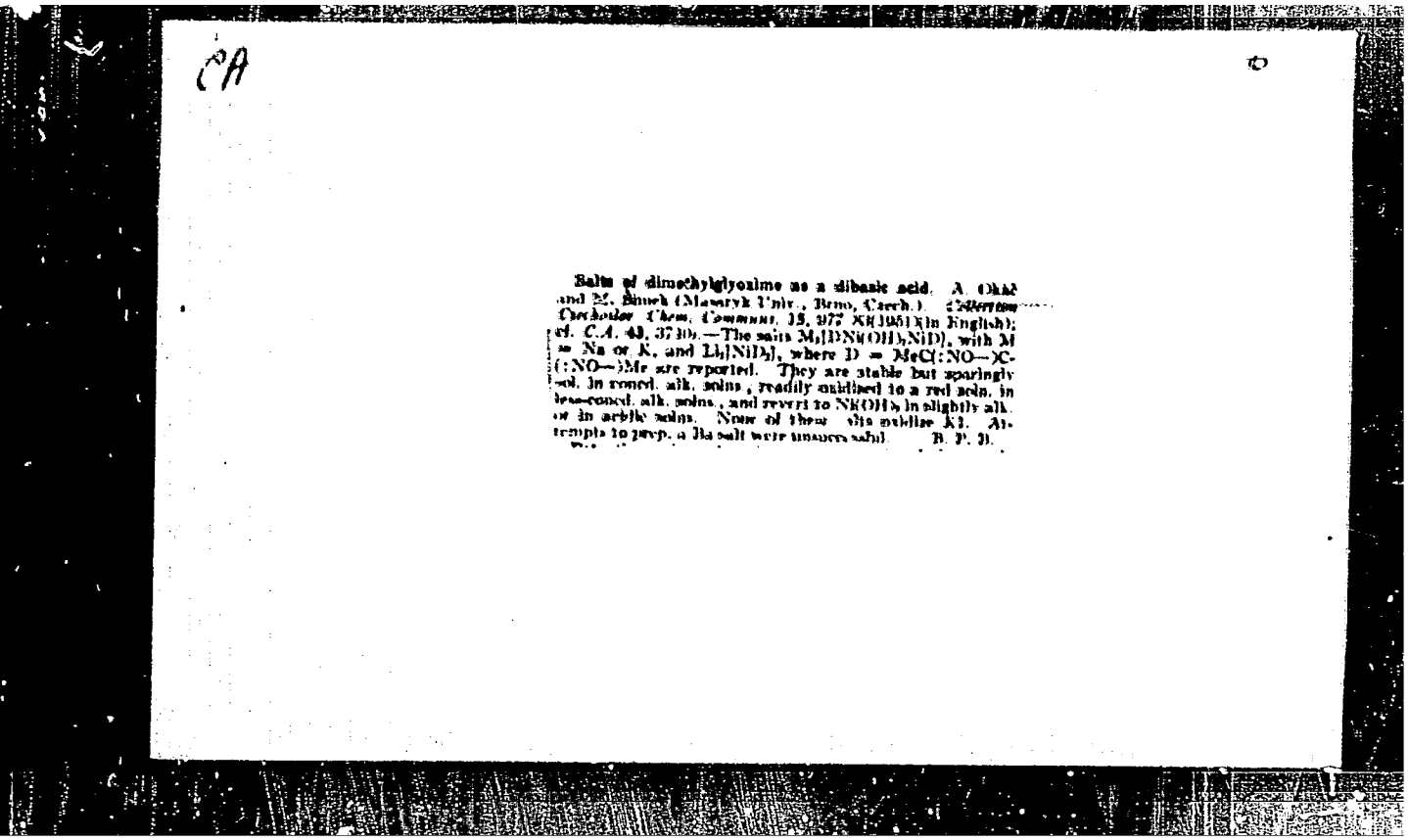
1

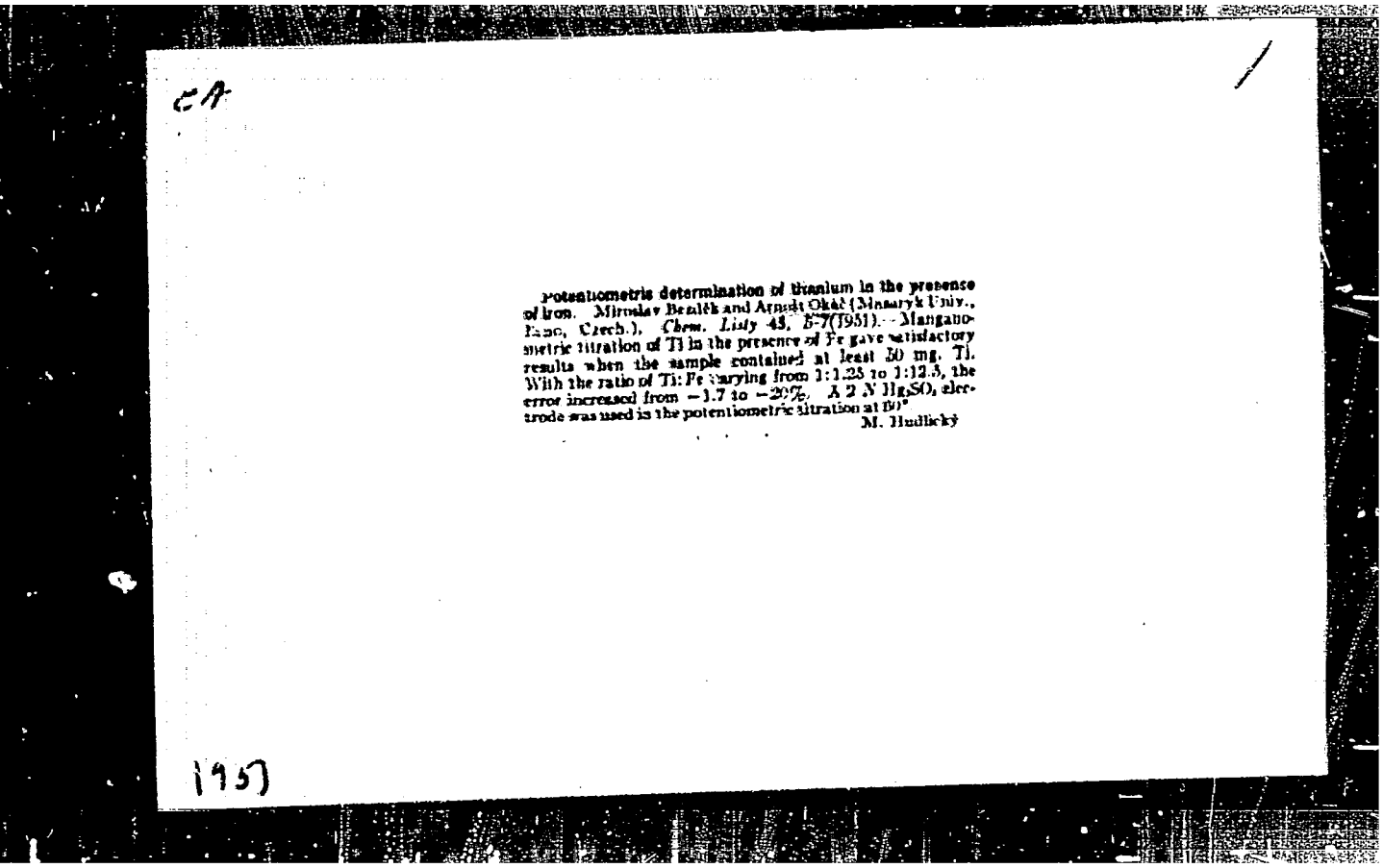
Imperfections in systems of qualitative separation of cations. A. [illegible] and M. Berlik (Masaryk Univ., Brno). *Publ. Faculté Sci. Univ. Masaryk* No. 319 (Rada II), 9-22 (1949) (Russian and French summaries). The sepn. of bivalent metals (I: Fe, Al, Cr) and bivalent metals (II: Ni, Co, Cu, Mn, Zn, Cd) with NH_4OH was studied. $M(OH)_2$ and $[M(NH_3)_6]^{++}$ were formed in excess NH_4OH. Solns. contg. 1 millimole each of I and II and 23 millimoles of HCl were neutralized with NH_4OH to permanent turbidity. This was dissolved in a drop of 2 *N* HCl and the solns. made up to 100 ml. with H_2O. The soln. was boiled, and pptd. by dropwise addn. of excess 2 *N* NH_4OH with stirring. The ppt. was filtered and washed 3 times with 5-ml. portions of a 1:1 mixt. of 0.1 *N* NH_4Cl and 0.1 *N* NH_4OH. In the filtrate the II content was detd. gravimetrically. The ppt. was dissolved in 2 *N* HCl, and the ppts. repeated twice more under identical conditions. In the last ppt. II and III were detd. The coppts. of II was least with $Fe(OH)_3$, where it was due mostly to adsorption, and adsorption isotherms of parabolic shape were obtained. The greatest adsorption was shown by metals which can be oxidized to the trivalent state in NH_4OH solns. (Co, Mn, Ni). For other metals, adsorption decreased with increasing at. wt., with the exception of Cu and Zn. With $Al(OH)_3$, coppts. was greater. With Co and Ni, 98-99% was coppd. in the first ppts., and reppts. did not change this. This was due to formation of insol. aluminates. The greatest coppts. was observed with $Cr(OH)_3$, where chromates as well as chromites may form. Probably every system of qual. sepn. of cations would show similar imperfections.

H. Newcombe



CA

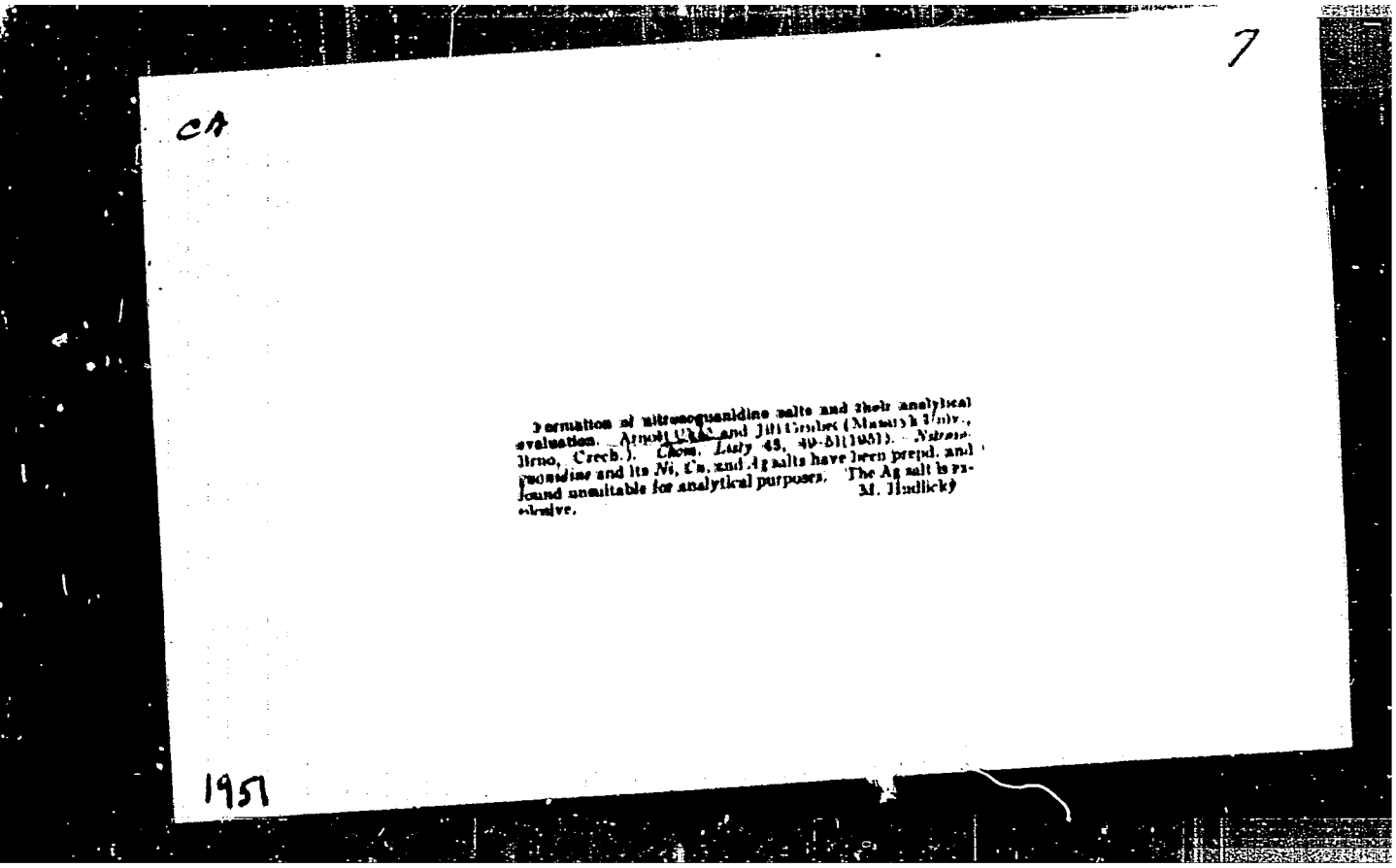
Salts of dimethylglyoxime as a dibasic acid. A. Okáč and Z. Šimek (Masaryk Univ., Brno, Czech.). Collection Czechoslov. Chem. Communs. 15, 977-83(1950)(in English); cf. C.A. 43, 3730b.—The salts M[DNi(OH)]·NiD, with M = Na or K, and Li[NiD$_2$], where D = MeC(:NO—)C(:NO—)Me are reported. They are stable but sparingly sol. in concd. alk. solns., readily oxidized to a red acid, in less-concd. alk. solns., and revert to NiD(OH)$_2$ in slightly alk. or in acidic solns. None of these salts exhibits K.I. Attempts to prep. a Na salt were unsuccessful. B. P. D.



CA

1957

Potentiometric determination of titanium in the presence of iron. Miroslav Beneš and Arnošt Okáč (Masaryk Univ., Brno, Czech.). *Chem. Listy* 45, 5-7(1951).—Manganometric titration of Ti in the presence of Fe gave satisfactory results when the sample contained at least 50 mg. Ti. With the ratio of Ti:Fe varying from 1:1.25 to 1:12.5, the error increased from −1.7 to −20%. A 2 N H_2SO_4 electrode was used in the potentiometric titration at 80°.
M. Hudlický



7

CA

Formation of nitroguanidine salts and their analytical evaluation. Arnošt Uhlíř and Jiří Gruber (Masaryk Univ., Brno, Czech.). *Chem. Listy* 48, 49-51(1954). *Nitroguanidine* and its *Ni*, *Cu*, and *Ag* salts have been prepd. and found unsuitable for analytical purposes. The Ag salt is explosive. M. Hudlický

1951

CA

7

Evaluation of newer tests for copper. Arnošt Okáč and Jaroslav Čelechovský (Masaryk Univ., Brno, Czech.). *Chem. Listy* 45, 32–4(1951).—Cu sievelops orange to violet-brown color when treated with an acidic mixt. of *antipyrine* and $KAuCl_4$ ($CHCl_3$ is added to ext. the complex). Hg, Co, Fe, Ti, and Au interfere. *Phenolphthalin* prepd. by the reduction of phenolphthalein in NaOH with Zn gives pink to red color with Cu in the presence of NH_4Cl and NH_3. Oxidants, Au, Hg, Co, NH_4, SO_3^{--}, and $S_2O_3^{--}$ interfere. *Benzidine* and *KBr* give a blue color with Cu interfered with by oxidants, Au^{III} and Fe^{III}. The reaction of Cu (and Co and Ni) with *1,2-diaminoanthraquinone-3-sulfonic acid* (blue color) is disturbed by Hg, Mg, and NH_4. *Diphenylcarbazide* reaction of Cu (red-violet color of the benzene layer) is disturbed by oxidants, Hg, Co, Cl, Fe^{III}, and NH_4. *2-Naphthol-1-naphthol-4-sulfonic* acid gives an orange color with Cu disturbed by Co, Ni, and Fe. M. Hudlický

