Izv. AN SSSR Ser. khim. no.1:155-158 '65. (MIRA 18:2)

1. Kazanskiy gosudarstvennyy universitet im. V.I. Ul'yanova-Lenina.

L 01816-67 EWT(m)/EWP(j) RM

ACC NR: AP6035640 SOURCE CODE: UR/0062/66/000/001/0104/0107

39

B

AUTHOR: Arbuzov, B. A.; Zoroastrova, V. M.

ORG: Scientific Research Chemical Institute im A.M. Butterov, Kazan' State University im. V. I. Ul'yanov-Lenin (Khimicheskiy Institut Kazan'skogo gosudarstvennogo universiteta)

TITLE: Esters of phosphoric and thiophosphoric acids containing heterocyclic radicals. Report 7. Reaction of phosphoric and thiophosphoric acid chlorides with carbazol

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 1, 1966, 104-107

TOPIC TAGS: organic phosphorus compound, heterocyclic base compound, ester, organic synthetic process

ABSTRACT: In an effort to synthesize esters of N-phospone-carbazol, the authors used the potassium salt of carbazol and acetonitrile as a solvent. To a suspension of carbazol in anhydrous acetonitrile the dialkylphosphoric acid chloride was added. After separation of potassium chloride from the filtrate, the solvent was distilled under vacuum. The residue was purified by recrystallization from petroleum ether (b. p. 40-60°). The authors noted that the results depend to a great extent on the method used to prepare the carbazol salt. The

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0922 0043

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ACC NR: AP6032859 SOURCE CODE: UR/0020/66/170/003/0585/0588

AUTHOR: Arbuzov, B. A. (Academician); Vizel', A. O.; Ivanovskaya, K. M.

ORG: Institute of Organic and Physical Chemistry im. A. Ye. Arbuzov, Academy of Sciences, SSSR (Institut organicheskoy i fizicheskoy khimii Akademii nauk SSSR)

TITLE: Phosphacyclopentene derivatives as catalysts in the synthesis of carbodiimides

SOURCE: AN SSSR. Doklady, v. 170, no. 3, 1966, 585-588

TOPIC TAGS: organic phosphorus compound, imide, phosphinic acid, phosphonic acid, phosphate

ABSTRACT: The catalytic activity of various phospholene derivatives were studied by determining the rate constants of conversion of phenyl isocyanate into diphenylcarbodiimide. The CO_2 liberation rate served as the kinetic parameter. In all cases, the reaction was first order. The following series of catalyst activity in the synthesis of carbodiimides was arrived at: phospholenephosphine oxides > phospholenephosphinates oxides of noncyclic phosphines > phosphinates > phosphonates > phosphates. Despite the fact that the derivatives of phospholenephosphinic acid occupy the second place in the activity series, their activity is fully adequate for practical applications. The applicability of these derivatives to preparative syntheses is illustrated by the high yield of diphenylcarbodiimide from phenyl isocyanate in the presence of 1-ethoxy-1-oxo-

Card 1/2 UDC: 547.76:661.718.1:541.128

ACC NR: AP6032859

3-methyl-3-phospholene. Orig. art. has: 3 tables.

SUB CODE: 07/ SUBM DATE: 14Mar66/ ORIG REF: 005/ OTH REF: 022

Card 2/2

ARBUZOV, B.A.; SAMITOV, Yu.Yu.; KITAYEV, Yu.P.

Nuclear magnetic resonance spectra of protons and the structure of azines and phenylhydrazones. Izv.AN SSSR. Ser.khim. no.1:55-65 '66. (MIRA 19:1)

1. Khimicheskiy institut im. A.Ye.Arbuzova AN SSSR i Kazanskiy gosudarstvennyy universitet im. V.I.Ul'yanova-Lenina.

ARBUZOV, B.A.; ZOROASTROVA, V.M.

Phosphoric and thiophosphoric acid esters containing heterocyclic radicals. Report No.7: Reaction of phosphoryl and thiophosphoryl chlorides with carbazole. Izv.AN SSSR. Ser.khim. no.1:104-107 '66. (MIRA 19:1)

1. Nauchno-issledovatel'skiy khimicheskiy institut im. A.M. Butlerova Kazanskogo gosudarstvennogo universiteta im. V.I. Ul'yanova-Lenina. Submitted August 5, 1963.

L 64173-65 EWT(m)/EPF(c)/EWP(j)/T/EWA(c) RPL WW/RM

ACCESSION NR: AP5019782 UR/0062/65/000/007/1290/1292
543.422

AUTHOR: Arbuzov, B. A.; Konovalov, A. I.

TITLE: Formation of molecular complexes in the diene synthesis reaction

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 7, 1965, 1290-1292

TOPIC TAGS: diene synthesis, acrolein, acrylic acid, acrylonitrile, methyl acrylate, cyclopentadiene, molecular complex, sulfur dioxide, dimethylbutadiene

ABSTRACT: Ultraviolet absorption spectra of solutions of the dienophiles acrolein, acrylic acid, acrylonitrile, and methyl acrylate in cyclopentadiene were recorded and compared with the spectra of their solutions in an inert solvent (chloroform). In all cases, a rise in the absorption curve which did not occur in the chloroform solutions was observed in the cyclopentadiene solutions in the short wavelength range. This indicates complex formation between the dienophiles and cyclopentadiene. SO_2 can also act as a dienophile in the reaction of diene synthesis. The possible formation of molecular compounds between SO_2 and dienes was studied by taking 2,3-dimethyl-1,3-butadiene as an example. Comparison of the UV spectra of SO_2 in chlo-

Card 1/2

L 64173-65

ACCESSION NR: AP5019782

roform and in 2,3-dimethyl-1,3-butadiene shows that the latter and SO_2 do indeed form a molecular complex. Orig. art. has: 5 figures.

ASSOCIATION: Kazanskiy gosudrastvennyy universitet im. V. I. Ul'yanova-Lenina (Kazan State University) 55

SUBMITTED: 02Nov64 ENCL: 00 SUB CODE: OC, GC

NO REF SOV: 003 OTHER: 001

Card 2/2

ARBUZOV, B.A., akademik; YERASTOV, O.A.; REMIZOV, A.B.

Spectroscope study of the tautomerism of methyl and ethyl esters of 4-ketotetrahydrothiopyran-3-carboxylic acid. Dokl. AN SSSR 161 no.1:103-106 Mr '65. (MIRA 18:3)

1. Kazanskiy gosudarstvennyy universitet im. V.I. Ul'yanova (Lenina).

L 12177-66 EWT(d)/EWT(l) IJP(c)
ACC NR: AP5024721 SOURCE CODE: UR/0056/65/049/003/0990/0999

AUTHORS: Arbuzov, B. A.; Filippov, A. T.

ORG: Joint Institute of Nuclear Research (Ob''yedinennyy institut yadernykh issledovaniy)

TITLE: Iteration method in nonrenormalizable field theory

SOURCE: Zhurnal eksperimental'noy i teroeticheskoy fiziki, v. 49, no. 3, 1965, 990-999

TOPIC TAGS: quantum field theory, iterated integral, particle interaction, Fredholm equation

ABSTRACT: This is a continuation of an earlier paper by the authors (OIYaI Preprint R-1910, Dubna, 1964, Nuovo Cim. v. 38, 796, 1965), devoted to the Edwards approximate equation for the vertex function in the nonrenormalizable theory of the interaction of scalar and vector particles. The present paper is devoted to an iteration method for solving the nonlinear equation for the vertex function in this theory. The properties of the arbitrary iteration derived for this problem in the earlier paper are examined and the iteration solution itself is studied in greater detail. The final procedure consists of separating the kernel of the integral equation into a more singular part and a

Card 1/2

USSR / Cultivated Plants. Potatoes, Vegetables, Melons. M-2

Abs Jour : Ref Zhur - Biologiya, No 2, 1959, No. 6289

Author : Arbuzov, D. S.
Inst : Penza Agricultural Experimental Station
Title : Soaking of Seeds of Melon Fodder Crops Before Sowing

Orig Pub : S.-kh. Povolozh'ya, 1957, No 12, 24-25

Abstract : The effect of soaking seeds before sowing on the yield of summer squash of the Saratovskiy 3 variety and of the Volga gray variety gourd was studied at the Penza Agricultural Experimental Station in 1955-1956. The yield increased by 21 cwt/ha, when the seeds of summer squash were treated with a 10% solution of sodium chloride. Soaking in a 10% soda solution caused a decrease in yield by 80.7 cwt/ha.

Card 1/2

USSR / Cultivated Plants. Potatoes, Vegetables, Melons. M-2

Abs Jour : Ref Zhur - Biologiya, No 2, 1959, No. 6289

Soaking of seeds of gourd in a 10% soda solution increased the yield by 28.3 cwt/ha. The yield decreased by 106.9 cwt/ha when seeds of gourd were treated with sodium chloride. -- E. A. Okorokova

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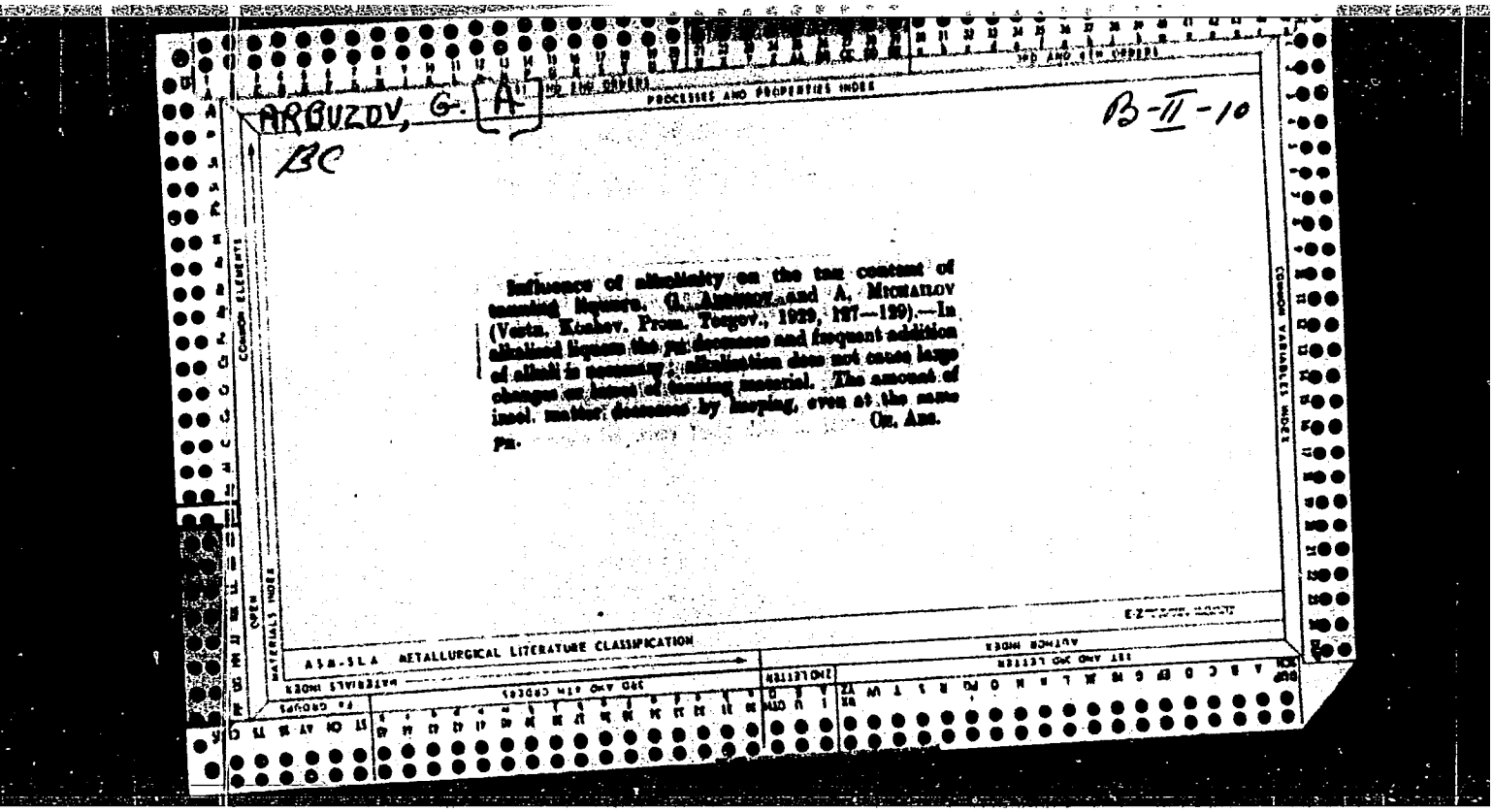
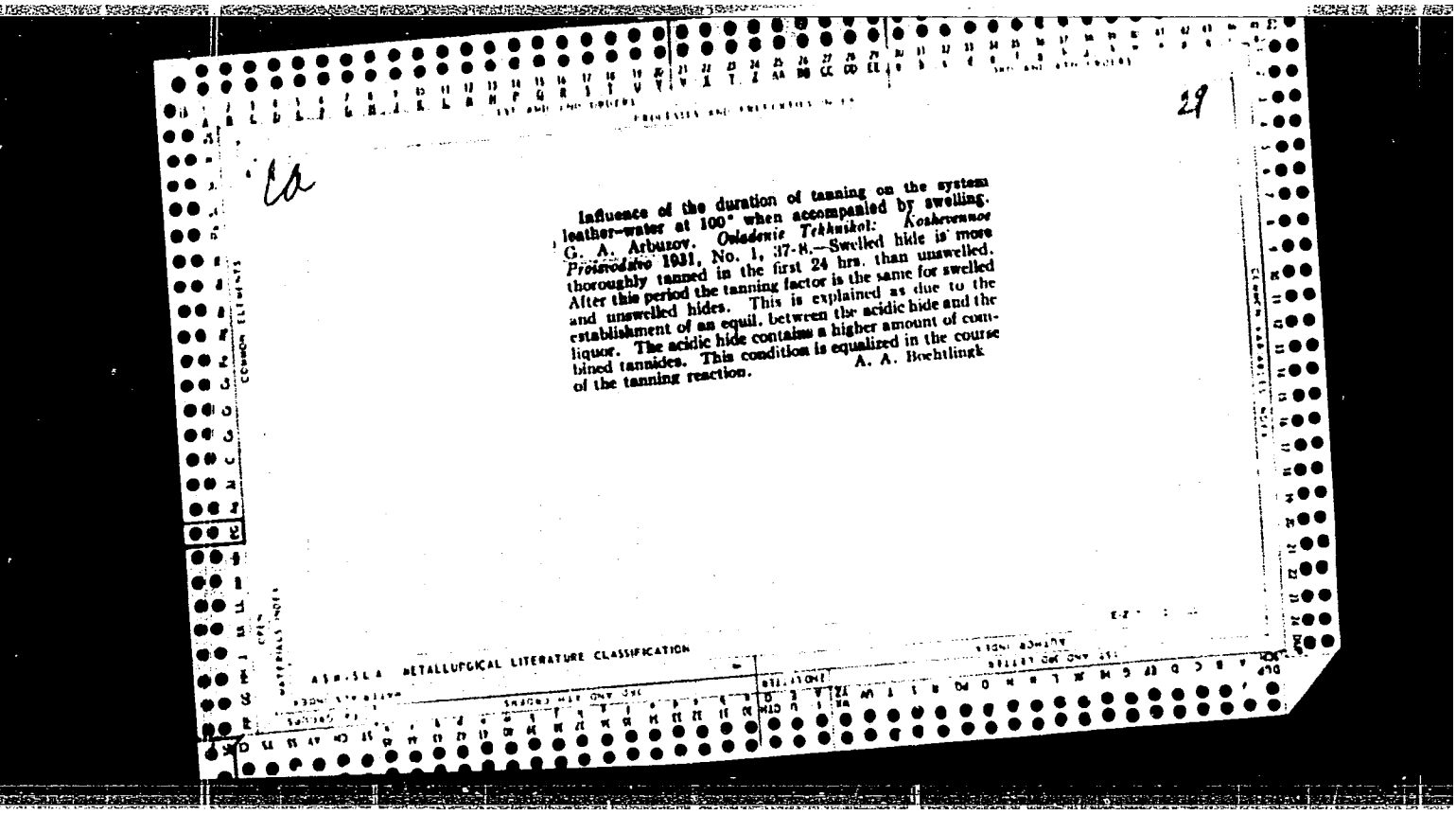
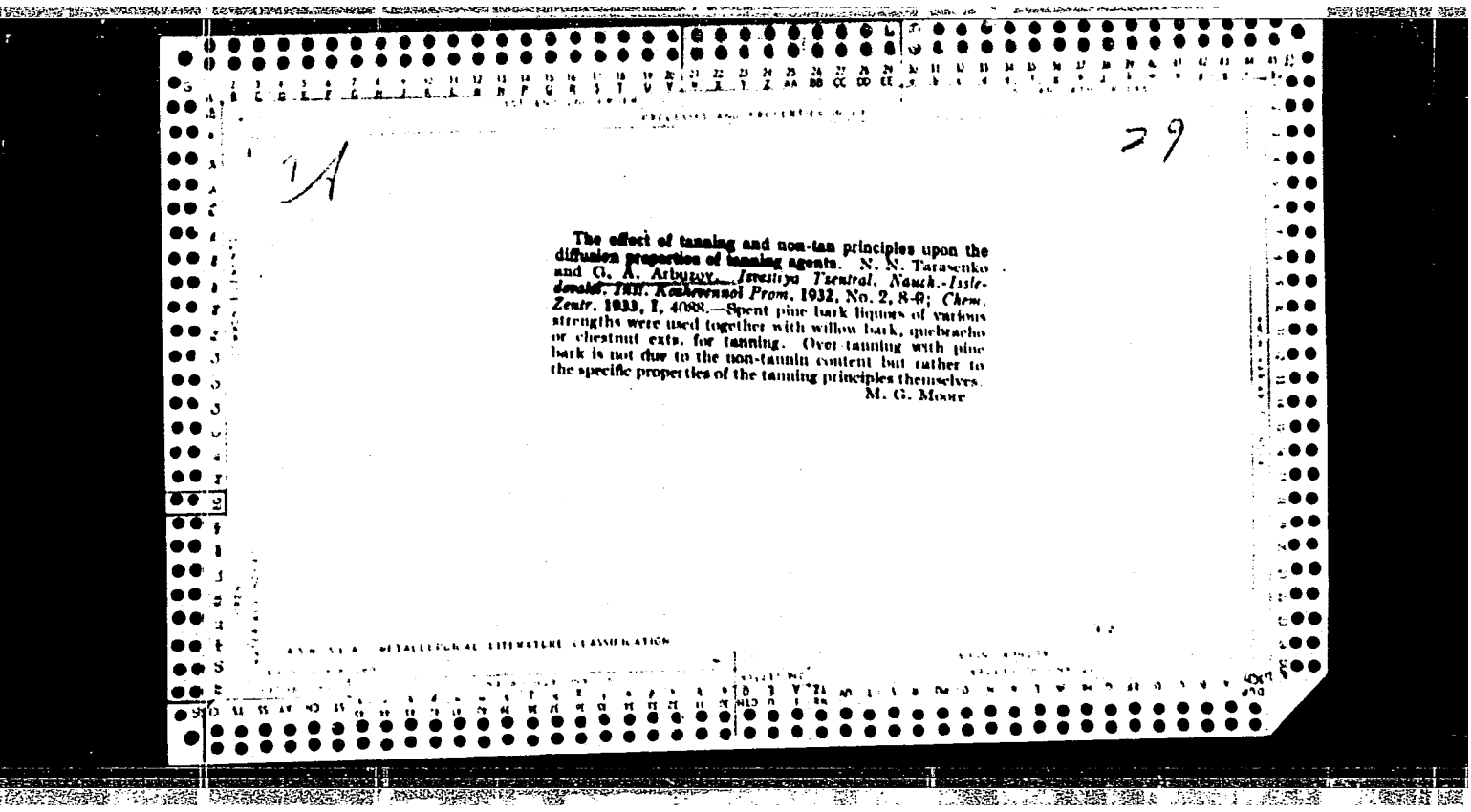




