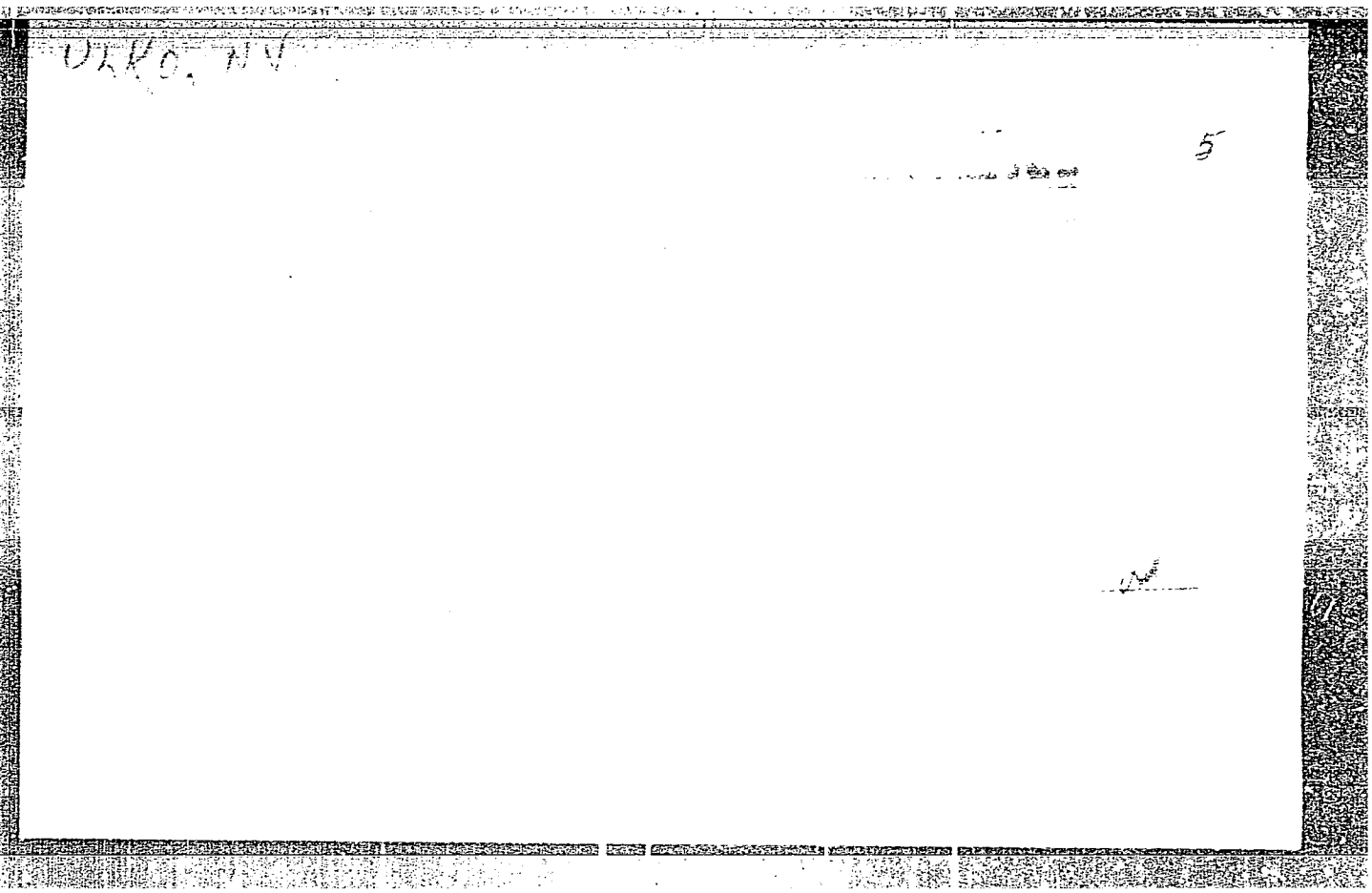

[illegible], [illegible]; ULKO, N.V.

[illegible] complexes of [illegible]. Ukr. khim. zhur. 27 no. 1:1[illegible]1-
10[illegible] '61. ([illegible] 1[illegible])

1. Kiyevskiy [illegible] universitet im. T.G. Shevchenko.
(T[illegible] compounds)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001857920006-3"

24070
S/073/61/027/003/001/004
B103/B203

11, 2140

AUTHORS: Babko, A. K., Ul'ko, N. V.