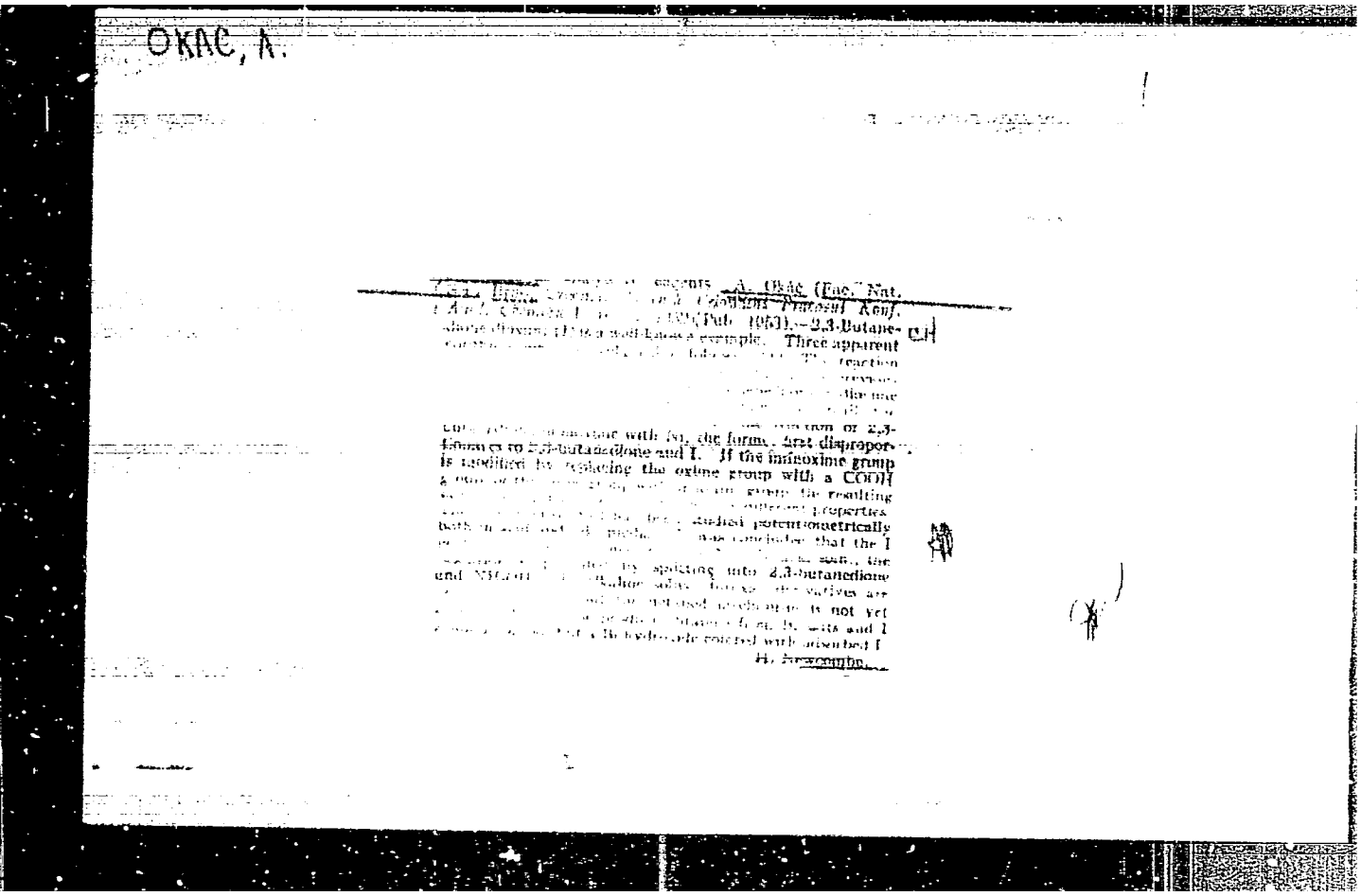
1951

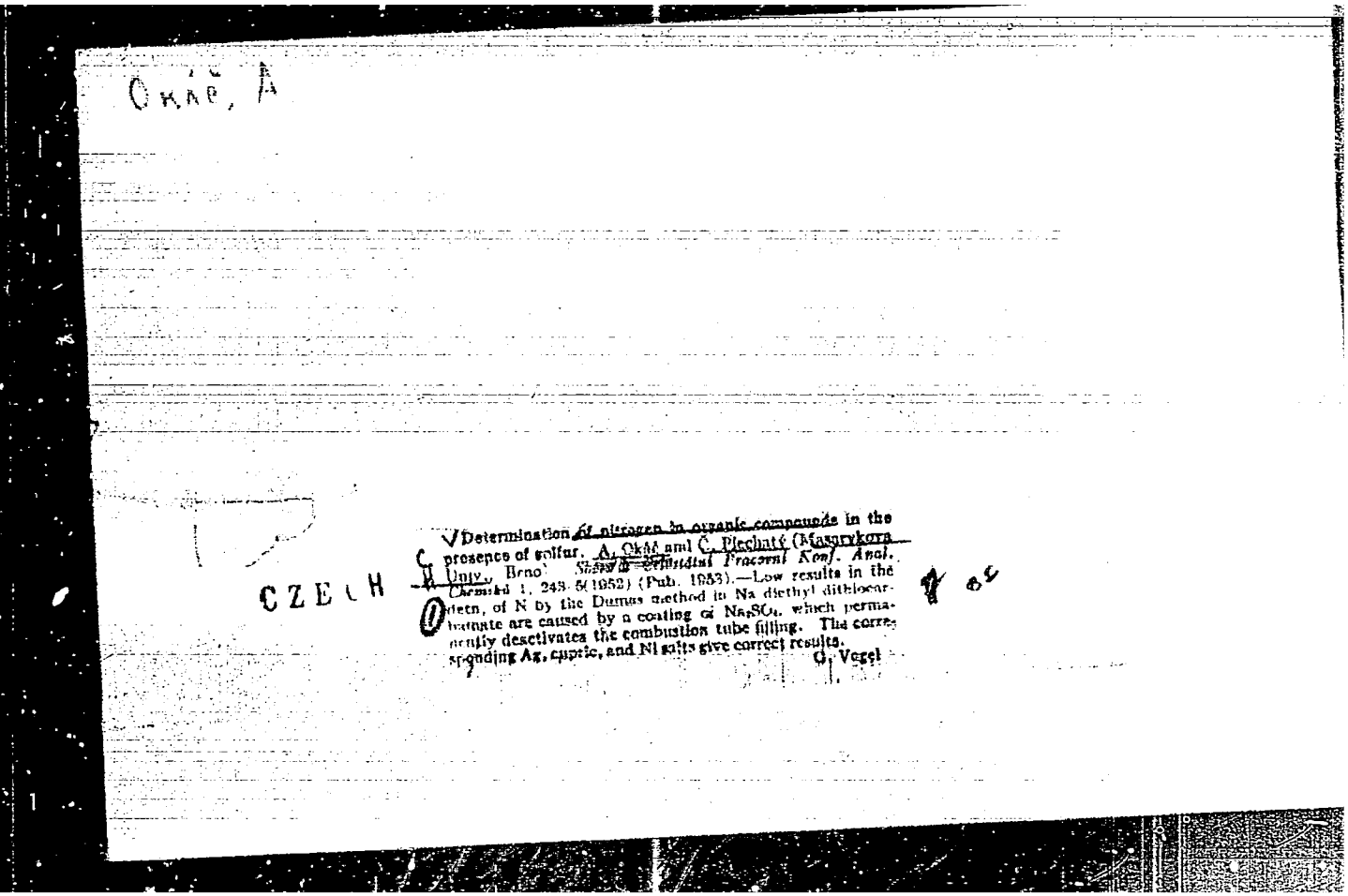
OKAC, A. Czechoslovakia

Gundlagen der qualitativen analytischen Chemie
(Naturwissenschaftlicher Verlag, 1952, Prague)

SO: Die Pharmazie, Dec. 1955, Unclassified.

OKAC, A.

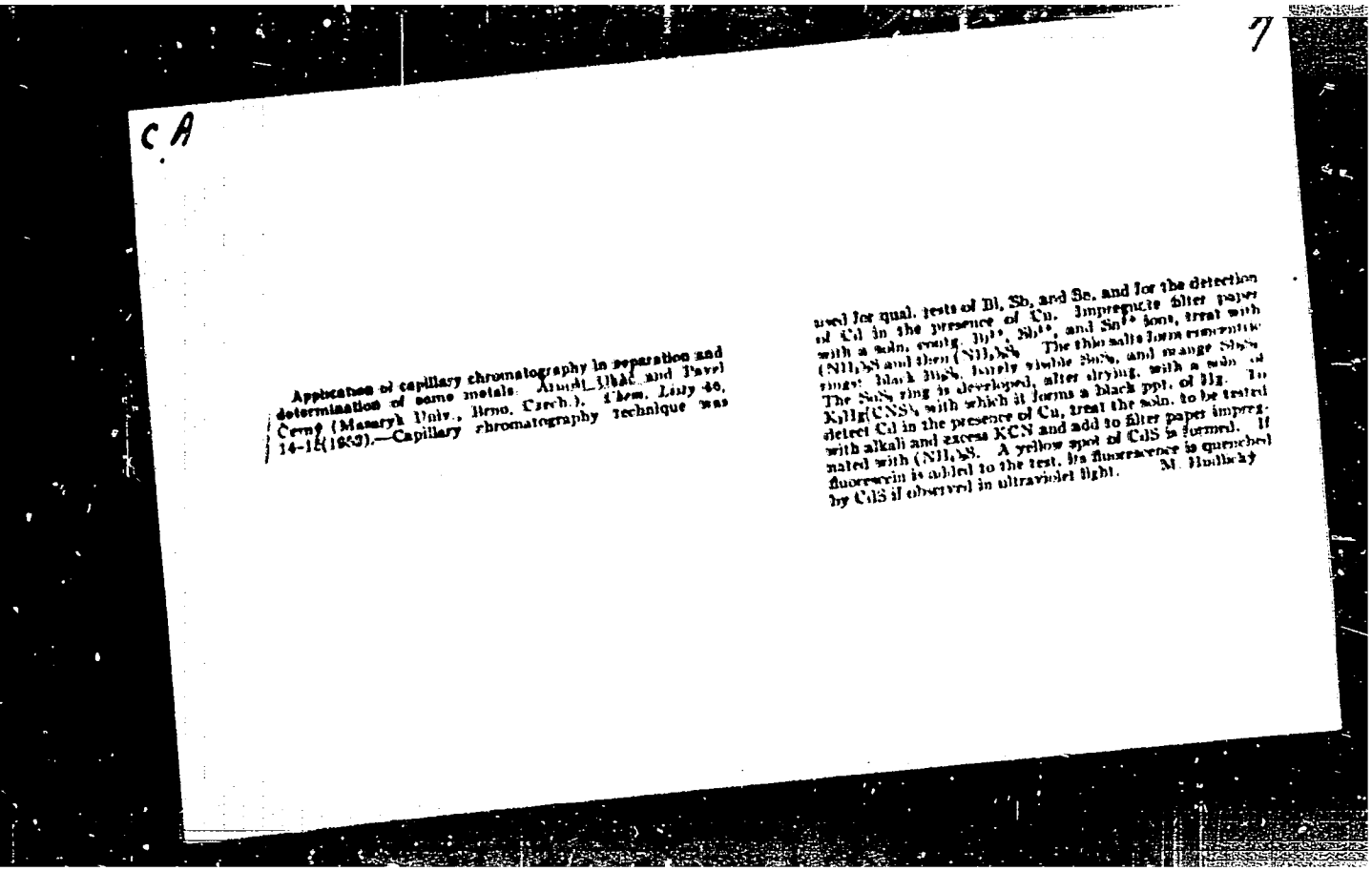




OKÁČ, A

CZECH

Determination of nitrogen in organic compounds in the presence of sulfur. A. Okáč and Č. Plechatý (Masarykova Univ., Brno). *Sborník Československé Pracovní Kon. Anal. Chemické* 1, 243-6(1952) (Pub. 1953).—Low results in the detn. of N by the Dumas method in Na diethyl dithiocarbamate are caused by a coating of Na_2SO_4, which permanently deactivates the combustion tube filling. The corresponding As, cupric, and Ni salts give correct results.
G. Vegel



CA

7

Applicatns of capillary chromatography in separation and determination of some metals. Arnošt Libuš and Pavel Černý (Masaryk Univ., Brno, Czech.). *Chem. Listy* 46, 14–18(1952).—Capillary chromatography technique was used for qual. tests of Bi, Sb, and Se, and for the detection of Cd in the presence of Cu. Impregnate filter paper with a soln. cont. Bi^{+++}, SbO^{+}, and SnO_3^{--} ions, treat with $(NH_4)_2S$ and then $(NH_4)_2S_2$. The thio salts form concentric rings: black Bi_2S_3, barely visible Sb_2S_3, and orange SbS_3^{-}. The SnS_3^{--} ring is developed, after drying, with a soln. of $KHg(CNS)_3$ with which it forms a black ppt. of HgS. To detect Cd in the presence of Cu, treat the soln. to be tested with alkali and excess KCN and add to filter paper impregnated with $(NH_4)_2S$. A yellow spot of CdS is formed. If fluorescein is added to the test, its fluorescence is quenched by CdS if observed in ultraviolet light. M. Hudlický

OKAC, A.

Metallurgical Abstracts
July 1954
Analysis

*The Use of Capillary Chromatography for the Separation and Detection of Certain Metals. A. Okáč and P. Černý (*Coll. Czechoslov. Chem. Commun.*, 1953, 18, (1), 73–80).—[In Russian]. The sepn. of the group Bi^{3+}, Sb^{3+}, and Sn^{2+} from acid soln. by Na acetate is described; these ions are distinguished by capillary chromatography, using $(NH_4)_2S_x$, which leaves coloured zones of the sulphides. SnS_2 is developed to a black zone of HgS with $K_2[Hg(CNS)_4]$ soln., Bi_2S_3 and Sb_2S_3 are unaffected. The sepn. of Cu^{2+} and Cd^{2+} ions by $(NH_4)_2S$ and complexing with cyanide is described.—L. D. H.

OKAC, A.

OKAC, A., GRACOVA, L.,
"p-Nitroso--Naphtylamine as an Analytical Reagent," p. 367.
(Chemicke Listy, Vol.47, No.3, Mar. 1953, Praha.)

SO:Monthly List of East European Accessions, Vol.2, No.9, Library of Congress, September 1953, Uncl.

ARNOST, OKAC

OKAC, Arnost

Analytical evaluation of 1 amino-2-oximes. Arnošt Okáč and Vladimír Jokl (Přírodovědecká fak., Brno, Czech.) *Chem. Listy* 47 534-9(1953).—PhCH(NOH)CH$_2$NH$_2$ (I) and 3-aminocamphor oxime (II) and their Cu, Ni, and Co salts were prepd. BzCH$_2$NH$_2$.HCl, m. 192°, (13.6 g.) added to 7 g. H$_2$NOH.HCl and 11.5 g. KOH in 50 ml. H$_2$O yielded 3 g. I, m. 131° (from EtOH). I in acidic EtOH soln. with CuCl$_2$ and CuBr$_2$ gave salts C$_9$H$_{10}$N$_2$O$_2$·CuX$_2$. No salt was formed from NiCl$_2$. II, m. 145°, gave similarly Cu salts, C$_{10}$H$_{18}$N$_2$O CuCl$_2$, C$_{10}$H$_{18}$N$_2$O.Cu(OAc)NO$_3$, and ill-defined salts with Co and Ni. CuCl$_2$ and CuBr$_2$ salts of I take up 2 NH$_3$/mol. M. Hudlický

OKHC, A

Polycyclic complex salts of ethylenediimine-bis-acetylacetone. [illegible] Pirotave [illegible]

[illegible] org. solvents, crysts. with 2 moles of H_2O, NH_3, C_5H_5N or [illegible] H_2O [illegible] NH_3 [illegible] H_2O [illegible] C_5H_5N [illegible] H_2O C_5H_5N); *Cd*, m. 278° (decompn.)(H_2O C_5H_5N).

M. Hudlicky

OKAC, A.

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

Effect of centrally and terminally placed [illegible] the Dumas nitrogen determination. A. Okáč and C. Plechatý (Přírodovědecká fak., Brno, Czech.). [illegible] [illegible] (1953).—The position of the Cu spiral [illegible] combustion tubes in detg. N by the Dumas method [illegible] fect on the results. Low values for N in [illegible] NaSCSNEt$_2$ are caused by Na which destroys [illegible] Ag spiral has no effect on the results of the [illegible] compds. [illegible]

OKAC, Arnost; SPONAR, Jaromir

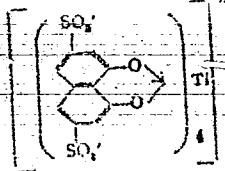
Photometric determination of thiosemicarbozones in pharmaceutical preparations. Cesk. farm. 3 no.8:275-277 Oct 54.

1. Z ustavu analiticke chemie prirodovedecke fakulty v Brne
(THIOSEMICARBOZONES, determination
photometric, in drugs)
(DRUGS
determ. of thiosemicabazone in, photometry)

OKÁČ, A.