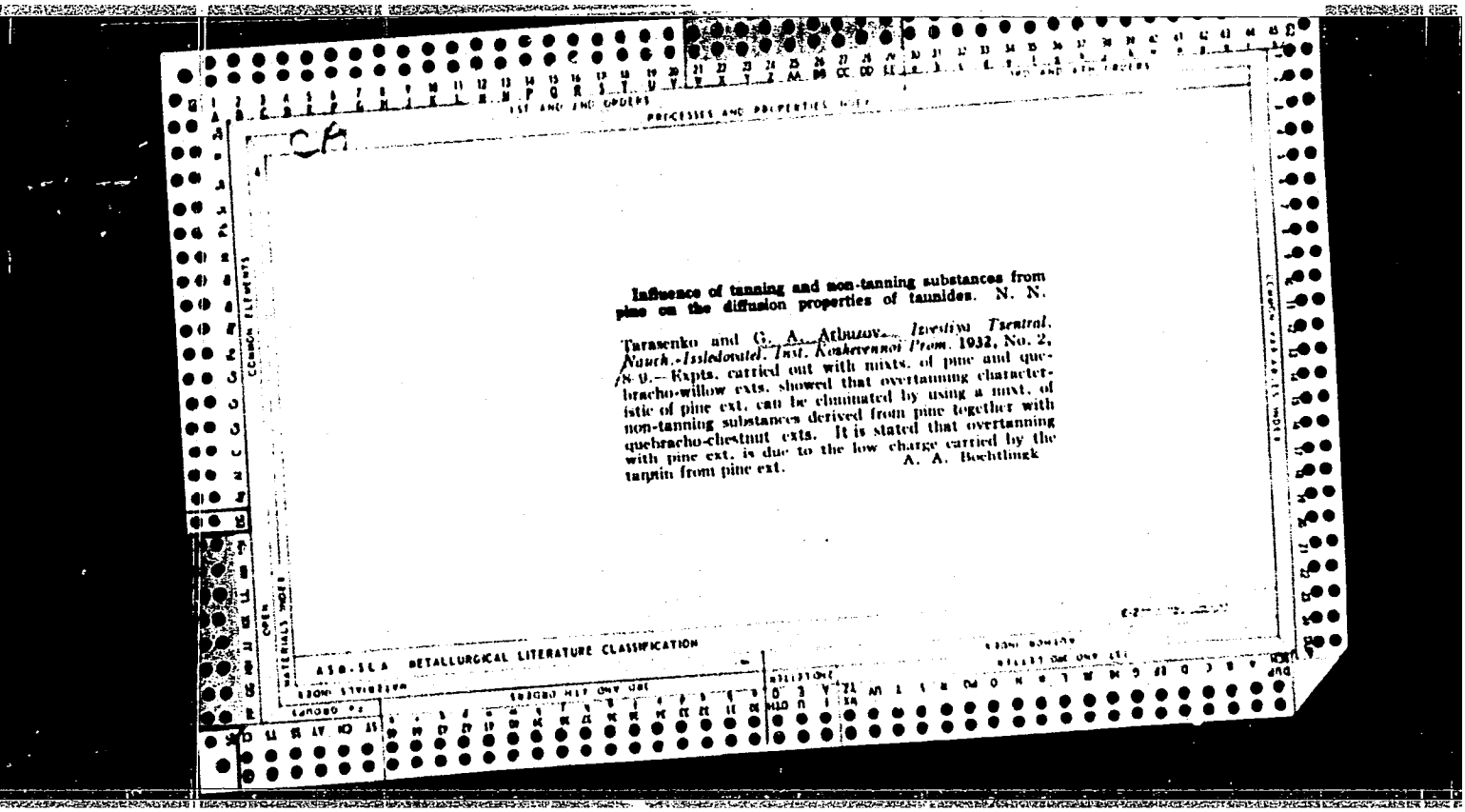
Influence of the duration of tanning on the system leather–water at 100° when accompanied by swelling. G. A. Arbuzov. *Ovladenie Tekhnikoi: Koshevennoe Proizvodstvo* 1931, No. 1, 37-8.—Swelled hide is more thoroughly tanned in the first 24 hrs. than unswelled. After this period the tanning factor is the same for swelled and unswelled hides. This is explained as due to the establishment of an equil. between the acidic hide and the liquor. The acidic hide contains a higher amount of combined tannides. This condition is equalized in the course of the tanning reaction.

A. A. Boehtlingk

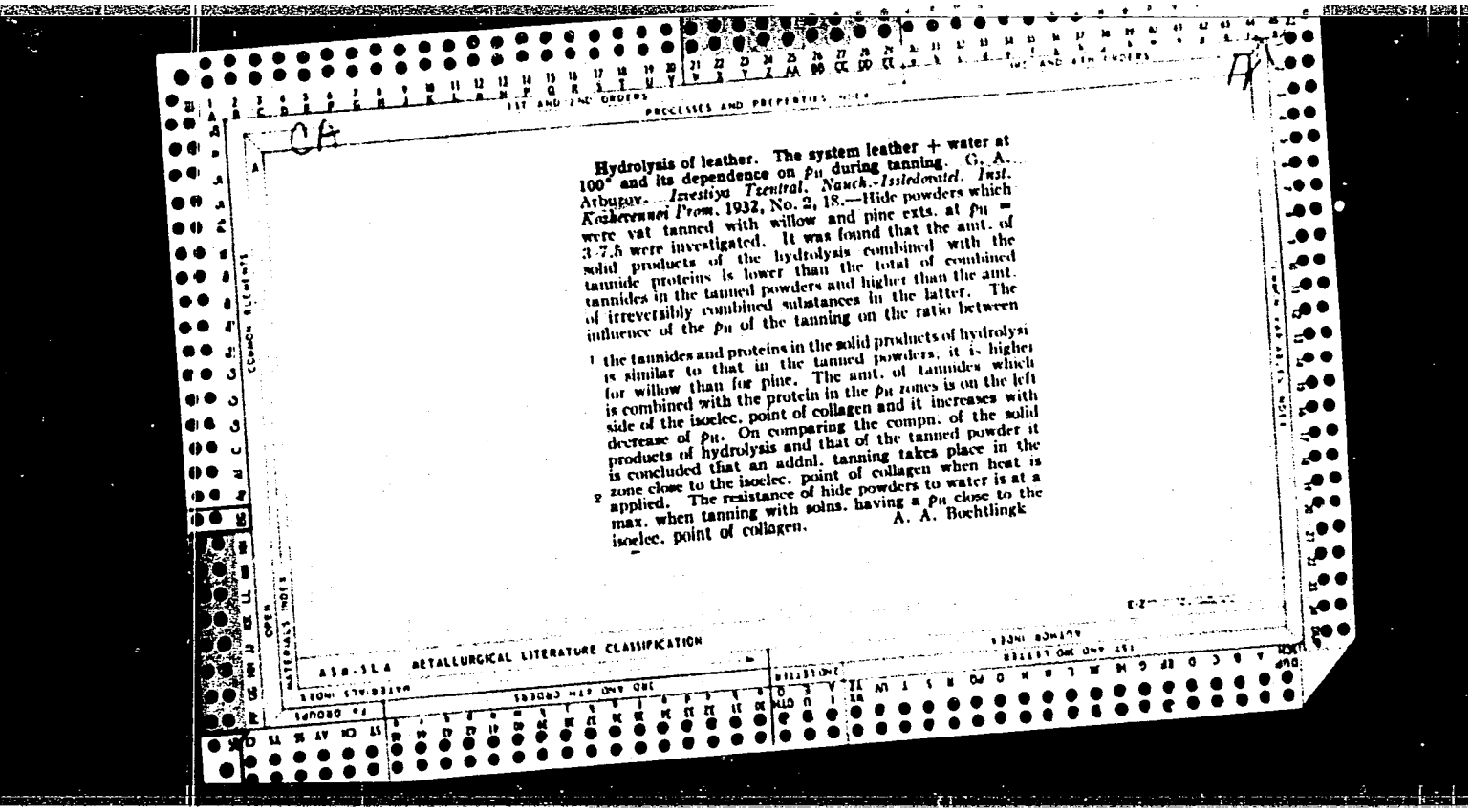


The effect of tanning and non-tan principles upon the diffusion properties of tanning agents. N. N. Tarasenko and G. A. Arbuzov. *Izvestiya Tsentral. Nauch.-Issledovatel. Inst. Kozhevennoi Prom.* 1932, No. 2, 8-9; *Chem. Zentr.* 1933, I, 4088.—Spent pine bark liquors of various strengths were used together with willow bark, quebracho or chestnut exts. for tanning. Over tanning with pine bark is not due to the non-tannin content but rather to the specific properties of the tanning principles themselves.