TITLE: Peroxide complexes of zirconium

PERIODICAL: Ukrainskiy khimicheskiy zhurnal, v. 27, no. 3, 1961, 290-295

TEXT: The authors proved the existence of water-soluble peroxide complexes of zirconium (Zr). These complexes have a ratio Zr : H_2O_2 = 1 : 1 and 2 : 1 in strongly acid medium (1 - 2 N HCl), and 1 : 2 in alkaline medium (pH 12 - 14). No data have been published on composition and stability of these complexes. (A) Study of the system $[TiO(H_2O_2)]^{2+}$ - Zr^{4+} in acid medium by the method of isomolar series. The authors prepared 0.03 M solutions of titanium- (Ti) and Zr chlorides in 1 N HCl and mixed the solution of the titanium peroxide complex (Ti : H_2O_2 = 1 : 1) with solutions of zirconium chloride. After filling to 50 ml with HCl, they measured the optical density D' with an FM (FM) photometer. From the difference between the optical density (D) of a specimen series without Zr, and D' (Fig. 1) it is concluded that several Zr peroxide complexes are

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Peroxide complexes of...

formed, those with a ratio Zr : H_2O_2 = 2 : 1 and 1 : 1 prevailing. Since experiments in 1 N and 2 N HCl yielded the same results, the authors conclude that the equilibrium is independent of $[H^+]$ in the complex formation in acid medium. Since Zr and H_2O_2 move toward the cathode in the electrolysis of acid solutions, the Zr peroxide complexes are products of accumulation of H_2O_2 molecules on Zr or zirconyl ions. (B) Method of isomolar series and absorption spectra in the ultraviolet range. Spectra of solutions of zirconium chloride and H_2O_2 of the same concentration in 2 N HCl were measured with an СФ-4 (SF-4) instrument at λ 350 to 250 mμ. The spectra of Zr peroxide complexes differed from those of H_2O_2. Similar measurements as under (A) of D' (Zr and H_2O_2) and D (H_2O_2 without Zr) confirmed the existence of the two complexes. (C) Equilibrium in the system $[TiO(H_2O_2)]^{2+}$-ZrO^{2+}. Experiments were made with constant concentration of the Ti complex $2.1 \cdot 10^{-3}$ mole. The Zr concentration was varied. On the basis of equations for the established equilibrium of the dissociation constants of the resulting complex, the authors calculated the dissociation constant:

$$\log \frac{\left[((ZrO)_n H_2O_2)^{2n+}\right]}{[H_2O_2]_{free}} = n \log [ZrO^{2+}] + p, \text{ where } p = -\log K \quad (6).$$

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According to test conditions, $[Ti_{tot}] = [H_2O_{2tot}] = 21 \cdot 10^{-4}$ moles. From the data of Figs. 1 and 4, they calculated the concentration of free TiO^{2+}. On the basis of $[TiO(H_2O_2)]^{2+} + nZrO^{2+} \rightleftharpoons [(ZrO)_nH_2O_2]^{2n+} + TiO^{2+}$ (1), $[((ZrO)_nH_2O_2)^{2n+}] = [TiO^{2+}_{free}]$. The concentration of free H_2O_2 is equal to the equilibrium concentration of $[(TiOH_2O_2)^{2+}]$. It can be determined from the data of Figs. 1 and 4. On the basis of their results, the authors calculate the value of $\log \frac{[((ZrO)_nH_2O_2)^{2n+}]}{[H_2O_{2free}]}$ for certain values of $\log [ZrO^{2+}]_{free}$, whose concentration is determined by the equation $[ZrO^{2+}]_{free} = [ZrO^{2+}]_{introd} - [((ZrO)_nH_2O_2)^{2n+}]$. Fig. 5 shows the function $\log \frac{[((ZrO)_nH_2O_2)^{2n+}]}{[H_2O_2]_{free}} = F\{\log [ZrO^{2+}]_{free}\}$. The inclination (tan α) of the straight line is equal to the coordination number n. With low concentrations of Zr^{2+}, the inclination of the lower section of the curve is

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Peroxide complexes of...