CZECH

/534. Analytical evaluation of chromotropic acid. A. Okáč and L. Sommer (*Coll. Czech. Chem. Commun.*, 1954, 19 [3], 477–485).—The reaction of chromotropic acid (1:8-dihydroxynaphthalene-3:6-disulphonic acid) with Ti^{IV} in dil. and in conc. H_2SO_4 soln. is studied by spectrophotometric and potentiometric methods. In a soln. of pH 3·5 to 5, Ti^{IV} reacts with the reagent to form a stable dissociated complex having λ max. at 470 mμ. The Job continuous-variation curves indicate that the compound has the formula—

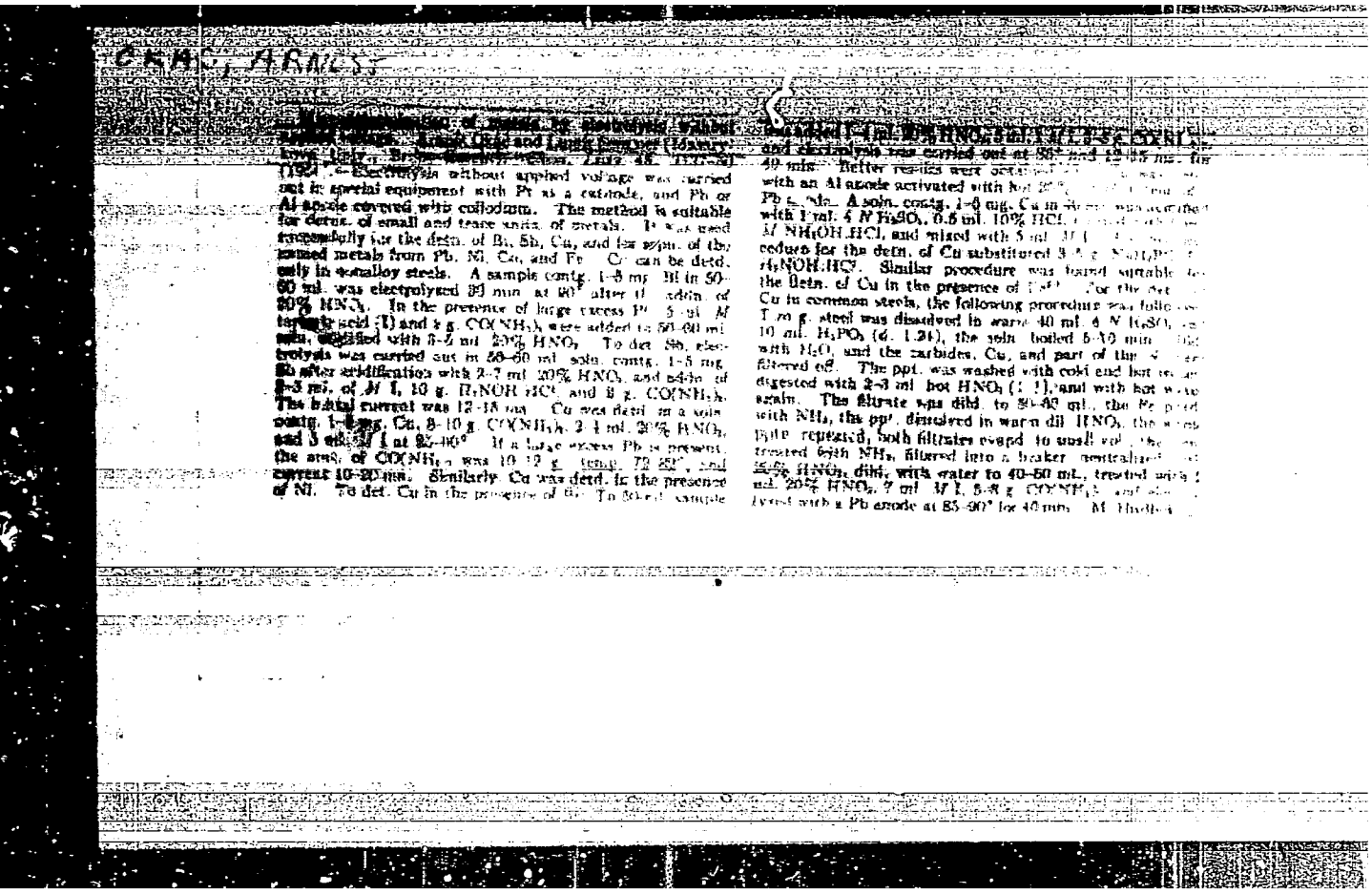


In acetate buffer soln. of pH 5 to 7 and in citrate soln. of pH 2·1 to 2·4, an orange-yellow complex compound is formed; in citrate soln., the ratio of Ti^{IV} to reagent is 1 to 2. The red-violet colour produced when Ti^{IV} reacts with chromotropic acid in conc. H_2SO_4 is due to the formation of an oxidation product; a product with a similar absorption curve is obtained by the reaction of chromotropic acid with $K_2Cr_2O_7$ in 2 N H_2SO_4 or with Ce^{IV} and UO_2^{++} in an ammoniacal medium. The [illegible] colour corresponds to the uptake of 4 atoms of oxygen per molecule of chromotropic acid; vigorous oxidation yields yellow products, the formation of which is accompanied by the consumption of 4 to 8 atoms of oxygen. With Hg^{++}, chromotropic acid forms a non-homogeneous yellow ppt.; in analysis, the effect of Hg^{++} can be eliminated by converting it to undissociated compounds. The

following method for the determination of Ti utilizes the complex formed in dilute test soln. *Procedure.* To 30 ml of the test soln. containing 0·1 to 15 μg of Ti per ml, add H_2SO_4 to give the acidity 0·1 *N*, and 2 to 5 ml of a freshly prepared 5 per cent. soln. of the disodium salt of chromotropic acid; add 20 to 25 ml of 3*N* Na acetate soln. to make the pH 3·5 to 4 and dilute to 100 ml with distilled water. After 20 min., measure the extinction at 470 mμ. The reagent should be present in ten-fold excess in both the test solution and in the standard. Chromate and ferric ions interfere. Fe is reduced by treatment of the soln. with hydroxylamine hydrochloride at 70°. If present in high concn. HNO_3 must be removed by evaporating the sample with conc. H_2SO_4. The complex is also sensitive to salts, and its colour is dependent on the ionic strength of the soln. [This is a translation into Russian of a paper previously published in *Chem. Listy*, 1953, 47, 620.] E. HAYES

Analytical evaluation of kojic acid. Arnošt Okáč, Lumír Šmolka, and Zdeněk Hrdý (Masarykova univ., Brno, Czech.). *Chem. Listy* 48, 829–38(1954).—Kojic acid (I) shows in neutral or slightly acidic medium characteristic color tests with Fe^{3+} (red or red-orange), UO_2 (orange-red or orange-yellow), and Cu^{++} (light green ppt.). The compn. of the complexes of I with Fe and UO_2 was followed photometrically, and their formal dissocn. consts. were detd.

The Cu salt was isolated by pptg. a soln. of 3 g. $Cu(OAc)_2$ in 50 ml. H_2O with 1% soln. of I, and by adding to the mixt. 1–5 ml. NaOAc. M. Hudlický



OKAC, A.

A. Electrophoretic separation of sulphonamides

GH

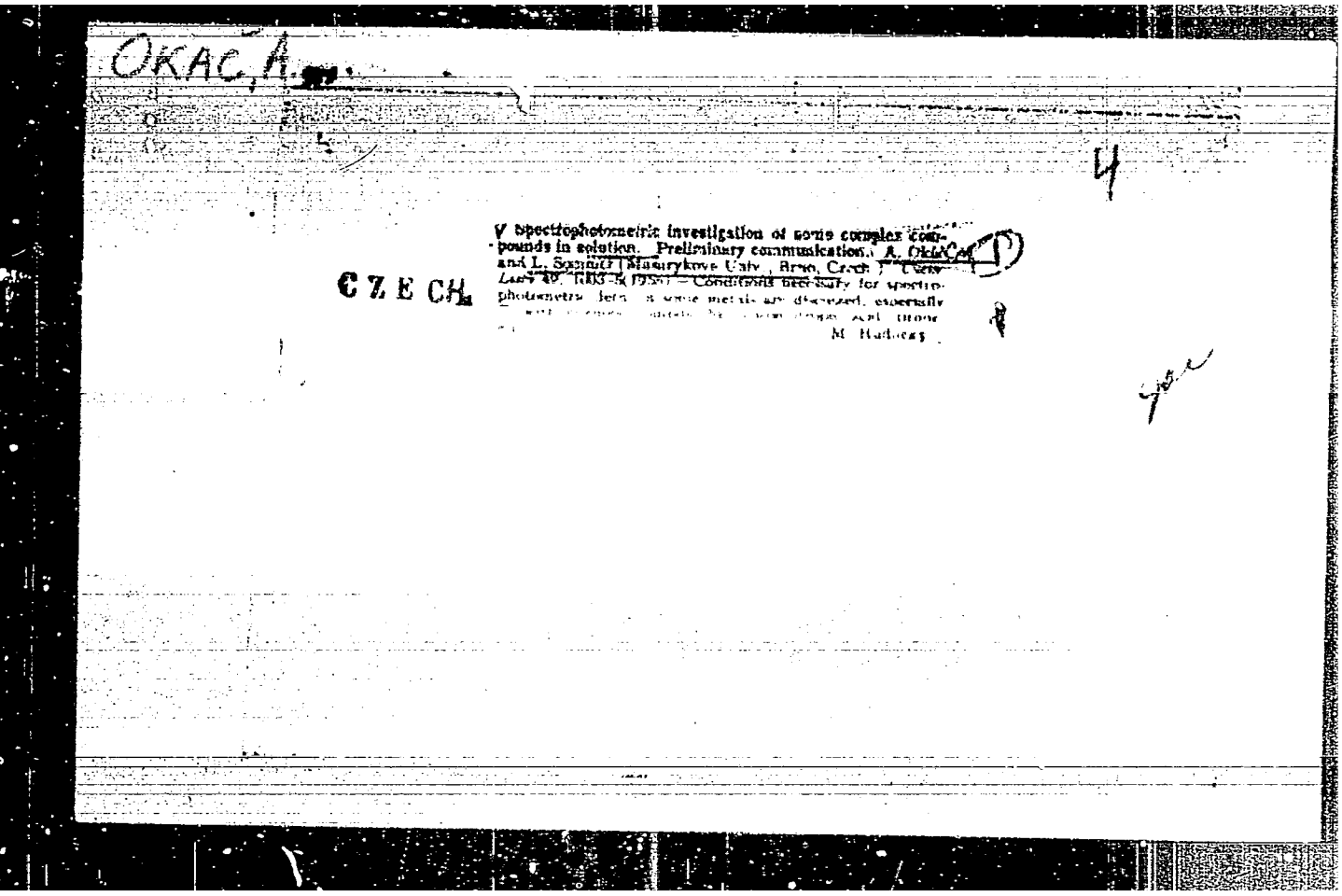
[redacted] 1956 [redacted] The electrophoresis [redacted] the largest mobility differences were found in alkali salts, a borate buffer of pH 8.5 being particularly useful for the separation. V. O. Jaenicke

OKÁC, A.; SOMMER, L.

Microdetermination of metals by internal electrolysis. In Russian. p. 95

Vol. 20, no. 1, Feb. 1955
SBORNIK CHEKHOSLOVATSKIKH KHIMICHESKIKH RABOT
Praha, Czechoslovakia

So: Eastern European Accession Vol. 5, No. 4, 1956



OKAC, A.

4

V Spectrophotometric investigation of some complex compounds in solution. Preliminary communication. A. Okáč and L. Sommer (Masarykova Univ., Brno, Czech.). Chem. Listy 49, 1883–5 (1955). — Conditions necessary for spectrophotometric [illegible] some metals are discussed, especially [illegible] M. Hudlický

CZECH

OKAC, A.

Czechoslovakia

Discussion meeting on the New Methods of Analytical Chemistry of the Chemical Society in the German Democratic Republic on the 1st and 2nd of July 1955.

"Photometrische Bewertungen der analytisch verwendeten Komplexverbindungen"

SO: Chemische Technik, Feb 1956, Unclassified.

OKAC, ARNOST

Czechoslovakia/Analytical Chemistry. General Topics. G-1

Abs Jour : Referat. Zhurnal Khimiya, No 6, 1957, 19514.

Author : Arnost Okac.
Inst : -
Title : Qualitative Analysis. Textbook for Colleges.

Orig Pub : Praha, CXAV, 1956, 509 / 1 / s., il., 44.30 Kcs.

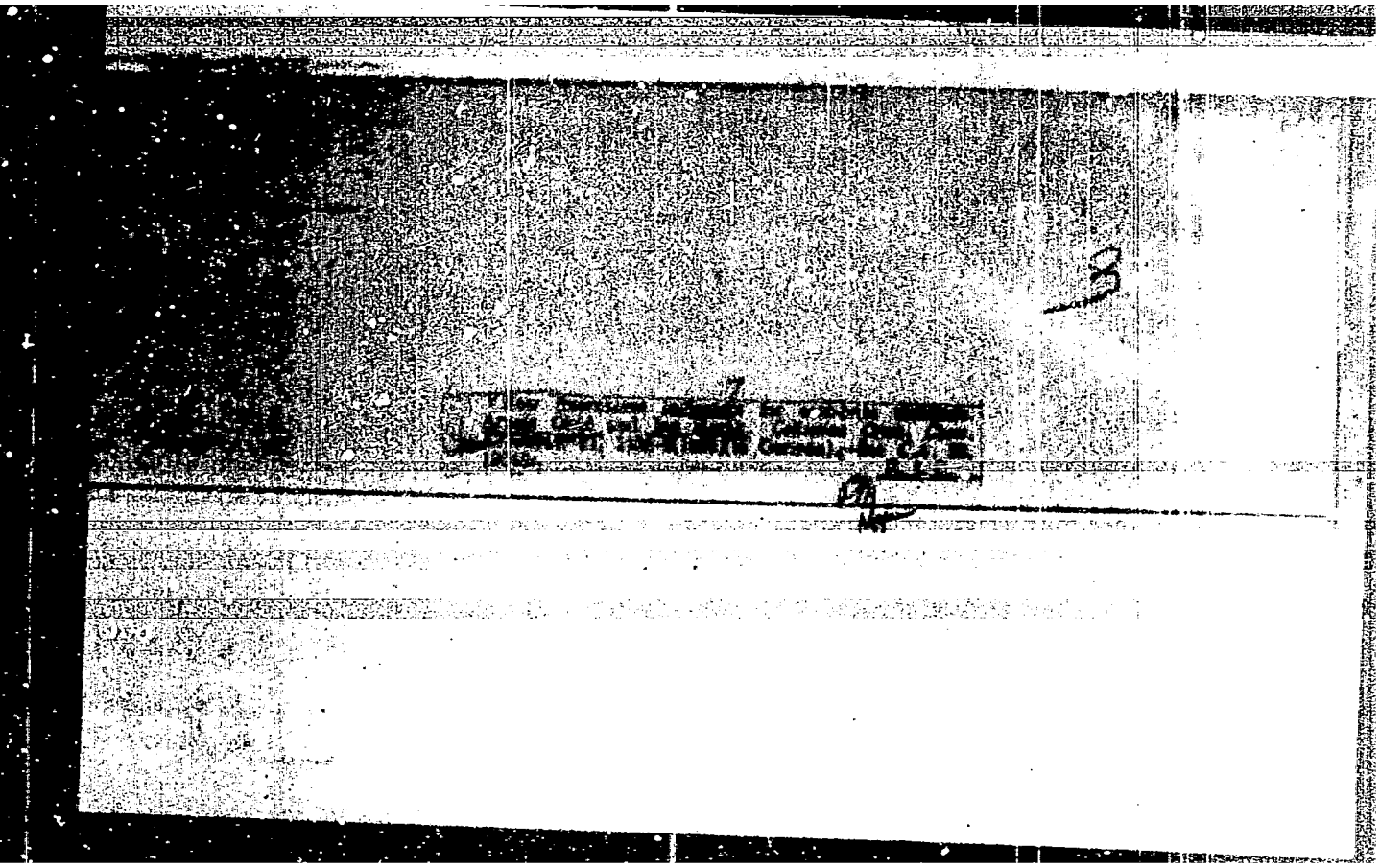
Abstract : No abstract.

Card 1/1 -26-

204

SPECTROPHOTOMETRIC INVESTIGATION OF SOME ANALYTICAL IMPORTANT COMPLEXES OF Ti IN SOLUTION. Arnošt Okáč and Lumír Sommer (Institut für analytische Chemie der Universität, Brno (Tschechoslowakei)). Anal. Chim. Acta 15, 345-360(1956) Oct. (In German)

The stepwise formation of complexes was demonstrated spectrophotometrically in solutions containing colored complexes of titanium with chromotropic acid, pyrocatechol, tiron, sulfosalicylic acid, gallic acid and pyrogallolcarboxylic acid in acid medium. In dilute acid solutions of complexes a simple complex TiR is usually formed, in weakly acid buffer solutions a relatively stable complex TiR_2 is formed, which, however, up till now has not been demonstrated in the case of sulfosalicylic and pyrogallolcarboxylic acid. The stability of the chelates formed is directly related to their absorption spectra and the hydrogen bond stability between the functional groups of the ligand. Formation of a simple stable complex is a necessary condition for the development of an exact photometric method. From this point of view some methods for determination of titanium have been discussed. (auth)