M. G. Moore



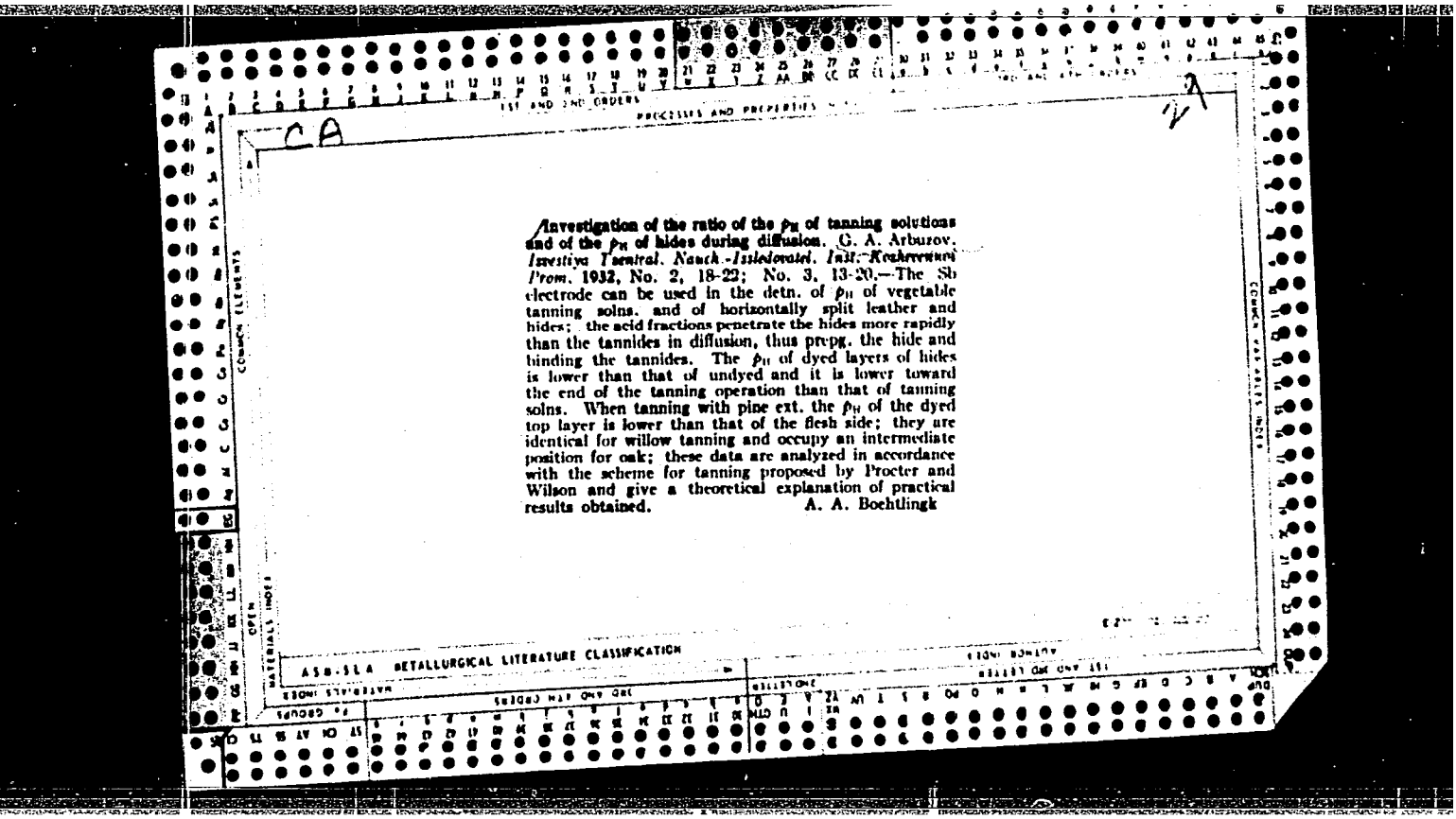
Influence of tanning and non-tanning substances from pine on the diffusion properties of tannides. N. N. Tarasenko and G. A. Arbuzov. *Izvestiya Tsentral. Nauch.-Issledovatel. Inst. Kozhevennoi Prom.* 1932, No. 2, 8–9.—Expts. carried out with mixts. of pine and quebracho-willow exts. showed that overtanning characteristic of pine ext. can be eliminated by using a mixt. of non-tanning substances derived from pine together with quebracho-chestnut exts. It is stated that overtanning with pine ext. is due to the low charge carried by the tannin from pine ext. A. A. Boehtlingk



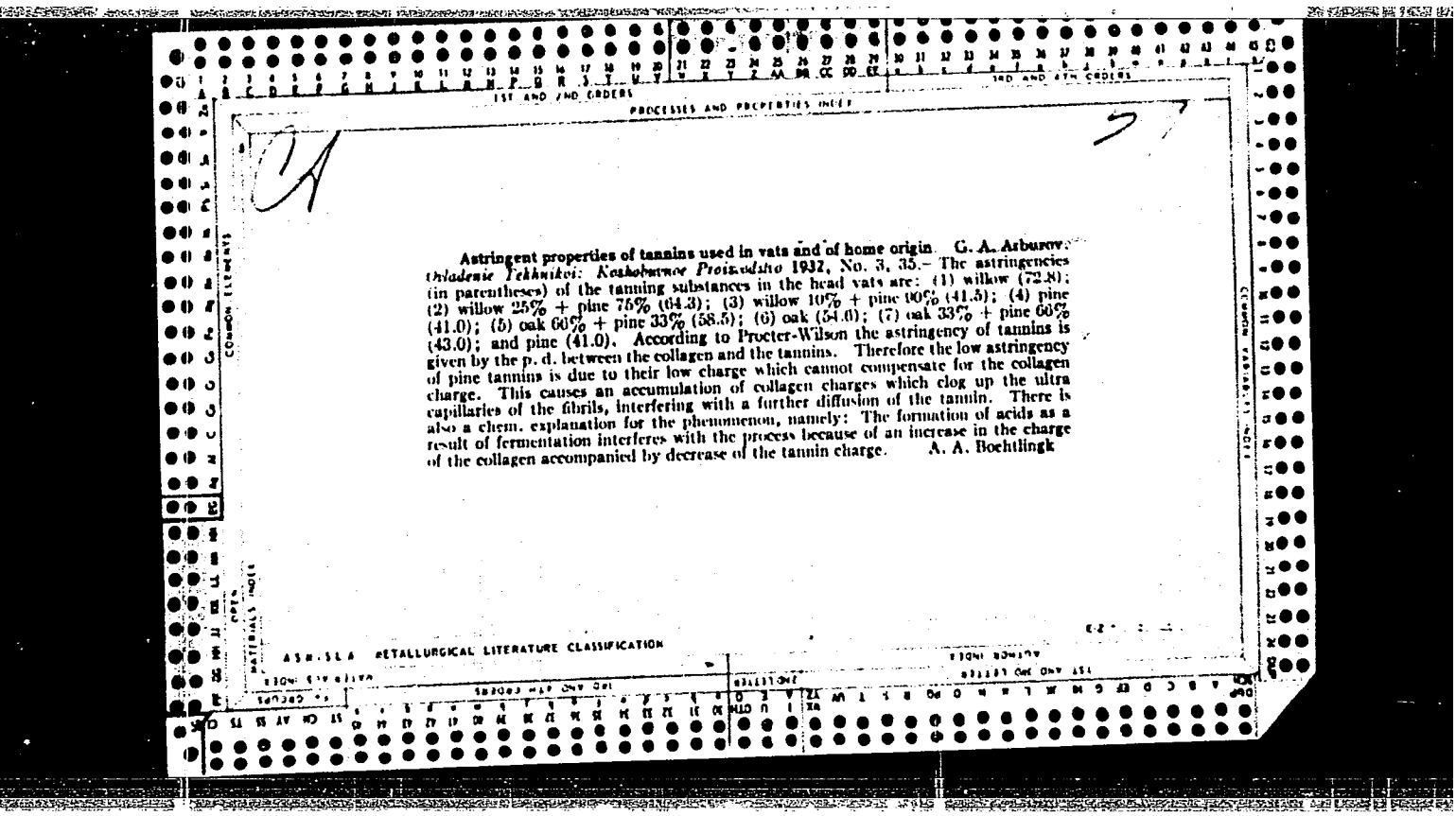
Hydrolysis of leather. The system leather + water at 100° and its dependence on p_H during tanning. G. A. Arbuzov. *Izvestiya Tsentral. Nauch.-Issledovatel. Inst. Kozhevennoi Prom.* 1932, No. 2, 18.—Hide powders which were vat tanned with willow and pine exts. at p_H = 3-7.5 were investigated. It was found that the amt. of solid products of the hydrolysis combined with the tannide proteins is lower than the total of combined tannides in the tanned powders and higher than the amt. of irreversibly combined substances in the latter. The influence of the p_H of the tanning on the ratio between

1 the tannides and proteins in the solid products of hydrolysi is similar to that in the tanned powders, it is higher for willow than for pine. The amt. of tannides which is combined with the protein in the p_H zones is on the left side of the isoelec. point of collagen and it increases with decrease of p_H. On comparing the compn. of the solid products of hydrolysis and that of the tanned powder it is concluded that an addnl. tanning takes place in the
2 zone close to the isoelec. point of collagen when heat is applied. The resistance of hide powders to water is at a max. when tanning with solns. having a p_H close to the isoelec. point of collagen.

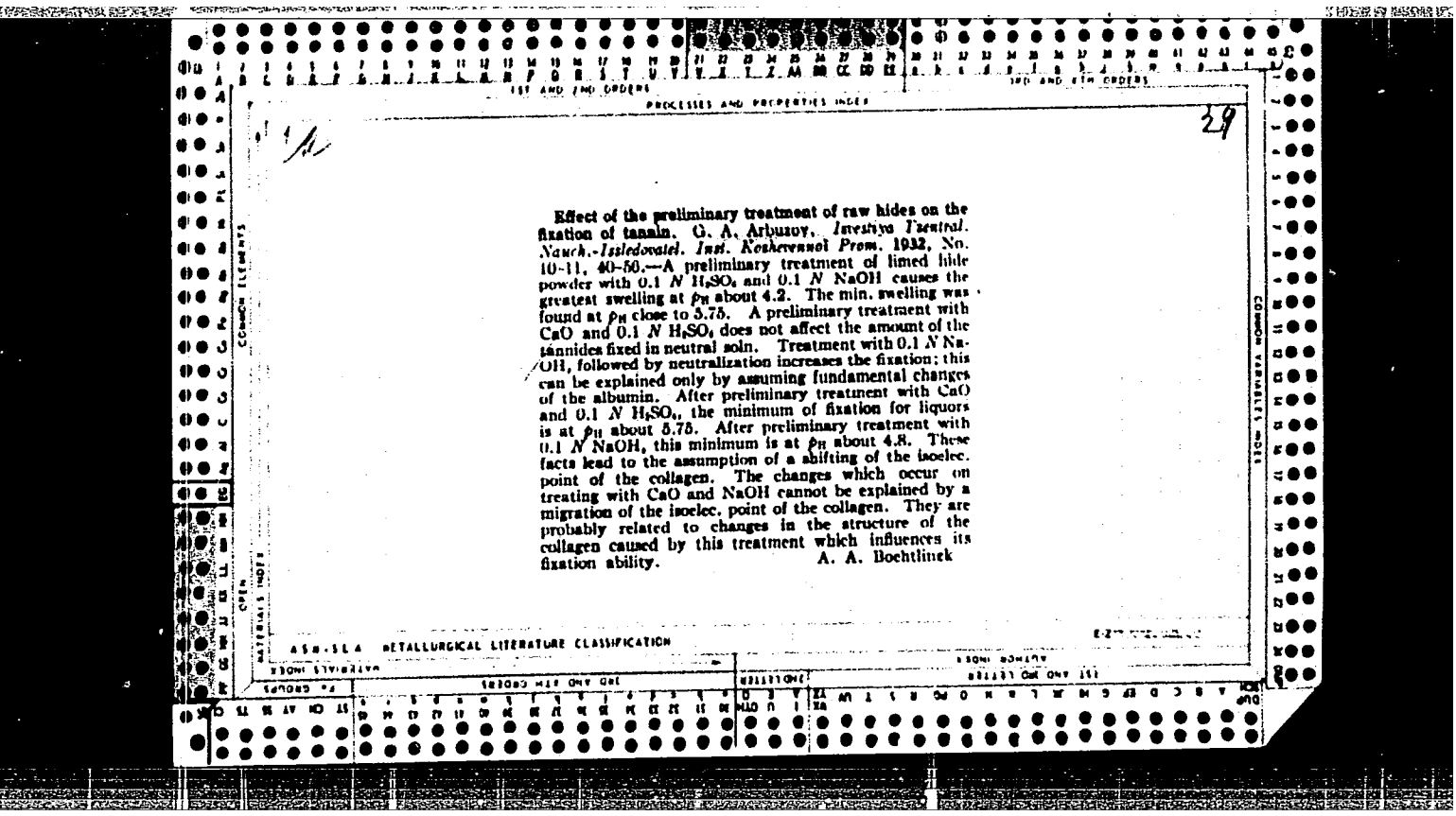
A. A. Bochtlingk



Investigation of the ratio of the p_H of tanning solutions and of the p_H of hides during diffusion. G. A. Arburov. *Izvestiya Tsentral. Nauch.-Issledovatel. Inst. Kozhevennoi Prom.* 1932, No. 2, 18-22; No. 3, 13-20.—The Sb electrode can be used in the detn. of p_H of vegetable tanning solns. and of horizontally split leather and hides; the acid fractions penetrate the hides more rapidly than the tannides in diffusion, thus prepg. the hide and binding the tannides. The p_H of dyed layers of hides is lower than that of undyed and it is lower toward the end of the tanning operation than that of tanning solns. When tanning with pine ext. the p_H of the dyed top layer is lower than that of the flesh side; they are identical for willow tanning and occupy an intermediate position for oak; these data are analyzed in accordance with the scheme for tanning proposed by Procter and Wilson and give a theoretical explanation of practical results obtained. A. A. Boehtlingk



Astringent properties of tannins used in vats and of home origin. G. A. Arbuzov. *Obladenie Tekhnikoi: Koshobuvnoe Proizvodstvo* 1932, No. 3, 35.– The astringencies (in parentheses) of the tanning substances in the head vats are: (1) willow (72.8); (2) willow 25% + pine 75% (64.3); (3) willow 10% + pine 90% (41.5); (4) pine (41.0); (5) oak 60% + pine 33% (58.5); (6) oak (54.0); (7) oak 33% + pine 60% (43.0); and pine (41.0). According to Procter-Wilson the astringency of tannins is given by the p. d. between the collagen and the tannins. Therefore the low astringency of pine tannins is due to their low charge which cannot compensate for the collagen charge. This causes an accumulation of collagen charges which clog up the ultra capillaries of the fibrils, interfering with a further diffusion of the tannin. There is also a chem. explanation for the phenomenon, namely: The formation of acids as a result of fermentation interferes with the process because of an increase in the charge of the collagen accompanied by decrease of the tannin charge. A. A. Boehtlingk