near n = 1, while the upper one suggests a possible formation of peroxide complexes with n>1 in the system. The calculated equilibrium constants of the complex formation with a ratio Zr : H_2O_2 = 1 : 1 are not stable, and vary between 0.04 and 1.01. The complex with Zr : H_2O_2 = 2 : 1 forms in prevalent quantity if the total concentration of Zr is higher than that of H_2O_2, i. e., from $[Zr^{2+}] = 24 \cdot 10^{-4}$ mole to $42 \cdot 10^{-4}$ mole (Fig. 4). Then the calculated values of the equilibrium constant of the complex formation lie between $1.58 \cdot 10^{-6}$ and $3.7 \cdot 10^{-6}$. A complex of the dimer $(ZrO^{2+})_2$ with H_2O_2 is formed. (D) Zr peroxide complex in alkaline medium. At pH 12 - 14, Zr forms a soluble peroxide complex, and does not precipitate as a hydroxide. Since at pH 14, a Zr- and H_2O_2-containing, fine-crystalline precipitate is formed on settling, the authors studied the equilibrium between this poorly soluble compound and the soluble complex. The Zr concentration remained constant, that of H_2O_2 was varied. It was found that Zr : H_2O_2 was about 1 : 2 in the solution. As long as this ratio in the solution is

Peroxide complexes of...

below 1 : 2, no precipitate is formed. The Tyndall cone appears only when this ratio is overstepped. It is concluded that at least 2 moles H_2O_2 in the solution are required to keep 1 mole Zr in solution. Thus, a Zr peroxide complex with a ratio Zr : H_2O_2 = 1 : 2 should exist in the alkaline solution. Since the complex ion in the electrolysis wanders to the anode, the formula $[ZrO(O_2)_2]^{2-}$ is ascribed to it. There are 5 figures, 1 table, and 10 references: 4 Soviet-bloc and 6 non-Soviet-bloc. The two most important references to English-language publications read as follows: E. Garsen and A. Gamill (Ref. 7: J. Am. Chem. Soc., 72, 3615 (1950), Latimer (Ref. 8: Oxidation Potentials, 253 (1938).

ASSOCIATION: Kiyevskiy gosudarstvennyy universitet im. T. G. Shevchenko (Kiyev State University imeni T. G. Shevchenko)

SUBMITTED: September 24, 1959

Card 5/7

BABKO, A.K.; UL'KO, N.V.

Peroxide complexes of zirconium. Ukr.khim.zhur. 27 no.3:291-295 '61. (MIRA 14:11)

1. Kiyevskiy gosudarstvennyy universitet im. T.G.Shevchenko.
(Zirconium oxide)

SHILINA, G.V.; UL'KO, N.V.

Polarographic study of oxides of zinc, germanium, chromium, molybdenum, and tungsten on a fused borax background. Ukr.khim. zhur. 28 no.2:172-179 '62. (MIRA 15:3)

1. Kiyevskiy gosudarstvennyy universitet im. T.G.Shevchenko.
(Metallic oxides) (Polarography)

ULKOWSKI, Miroslaw

Comparative studies on intradermal (Mantoux) post-vaccination tuberculin tests in man. Gruzlica 23 no.5:339-342 My '55.

1. Dzial Metodyczno-Organizacyjny Instytutu Gruzlicy.
(TUBERCULIN REACTION, statistics,
in Poland, post-vaccinal Mantoux tests)

ULKOWSKI, Mirowslaw

New contrast medium for oral cholecystography; cistobil.
Polski przegl. radiol. 20 no.5:291-293 Sept-Oct 56.

1. Z Zakladu Radiologii Lekarskiej A.M. w Warszawie
Kierownik: prof. dr. nauk med. W. Zawadowski.
(CHOLECYSTOGRAPHY,
contrast medium cistobil for oral admin. (Pol))
(CONTRAST MEDIA,
cistobil for oral cholecystography (Pol))

ULKOWSKI, Miroslaw

Some data on radiation sickness in the light of views and experiences of Soviet physicians. Polski przegl. radiol. 25 no.4:411-418 '61.

1. Z Zakladu Radiologii Lekarskiej AM. w Warszawie, Kierownik prof. dr nauk med. W. Zawadowski.

(RADIATION INJURY)

OSINSKA, Maria; ULKOWSKI, Miroslaw

Symptomatic herpes zoster during the course of a neoplastic disease. Pol. przegl. radiol. 27 no.3:259-264 '63.

1. Z Zakladu Radiologii Lek. AM w Warszawie Kierownik: doc. dr med. S.L. Zgliczynski z Oddzialu Terapii Rtg PSK Nr 1. w Warszawie Ordynator: doc. dr med. J. Borejko.
(HERPES ZOSTER) (NEOPLASMS)

ULKOWSKI, Miroslaw

Medical care of patients with neoplastic tumours in the course of radiotherapy. Pol. przegl. radiol. 28 no.6:533-538 N-D'64.

1. Z Katedry Radiologii Lekarskiej Akademii Medycznej w Warszawie (Kierownik: prof. dr. med. S.L. Zgliczynski) i z Kliniki Radioterapii (Kierownik: doc. dr. med. J. Borejko).