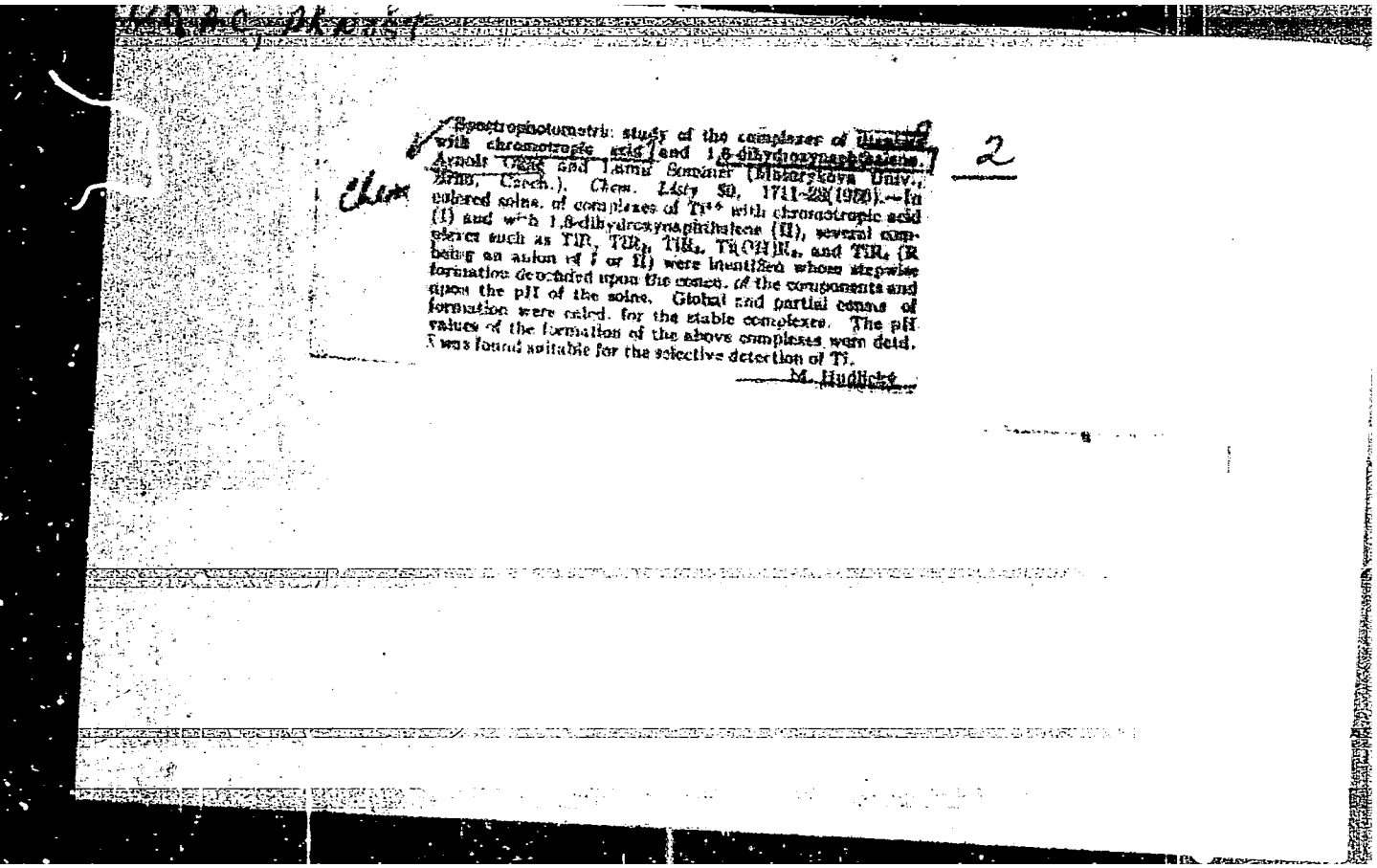
New [illegible] indicators for acid-base titrations. Arnošt Okáč and Jan Horák (Masaryk Univ., Brno). [illegible] Listy [illegible] (19[illegible]). 4-[illegible] (I), [illegible] 3,7-Dihydroxyxanthone (II), and 6-hydroxy-9-[illegible]fluorone (III) were successfully used in the detn. of strong and medium strong acids and alkalies at room and elevated temps. Max. fluorescence was observed at concns. 1.6 mg. I, 0.6 mg. II, and 1.4 mg. III in 100 ml. The changes of fluorescence were within the pH ranges 6.4-8.2 I, 6.0-6.4 II, and 6.4-7.3 III. The relative error was 0.4-1% in colorless and 0.4-3% in colored solns.

—L. J. Urbánek

7 6

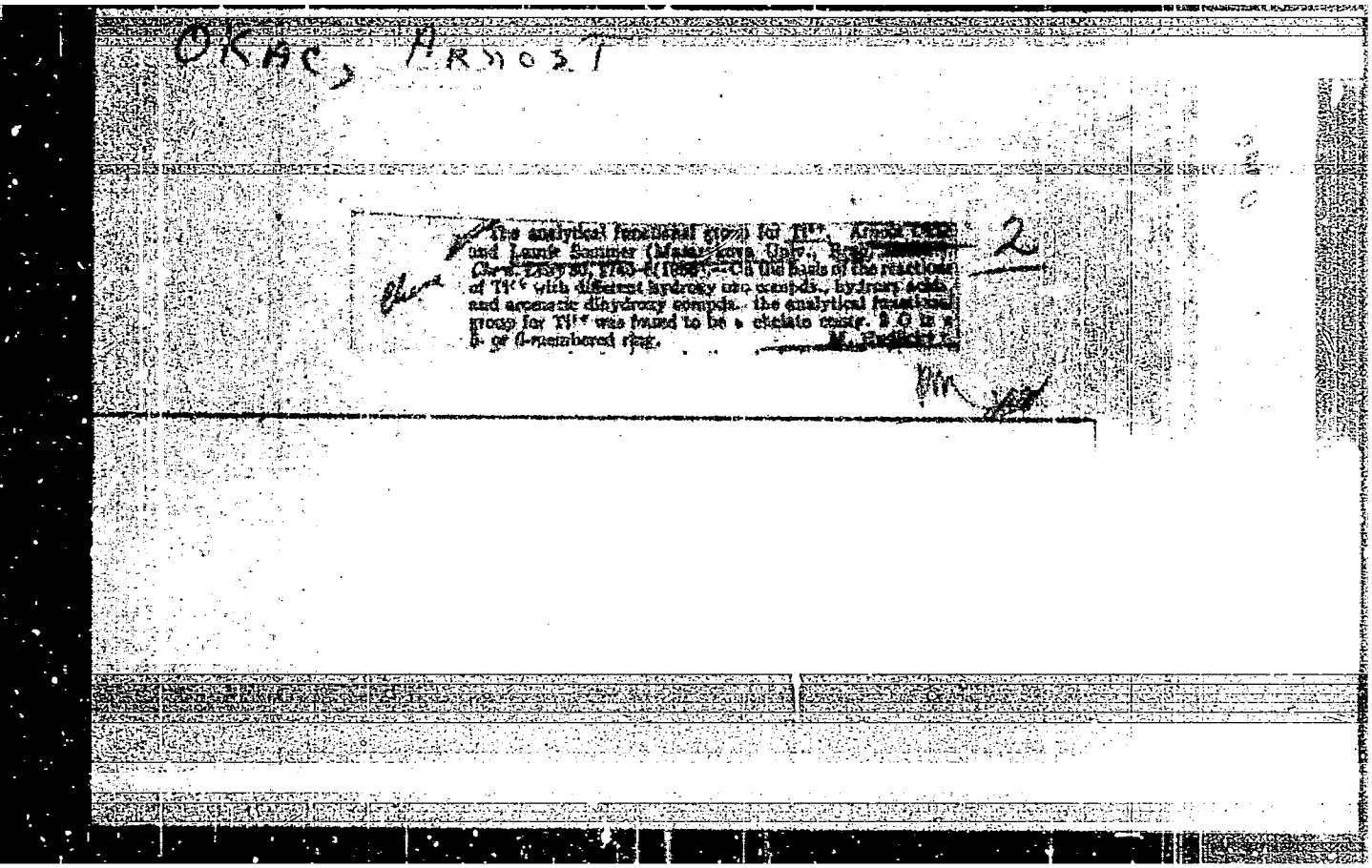
1841. The reaction of phthalimide oxime with bivalent nickel salts. A. Okáč and J. Hurta (Anal. Chem. Laboratory, Univ., Brno, Czechoslovakia). *Chem. Listy*, 1956, 50 (9), 1496–1497.—In a soln. of pH 7·3, phthalimide oxime (I) reacts with bivalent nickel ammonium salts, yielding a yellow, crystalline compound ($C_8H_6O_2N_2Ni$); in low concn. a yellow colloidal soln. is obtained. This reaction can be used for a sensitive detection of Ni^{2+}. *Procedure*—To a neutral soln. of the sample add an ethanolic soln. of I (0·5%) (1 ml) and aq. NH_3 (10%) (one drop). Ions that form hydroxides in slightly alkaline medium must be first pptd. with aq. NH_3 and the reaction must be carried out in the neutralised soln. of the ammonium salts. Interference is caused by Cu^{2+} and Co^{2+}; Cu can be removed with KSCN and sulphite; when Co is present, the reagent must first be added to a neutral soln. of the sample, followed by aq. NH_3.

J. Zýka



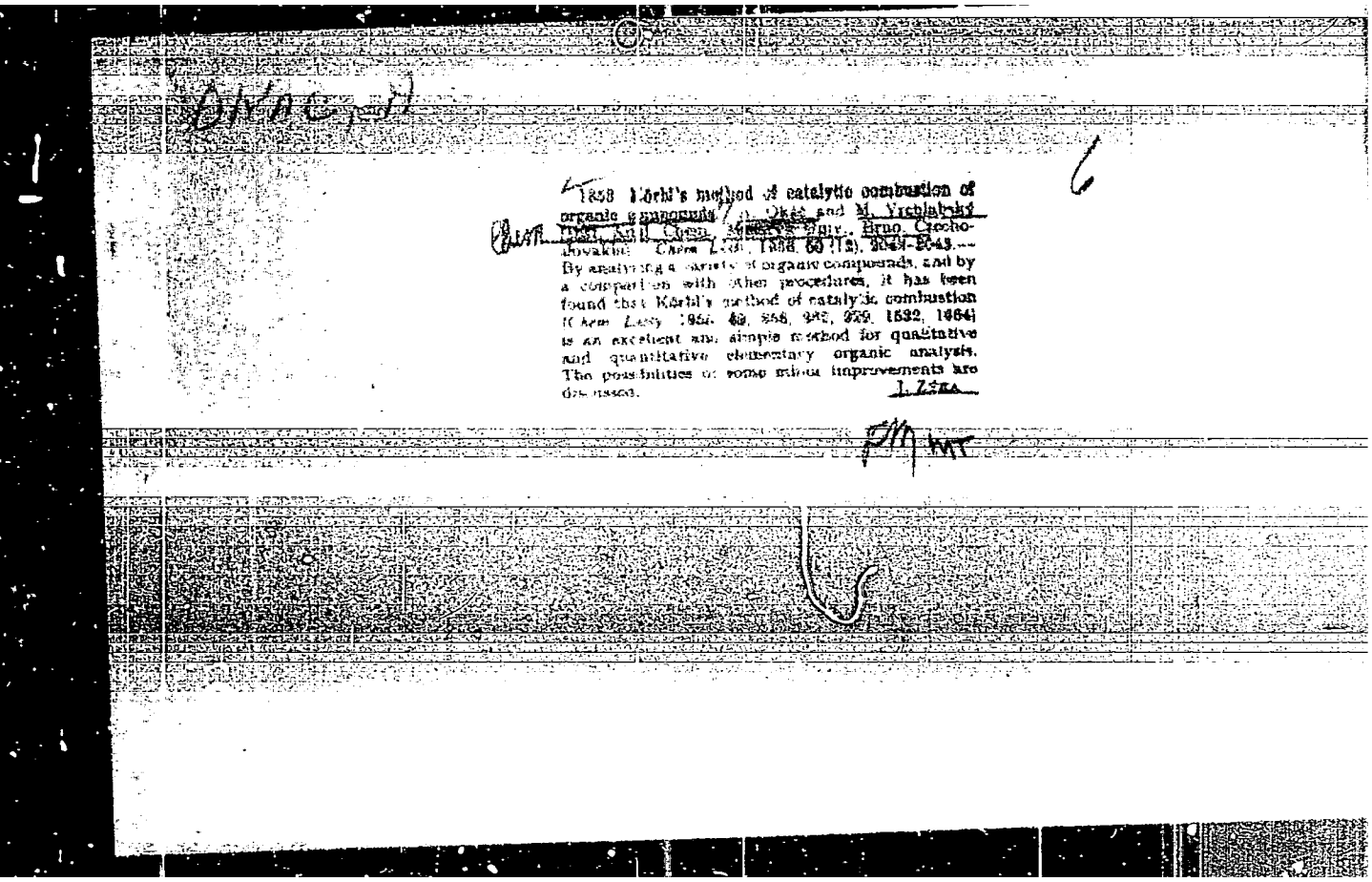
Spectrophotometric study of the complexes of [illegible] with chromotropic acid and 1,8-dihydroxynaphthalene.
Arnošt Uhlíř and Jarmila Sommer (Masarykova Univ., Brno, Czech.). *Chem. Listy* 50, 1711–28(1956).—In colored solns. of complexes of Ti^{4+} with chromotropic acid (I) and with 1,8-dihydroxynaphthalene (II), several complexes such as TIR, TIR_2, TIR_3, TIR_4, $Ti(OH)R_3$, and TIR_4 (R being an anion of I or II) were identified whose stepwise formation depended upon the concn. of the components and upon the pH of the soln. Global and partial consts. of formation were calcd. for the stable complexes. The pH values of the formation of the above complexes were detd. I was found suitable for the selective detection of Ti.

M. Hudlický

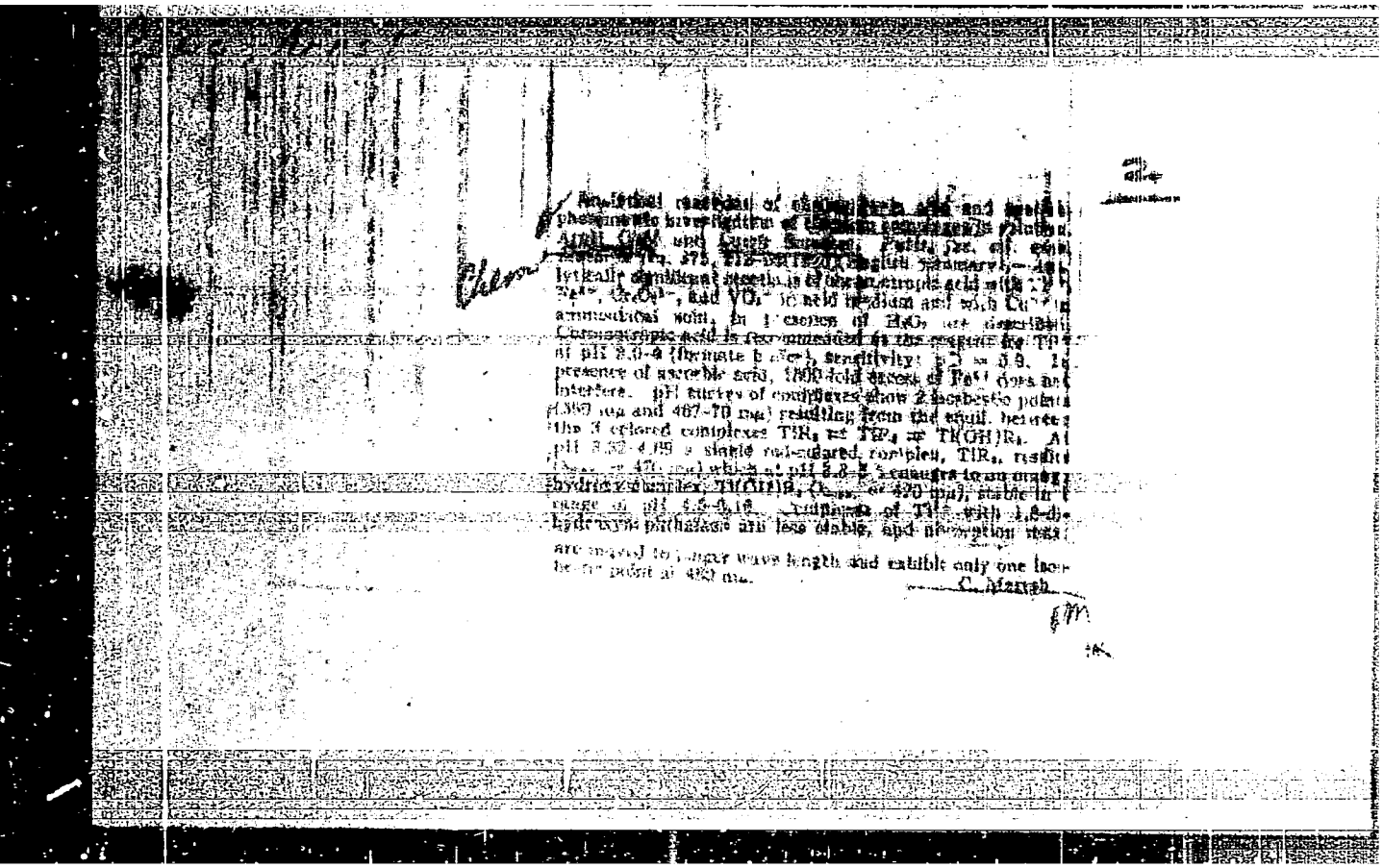


OKAC, ARMOUR

The analytical functional group for Ti^{IV}, Arnold [redacted] and Laurie Summer (Massachusetts Univ., [redacted] Chem. Educ., 37, 1743-4 (1960).—On the basis of the reactions of Ti^{IV} with different hydroxy and carboxylic acids and aromatic dihydroxy compds., the analytical functional group for Ti^{IV} was found to be a chelate ring. 5 O in a 5- or 6-membered ring.



1858 Körbl's method of catalytic combustion of organic compounds. J. Okáč and M. Vrchlabský (Inst. Anal. Chem., Masaryk Univ., Brno, Czechoslovakia). Chem. Listy, 1958, 52 (Ts), 2041-2045.— By analyzing a series of organic compounds, and by a comparison with other procedures, it has been found that Körbl's method of catalytic combustion (Chem. Listy, 1954, 48, 858, 942, 959, 1532, 1664) is an excellent and simple method for qualitative and quantitative elementary organic analysis. The possibilities of some minor improvements are discussed. J. Zýka



OKAC, A. : HORAK, J.