PROCESSES AND PROPERTIES INDEX

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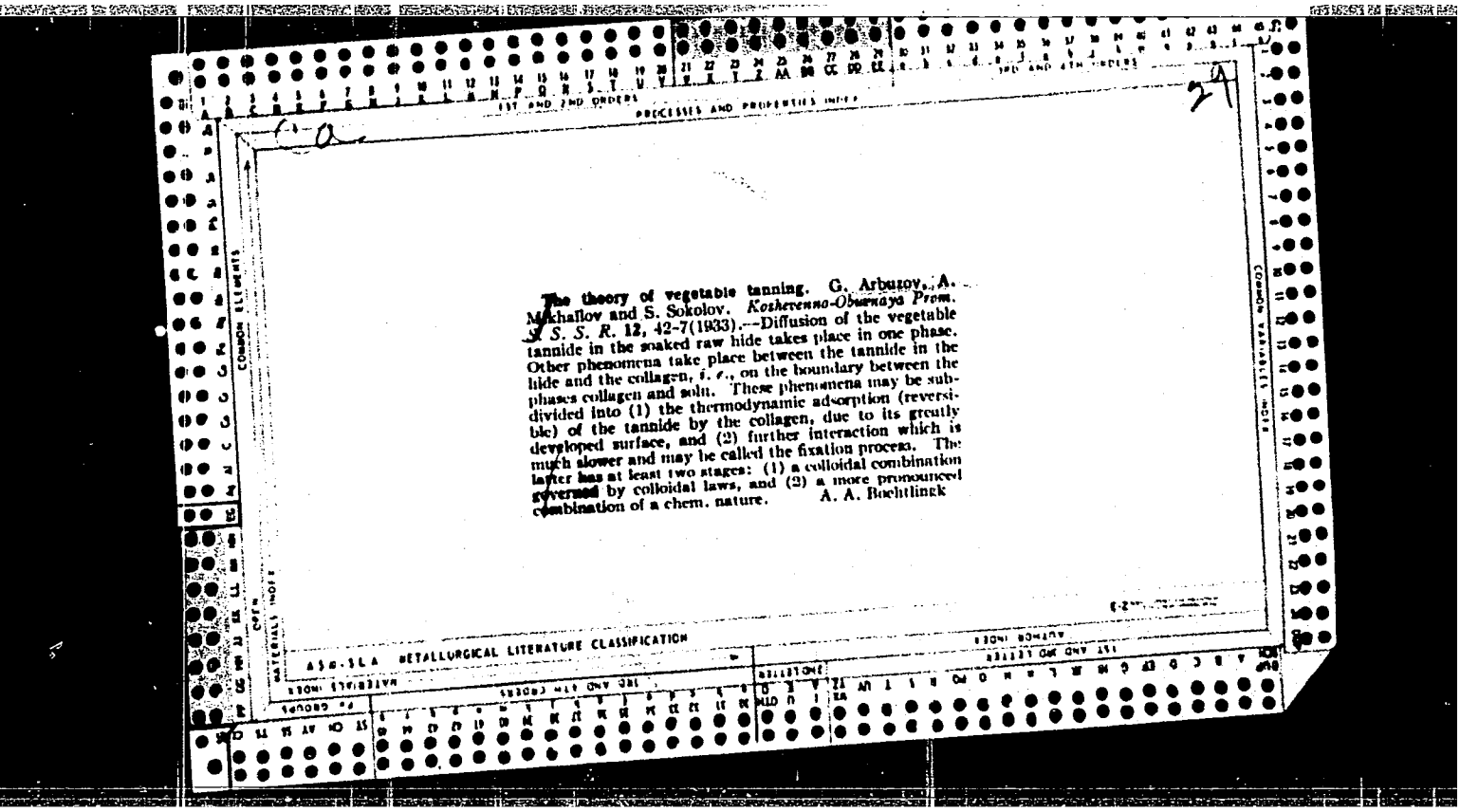
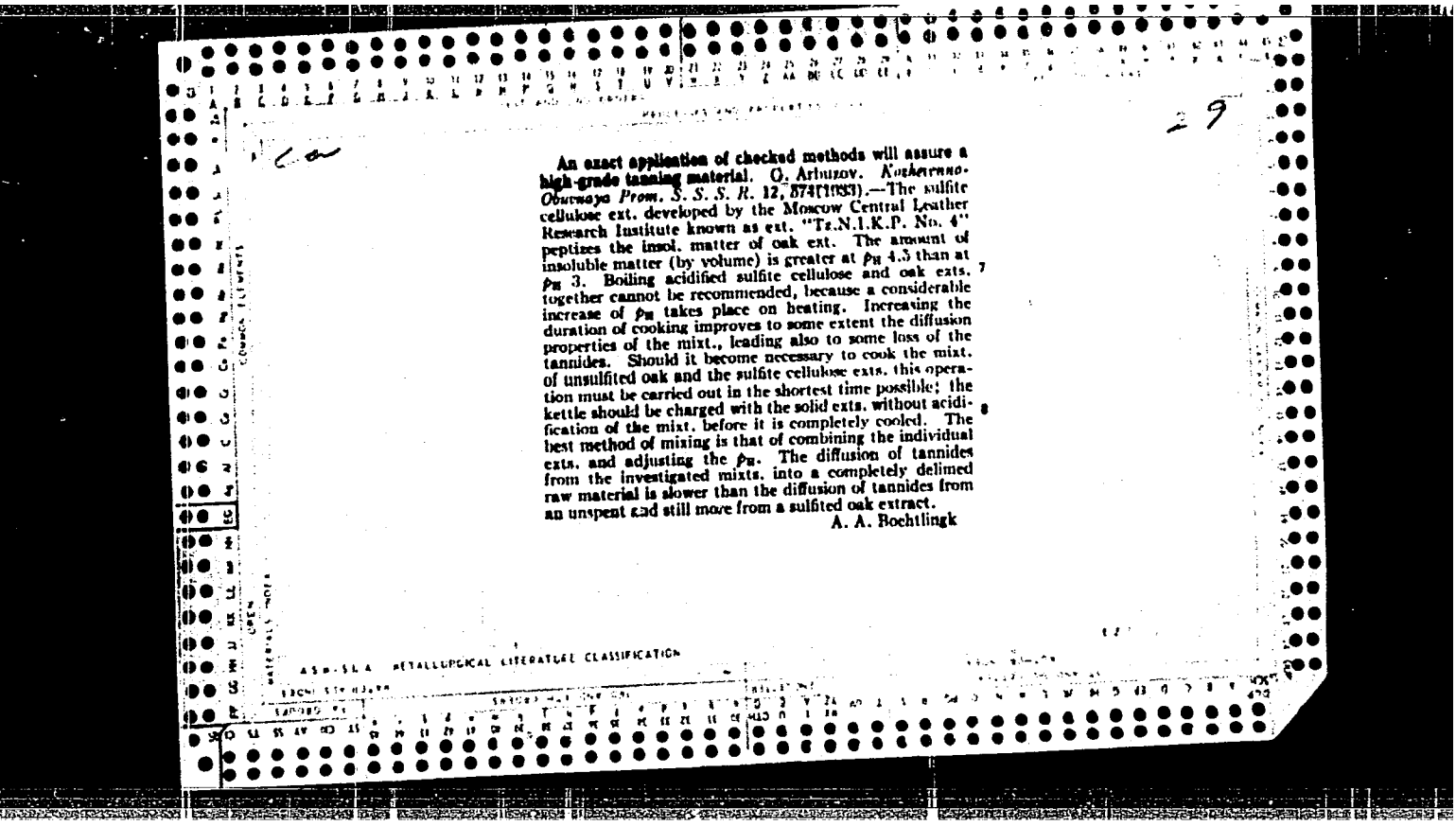
Effect of the preliminary treatment of raw hides on the fixation of tannin. G. A. Arbuzov. *Investiya Tsentral. Nauch.-Issledovatel. Inst. Kozhevennoi Prom.* 1932, No. 10-11, 40-50.—A preliminary treatment of limed hide powder with 0.1 *N* H_2SO_4 and 0.1 *N* NaOH causes the greatest swelling at p_H about 4.2. The min. swelling was found at p_H close to 5.75. A preliminary treatment with CaO and 0.1 *N* H_2SO_4 does not affect the amount of the tannides fixed in neutral soln. Treatment with 0.1 *N* NaOH, followed by neutralization increases the fixation; this can be explained only by assuming fundamental changes of the albumin. After preliminary treatment with CaO and 0.1 *N* H_2SO_4, the minimum of fixation for liquors is at p_H about 5.75. After preliminary treatment with 0.1 *N* NaOH, this minimum is at p_H about 4.8. These facts lead to the assumption of a shifting of the isoelec. point of the collagen. The changes which occur on treating with CaO and NaOH cannot be explained by a migration of the isoelec. point of the collagen. They are probably related to changes in the structure of the collagen caused by this treatment which influences its fixation ability. A. A. Boehtlingk

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

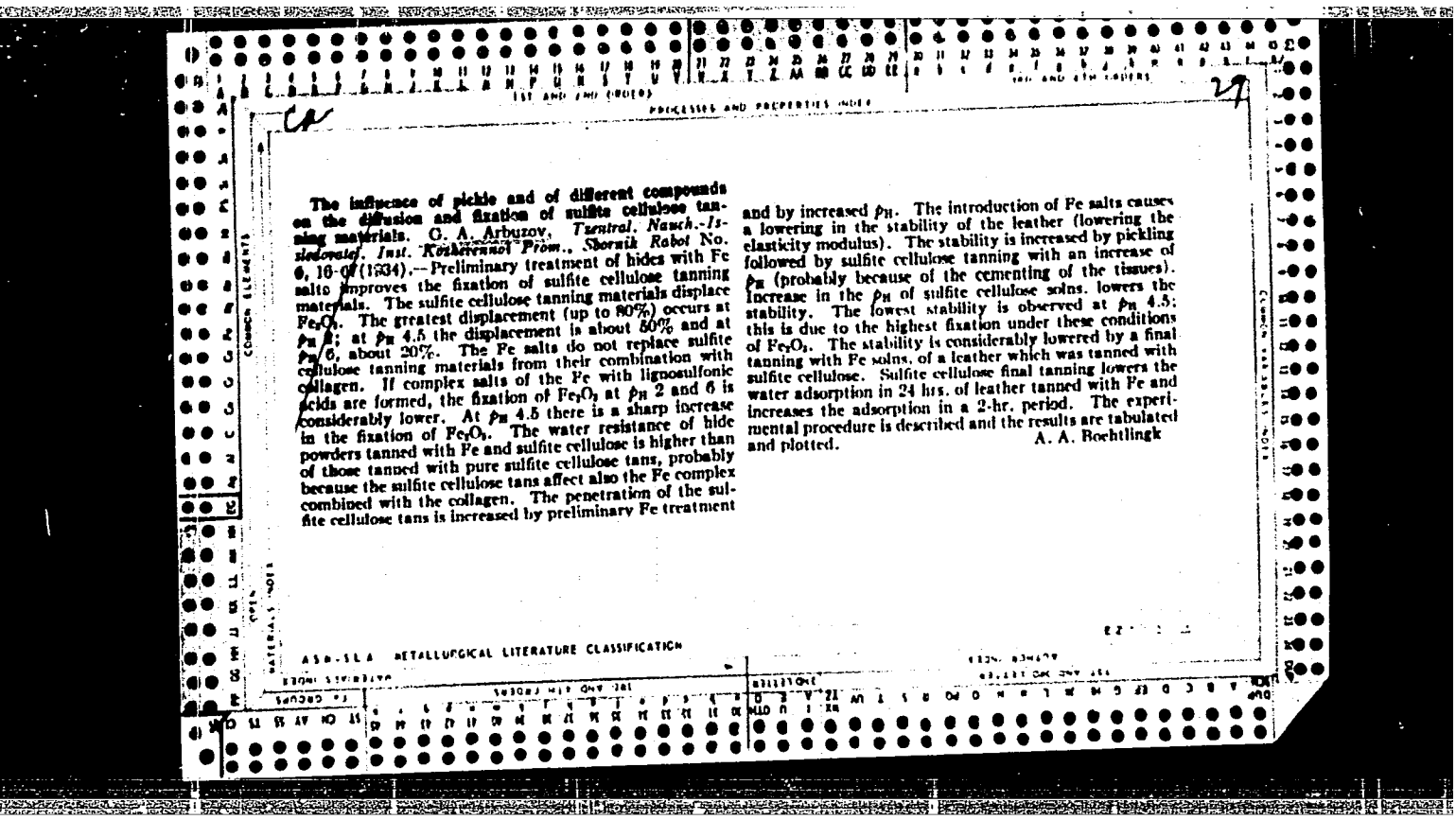


The theory of vegetable tanning. G. Arbuzov, A. Mikhailov and S. Sokolov. *Kozhevenno-Obuvnaya Prom. S. S. S. R.* 12, 42-7(1933).—Diffusion of the vegetable tannide in the soaked raw hide takes place in one phase. Other phenomena take place between the tannide in the hide and the collagen, *i. e.*, on the boundary between the phases collagen and soln. These phenomena may be subdivided into (1) the thermodynamic adsorption (reversible) of the tannide by the collagen, due to its greatly developed surface, and (2) further interaction which is much slower and may be called the fixation process. The latter has at least two stages: (1) a colloidal combination governed by colloidal laws, and (2) a more pronounced combination of a chem. nature. A. A. Boehtlingk



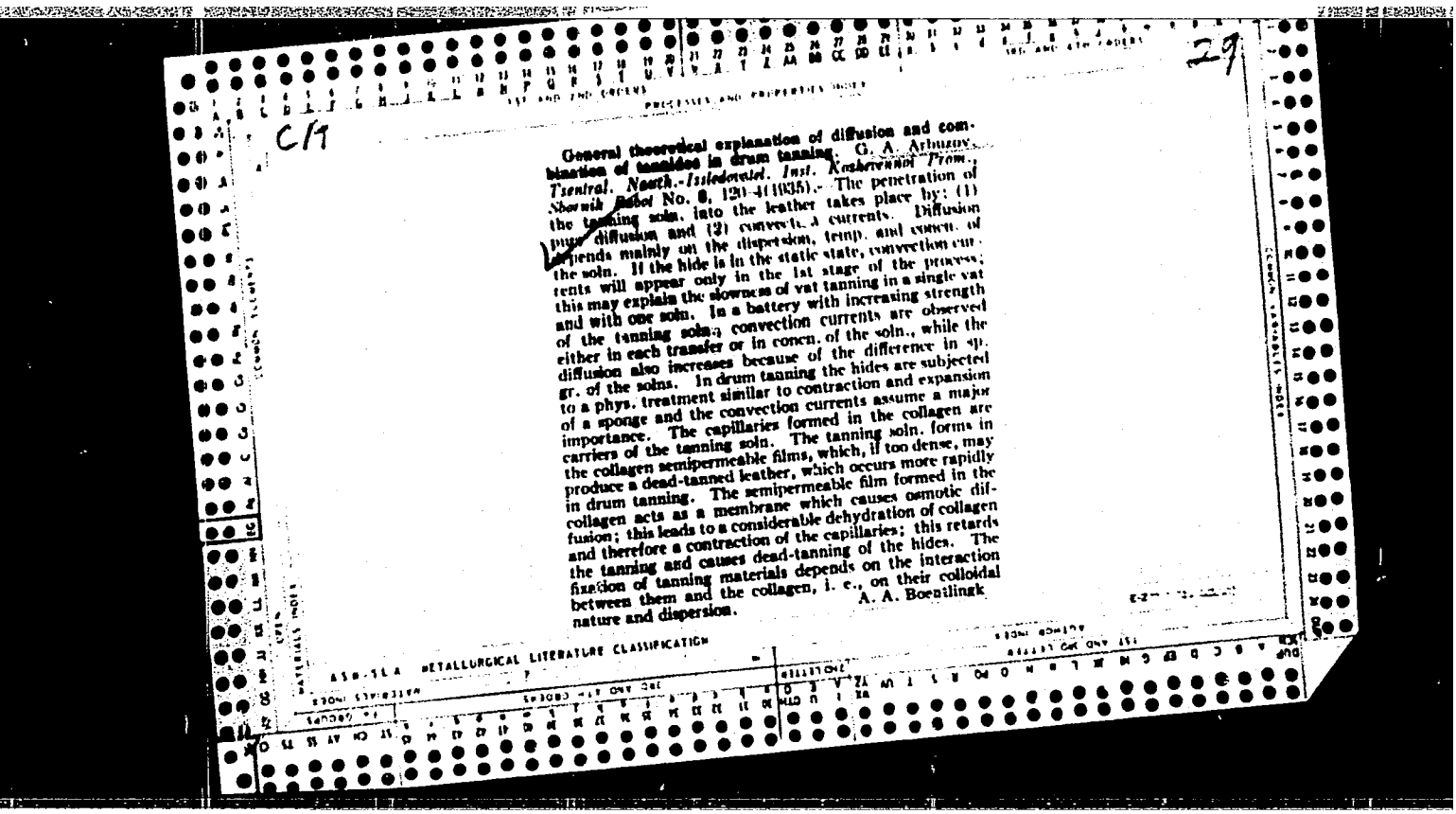
An exact application of checked methods will assure a high-grade tanning material. O. Arbuzov. *Kozhevenno-Obuvnaya Prom. S. S. S. R.* 12, 874(1933).—The sulfite cellulose ext. developed by the Moscow Central Leather Research Institute known as ext. "Tz.N.I.K.P. No. 4" peptizes the insol. matter of oak ext. The amount of insoluble matter (by volume) is greater at p_H 4.5 than at p_H 3. Boiling acidified sulfite cellulose and oak exts. together cannot be recommended, because a considerable increase of p_H takes place on heating. Increasing the duration of cooking improves to some extent the diffusion properties of the mixt., leading also to some loss of the tannides. Should it become necessary to cook the mixt. of unsulfited oak and the sulfite cellulose exts. this operation must be carried out in the shortest time possible; the kettle should be charged with the solid exts. without acidification of the mixt. before it is completely cooled. The best method of mixing is that of combining the individual exts. and adjusting the p_H. The diffusion of tannides from the investigated mixts. into a completely delimed raw material is slower than the diffusion of tannides from an unspent and still more from a sulfited oak extract.