ULIAS, N.

Southwestern districts of Moscow. Stroi. i arkhit. Mosk. 9 no.6:8-11 Je '60. (MIRA 13:6)
(Moscow--City planning)

ULLAS, N.N., laureat Leninskoy premii

Great future of the metropolitian area of Moscow; main trends in the prospective expansion of Moscow. Gor. khoz. Mosk. 35 no.1:6-9 Ja '61. (MIRA 14:2)

1. Glavnyy arkhitektor Instituta general'nogo plana.
(Moscow--City planning)

ULLAS, N.N., laureat Leninskoy premii

Speedway; reconstruction of the route Gor'kii Street - Leningrad Avenue - Leningrad Freeway. Gor. khoz. Mosk. 35 no.2:17-21 F '61. (MIRA 14:2)

1. Glavnyy arkhitektor Instituta general'nogo plana.
(Moscow—Road construction)

ULLAS, N.N., arkhitektor, laureat Leninskoy premii

Development and reconstruction of Moscow. Gor.khoz.Mosk. 36 no.6:1-5 Je '62. (MIRA 15:8)
(Moscow--City planning)

ULLAN, N.N.

Put the achievements of modern technology into the plans of apartment houses and micro-districts of the city. Gor. khoz. Mosk. 36 no.9:10-12 S '62. (MIRA 15:10)

1. Zamestitel' nachal'nika Glavnogo arkhitekturno-planirovochnogo upravleniya g. Moskvy.

(Moscow—City planning)

KURYATIN, [illegible] (Pechory, Pskovskoy obl., [illegible] ul., d. [illegible], kv. [illegible]); ULLE, G.V., zasluzhennyy vrach RSFSR

Three cases of osteopoikilosis. Ortop., travm. i protez. 26 no.9:64-66 S '65. (MIRA 18:[illegible])

1. Iz khirurgicheskogo otdeleniya (zav. - zasluzhennyy vrach RSFSR G.V. Ulle) Pechorskoy rayonnoy bol'nitsy, Pskovskoy oblasti (glavnyy vrach - M.[illegible] [illegible]kova).

ULLMANN, A.

Chemical Abstracts,
v. 47, July 10, 1953,
Biological Chemistry

Adenosinetriphosphatase of the erythrocytes. T. Garzó, A. Ullmann, and F. B. Straub (Univ. Budapest). *Acta Physiol. Acad. Sci. Hung.* 3, 513-24(1952)(in German).—Adenosinetriphosphatase (I) was found in hemolyzed erythrocytes (II) of the cat, man, bovine, horse, pig, and rabbit, in the order of increasing conens. Even after a 40-fold purification of I, it could not be sepd. from the membranes of II. I is activated by $MgCl_2$ and inhibited by 0.0005*M* Ca^{++} and by 0.0005*M* NaF. I is able to split off all three P from the substrate and to hydrolyze pyrophosphate.

Peter Bernfeld

ULLMANN Á. and GÁRDÓ T.

Chem. Inst., med. Univ., Budapest. *Angaben über die Stoffwechsel von konservierten roten Blutkörperchen. Metabolism of stored erythrocytes ACTA PHYSIOL. ACAD. SCIENT. HUNG. (Budapest) 1954, 5/suppl. (7-8)

SO: EXCERPTA MEDICA - Section II, Vol. 7, No. 10

ULMAN, A.

2

5813. **Protein synthesis in a homogenate.** A. Ullman and F. B. Straub *Acta physiol. Acad. Sci. hung.*, 1954, 6, 377—376 (Chemical Inst., Med. Univ., Budapest, Hungary).—Pigeon pancreas was homogenised in a glass homogeniser at 0° in the presence of 20 mg./ml. ATP and 0·3M saccharose. The homogenate was shaken at 38° with added 0·4% casein hydrolysate and Krebs-Henseleit saline (pH 7·4). A very considerable increase in amylase activity took place which was a function of time as long as the ATP was not destroyed by the very active ATP-ase of the homogenate. There is no increase in amylase activity without ATP, or casein hydrolysate or saccharose. It could be shown by butanol opening (Hessin, *Biokhimija*, 1953, 18, 462) that new amylase was synthesised. It was also shown that the gastric mucous membrane of the frog synthesises pepsinogen under similar conditions. The synthesis takes place at the same rate under aërobic and anaërobic conditions. (German)

A. B. L. Bránait.

Ullmann, A.