"Reaction of phthalimidoxime with nickel (II) salts. In German."

p. 322 (COLLECTION OF CZECHOSLOVAK CHEMICAL COMMUNICATIONS. SBORNIK CHECKSHOSOLVATSKIKH KHMICHESKIKH RABOT. — Praha, Czechoslovaka.) Vol. 22, No. 1, Feb., 1957

SO: Monthly Index of East European Accession (EEAI) LC, Vol. 7, No. 5, May 1958

OKAC, A. : SOMMER, L.

"Spectrophotometric investigation of complex compounds of titanium with chromotropic acid and 1, 8-dihydroxynapthalene. In German."

p. 433 (COLLECTION OF CZECHOSLOVAK CHEMICAL COMMUNICATIONS. SBORNIK CHECKSHOSOLVATSKIKH KHMICHESKIKH RABOT. -- Rraha, Czechoslovaka.) Vol. 22, No. 2, April 1957

SO: Monthly Index of East European Accession (EEAI) LC, Vol. 7, No. 5, May 1958

OKAC, A. : SOMMER, L.

"Functional-analytic group for titanium. In German."

p. 464 (COLLECTION OF CZECHOSLOVAK CHEMICAL COMMUNICATIONS. SBORNIK CHECKSHCSOLVATSKIKH KHMICHESKIKH RABOT. -- Praha, Czechoslovaka.) Vol. 22, No. 2, April 1957

SO: Monthly Index of East European Accession (EEAI) LC, Vol. 7, No. 5, May 1958

CZECHOSLOVAKIA/Inorganic Chemistry. Complex Compounds. C

Abs Jour: Ref Zhur-Khim., No 24, 1958, 80966.

Author : Okac A., Bartucek M.
Inst :
Title : Certain Silver Cyanide Compounds.

Orig Pub: Spicy vyd. prirodoved. fak. Masarykovy univ., 1958, No 1, 9-18.

Abstract: It is considered by the authors that a precipitate of silver cyanide formed in the Liebig's method (Liebig J., Annal., 1851, 77, 102) has Ag $[Ag(CN)_2]$ (I) formula. From NH_3 solutions containing I, $[Ag(NH_3)_2]$ $[Ag(CN)_2]$ was isolated. From pyridine (Py), $[Ag\,Py_2]$ $[Ag(CN)_2]$ was isolated. Both salts are unstable, they lose easily NH_3 or Py and are transformed into I. Complexes

Card : 1/2

OKAC, A.; Simek, M.

On products of oxidation of nickel dimethylglyoxime. In German. p. 253.

CHEMIA ANALITYCZNA. (Komisja Analityczna Polaskiej Akademii Nauk i Naczelan Organizacja Techniczna) Warszawa, Poland, Vol. 3, no. 3/4 1958

Monthly List of East European Accessions (EEAI) LC, Vol. 8, no. 7, July 1959
Uncl.

Okac, A.

AUTHORS: Okáč, A. and Šimek, M.

TITLE: The Reaction of Nickel Dimethylglyoximate With Oxidizing Agents (O reakci dimethylglyoximátu nikelnatého s oxydačními činidly)

PERIODICAL: Chemické Listy, 1958, Vol. 52 (82), Nr 10, pp 1903 - 1911 (Czechoslovakia)

ABSTRACT: The oxidation of the nickel salt of dimethylglyoxime was investigated by synthesising the same, potentiometrically and photometrically, and it was found that in red solutions the oxidation product has the composition $[Ni^{IV}D_3]^{2-}$. The ratios of 1 Ni:2 DH_2, 1 Ni : 3 DH_2 and 1 Ni : 4 DH_2 were found under various experimental conditions in red solutions. These discrepancies are due to difficulties connected with investigations of the five-component systems (Ni, DH_2, H_2O oxidation agent and H^+), the insolubility of the Chugayev salt $Ni(DH)_2$, the small ionisation constant of dimethylglyoxime, and is also caused by difficulties during the isolation of the oxidation product under conditions which do not correspond to conditions during a colorimetric reaction. While measuring the absorption of oxygen by alkaline solutions of dimethylglyoxime and its nickel salts, it was found that nickel influences substantially the oxidation, and that the oxidation is influenced by an alkaline medium. A uniform product is formed by the action of oxidation solutions; this is a simple reaction. Oxygen causes a more complex reaction. The absorption curves of dimethylglyoxime show a constant maximum at 470 mμ during oxidation with iodine, bromine or oxygen in an alkaline or ammoniacal medium (Fig.1). The same applies to benzyldioxime in an alkaline medium; in ammoniacal medium, however, the maximum is shifted towards longer wavelengths. This indicates that in an alkaline medium a uniform coloured product is formed when using various oxidation agents. Photometric titrations confirmed the ratio 1Ni : 3DH_2 which were determined by Job (Fig.4). Modifications of this method were used for the determination of the ratio of nickel and dimethylglyoxime and the oxidation equivalent at a constant excess of the other components. Photometric results indicate that the red complex is formed in the solution at the ratio of 1Ni : 3DH_2 : 8Ox

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Fig.5 gives Jobs' curves of equimolar solutions and Fig.6 a comparison of the absorption of oxygen in alkaline solutions of (a) dimethylglyoxime and (b) nickel dimethylglyoxime. The oxidation equivalent equals $\frac{1}{2}O_2$ to 1 mol of DH_2(a) and to 1 atom of Ni(b). More complex conditions were observed during the oxidation of alkaline solutions of $Ni(DH)_2$ with oxygen. In a medium of 1.5N to 2N - KOH equilibrium is attained only slowly and the solutions show maximum extinction only after several days. Dimethylglyoxime is slowly oxidised in an alkaline medium (Fig.6A). The alkaline solutions of nickel salts of dimethylglyoxime absorb oxygen much more readily than dimethylglyoxime itself (Fig.6b). In 2N-KOH 1 equivalent of oxygen is absorbed in dimethylglyoximate after fifty days, and the absorption process is linear; the nickel salt absorbs 18 equivalents of oxygen during this time, and the absorption process is not linear. Fig.8 gives curves of further photometric titrations of Ni^{2+} solutions for (a) DH_2 (b) oxidised with oxygen in a 1.5N-KOH medium and Fig.9 the time dependence of extinction of solutions oxidised with oxygen in a 1.5N-KOH solution on the ratio of DH_2:Ni. It is concluded that the oxidation of alkaline solutions can be formulated as a simple oxidation

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Card 3/5

CZ/8-33(62)-10-10/33

The Reaction of Nickel Dimethylglyoximate With Oxidizing Agents

of alkyl nickel salts to complex tetravalent nickel. In alkaline solution in the presence of dimethylglyoxime, yellow solutions can contain, besides the basic salts, a number of complexes NiD, NiD_2^{2-}, NiD_3^{4-} etc., some of which are oxidized directly to $[NiD_3]^{2-}$. No great structural changes are assumed during the oxidation itself. It is possible that the shifting of the equilibrium state in the complex during the presence of excess dimethylglyoxime causes an oxidation of the complex $[NiD_3]^{4-}$ according to the single equation:

$$[Ni^{II}D_3]^{4-} - 2e \rightleftarrows [Ni^{IV}D_3]^{2-}$$

yellow solutions red solutions

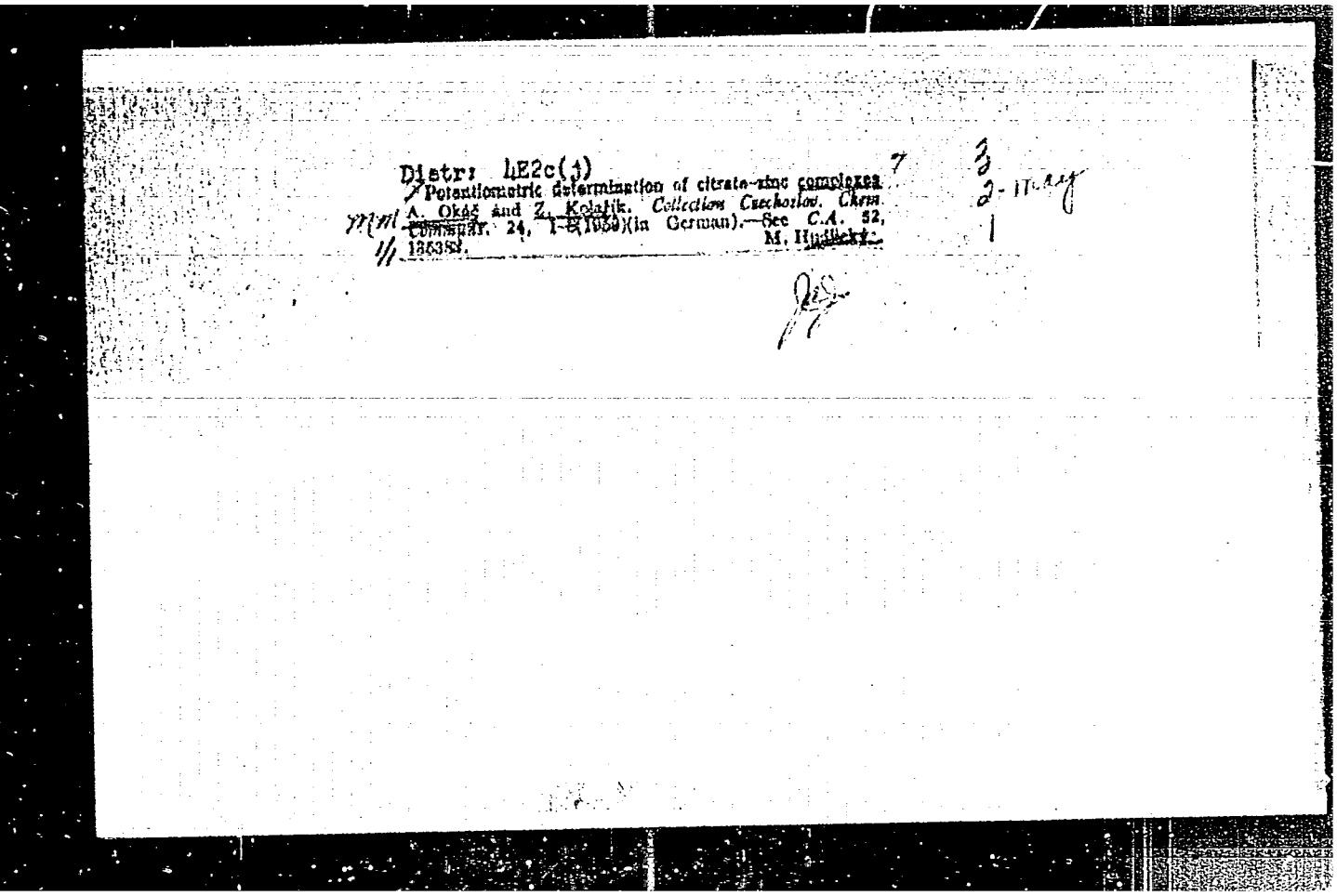
Card 4/5

There are 8 Figures and 15 References: 4 Czech, 4 Soviet, 1 French, 2 German and 2 English.

ASSOCIATION: Katedra analytické chemie, Přírodovědecká fakulta, Masarykova universita, Brno (Chair of Analytical Chemistry, Natural History Department, Masaryk University, Brno)

Reduction of nickel(II) dimethylglyoximate. Arnošt Okáč and Miroslav Šimek (Masarykova Univ., Brno, Czech.). *Chem. listy* 52, 2235-41(1958).—Reduction of the red solns. of the anion $[Ni^{II}D_2]^{--}$ was studied potentiometrically and photometrically with regard to the reaction used for the detn. of small amts. of Ni. Reduction with SnO_2^{--}, NH_2NH_2, NH_2OH, or Co^{++} salts gives yelw/w solns. according to the reversible reaction: red $[NiD_2]^{--} + 2e \rightleftarrows$ yellow $[Ni^{I}D_2]^{---}$. Both $[NiD_2]^{--}$ and $[NiD_2]^{---}$ are stable solely in strongly alk. medium; $[NiD_2]^{---}$ is stable only in the presence of excess of the reducing agent or in an inert atm. Dilu. or neutralization of the alk. solns. brings about hydrolysis: $[NiD_2]^{---} + 3H_2O \rightleftarrows Ni(OH)_2 + DH^- + 3OH^-$ and $[NiD_2]^{--} + 3H_2O + 2e \rightleftarrows Ni(OH)_2 + DH^- + 3OH^-$. Oxidation of $[NiD_2]^{---}$ with $[Fe(CN)_6]^{---}$ or O in alk. medium gives red solns. used in the colorimetric detn. of Ni: $Ni(OH)_2 + 2OH^- \rightleftarrows [NiD_2]^{--} + 2H_2O$; $[NiD_2]^{--} + D^{--} \rightleftarrows [NiD_2]^{---}$; $[NiD_2]^{---} \rightleftarrows [NiD_2]^{--} + 2e$. The yellow solns. of the basic Ni salt obtained from very strongly alk. solns. according to the equation $2Ni(DH)_2 + 6OH^- \rightleftarrows [DNi(OH)_2NiD]^{--} + 2D^{--} + 4H_2O$ require an addnl. 2 mols. D^{--} to give the oxidizable complex $[NiD_2]^{---}$ according to the equation: $[DNi(OH)_2NiD]^{--} + 4D^{--} \rightleftarrows 2[NiD_2]^{---} + 2OH^-$. L. J. U.

Distr: 4E2c(j)



Distr: 4E2c(j)

Potentiometric determination of citrate-zinc complexes. A. Okáč and Z. Kolařík. *Collection Czechoslov. Chem. Communs.* 24, 1-8(1959)(in German).—See *C.A.* 52, 13638i.

M. Hudlický

CHAC, A.; KOLARIK, Z.

"Potentiometric study of complex salts of kojic acid in aqueous solution."
In German. p. 266

COLLECTION OF CZECHOSLOVAK CHEMICAL COMMUNICATIONS, Praha, Czech.,
Vol. 24, No. 1, Jan. 1959.

Monthly List of East European Accessions (EEAI), LC, Vol. 8, No. 6, Sept. 59

Unclassified

OKACH, A. I.

Detection and determination of titanium with chromotropic. Trudy kom. anal. khim. 11:285-298 '60. (MIRA 13:10)

1. Institut obshchey i neorganicheskoy khimii AN USSR, Laboratoriya v Odessee.
(Titanium--Analysis) (Naphthalenedisulfonic acid)

OKAC,A.; HNILICKOVA, M.

Iron thiocyanate complexes in aqueous and nonaqueous solutions.
Coll Cz Chem 25 no.1:68-75 Ja '60. (EEAI 9:12)

1. Institut fur analytische Chemie, Mazaryk-Universitat, Brno.
(Iron thiocyanates) (Solutions) (Water)

BARTUSEK, M.; OKAC, A.

Complex salts of formaldoxime. Coll Cz chem 26 no.1:52-58 Ja '61.
(EEAI 10:9)

1. Institut fur analytische Chemie, J. E. Purkyne-Universitat, Brno.

(Formaldehyde oxime)

BARTUSEK, M.; OKAC, A.

Complex salts of formaldehyde oximes. Part 3: Complex compounds of nickel, manganese and cobalt. Coll Cz Chem 26 no.9:2174-2188 '61.

1. Institut fur analytische Chemie, J. E. Purkyne Universitat, Brno.

(Oximes) (Nickel) (Manganese) (Cobalt)

VRCHLABSKY, M.; OKAC, A.

Use of glyoxal-bis-(2-hydroxyanil) for discovery and complexometric determination of cadmium. Coll Cz Chem 27 no.2:492-494 F '62.

1. Institut fur analytische Chemie, Purkyne-Univeristat, Brno.

JIN TSIN-JAO; SOMMER, L.; OKAC, A.

Chelates of iron(III) with p-aminosalicyl acid. Coll Cz Chem 27 no.5:1150-1160 My '62.

1. Institut fur analytische Chemie, Purkyne Universitat, Brno.

JIN TSIN-JAO; SOMMER, L.; OKAC, A.

Chelates of iron(III) with 4-methylsalicyl acid. Coll Cz Chem 27 no.5:1161-1170 My '62.

1. Institut fur analytische Chemie, Purkyne Universitat, Brno.

JIN TSIN-JAO; SOMMER, L.; OKAC, A.

Chelates of o-dihydroxybenzoic acids with iron(III). Coll Cz Chem 27 no.5:1171-1190 My '62.

1. Institut fur analytische Chemie, Purkyne Universitat, Brno.

HALA, J.; OKAC, A.

Polarographic examination of complexes of uranium with propionate, formate and monochloracetate. Coll Cz Chem 27 no.7:1697-1701 Jl '62.

1. Institut fur analytische Chemie, Purkyne Universitat, Brno.

OKAC, Arnost

Th 19th National Congress of the Czechoslovak Chemical Society affiliated to the Czechoslovak Academy of Sciences. Vestnik CSAV 71 no.5:517-519 '62.

1. Clen korespondent Ceskoslovenske akademie ved.

HORAK, J.; OKAC, A.

Proof and determination of niobates and tantalates by pyrogallolsulfonic acid. Coll Cz Chem 28 no.10:2563-2576 O '63.

1. Institut fur analytische Chemie, Purkyne-Universitat, Brno.

HORAK,J.; OKAC,A.

Discovery and determination of molybdates and tungstates by pyrogallolsulfonic acid. Coll Cz Chem 29 no.1:188-196 Ja'64

1. Institut fur analytische Chemie, Purkyne-Universitat, Brno.

OKAC, A.

Report on the 19th National Congress of the Czechoslovak Chemical Society in Brno, June 3-6, 1962. Chem listy 57 no.1:99-100 Ja '63.