A. A. Bochtlingk



The influence of pickle and of different compounds on the diffusion and fixation of sulfite cellulose tanning materials. G. A. Arbuzov. *Tsentral. Nauch.-Issledovatel. Inst. Kozhevennoi Prom., Shornik Robot* No. 6, 16-07 (1934).—Preliminary treatment of hides with Fe salts improves the fixation of sulfite cellulose tanning materials. The sulfite cellulose tanning materials displace Fe_2O_3. The greatest displacement (up to 80%) occurs at p_H 2; at p_H 4.5 the displacement is about 50% and at p_H 6, about 20%. The Fe salts do not replace sulfite cellulose tanning materials from their combination with collagen. If complex salts of the Fe with lignosulfonic acids are formed, the fixation of Fe_2O_3 at p_H 2 and 6 is considerably lower. At p_H 4.5 there is a sharp increase in the fixation of Fe_2O_3. The water resistance of hide powders tanned with Fe and sulfite cellulose is higher than of those tanned with pure sulfite cellulose tans, probably because the sulfite cellulose tans affect also the Fe complex combined with the collagen. The penetration of the sulfite cellulose tans is increased by preliminary Fe treatment and by increased p_H. The introduction of Fe salts causes a lowering in the stability of the leather (lowering the elasticity modulus). The stability is increased by pickling followed by sulfite cellulose tanning with an increase of p_H (probably because of the cementing of the tissues). Increase in the p_H of sulfite cellulose solns. lowers the stability. The lowest stability is observed at p_H 4.5; this is due to the highest fixation under these conditions of Fe_2O_3. The stability is considerably lowered by a final tanning with Fe solns. of a leather which was tanned with sulfite cellulose. Sulfite cellulose final tanning lowers the water adsorption in 24 hrs. of leather tanned with Fe and increases the adsorption in a 2-hr. period. The experimental procedure is described and the results are tabulated and plotted.

A. A. Boehtlingk



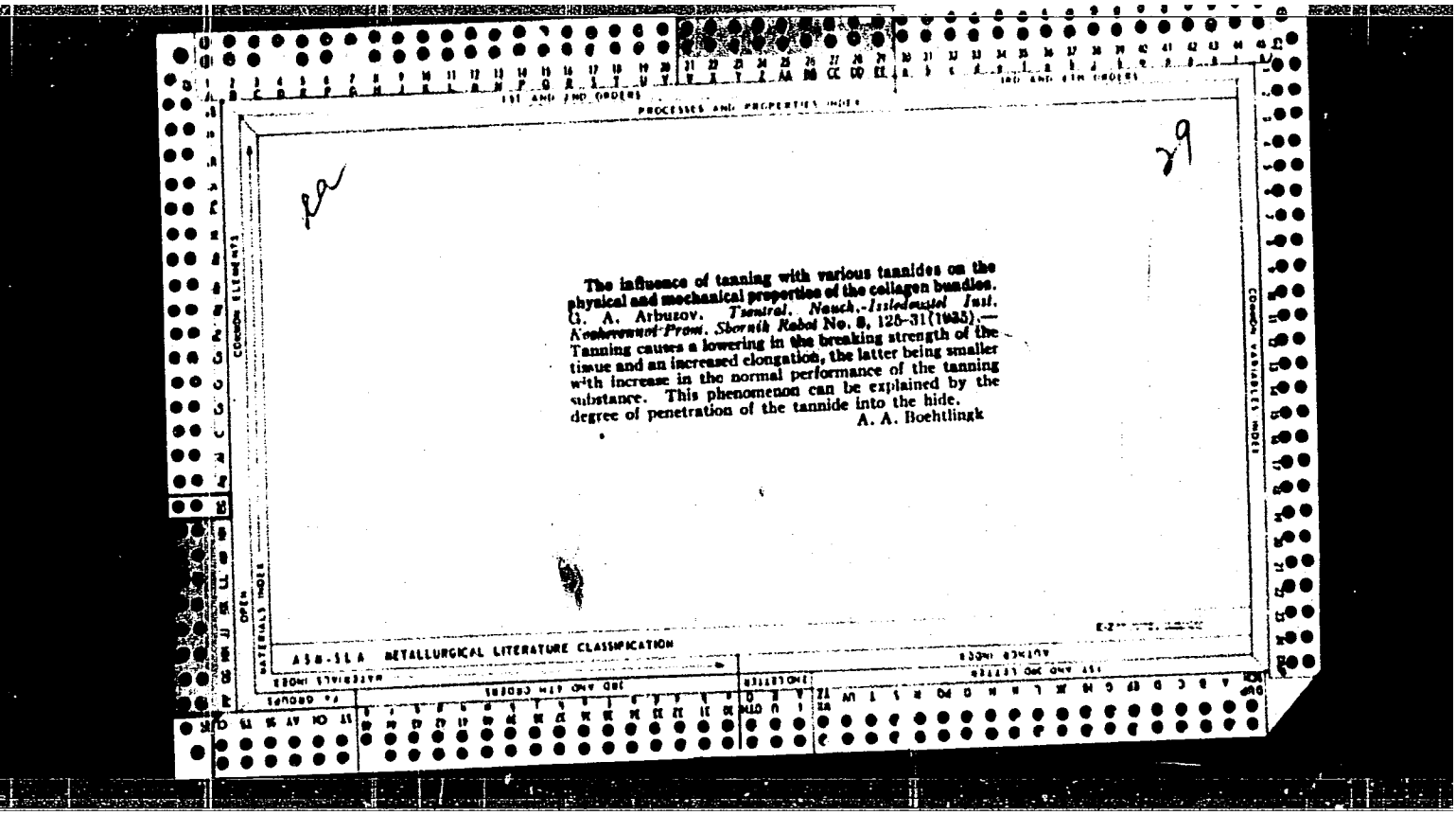
CM

29

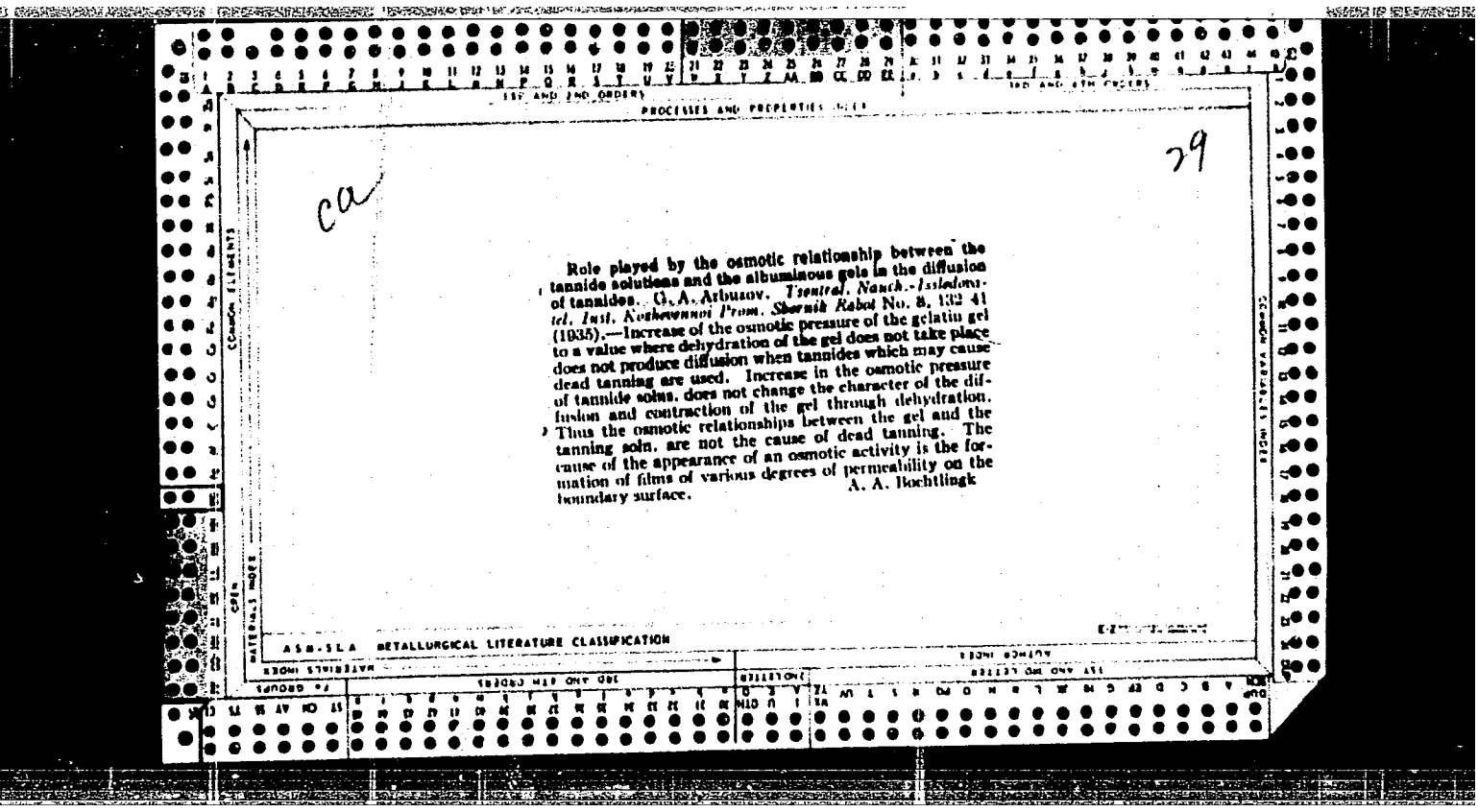
General theoretical explanation of diffusion and combination of tannides in drum tanning. G. A. Artamov. *Tsentral. Nauch.-Issledovatel. Inst. Kozhevennoi Prom.*, *Sbornik Rabot* No. 8, 120–4 (1935).—The penetration of the tanning soln. into the leather takes place by: (1) pure diffusion and (2) convective currents. Diffusion depends mainly on the dispersion, temp. and concn. of the soln. If the hide is in the static state, convection currents will appear only in the 1st stage of the process; this may explain the slowness of vat tanning in a single vat and with one soln. In a battery with increasing strength of the tanning soln. convection currents are observed either in each transfer or in concn. of the soln., while the diffusion also increases because of the difference in sp. gr. of the solns. In drum tanning the hides are subjected to a phys. treatment similar to contraction and expansion of a sponge and the convection currents assume a major importance. The capillaries formed in the collagen are carriers of the tanning soln. The tanning soln. forms in the collagen semipermeable films, which, if too dense, may produce a dead-tanned leather, which occurs more rapidly in drum tanning. The semipermeable film formed in the collagen acts as a membrane which causes osmotic diffusion; this leads to a considerable dehydration of collagen and therefore a contraction of the capillaries; this retards the tanning and causes dead-tanning of the hides. The fixation of tanning materials depends on the interaction between them and the collagen, i. e., on their colloidal nature and dispersion.