Amylase synthesis in homogenates. A. Ullmann and P. B. Straub (Med. Univ., Budapest). *Acta Physiol. Acad. Sci. Hung.* 8, 279-90(1955)(in German); cf. *C.A.* 49, 4736c.—Pigeon pancreas homogenates are able to synthesize amylase if adenosinetriphosphate (ATP) is present during the homogenizing and incubation. If no ATP is added during homogenizing, but is added to the incubated medium, little or no amylase synthesis occurs. ATP cannot be replaced by pyrophosphate. Homogenates are capable of aerobic and anaerobic synthesis of amylase; 0.2 mm. thick slices of pancreas require aerobic conditions. Addn. of 0.01 *M* NaF does not inhibit the synthesis, 0.01 *M* ascorbic acid increases the yield of amylase obtained by 10 to 50%, and cysteine has no effect. It is essential that casein hydrolyzate, Mg^{++}, and sucrose be present. Amylase synthesis was stopped by 100 γ/ml. of streptomycin and 10 γ/ml. of chloramphenicol. The homogenate loses its synthetic ability after 3 hrs. storage at 0°, presumably because metallic ions, which can activate hydrolytic enzymes, have been liberated during the homogenizing. The addn. of 0.0051 *M* ethylenediaminetetraacetate prevents loss of synthetic ability of homogenates stored at 0°. G. T.

CH

(1)

VARSANYI, Denes,; ULLMANN, Agnes.

Experiments on the preparation of cardiolipin and lecithin for serological purposes in Hungary. Kiserletes orvostud. 8 no.3: 255-254 May 56

1. Orsz. Bor-Nemik. Intez. es Budapesti Orvost. Egy. Orvosi Vegytani Intezete.
(CARDIOLIPIN, prep. of
for serol. purposes in Hungary, method (Hun))
(LECITHIN, prep. of
same)

ÜLLMANN, A.; STRAUB, F. B.

Increase in amylase activity in isolated cell fractions of pigeon pancreas. Act physiol. hung. 10 no.2-4:137-143 1956.

1. Chemisches Institut der medizinischen Universitat, Budapest.
(AMYLASE
activity increase in isolated mitochondrial fractions of pigeon pancreas (Ger))
(PANCREAS, metab.
amylase activity increase in isolated mitochondrial fractions of pigeon pancreas (Ger))

ULLMANN, A.

Synthesis of amylase by pancreas in a soluble system. A. Ullmann and F. B. Straub (Univ. Budapest). *Acta Physiol. Acad. Sci. Hung.* 11, 77-91(1957)(in German).—An acetone-dry powder of pancreatic tissues synthesized amylase in the presence of a mixt. of amino acids and a high concn. of inosinetriphosphate; this system is quite unstable. The enzyme synthesis is inhibited by low concns. of chloramphenicol (1 γ/ml.), p-fluorophenylalanine (0.1 γ/ml.), and ribonuclease. This specificity makes apparent a similarity of the amylase synthesis with protein synthesis from amino acids.

O. C. Elmer

Ullmann, A.

Incorporation of radioactive amino acids and amylase synthesis in pancreatic tissue in vitro. T. Garzó, E. Pet, M. T. Ajtó, A. Ullmann, and F. B. Straub (Univ. Budapest). *Acta Physiol. Acad. Sci. Hung.* 11, No. 1, 23-6 (1957)(in German).—Radioactive glycine and tyrosine are incorporated into tissue slices of pigeon pancreas in parallel with synthesis of amylase. The amylase synthesis in homogenates, mitochondrial fractions, and aq. ext. of acetone-dry pancreas powder is not connected with the incorporation of these amino acids. O. C. Elmer

ULLMANN, A.

The mechanism of amylase synthesis in vivo. A. Ullmann and P. B. Straub. *Acta Physiol. Acad. Sci. Hung.* 11, No. 1, 31-8(1957)(in German).—In mitochondrial fractions and aq. ext. of acetone-fried pancreas powder, amylase is synthesized from a proenzyme. Threonine, arginine, and adenosinetriphosphate are necessary for the formation of the enzyme. O. C. Elmer

ULLMANN, A.