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Remarks on the draft of inorganic nomenclature.
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"Analytic chemistry of molybdenum" by A.I. Busev. Reviewed by A. Okac. Chem listy 58 no.8:997 Ag '64.

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"Analytical chemistry of molybdenum" by A.I.Busev. Reviewed by A.Okac. Coll Cz Chem 30 no.3:922-923 Mr '65.

1. Member, Advisory Board, "Collection of Czechoslovak Chemical Communications."

NEVORAL, V.; OKAC, A., prof. dr. (Brno, Kotlarska 2)

Determination of lithium and sodium ions in mineral waters. Cesk. farm. 14 no.7:342-346 S '65.

1. Vyzkumny ustav pro fysiatrii, balneologii a klimatologii, Marianske Lazne, Katedra analyticke chemie prirodovedecke fakulty University J.E. Purkyne, Brno.

NEVORAL, V.; OKAC, A.; Research Instituto for Physiatrics, Balneology and Climatology (Vyzkumny Ustav pro Fysiatrii, Balneologii a Klimatologii), Marianske Lazne; Chair of Analytical Chemistry, Faculty of Natural Sciences J.Ev. Purkyne University (Katedra Analyticke Chemie Prirodovedecke Fakulty UJEvP), Brno.

"The Determination of Traces of Vanadium in Mineral Waters."

Prague, Ceskoslovenska Farmacie, Vol 15, No 5, Jun 66, pp 229-231

Abstract [Authors' English summary modified]: The method uses an acidified sample of water which is passed through a column of strongly acid polystyrene cation exchanger; V cations together with other cations are collected on the rosin, and can be selectively eluted with diluted hydrogen peroxide as negatively charged complexes. The eluate is evaporated, and V determined photometrically using xylenol orange. V can be separated from: Na, K, Ca, Mg, Fe, Mn, Cu, Zn, Pb, Cd, Ni, Ag, In, Mo, Cr, Ti, Zr, Th, Nb, and Ta. 1 Figure, 2 Tables, 5 Western, 2 Czech references. (Manuscript received 3 Jan 66).
1/1

L 34438-66 EWP(j) RM

ACC NR: AP6026224 SOURCE CODE: CZ/0008/65/000/012/1468/1472

AUTHOR: Toul, Jan; Okac, Arnost

ORG: Department of Analytical Chemistry, Faculty of Natural Sciences, J. E. Purkyne University, Brno (Katedra analyticke chemie, Prirodovedecka fakulta, Universita J. E. Purkyne)

TITLE: Determination of isomers in dioximes

SOURCE: Chemicke listy, no. 12, 1965, 1468-1472

TOPIC TAGS: chromatographic analysis, isomer

ABSTRACT: A method for the chromatographic determination of the isomers of furyl-dioxime is described. It is possible to determine a 10% content of the gamma isomer in a sample of 50 - 100 micrograms. The method is faster than gravimetric methods. Orig. art. has: 2 figures and 3 tables. [JPRS: 34,669]

SUB CODE: 07 / SUBM DATE: 05Jan65 / ORIG REF: 003 / OTH REF: 001

Card 1/1

Pharmacology and Toxicology

CZECHOSLOVAKIA

VISKA, J.; OKAC, A.; Central State Veterinary Institute (Ustredni Statni Veterinarni Ustav), Ivanovice na Hane; Chair of Analytical Chemistry, Faculty of Natural Sciences, J.Ev. Purkyne University (Katedra Analyticke Chemie Prirodovedecke Fakulty UJEvP), Brno.

"Spectrophotometric Determination of Thiomersal Using 2,6-Dibromoquinonechlorimide."

Prague, Ceskoslovenska Farmacie, Vol 15, No 7, Sep 66, pp 356-359

Abstract [Authors' English summary modified]: Thiomersal and thiosalicylic acid react with a chloroform solution of 2,6-dibromoquinone chlorimide producing a pink compound with an absorption max. at 485-490 nm. The sample is acidified to contain 1.5% HCl and thiomersal extracted by chloroform. A chloroform solution of the reagent is added, and after 30-60 minutes, extinction is measured. Within the range of 0.1 to 1.1 mg/100 ml of chloroform the reaction follows the Lambert-Beer law. The method may also be used in water solution, and the results are reproducible with a 0.5 mg% accuracy. The results change when the sample is stored. 5 Figures, 2 Tables, 6 Western, 1 Japanese, 1/1 1 Chinese reference. (Manuscript received 2 Mar 66).

KAMIŃSKA, Zofia; GAJ, Maria

Acetylcholine in the motor plate in muscular dystrophy. Pol. Tyg. Lek. 15 no.2:121-123 Apr 60

1. Z Kliniki Neurologicznej Akademii Medycznej w Warszawie (Kierownik prof. dr. med. [illegible]) i z Pracowni Patomorfologii Zakładu Patologii Doświadczalnej Polskiej Akademii Nauk (Kierownik Pracowni dos. dr. nat. [illegible]; Kierownik Zakładu prof. dr. med. [illegible]).

OKAL, Marian

Calculation of third derivatives of gravitational potential in determining the gravitational field of bodies with an irregular form. Sbor VST Kosice no. 2:15-20 '63.

1. Chair of Mine Survey and Geophysics, Higher School of Technology, Kosice.

CKAL, M.

Contribution to the solution of a direct gravimetric problem of bodies with irregular shape. Sbor VST Kosice no.1:17-23 '63.

1. Department of Mine Survey and Geophysics, Higher School of Technology, Kosice. Submitted April 10, 1962.

SHOSTAKOVSKIY, M.F.; BELYAYEV, V.I.; OKALDNIKOVA, Z.A.; VASIL'YEVA, L.V.; SEREBRENNIKOVA, E.V.

Polymerization of acrolein under the effect of organomagnesium compounds. Izv. SO AN SSSR no.3 Ser. khim. nauk no.1:88-92 '65. (MIRA 18:8)

1. Irkutskiy institut organicheskoy khimii Sibirskogo otdeleniya AN SSSR.

OMALI, IVAN.

GYUMOICSTERMELES.

Budapest, Hungary. Mezogazdasagi Kiado. (Kerteszeti es Szoleszeti Foiskola tankonyvei) Vol. 2. 1956.

Monthly List of East European Accessions (EEAI) LC, Vol. 8, No. 7, July 1959

Uncl.

OKALYI, I.

Our problems in the field of fruit growing and research in the second Five-Year Plan. p. 19.
(KOZLEMENYEI. Vol. 12, no. 1/4, 1957, Budapest, Hungary)

SO: Monthly List of East European Accessions (EEAL) LC. Vol. 6, no. 12, Dec. 1957. Uncl.

CZECHOSLOVAKIA

OKALI, Ilja, of the Department of Entomology (Entomologicke oddelenie), Slovak National Museum (Slovenske narodne muzeum), Bratislava.

"Find of Macrosteles Viridigriseus (Edwards, 1924) in Slovakia"

Bratislava, Biologia, Vol XVIII, No 4, 63, p 313.

Abstract: Report on the first find of the species in Slovakia in 1960. It was found before in Bohemia and Moravia. One Czech and One French reference.

1/1

CKALINSKI, T.

CKALINSKI, T. For new forms of marketing slaughter animals. p. 21

Vol. 8, no. 10, Oct. 1956
GOSPODARKA MIESNA
POLITICAL SCIENCE
Warszawa, Poland

So: East European Accession Vol. 4, No. 3, March 1957

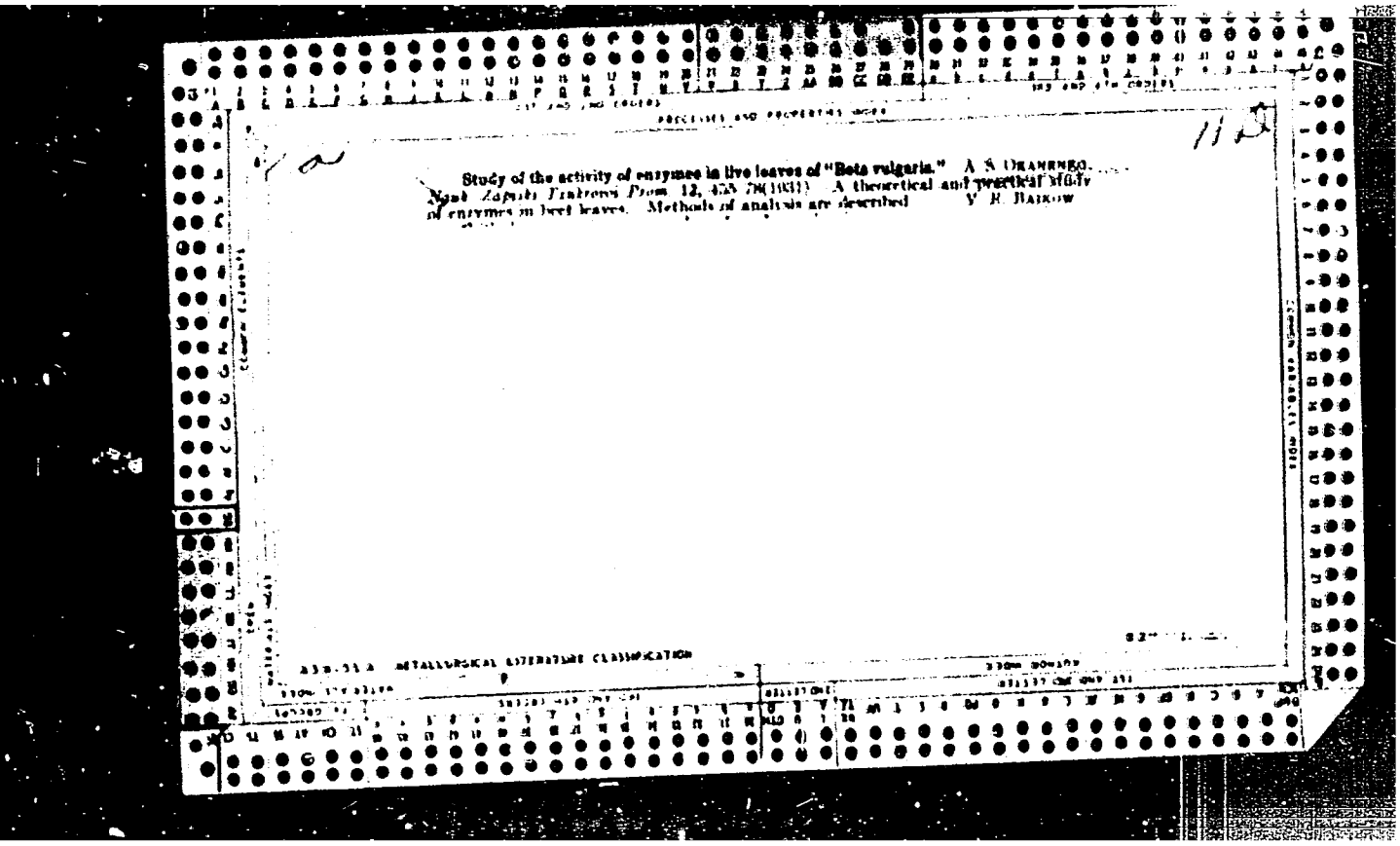
BORISOV, B.I.; IGNATOVA, V.A.; KABANOV, N.P.; TERMAN, V.B.; SHUMILINA, V.I.; NAZAROVA, N.A.; OKAL'NIK, G.N.; POPOV, M.I.

Improving the quality of the surface of sheet glass by electric heating of the air in the chamber under the vertical drawing machinery. Stek. i ker. 19 no.2:11-14 F '62. (MIRA 15:3)
(Glass furnaces)

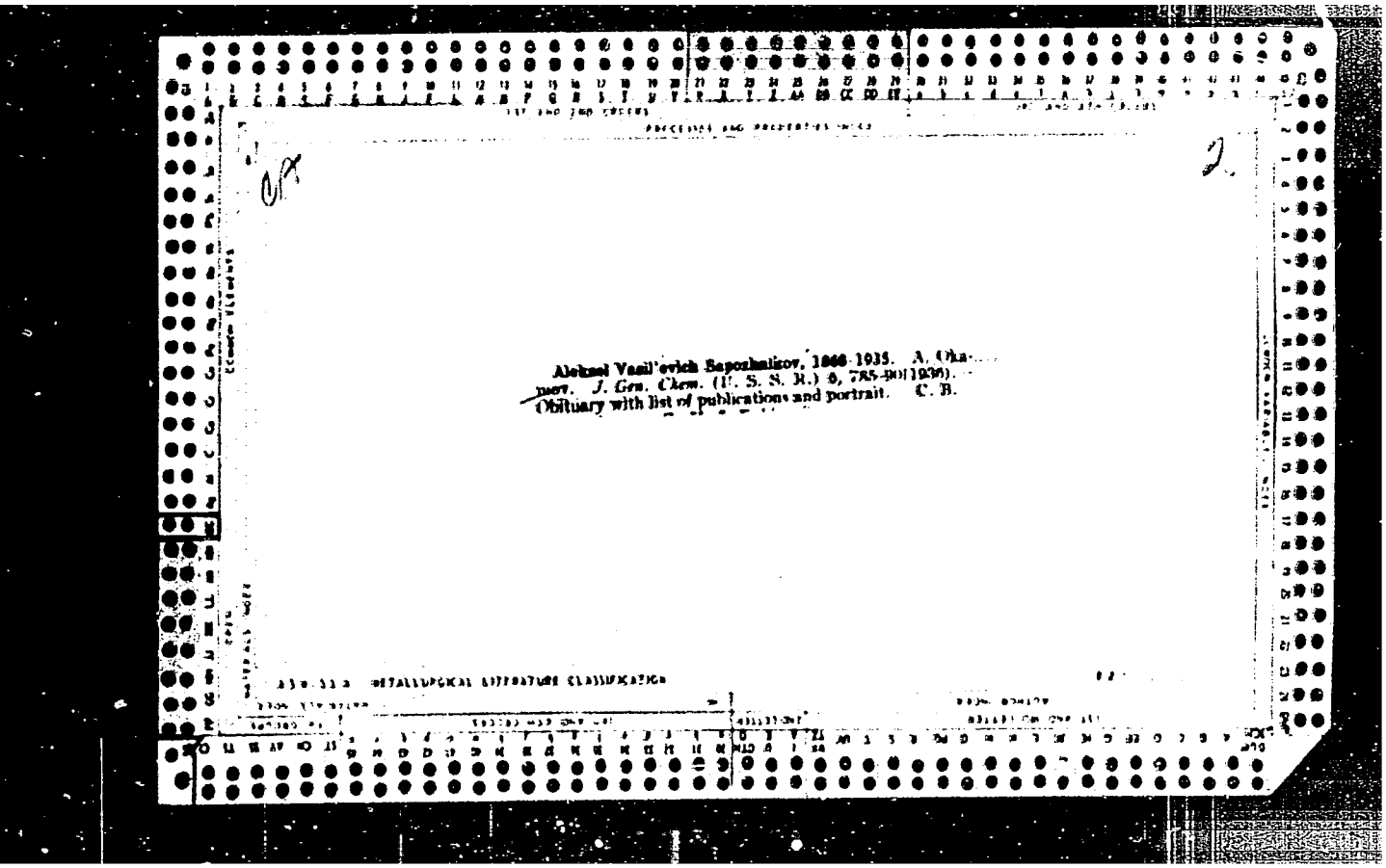
TAKACS, Janos, dr., Fealistorvos; F. ÖKALYI, Erzsebet, dr.