A. A. Boentlingk

METALLURGICAL LITERATURE CLASSIFICATION



The influence of tanning with various tannides on the physical and mechanical properties of the collagen bundles. G. A. Arbuzov. *Tsentral. Nauch.-Issledovatel Inst. Kozhevennoi Prom. Sbornik Rabot* No. 8, 125–31(1935).—Tanning causes a lowering in the breaking strength of the tissue and an increased elongation, the latter being smaller with increase in the normal performance of the tanning substance. This phenomenon can be explained by the degree of penetration of the tannide into the hide.
A. A. Boehtlingk



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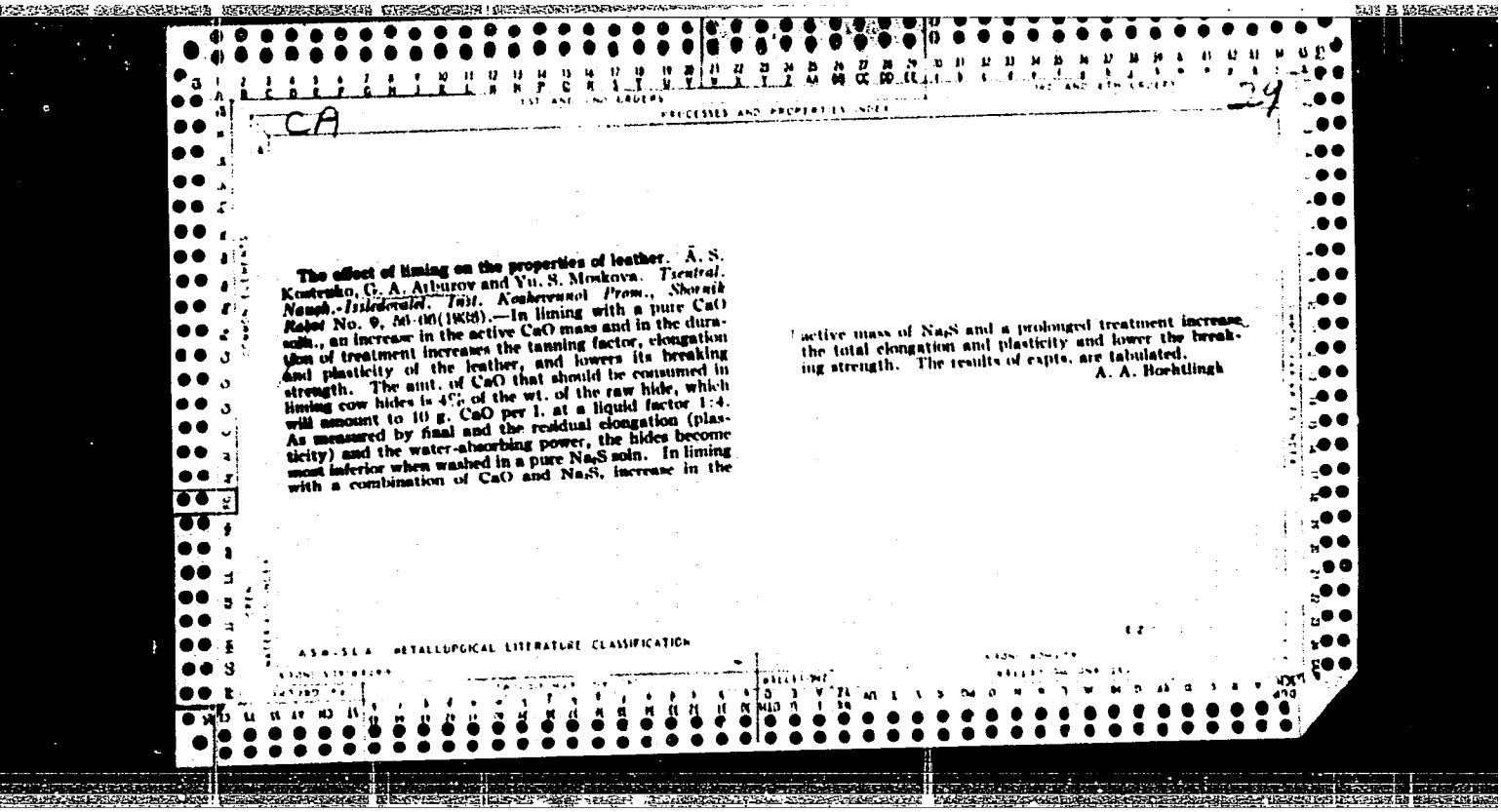
Role played by the osmotic relationship between the tannide solutions and the albuminous gels in the diffusion of tannides. G. A. Arbuzov. *Tsentral. Nauch.-Issledovatel. Inst. Kozhevennoi Prom. Sbornik Rabot* No. 8, 132-41 (1935).—Increase of the osmotic pressure of the gelatin gel to a value where dehydration of the gel does not take place does not produce diffusion when tannides which may cause dead tanning are used. Increase in the osmotic pressure of tannide solns. does not change the character of the diffusion and contraction of the gel through dehydration. Thus the osmotic relationships between the gel and the tanning soln. are not the cause of dead tanning. The cause of the appearance of an osmotic activity is the formation of films of various degrees of permeability on the boundary surface.
A. A. Bochtlingk

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



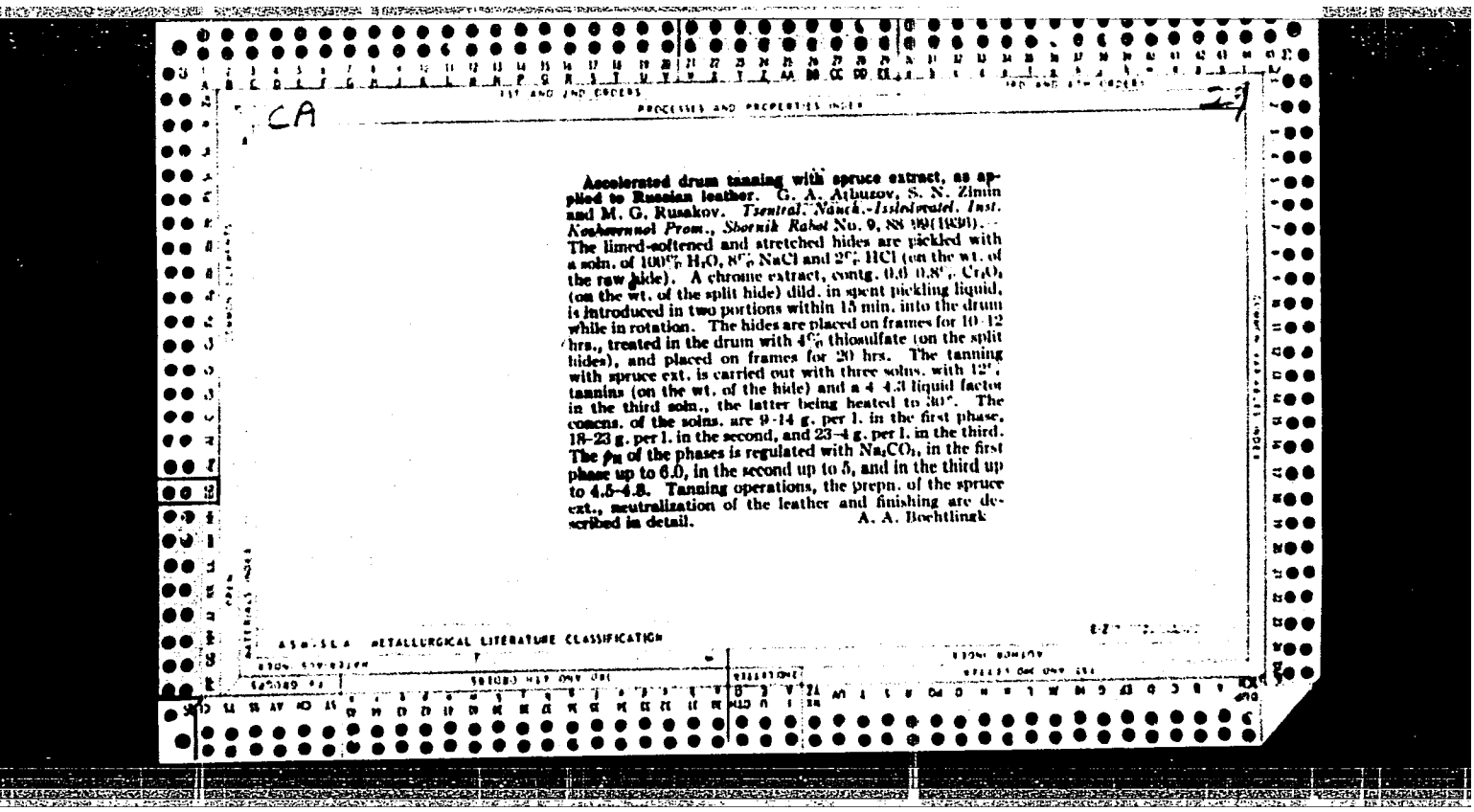
CA

29

The effect of liming on the properties of leather. A. S. Kostenko, G. A. Arburov and Yu. S. Moskova. *Tsentral. Kozevenko.-Issledovatel. Inst. Kozhevennoi Prom., Shornik Nauch.-Issledovatel. Trud. Kozhevennoi Prom.*, *Sbornik Rabot* No. 9, 50-60(1938).—In liming with a pure CaO suth., an increase in the active CaO mass and in the duration of treatment increases the tanning factor, elongation and plasticity of the leather, and lowers its breaking strength. The amt. of CaO that should be consumed in liming cow hides is 4% of the wt. of the raw hide, which will amount to 10 g. CaO per l. at a liquid factor 1:4. As measured by final and the residual elongation (plasticity) and the water-absorbing power, the hides become most inferior when washed in a pure Na_2S soln. In liming with a combination of CaO and Na_2S, increase in the active mass of Na_2S and a prolonged treatment increase the total elongation and plasticity and lower the breaking strength. The results of expts. are tabulated.

A. A. Boehtlingk

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

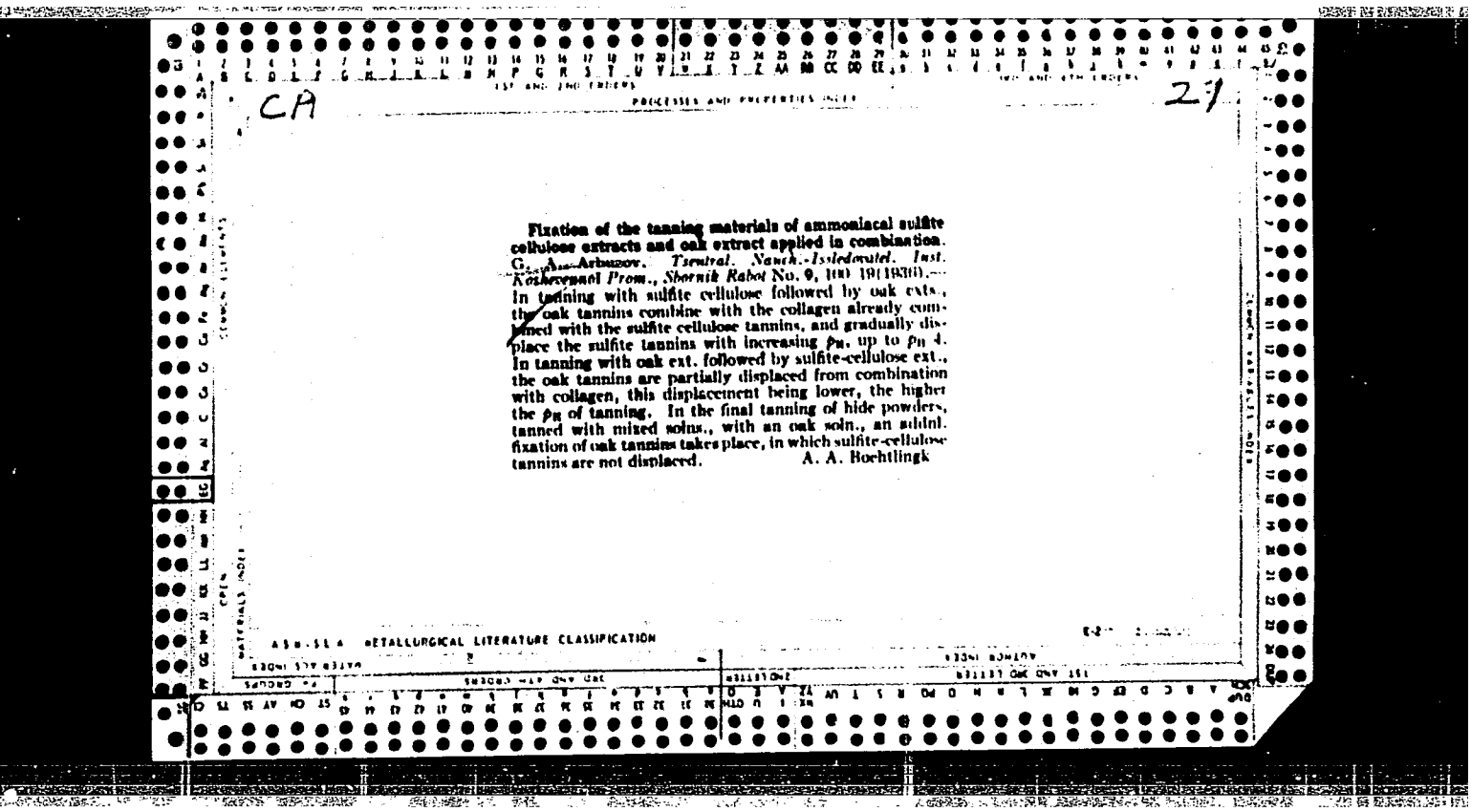


CA

PROCESSES AND PROPERTIES INDEX

Accelerated drum tanning with spruce extract, as applied to Russian leather. G. A. Atbuzov, S. N. Zimin and M. G. Rusakov. *Tsentral. Nauch.-Issledovatel. Inst. Kozhevennoi Prom., Sbornik Rabot* No. 9, 88-99(1939).—The limed-softened and stretched hides are pickled with a soln. of 100% H_2O, 8% NaCl and 2% HCl (on the wt. of the raw hide). A chrome extract, contg. 0.6-0.8% Cr_2O_3 (on the wt. of the split hide) dild. in spent pickling liquid, is introduced in two portions within 15 min. into the drum while in rotation. The hides are placed on frames for 10-12 hrs., treated in the drum with 4% thiosulfate (on the split hides), and placed on frames for 20 hrs. The tanning with spruce ext. is carried out with three solns. with 12% tannins (on the wt. of the hide) and a 4-4.3 liquid factor in the third soln., the latter being heated to 30°. The concns. of the solns. are 9-14 g. per l. in the first phase, 18-23 g. per l. in the second, and 23-4 g. per l. in the third. The p_H of the phases is regulated with Na_2CO_3, in the first phase up to 6.0, in the second up to 5, and in the third up to 4.5-4.8. Tanning operations, the prepn. of the spruce ext., neutralization of the leather and finishing are described in detail. A. A. Boehtlingk