Mechanism of amylase synthesis. F. B. Straub and A. Ullmann (Univ. Budapest). *Biochim. et Biophys. Acta* 23, 665(1957)(in English); cf. *C.A.* 50, 12313a.—Amylase activity in a sol. system from Me_2CO-dried pigeon pancreas was investigated. It increased when the salts of a Krebs saline soln., adenosinetriphosphate, and a mixt. of amino acids were added. The amino-acid mixt. could be replaced by arginine + threonine, and addn. of further amino acids was without effect. The increase in amylase activity was inhibited by the addn. of minimal amts. of D(−)-threo-chloramphenicol, p-fluorophenylalanine, or ribonuclease. It is suggested that amylase is synthesized in the sol. system from a precursor protein, that the arginine and threonine are used in the synthesis, and that synthesis proceeds only in the presence of a ribonucleic acid. The precursor apparently is adsorbed on this surface. Similar requirements were found for the synthesis of amylase by pigeon pancreas mitochondria. Morton Pader

ULLMANN, A.; GARZO, T.; STRAUB, F.B.

On the formation of labelled amylase in cell free preparations. Acta physiol. hung. 13 no.2:179-181 1958.

1. Institute of Medical Chemistry, Medical University, Budapest.
(AMYLASES
form. from precursor in cell-free prep.)

ERDOS, T.; ULLMAN, Agness; TOMCSANYI, A.; DEMETER, Magda.

On the mechanism of streptomycin action. Acta physiol. hung. 17 no.3:229-239 '60.

1. Koranyi National Tuberculosis Institue and Institute of Medical Chemistry, Medical University, Budapest
(STREPTOMYCIN pharmacol)

ULLMANN, J.; KREKULE, J.

"Effect of gibberellic acid on the chlorophyll content in germinating lettuce."

p. 160 (Ceskoslovenska Biologie, Vol. 7, no. 2, 1958, Praha, Czechoslovakia)

Monthly Index of East European Accessions (EEAI) LC, Vol. 7, no. 9, September 1958

ULLMANN, J.; KREKULE, J.

The influence of gibberellic acid on the growth of overground parts and roots of wheat, lettuce, and oats. In English. p. 22

BIOLOGIA PLANTARUM. (Ceskoslovenska akademie ved. Biologicky ustav) Praha, Czechoslovakia, Vol. 1, no. 1, 1959

Monthly List of East European Accessions (EEAI), LC, Vol. 8, no. 11, Nov. 1959 Uncl.

ULLMANN J.

CZECH

Complexometric determination of calcium and magnesium in foods. O. Podlaha and J. Ullmann (Ústav pro výzkum výživy lidu, Prague). *Českoslov. hyg., epidemiol., mikrobiol., immunol.* 4, 260-5(1955).—Ca and Mg were detd. by direct complexometric methods with complexon III. The interfering influence of heavy metals was removed by addn. of triethanolamine and cyanide. The results were checked by the gravimetric, polarographic, and colorimetric methods and were found in good agreement. The materials tested contained: coarse soybean flour 0.156, 0.221; fine soybean flour 0.1725, 0.2230; rye flour 0.0334, 0.0307; semolina 0.0137, 0.0315; bruised wheat 0.0533, 0.1904; millet 0.0142, 0.1067; guinea-corn 0.0210, 0.1331; rice 0.0082, 0.0353; buckwheat 0.0343, 0.240; dried apricots 0.0198% Ca, 0.0751% Mg.

L. J. Urbanek

CZECHOSLOVAKIA/Plant Physiology. Mineral Nutrition

Abs Jour : Ref Zhur - Biol., No 19, 1958, No 86651

Author : Kutacek Milan; Ullmann Jaroslav; and Liebl Vlastimil
Inst : Czechoslovak Agricultural Academy
Title : Root Excretions. II. The Transport of P^{32} in Wheat Plants Grown by the Isolated Nutrition Method

Orig Pub : Spor. Ceskosl. akad. zemed. ved. Rostl. vyroba, 29, No 6, 525-536, 1956

Abstract : Seven-day wheat seedlings are transplanted into long rectangular plexiglass vessels filled with Knop's nutrient mixture, onto a partition dividing the vessel in half. Half of the root strands of every plant were provided with 7 microcures of P^{32} per ml. By means of radio-autographs and a Geiger-Mueller counter it was shown that within 2 hours the P^{32} penetrated in the part of root strands that lacked P^{32} in the solution, and within 20 hours a considerable quantity of P^{32} was detected in the nutrient solution. The study was executed
Card : 1/1 at the Chair of Chemistry of the Higher School of Agriculture.--Z.I. Zhurbitskiy

Country : Czechoslovakia E-2
Catogory : Analytical Chemistry. Analysis of Inorganic Substances.
Abs. Jour. : R f. Zhur.-Khimiya No. 6, 1959 19137

Author : Ullmann, J.
Institut. : Masaryk University
Title : Determination of Fluorides by Mercurimetric Titration.