Occurrence and significance of anaerobic sporular germs in the bacteriological meat inspection of compulsorily slaughtered animals. Magy allatorv lap 19 no.5: 133-136 My '64

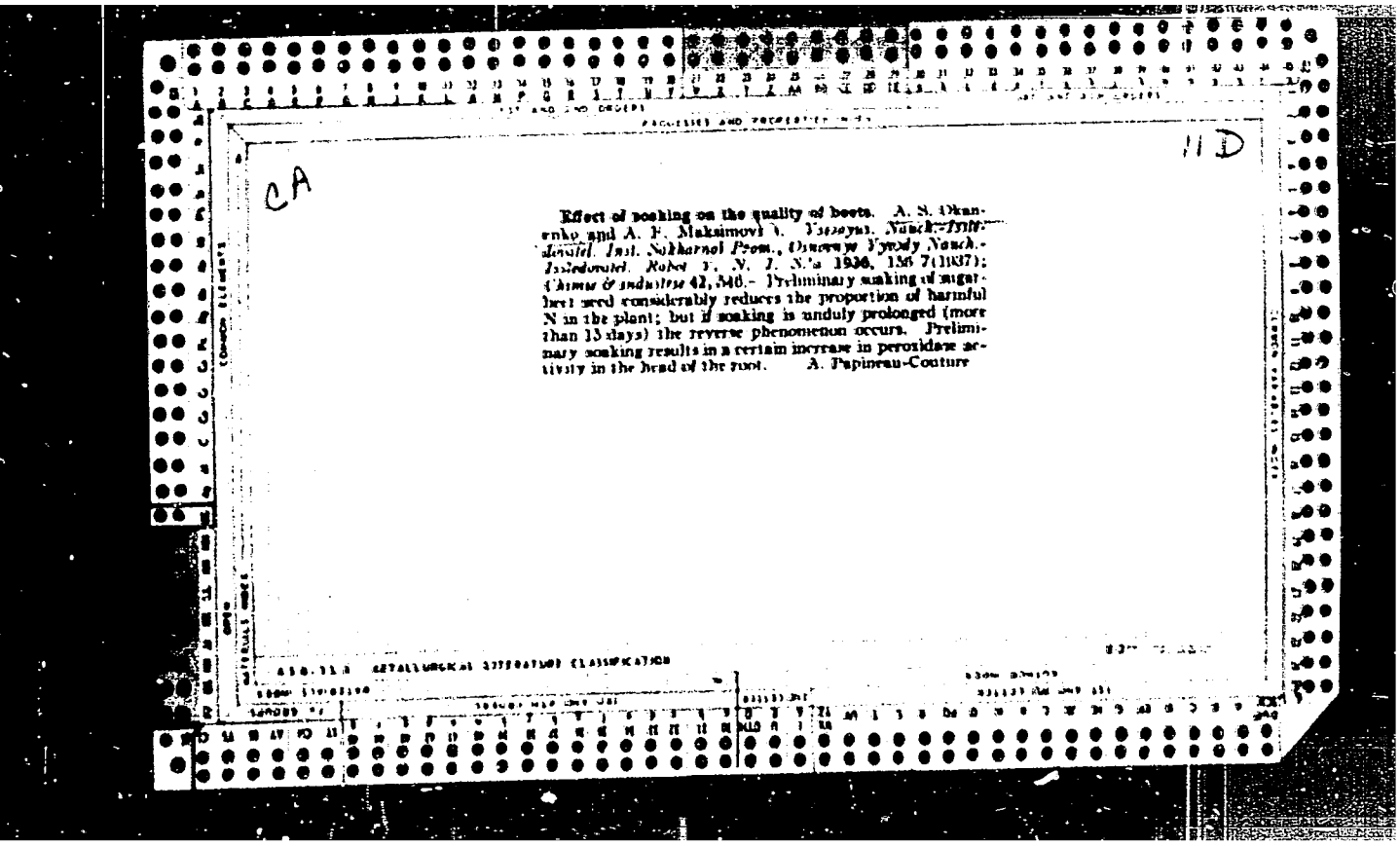
1. Central Laboratory, Central Meat industry Veterinary Control Service (Director: Dr. Gyorgy Mehes), Budapest. 2. Head, Central Laboratory, Central Meat Industry Veterinary Control Service, Budapest (for Takacs).



Study of the activity of enzymes in live leaves of "Beta vulgaris." A. S. Ukhanenko. Nauk. Zapiski Tsukrovoi Prom. 12, 455-78(1933). A theoretical and practical study of enzymes in beet leaves. Methods of analysis are described. V. R. Bailkow



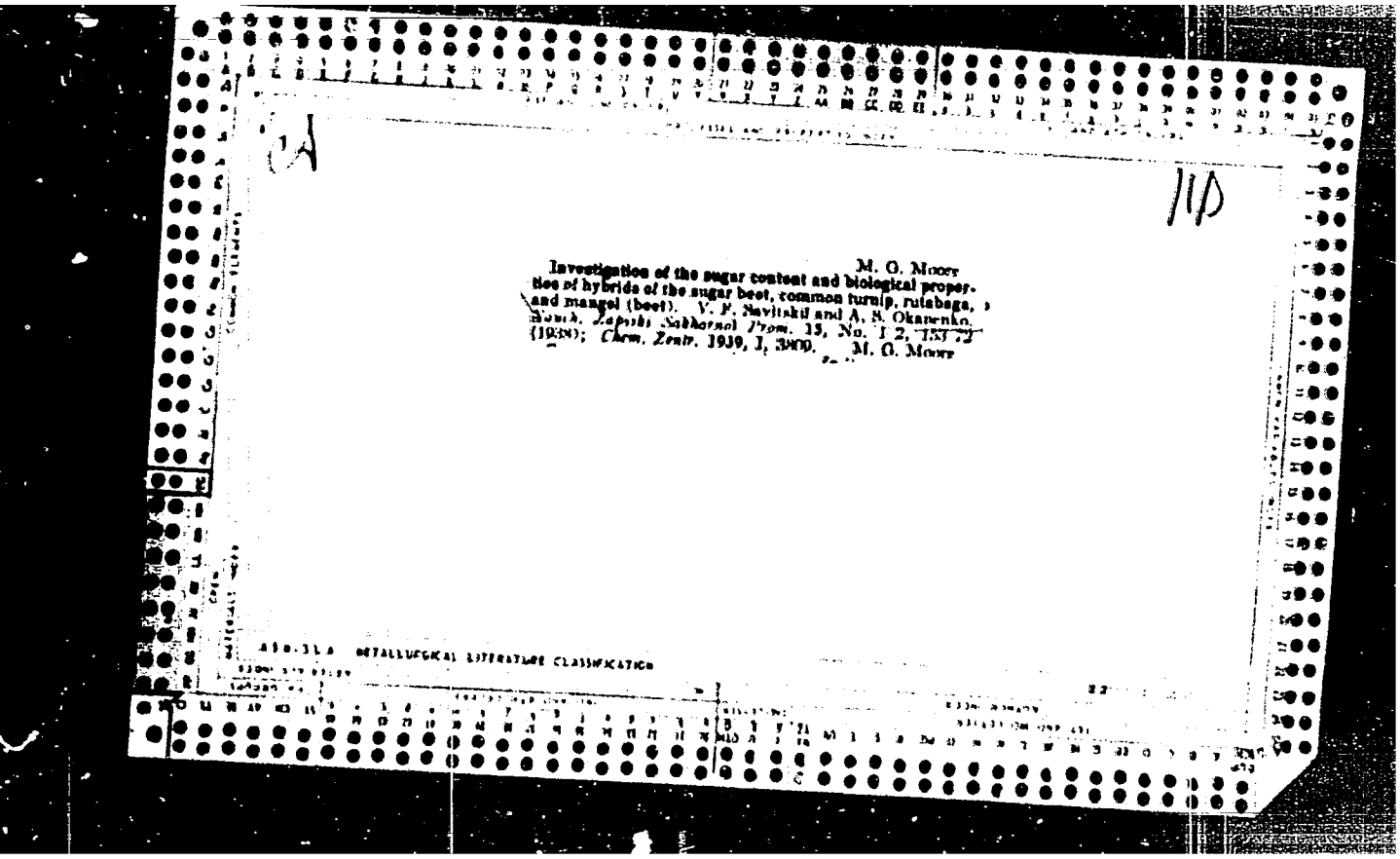
Aleksei Vasil'evich Saposhnikov, 1868-1935. A. Cha...
Zhur. Obshch. Khim. (J. Gen. Chem.) (U. S. S. R.) 6, 785-90 (1936).
Obituary with list of publications and portrait. C. B.



CA

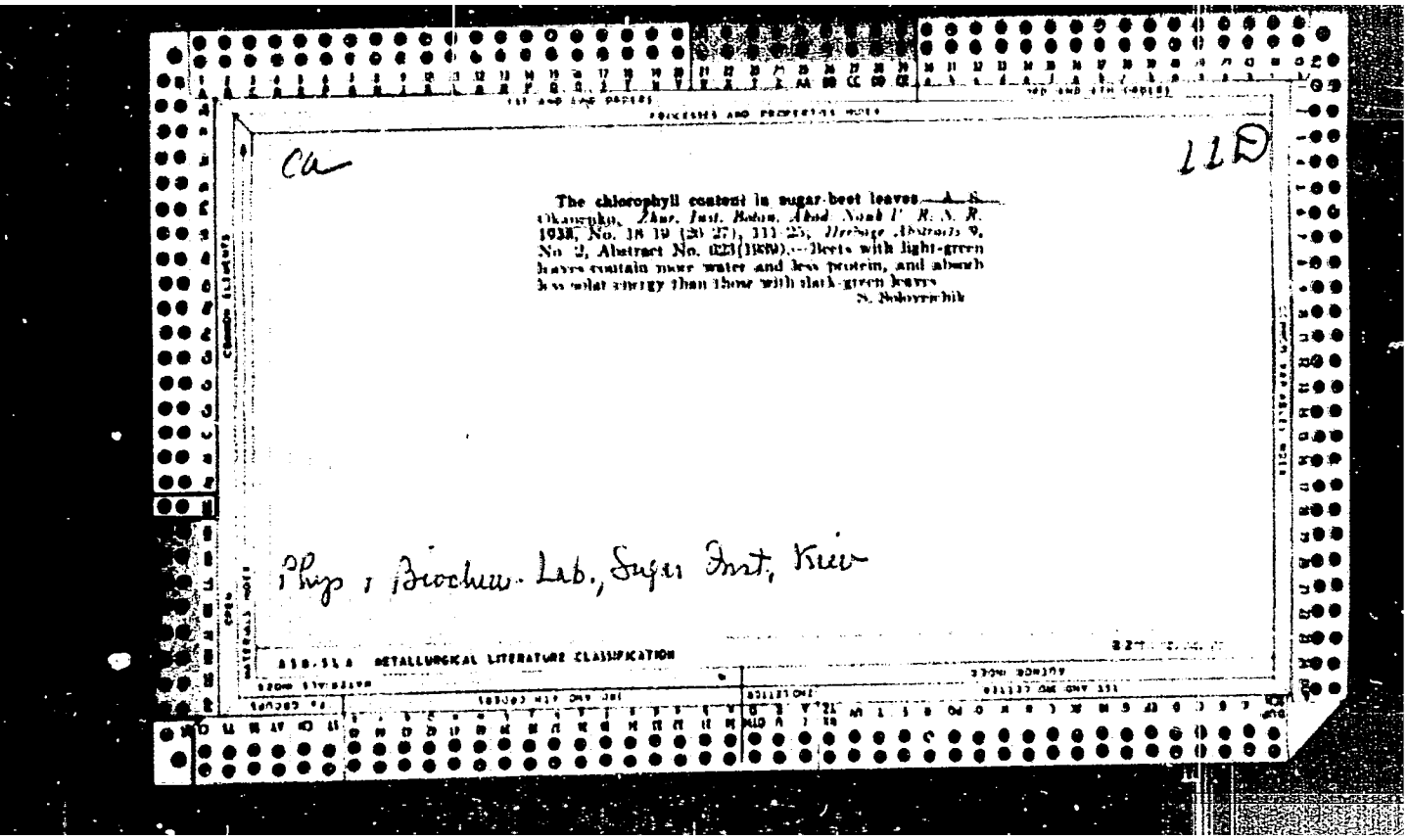
11 D

Effect of soaking on the quality of beets. A. S. Okan-enko and A. F. Maksimovi V. *Trudy Nauch.-Issled. Inst. Sakharnoi Prom., Otdelenie Tyrody Nauch.-Issledovatel. Roboi V. N. I. S.'a* 1936, 156 7(1937); *Chimie & industrie* 42, 346.— Preliminary soaking of sugar-beet seed considerably reduces the proportion of harmful N in the plant; but if soaking is unduly prolonged (more than 15 days) the reverse phenomenon occurs. Preliminary soaking results in a certain increase in peroxidase activity in the head of the root. A. Papineau-Couture



M. O. Moore

Investigation of the sugar content and biological proper-
ties of hybrids of the sugar beet, common turnip, rutabaga,
and mangel (beet). V. F. Navitskii and A. S. Okanenko.
Russ. Zapiski Sakharnoi Prom. 13, No. 1-2, 153-72
(1938); Chem. Zentr. 1939, I, 3909. M. O. Moore



Ca

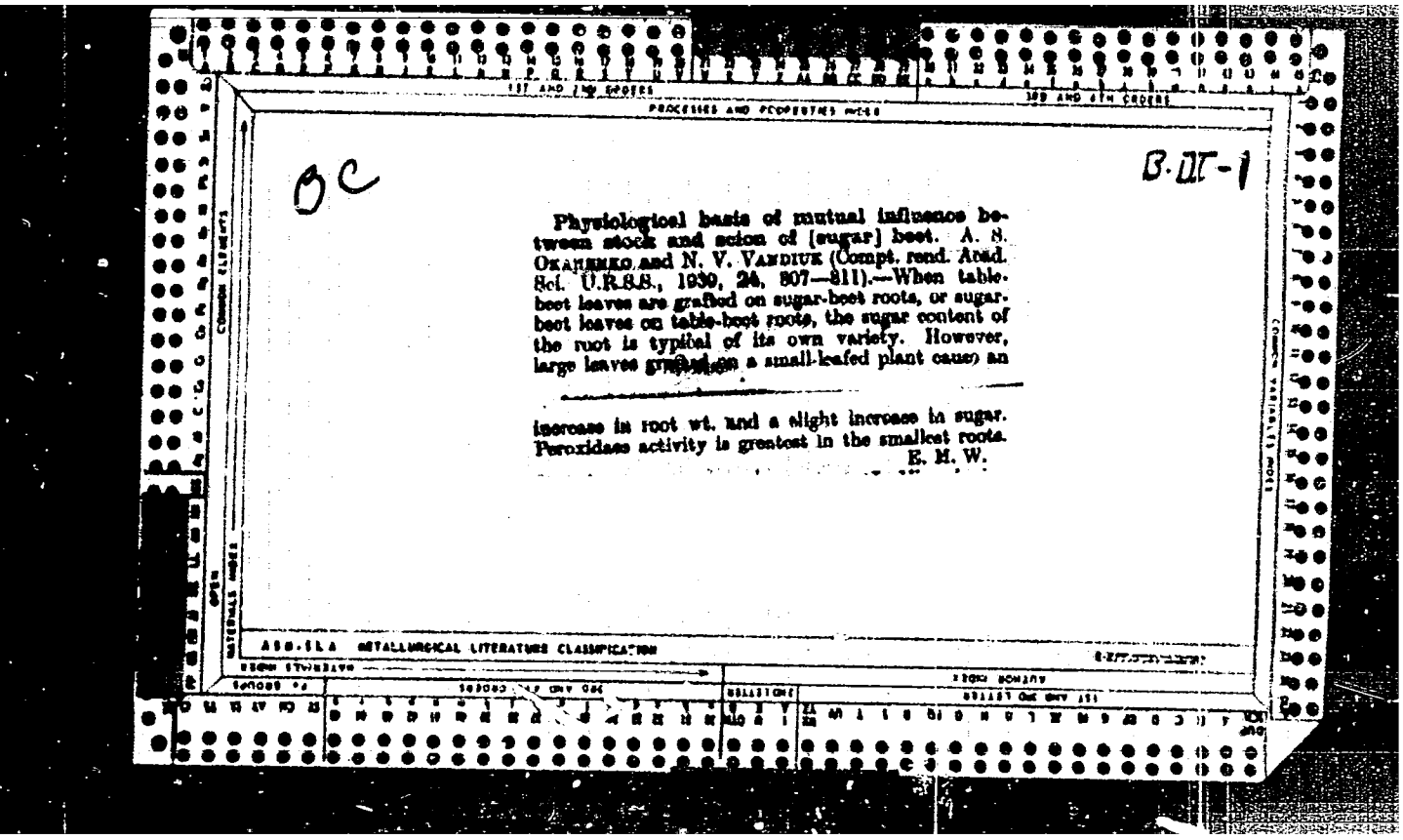
11D

The chlorophyll content in sugar-beet leaves.—A. S. Shkarupkin. *Zhur. Inst. Botan. Akad. Nauk U. R. S. R.* 1938, No. 18/19 (20/21), 111/25; *Referat. Zhurnal* 9, No. 2, Abstract No. 6231(1939).—Beets with light-green leaves contain more water and less protein, and absorb less solar energy than those with dark-green leaves.

N. Dobrovolskii

Phys. Biochem. Lab., Sugar Inst, Kiev

METALLURGICAL LITERATURE CLASSIFICATION



BC

B.OT-1

Physiological basis of mutual influence between stock and scion of [sugar] beet. A. S. Okhremko and N. V. Vandiuk (Compt. rend. Acad. Sci. U.R.S.S., 1939, 24, 807—811).—When table-beet leaves are grafted on sugar-beet roots, or sugar-beet leaves on table-beet roots, the sugar content of the root is typical of its own variety. However, large leaves grafted on a small-leafed plant cause an

increase in root wt. and a slight increase in sugar. Peroxidase activity is greatest in the smallest roots.

E. M. W.

[redacted], A. S.