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



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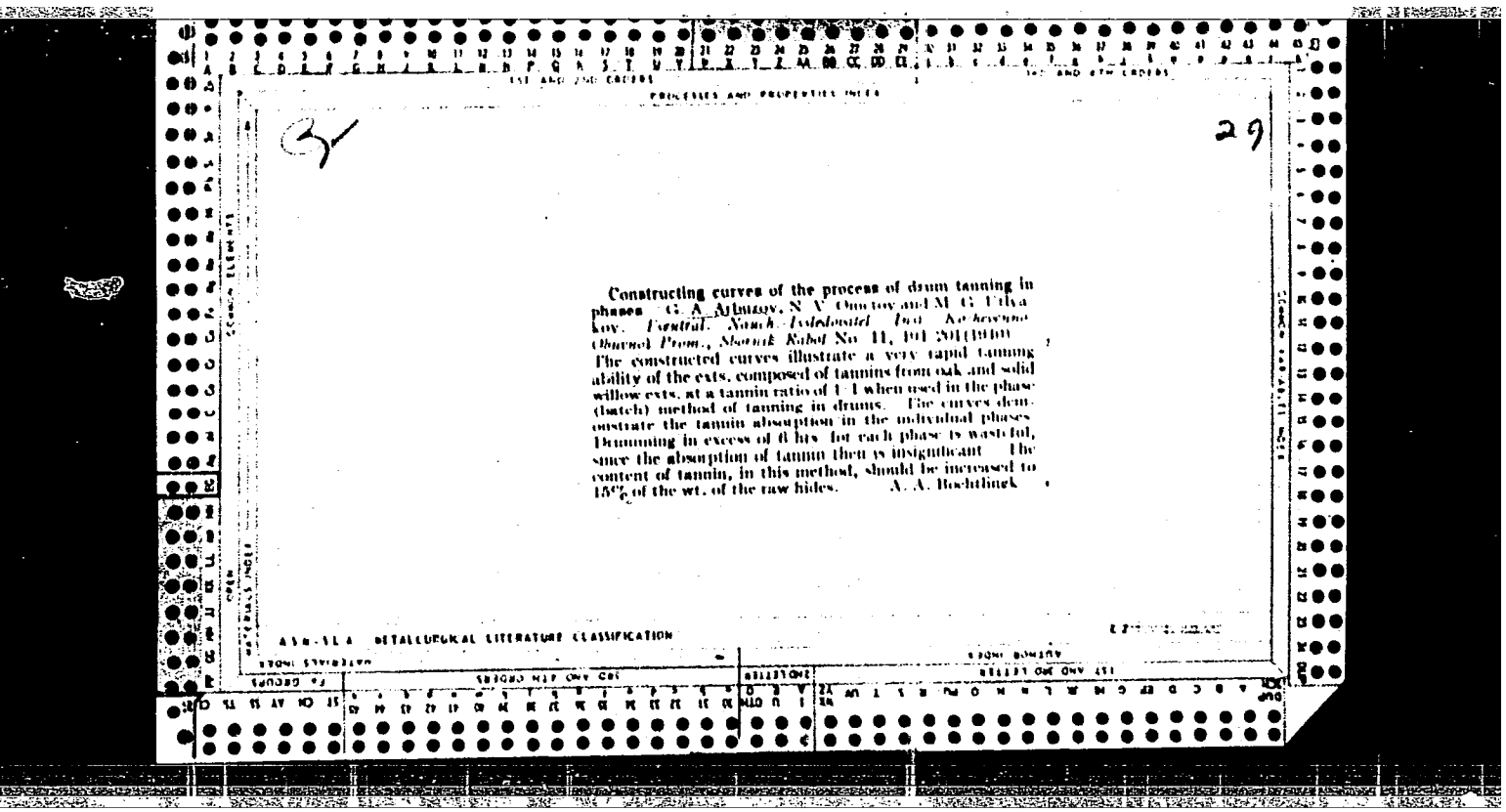
Fixation of the tanning materials of ammoniacal sulfite cellulose extracts and oak extract applied in combination. G. A. Arbusov. *Tsentral. Nauch.-Issledovatel. Inst. Kozhevennoi Prom., Sbornik Rabot* No. 9, 101 19(1938).—In tanning with sulfite cellulose followed by oak exts., the oak tannins combine with the collagen already combined with the sulfite cellulose tannins, and gradually displace the sulfite tannins with increasing p_H, up to p_H 4. In tanning with oak ext. followed by sulfite-cellulose ext., the oak tannins are partially displaced from combination with collagen, this displacement being lower, the higher the p_H of tanning. In the final tanning of hide powders, tanned with mixed solns., with an oak soln., an additl. fixation of oak tannins takes place, in which sulfite-cellulose tannins are not displaced. A. A. Boehtlingk

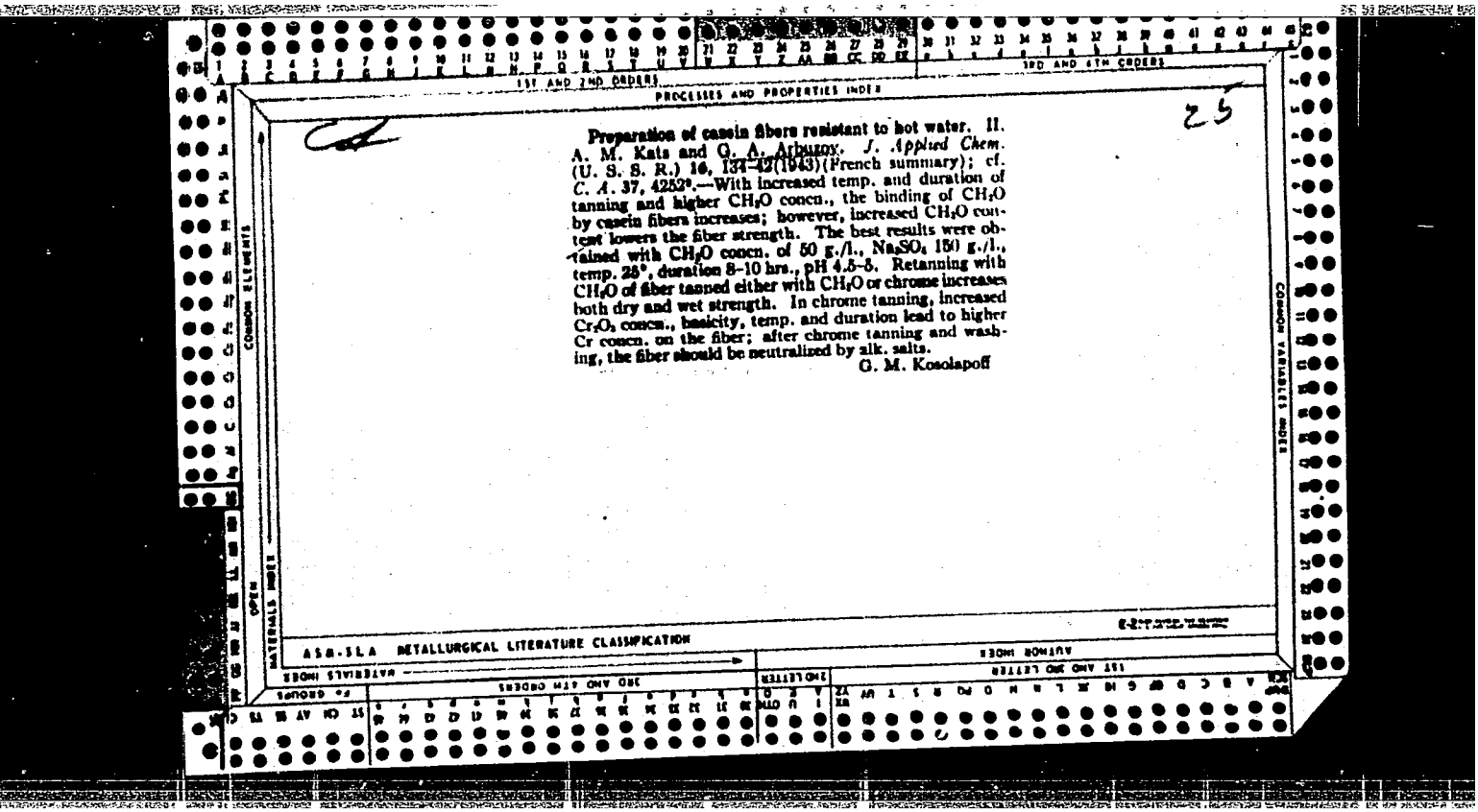


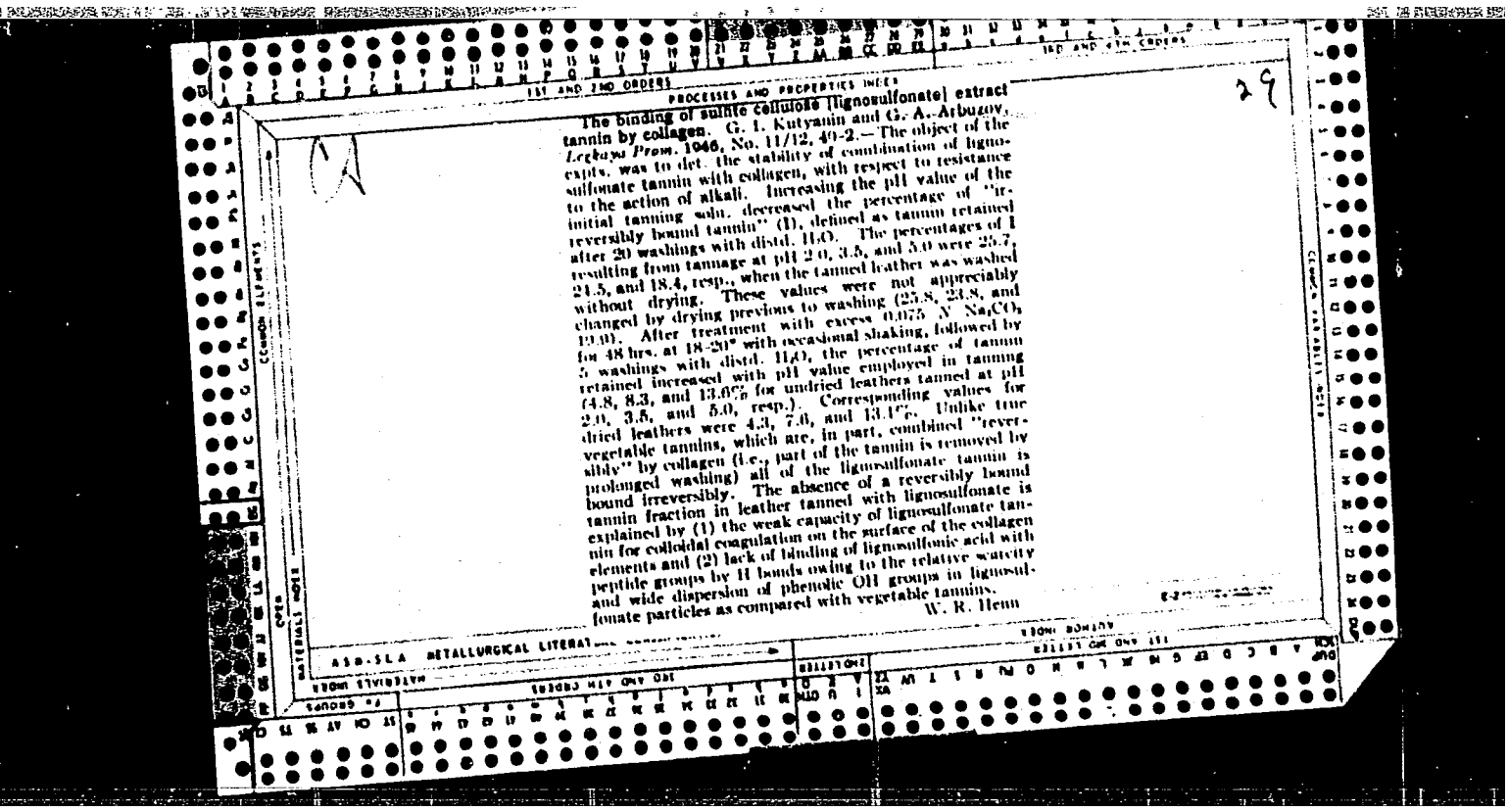
Constructing curves of the process of drum tanning in phases. G. A. Alikuzov, N. V. Onuchov, and M. G. Utkaikov. *Tsentral. Nauch. Issledovatel. Inst. Kozhevenno Obuvnoi Prom., Sbornik Kabot* No. 11, 101-20(1940). The constructed curves illustrate a very rapid tanning ability of the exts. composed of tannins from oak and solid willow exts. at a tannin ratio of 1:1 when used in the phase (batch) method of tanning in drums. The curves demonstrate the tannin absorption in the individual phases. Drumming in excess of 6 hrs. for each phase is wasteful, since the absorption of tannin then is insignificant. The content of tannin, in this method, should be increased to 15% of the wt. of the raw hides. A. A. Buchtinck

ARBUZOV, G. A.

Neutralization of chromed leather shavings in the production of "plastic leather." G. A. Arbuzov, A. D. Zafonchkovskii, and I. I. Tugov. *Trudy Moskov. Tekhnol. Inst. Legkoi Prom. im. L.M. Kaganovicha* 1941, No. 3, 102–31.—Plastic leather is a leather substitute compounded of rubber, fibrous materials, carbon black, S, vulcanizing agents, and accelerators. The fibrous filler usually contains 75% of chrome leather shavings, 15% of powd. chrome leather or vegetable-tanned fibers, and 10% of linters. The fibrous materials usually make up approx. 35% of the recipe. The purpose of this investigation was to study the properties of chrome shavings and their effect on the quality of the product. Ordinarily the chrome shavings are acid (4–7% calcd. as H_2SO_4 on moisture-free wt. of the shavings). In a 1:1 rubber-shavings mix, acidity of the shavings in excess of 2–3% retards vulcanization considerably. A 4% alky. (dry-wt. basis) of the shavings hastens vulcanization but the quality of the product is lowered. Low acidity (below 2%) hardly affects the rate of vulcanization and the product retains all of the desired qualities. The incoming shavings are neutralized preferably with an approx. 1% Na_2CO_3 soln. at temp. up to 27° for 30 min. and washed after draining the alk. soln. A 2-tank neutralizing unit for chrome shavings is described.