Orig Pub. : Spisy vyd. prirodoved. fak. Masarykovy univ., 1958, No 1, 33-39

Abstract : To solution analyzed, containing about 20-110 mg F^-, added 10 ml 1% NaCl solution, diluted with water to 150 ml, acidified with 1 N HCl solution to pink coloration of methyl orange, added 3 ml 1 N HCl, heated to 55°, and added 250 ml saturated solution $PbCl_2$. After 0.5 hour resulting precipitate of PbFCl filtered through Gooch crucible, washed with 5 ml saturated PbFCl solution, 2 ml 30% C_2H_5CH, and 3 ml 80% C_2H_5OH, dissolved in 100 ml HNO_3 (1:1) at 40°, and resulting solution titrated with 0.1 N solution $Hg(NO_3)_2$ in the presence of Na-nitroprusside, to appearance of Tyndall effect. Presence of 1-5 g $NaNO_3$ in titrate, lowers the results by 3.72%.

Card: 1/1

SMOTAK, Stanek, promovany biolog CSc.; ULLMANN, Jaroslav, promovany chemik

Comparison of chlorophyl determining methods. Ph.t. Rost vyroba 10 no.11:1197-1206 N '64.

1. Institute of Experimental Botany of the Czechoslovak Academy of Sciences, Prague.

L 00102-66 EWP(w)/EWP(c)/EWP(v)/T/EWP(t)/EWP(k)/EWP(b)/EWP(l)/EWA(c)/ETC(m)
ACCESSION NR: AP5025499 JD/WW/HW CZ/0057/65/000/004/0182/0186

AUTHOR: Tichy, Jiri (Engineer); Ullmann, Jiri (Engineer)

TITLE: Evaluation of defects of hollow forgings by ultrasonic methods

SOURCE: Hutnik, no. 4, 1965, 182-186

TOPIC TAGS: steel, metal forging, metal test, nondestructive test, ultrasonics

ABSTRACT: The tests reveal primarily macroscopic occlusions. The quality of the forging depends on the maximum size, number, linear surface, and location of the occlusions. The concept of the equivalent defect is discussed. Standards used in this respect are described. Methods used for calculations in the evaluation of the defects are discussed. Occlusions up to 3-4 mm size have very little effect upon the notch strength and upon the tensile strength in steels of Czech Standard 13 123. The principles according to which results of ultrasonic tests allow the classification of hollow forgings into 5 groups are discussed. Results of testing hollow forgings of high pressure steels of the Cr-Mo type are described.

Card 1/2

L 00102-66

ACCESSION NR: AP5025499

Ultrasonic tests used in evaluating of steels Standard 13 123 allowed to determine the results of changes in the deoxidation bath temperatures, and conditions required during casting of the body of a steel ingot.

Orig. art. has: 11 figures, 3 graphs, and 1 table.

ASSOCIATION: VZU-NHKG, Ostrava

SUBMITTED: 00 ENCL: 00 SUB CODE: MM

NR REF SOV: 001 OTHER: 011 JPRS

Card 2/2

ULLMANOVA, Z.; HRSEL, I.; KLASTERSKA, I.

The study of mitochondrial bodies in rice and wheat. p. 324.
(CESKOSLOVENSKA BIOLOGIE, Vol. 5, No. 6, Nov 1956, Praha, Czechoslovakia)

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

ULLMANOVA, Z.; SOSNOVA, V.

Anatomic and cytological studies of plastids in vegetation points. p. 323. (CESKOSLOVENSKA BIOLOGIE, Vol. 5, No. 6, Nov 1956, Praha, Czechoslovakia)

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

ULLRICH, Gert, inz.

Excitation regulators of large alternators. El tech obzor 52 no.10:559-564 O '63.

1. Statni vyzkumny ustav silnoproude elektrotechniky.

ULLRICH, K.

"Experiences in Combating Anopheles Gnats in Southern Slovakia." p. 95 (CHEMICKE ZVESTI, Vol. 5, No. 1/2, Jan./Feb. 1951) Bratislava, Czechoslovakia

SO: Monthly List of East European Accessions, Library of Congress, Vol. 3, No. 4, April 1954. Unclassified.