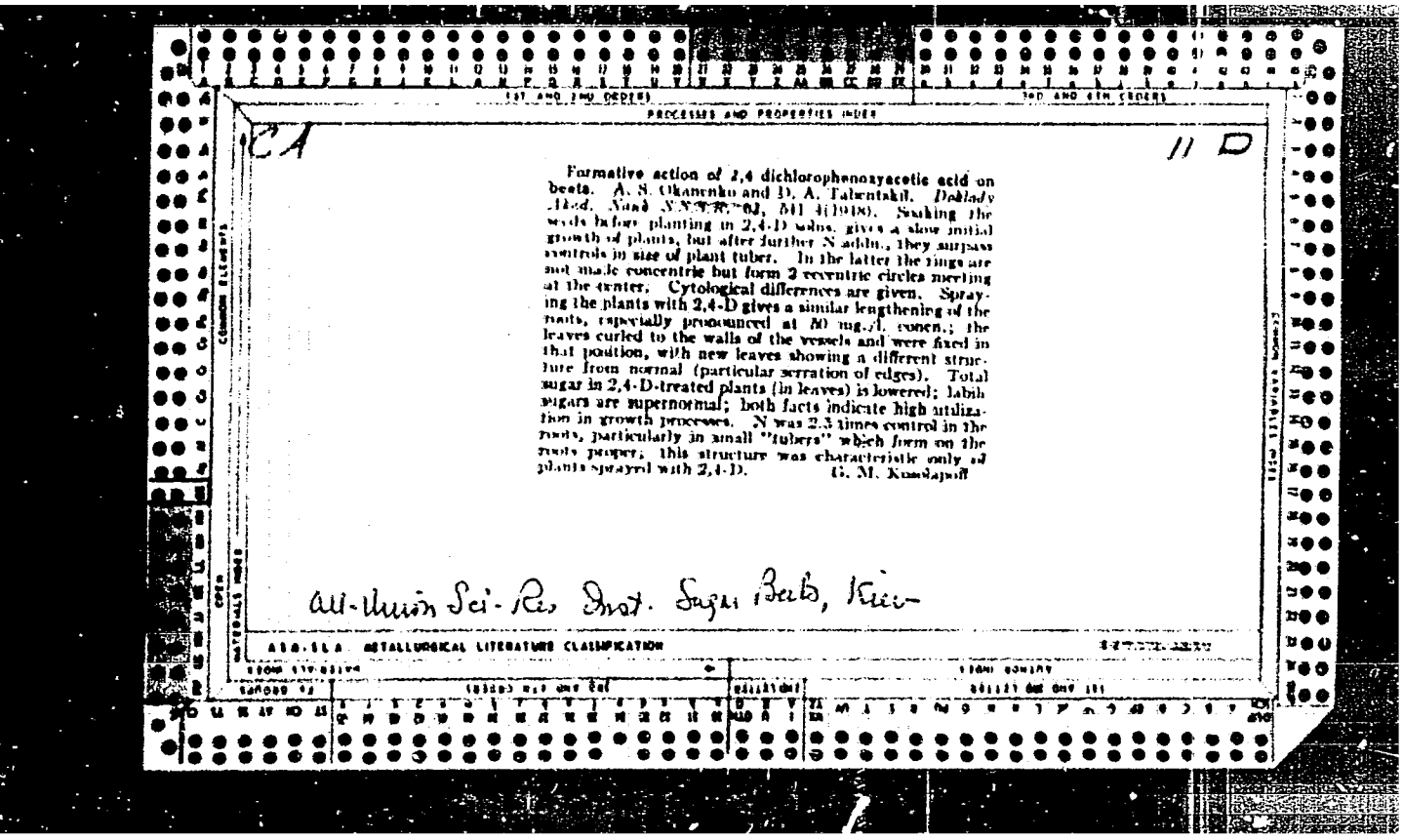
Ostrovskiye, L. V. and [redacted], A. S. - "On the oxidation reduction cycle in crops while supplying them with nitric oxide and ammonium nitrate". Nauch. Trudy (Akad. nauk Ukr. SSSR, In-t fiziologii rasteniy i agrokhimii), No. 1-2, 1948, p. 165-97 - Biblior: 45 items.

SO: U-3850, 16 June 53, (letopis 'Zhurnal 'nykh Statey, No. 5, 1949).

OKANENKO, A.S., professor.

Particular aspects of chemical structure and biochemical processes depending on the size of plants. Nauk.zap.Kiev.un. 7 no.6:225-230 '48. (MLRA 9:10)

(Plants--Chemical analysis) (Sugar beets)

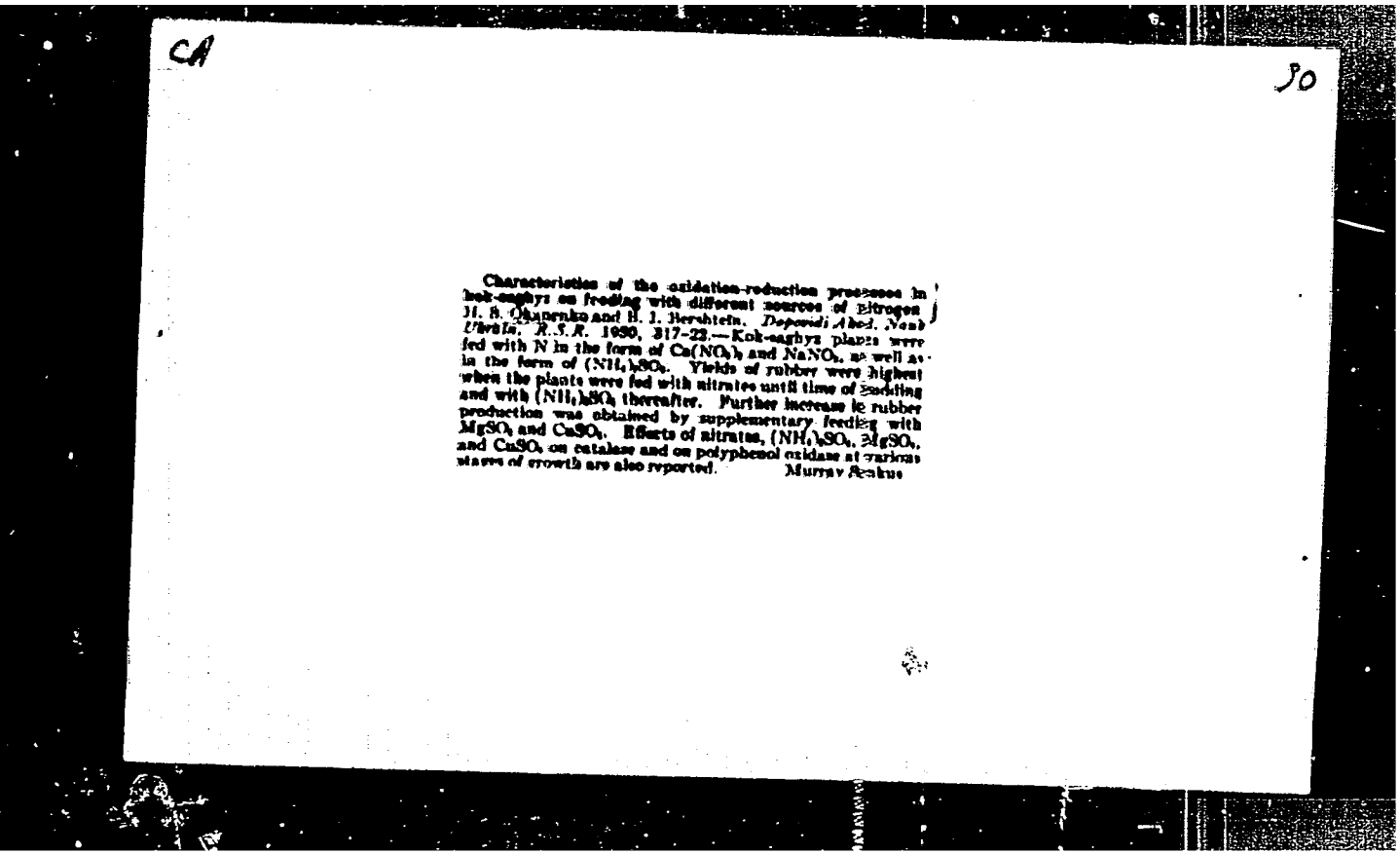


CA

11 D

Formative action of 2,4 dichlorophenoxyacetic acid on beets. A. S. Okanenko and D. A. Talantakil. *Doklady Akad. Nauk S.S.S.R.* 60, 511 4(1948). Soaking the seeds before planting in 2,4-D solns. gives a slow initial growth of plants, but after further N addn., they surpass controls in size of plant tuber. In the latter the rings are not made concentric but form 2 eccentric circles meeting at the center. Cytological differences are given. Spraying the plants with 2,4-D gives a similar lengthening of the roots, especially pronounced at 50 mg./l. concn.; the leaves curled to the walls of the vessels and were fixed in that position, with new leaves showing a different structure from normal (particular serration of edges). Total sugar in 2,4-D-treated plants (in leaves) is lowered; labile sugars are supernormal; both facts indicate high utilization in growth processes. N was 2.3 times control in the roots, particularly in small "tubers" which form on the roots proper; this structure was characteristic only of plants sprayed with 2,4-D. G. M. Kondratieff

All-Union Sci-Res Inst. Sugar Beets, Kiev



CA

50

Characteristics of the oxidation-reduction processes in kok-saghyz on feeding with different sources of nitrogen. H. S. Chapenko and B. I. Bershtein. *Doposidi Akad. Nauk Ukrain. R.S.R.* 1950, 317-22.—Kok-saghyz plants were fed with N in the form of $Ca(NO_3)_2$ and $NaNO_3$, as well as in the form of $(NH_4)_2SO_4$. Yields of rubber were highest when the plants were fed with nitrates until time of budding and with $(NH_4)_2SO_4$ thereafter. Further increase in rubber production was obtained by supplementary feeding with $MgSO_4$ and $CaSO_4$. Effects of nitrates, $(NH_4)_2SO_4$, $MgSO_4$, and $CaSO_4$ on catalase and on polyphenol oxidase at various states of growth are also reported. Murray Peshkin

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Oxidative-reductive properties of kok-saghyz tissues. A. S. Ukrainets and L. S. Dolrovskaya (Plant Physiol. Inst., Kiev). *Zaidl. Akad. Nauk S.S.S.R., Ser. Biol.* 1951, No. 5, 91–105.—The oxidation-reduction properties of kok-saghyz were investigated by interaction with pos. or neg. polarized Pt electrodes (anodic polarization with 5–10% $CuSO_4$; cathodic polarization with either Pt electrode and 15–20% K stannate or Fe wire with 5% $FeSO_4$). An anodically polarized electrode is depolarized rapidly within a few min., but cathodic polarization disappears slowly in a ground mass of the plant root. Nonrubber-bearing dandelions show oxidation-reduction properties analogous to kok-saghyz. The limiting potential of kok-saghyz root mass is high in early stages of vegetation, drops in the summer, and reaches a min. in August, which corresponds to the max. increase of rubber content in it. Conditions causing intensive rubber-latex accumulation lower the limiting oxidation-reduction potential of the root matter. The strong reductive action of the root mass appears to be important in the formation of the rubber precursors in the roots.

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Respiration of sugar beet leaves during nitrate and ammonia nutrition. A. S. Okanenko and L. K. Ostrovskaya (Beet Sugar Inst., Kiev). *Biokhimiya* 16, 214-21(1951).—The sugar beet is one of the plants whose development proceeds more favorably when nourished by nitrate N than by ammonia N. The leaves of sugar beets cultivated on ammonia N require more O for respiration, in the absence of photosynthesis, and consume more sugar than the leaves of beets raised on nitrate N. In the absence of nitrates, the oxidation processes proceed in a roundabout manner, whereby more of the substrate is consumed. H. Priestley

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Organic acids in cation-anion balance in tissues of sugar beet. A. R. Makalmovich, A. S. Okapenko, and A. I. Hakhir (All-Union Sugar Beet Research Inst., Kiev). *Doklady Akad. Nauk S.S.S.R.* 76, 235-8(1951).—Considerable amts. of org. acids accumulate in the leafy parts of the sugar-beet plant (12-15% of dry wt.). Most are in H_2O-sol. form and only 27-35% Ca oxalate (in roots this is 24-38% of total org. acids). When N is supplied as nitrate, the vegetative period of growth is characterized by close equivalence of the uptake of cations and anions and the amt. of org. acids in the matter of the plant increases parallel to that of total N. In later growth the uptake of NO_3^- declines and cations are assimilated by the plant more than anions. However, in the foliage the dependence between deposition of org. acids and accumulation of excess cations still remains. Apparently within the plant cells the chief method of maintaining cation-anion balance lies in the formation of org. acids, after conversion of the nitrate ion into org. forms. The same must occur for balancing the P and S acid anions which are converted into org. derivs. G. M. Kosolapoff

[illegible], [illegible] I [illegible]

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1. MAKSIMOVICH, A. Ye., OKANENKO, A. S., BAKHIR, A. I.

2. USSR (600)

4. Beets and Beet Sugar

7. Peculiarities of biochemical processes in leaves at different stages in relation to the formation of the sugar-beet root. Dokl. AN SSSR 87, no. 2, 1952.

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[Problems in the biochemistry of nitrogen and mineral nutrition of plants] Voprosy bickhimii azotnogo i mineral'nogo pitaniia rastenii. Kiev, Izd-vo Akad. nauk USSR, 1953. 210 p. (MIRA 8:2)

1. Akademiya nauk URSR, Kiyev. Institut fiziologii rasteniy i agrokhimii. 2. Deystvitel'nyy chlen AN USSR (for Dushechkin, Vlasyuk) 3. Chlen-korrespondent AN USSR (for Tyulenev).
(Plants--Nutrition) (Kok-saghyz)

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Physiological role of copper in plants and the application of copper fertilizers in peat soils. A. S. Okanenko and L. K. Ostrovskaya. *Voprosy Biokhim.* [illegible] *Pitaniya Rastenii, Akad. Nauk Ukr. S.S.R.* 1953 [illegible] 49. MD

4415.—Continued work on effects of Cu on plant growth in peat soils showed the following. Yield of rubber latex from kok-saghyz grown without Cu supply is but 20% of that obtained with added Cu. Lack of Cu gave very low polyphenoloxidase activity and severely lowered peroxidase activity in kok-saghyz leaves. [illegible]

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Influence of nitrate and ammonia fertilizers on bio-chemical processes of kok-saghyz and of sugar beets. A. S. Okanenko and L. K. Ostrovskaya. Voprosy Biokhim. Inst. Fiziol. Rastenii, Akad. Nauk Ukr. S.S.R. 1953, 59-61.—Kok-saghyz roots (I) are characterized bio-chemically by a high oxidation-reduction activity, active catalyses and active peroxides, and by a high respiratory rate. I retain their high capacity for reducing permanganate, even during dormancy. Tissues of sugar-beet roots (II) lose their reductive capacity at this time as measured by their ability to reduce permanganate and to reverse the charge on electrodes. The rubber content of I increases somewhat during storage. Requirements for N fertilizer differ according to the type of the plant. In the early stages of vegetative growth very small amts. of fertilizer are needed in good soils, and these can be given either in the form of nitrates or of NH_4. Later stages of growth require higher amts. of N. The rubber content of I is greater when NH_3 is used than when nitrates are used. The org. acid content of sugar-beet leaves (III) was always higher than that of the kok-saghyz leaves (IV), regardless of the fertilizer used. IV had 2-3 times as much org. acid as I. III 5-9 times as much as II. These values were calcd. on dry wt. Although the org. acid content varied, there was no significant difference between I and II. Detailed expts. were made in

which the ratios of N and the balance between the N, P, and K in the fertilizers used were varied. Highest wt. of kok-saghyz plants was obtained with $(NH_4)_2SO_4$ + PK; the lowest with $Ca(NO_3)_2$ without addns. of P or K. The highest respiratory quotient was obtained in I with a fertilizer comb. $Ca(NO_3)_2$ + PK and lowest with $Ca(NO_3)_2$ alone. Intensity of respiration was much higher in the I than in II. It was somewhat higher in III than in IV. The reduction capacity of leaves of I, II, III, and IV was compared in plants fertilized with $Ca(NO_3)_2$, $(NH_4)_2SO_4$, and $(NH_4)_3PO_4$. Reduction capacity (for $KMnO_4$) in the III was somewhat greater than in either NH_4 treatment, but there appeared to be no significant differences in the response to different fertilizers in IV or in I or II with respect to reduction capacity. Expts. were run in S and in soil cultures. Plants with transpard manure plus various combinations of both types of N, namely nitrate and NH_4, were also carried out in the sand cultures. H_2SO_4 was used to adjn. to the usual ions for water cultures.

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Okanenko. P.

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Fertilization of kok-saghyz plants with various forms of nitrogen under controlled conditions. B. I. Bernshtein and A. S. Okanenko. *Voprosy Biokhim. Azot. i Mineral. Pitaniya Rastenii. Akad. Nauk Ukr. S.S.R., Inst. Fiziol. Rastenii i Agrokhim.* 1953, 63-72. Root growth, the types of biochem. reactions in roots and leaves and the total amt. of rubber in the roots of kok-saghyz depend on the type of N used (nitrate, nitrite + NH_4, or NH_4 alone) and the stage of plant growth at which the fertilizer was applied. In sand culture nitrates were reduced in large part to NH_3. Intensity of oxidation-reduction was always higher in roots receiving NH_4 than in roots fed with nitrate only. Best growth was obtained by use of nitrate early in the growth period, then by application late of $NH_4{}_2SO_4$ in the button stage. ~~Polyphenolase~~ activity was higher in plants given nitrate. ~~Peroxidase activity was higher in plants fed with~~ NH_4. Org. acid content of the leaves of plants fed nitrate only was higher than those plants given nitrate plus NH_4, and in turn org. acids were higher in these leaves than in leaves from plants given NH_4 only. Rubber content was higher in roots from plants fertilized with NH_3 than with nitrate.

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The age variation in the chemical composition of the leaf blades of beet [illegible] A. S. Okanenko and [illegible] Kiev [illegible] Akad. Nauk S.S.S.R., Ser. Biol. 1953, No 6, 20-31.—With increasing age the following changes take place in the leaf of a sugar beet: rise in dry matter, total org. acids, $(CO_2H)_2$, $C_6O_7H_8O$, sum of K-Na-Ca-Mg; a decline of percentages of total and protein N; and decrease of the ratio (K + Na)/(Ca + Mg). Abs. wt. of K, Na, Ca, Mg, P, and SO_4, as well as pectic materials and org. acids, all show a rise with age. Most intense accumulation of dry matter corresponds to that of N and ash elements. Org acids accumulate in parallel with excess of mineral cations. Migration of [illegible] is observed only with relatively young leaves [illegible] into the root and thus causes a greater growth of leaf area [illegible]

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