M. Hoseh

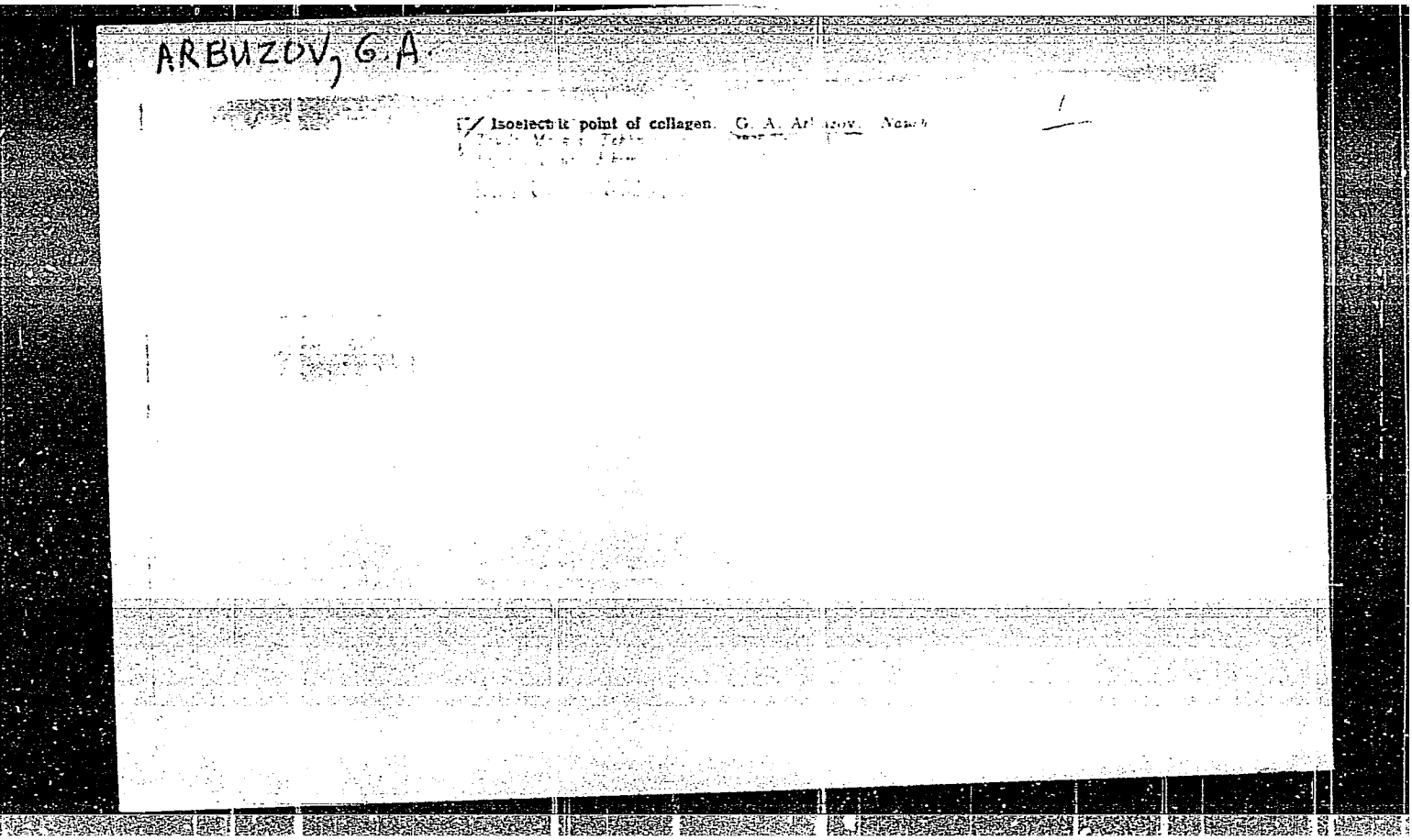




PROCESSES AND PROPERTIES INDEX

The binding of sulfite cellulose [lignosulfonate] extract tannin by collagen. G. I. Kutyanin and G. A. Arbuzov. *Lechaya Prom.* 1946, No. 11/12, 49-2.—The object of the expts. was to det. the stability of combination of lignosulfonate tannin with collagen, with respect to resistance to the action of alkali. Increasing the pH value of the initial tanning soln. decreased the percentage of "irreversibly bound tannin" (I), defined as tannin retained after 20 washings with distd. H_2O. The percentages of I resulting from tannage at pH 2.0, 3.5, and 5.0 were 25.7, 21.5, and 18.4, resp., when the tanned leather was washed without drying. These values were not appreciably changed by drying previous to washing (25.8, 23.8, and 19.0). After treatment with excess 0.075 *N* Na_2CO_3 for 48 hrs. at 18-20° with occasional shaking, followed by 5 washings with distd. H_2O, the percentage of tannin retained increased with pH value employed in tanning (4.8, 8.3, and 13.6% for undried leathers tanned at pH 2.0, 3.5, and 5.0, resp.). Corresponding values for dried leathers were 4.3, 7.0, and 13.1%. Unlike true vegetable tannins, which are, in part, combined "reversibly" by collagen (i.e., part of the tannin is removed by prolonged washing) all of the lignosulfonate tannin is bound irreversibly. The absence of a reversibly bound tannin fraction in leather tanned with lignosulfonate is explained by (1) the weak capacity of lignosulfonate tannin for colloidal coagulation on the surface of the collagen elements and (2) lack of binding of lignosulfonic acid with peptide groups by H bonds owing to the relative scarcity and wide dispersion of phenolic OH groups in lignosulfonate particles as compared with vegetable tannins.

W. R. Henn



ARBUZOV, G.A.

Isoelectric point of collagen. G. A. Arbuzov. Nauch.

PAVLOV, N.N., inzh.; ARBUZOV, G.A., doktor tekhn.nauk, prof.

Modification of polyamide with chromium compounds. Report No.1. Izv. vys. ucheb. zav.; tekh. leg. prom. no. 1:24-29 '60. (MIRA 14:5)

1. Moskovskiy tekhnologicheskiy institut legkoy promyshlennosti. Rekomendovana kafedroy tekhnologii iskusstvennoy kozhi.
(Polyamides) (Chromium compounds)

PAVLOV, N.N., inzh.; KUZNETSOV, A.R., inzh.; ARBUZOV, G.A., doktor tekhn. nauk, prof.

Complexometry of trivalent chromium. Report No.1. Izv. vys. ucheb. zav.; tekh. leg. prom. no. 1:54-59 '60. (MIRA 14:5)

1. Moskovskiy tekhnologicheskiy institut legkoy promyshlennosti. Rekomendovana kafedroy neorganicheskoy i analiticheskoy khimii.
(Chromium—Analysis)

PAVLOV, N.N., inzh.; ARBUZOV, G.A., doktor tekhn. nauk, prof.

Modification of polyamides with chromium compounds. Report No. 2. Izv. vys. ucheb. zav.; tekh. leg. prom. no.2:15-24 '60. (MIRA 13:11)

1. Moskovskiy tekhnologicheskiy institut legkoy promyshlennosti. Rekomendovana kafedroy tekhnologii iskusstvennoy kozhi.
(Polyamides)

PAVLOV, N.N., inzh.; KUZNETSOV, A.R., inzh.; ~~ARBUZOV, G.A.,~~ doktor tekhn.nauk, prof.

Complexometric analysis of trivalent chromium. Report No. 2. Izv. vys. ucheb. zav.; tekh. leg. prom. no.2:55-61 '60. (MIRA 13:11)

1. Moskovskiy tekhnologicheskiy institut legkoy promyshlennosti. Rekomendovana kafedroy neorganicheskoy i analiticheskoy khimii.
(Chromium--Analysis)

PAVLOV, N.N., inzh.; ARBUZOV, G.A., doktor tekhn.nauk, prof.

Using chromium compounds for the modification of polyamides. Report No. 4. Izv.vys.ucheb.zav.; tekh.leg.prom. no.4:31-38 '60. (MIRA 13:10)

1. Moskovskiy tekhnologicheskiy institut legkoy promyshlennosti. Rekomendovana kafedroy tekhnologii iskusstvennoy kozhi.
(Polyamides) (Chromium compounds)

29045
S/081/61/000/018/027/027
B101/B147

15.8150

AUTHORS: Pavlov, N. N., Arbuzov, G. A.

TITLE: Change of properties of films of polymers containing hydroxyl or carboxyl groups by chromium (III) compounds

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 18, 1961, 589, abstract 18 546 (Nauchn. tr. Mosk. tekhnol. in-t legkoy prom-sti, no. 17, 1960, 29 - 34)

TEXT: A preliminary study was made of the modification process of polyvinyl alcohol (PV) and polyacrylic acid (PA) by Cr^{3+} compounds. A specific interaction was found to take place between the polymers mentioned and the Cr compounds. The properties of PV and PA change significantly when Cr salts are introduced. The modulus of elasticity of PV films increases. PV films containing strongly basic Cr chlorides or Cr succinates, acquire a certain water resistance. Introducing Cr salts into PA enables the latter to form films. The results of this preliminary study show that it is possible to obtain new hydrophilic products differing from the initial polymers in their properties. [Abstracter's note: Complete translation.]

Card 1/1

PAVLOV, N.N., assistent; KUZNETSOV, A.R., assistent; ARBUZOV, G.A., doktor tekhn.nauk, prof.

Quantitative analysis of chromium (III) in the solutions and films of high polymers. Nauch.trudy MTILP no.18:41-47 '60. (MIRA 15:2)

1. Kafedra neorganicheskoy i analiticheskoy khimii Moskovskogo tekhnologicheskogo instituta legkoy promyshlennosti.
(Chromium--Analysis) (Polymers)

PAVLOV, N.N., inzh.; KUZNETSOV, A.R., inzh.; ARBUZOV, G.A., prof., doktor tekhn.nauk

Studying the stability of aluminum (III) complex compounds. Izv. vys.ucheb.zav.; tekh.leg.prom. no.2:22-28 '61. (MIRA 14:5)

1. Moskovskiy tekhnologicheskiy institut legkoy promyshlennosti. Rekomendovana kafedroy neorganicheskoy i analiticheskoy khimii.
(Aluminum compounds)

S/081/62/000/016/026/043
B168/B186

AUTHORS: Pavlov, N. N., Arbuzov, G. A., Panteleyeva, D. S.

TITLE: Investigation into the effects of adding aluminum and iron (III) salts to polyamide films

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 16, 1962, 520, abstract 16P50 (Izv. vyssh. uchebn. zavedeniy. Tekhnol. legk. prom-sti, no. 3, 1961, 20-25)

TEXT: The effects of $FeCl_3$, $AlCl_3$ and $CrCl_3$ on the properties of AK 60/40 polyamide films were investigated with a view to using polyamides as finishing material and in the production of leather. The films obtained were subjected to mechanical and thermomechanical tests, and their permeability to steam and solubility in ethanol were also determined. It was found that salts of Al, Cr and Fe affect the mechanical properties (by increasing the softness and elasticity) of the polyamide and their order of increasing modifying action is given as: $FeCl_3 < AlCl_3 < CrCl_3$. Polymer films retain their solubility in alcohol both before and after

Card 1/2

S/032/61/027/002/022/026
B124/B201

AUTHORS: Arbuzov, G. A., Kuznetsov, A. R., and Pavlov, N. N.

TITLE: Apparatus for the titration of dark-colored solutions

PERIODICAL: Zavodskaya laboratoriya, v. 27, no. 2, 1961, 225-226

TEXT: A special apparatus (see Fig.) has been worked out for those cases in which it is difficult to establish exactly the color changes in the point of equivalence in the presence of intensely colored admixtures or when the color change of the indicator in the end point of reaction is not sufficiently clear. A certain volume of the analyzed, dark-colored solution is poured into the 250-500 ml round and flat-bottom flask 1 which rests upon the electromagnetic mixer 2. The titration takes place by intensive mixing, and, if necessary, also by heat treatment. A parallel beam from light source 3 is passed through the titrated solution, and forms a colored spot 5 on the screen 4. The end point of titration is determined by the clear change of the color spot, which is by far better observable compared with ordinary illumination. Contrasts can be accentuated in the color change of the spot by way of color shifting, which

Apparatus for the...

is brought about by placing an appropriate light filter 6 in the path of the light beam. Thus, e.g., it is suitable to use a blue filter for the transition from red to yellow, whereby the color changes from violet to green, which is visually easier to detect. When the color change of the spot is masked by admixtures, color shifting can be attained either by illuminating the spot on the screen by a secondary light source or by means of a colored screen. In the latter case, the color of the filter or of the screen is complementary to the color of the masking admixtures. If, e.g., the admixtures are blue, filter or screen must be yellow. No light from other light sources must hit the screen. The procedures described were applied by the authors to the trilonometric determination of trivalent chromium (Ref.1). The Trilon excess in the titration of chromium is bound by a nickel salt, whose excess is titrated with the same Trilon B solution in the presence of murexide. The color turns from yellow over orange, red, and red-violet to violet. The color change of the indicator is masked by the dark-blue color of the chromium complex. When using the apparatus and a blue light filter, the color of the spot on the white screen turns from yellow over red to pale blue. The latter color change is abrupt, which fact simplifies the visual determination

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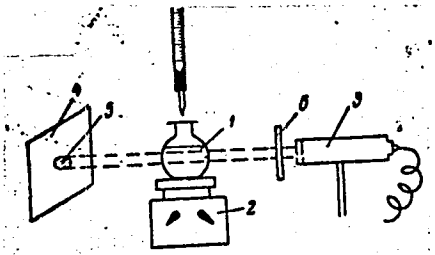
of the end point of reaction, and reduces the error of the determination. The point of equivalence exactly corresponds to this transition. When using the device described it was possible to reduce the determination error from 5 to about 0.5%. The chromium content in the sample was 32.3 mg, and the Trilon consumption was 5.96 ml. [Abstracter's note: This is a full translation]. There are 1 figure, 1 table, and 1 Soviet-bloc reference.

ASSOCIATION: Moskovskiy tekhnologicheskiy institut legkoy promyshlennosti (Moscow Technological Institute of the Light Industry)



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AUTHOR: Kuznetsov, A. R.; Arbuzov, G. A.; Yezhova, T. I.

TITLE: Quantitative determination of metals in SKS-30-1 latex films

SOURCE: Kauchuk i rezina, no. 5, 1963, 51-53

TOPIC TAGS: latex, film, metal, polyvalent metal, oleic acid

ABSTRACT: A new method is proposed, based on the ready solubility of SKS-30-1 latex films in boiling oleic acid. Freshly cast films containing calcium chloride or magnesium chloride take only 10-15 minutes for complete dissolution, while 4-month old films, cast on barium chloride or chromium chloride, require 2-3 hours. After dilution with chlorobenzol, the solution is extracted with boiling 3N hydrochloric acid. The divalent metals are then determined by trilon titration at pH 10, chromium by trilon titration at pH 2-3, and aluminum by back titration with zinc chloride or by the dithizone method in acetone solution. Orig. art. has: 1 table.

Association: Moscow Technological Inst. of Light Industry

Card 1/2

ARBUZOV, G.A., prof., doktor tekhn. nauk; AFANAS'YEV, A.A., dots., kand. tekhn. nauk; YEGOROVA, Ye.A.; KARZINKINA, K.D.; KARPOVA, A.A.; MURVANIDZE, E.M.; MIKHAYLOV, A.N., prof., doktor tekhn. nauk, red.; KACHKO, I.L., insh., red.; KRASNOBRODSKAYA, L.L., red.; YURCHENKO, D.I., red.; MIKHLIN, E.I., tekhn. red.

[English-Russian leather and footwear dictionary] Anglo-russkii koshevenno-obuvnoi slovar'. Pod obshchei red. A.M.Mikhailova. Moskva, Fizmatgiz, 1963. 402 p. (MIRA 16:7)

(Leather industry--Dictionaries)
(English language--Dictionaries--Russian)

CHESUNOV, V.M.; NAUMOV, V.N.; KUZNETSOV, A.R.; ARBUZOV, G.A.

Apparatus for gas chromatography in the artificial leather industry. Kozh.-obuv.prom. 5 no.10:25-29 O '63. (MIRA 17:4)

KUZNETSOV, A.R.; ARBUZOV, G.A.; YEZHOVA, T.I.

Quantitative determining of metals in films made from SKS-30-1 latex. Kauch. i rez. 22 no.5:51-53 My '63. (MIRA 16:7)

1. Moskovskiy tekhnologicheskiy institut legkoy promyshlennosti.
(Metals--Analysis) (Resins, Synthetic)

KUZNETSOV, A.R., inzh.; PAVLOV, N.N., kand. tekhn. nauk; ARBUZOV, G.A., doktor tekhn. nauk, prof.

Use of barium salts for ion precipitation from latexes of carboxylate rubbers. Izv. vys. ucheb. zav.; tekhn. leg. prom. no.2:55-59 '63. (MIRA 16:10)

1. Moskovskiy tekhnologicheskiy institut legkoy promyshlennosti. Rekomendovana kafedroy tekhnologii iskusstvennoy kozhi i plenochnykh materialov.

ARBUZOV, G.A., doktor tekhn. nauk, prof.; KUZNETSOVA, V.I., kand. tekhn. nauk, dotsent

Interaction of ferric salts with gelatin. Report No.8: Formation of polynuclear mixed chromium-aluminum complexes in solutions. Nauch. trudy MTILP no.27:36-39 '63. (MIRA 17:11)

1. Kafedra neorganicheskoy i analiticheskoy khimii Moskovskogo tekhnologicheskogo instituta legkoy promyshlennosti.