ULLRICH, K.; KOSTAL, J

Experiences in driving compression adits.

p. 422 (Inzenyrske Stavby) Vol. 5, no. 8, Aug. 1957, Praha, Czechoslovakia

SO: MONTHLY INDEX OF EAST EUROPEAN ACCESSIONS (EEAI) LC, VOL. 7, NO. 1, JAN. 1958

CZECHOSLOVAKIA/Chemical Technology. Chemical Products and Their Application. Fats and Oils. Waxes. Soap. Detergents. Flotation Reagents. H

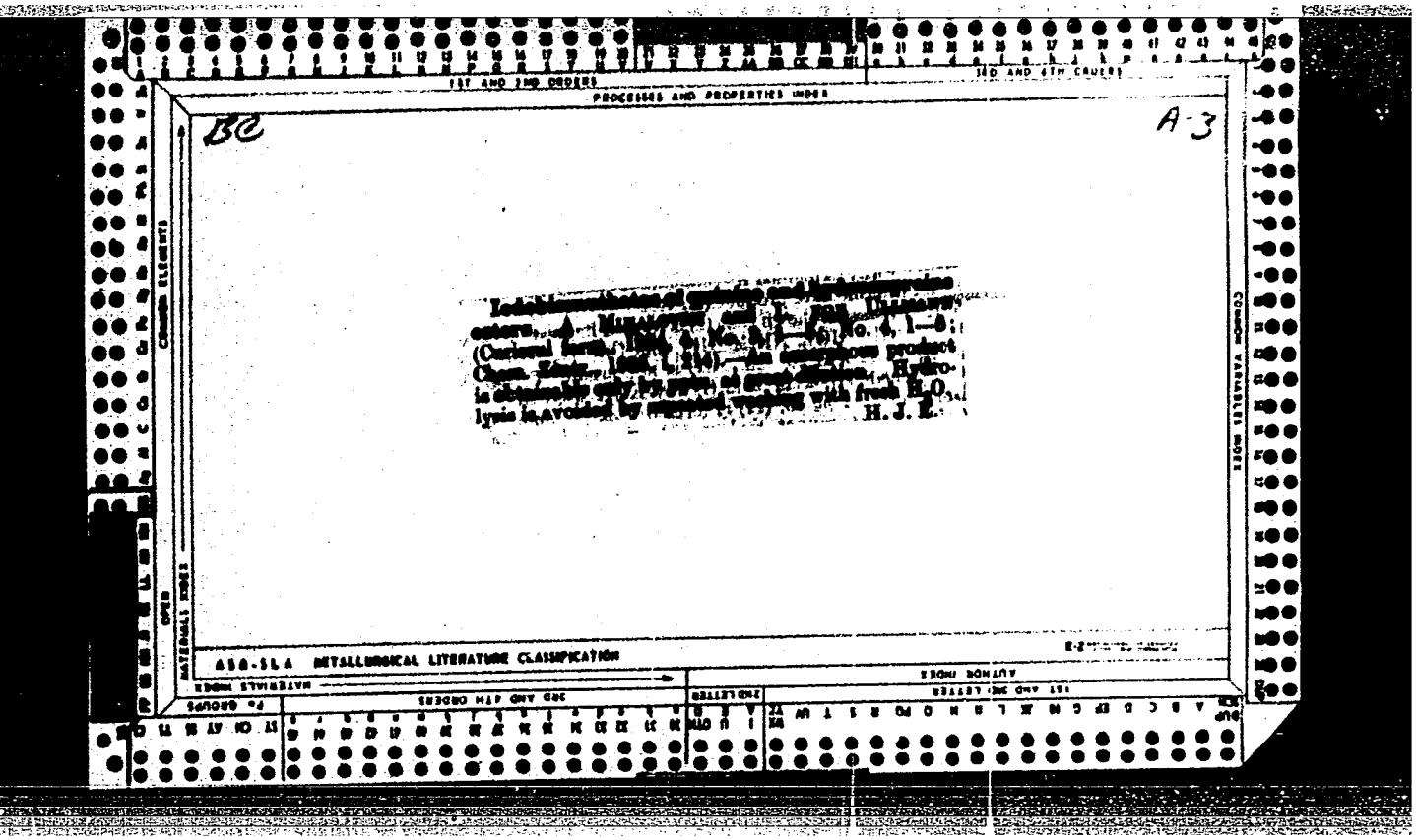
Abs Jour: Ref Zhur-Khim., No 13, 1958, 44733.

Author : Ullrich L , Polanyi E.
Inst :
Title : Natural Dyes for Fats.

Orig Pub: Prumysl potravin, 1955, 6, No 7, 331-335.

Abstract: A discussion of the use of natural dyes and synthetic azo dyes for margarine and of their effects on the organism. Tests of dyes isolated from by products of rose hips and red peppers have demonstrated their good quality.

Card : 1/1



1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

BC

A-3

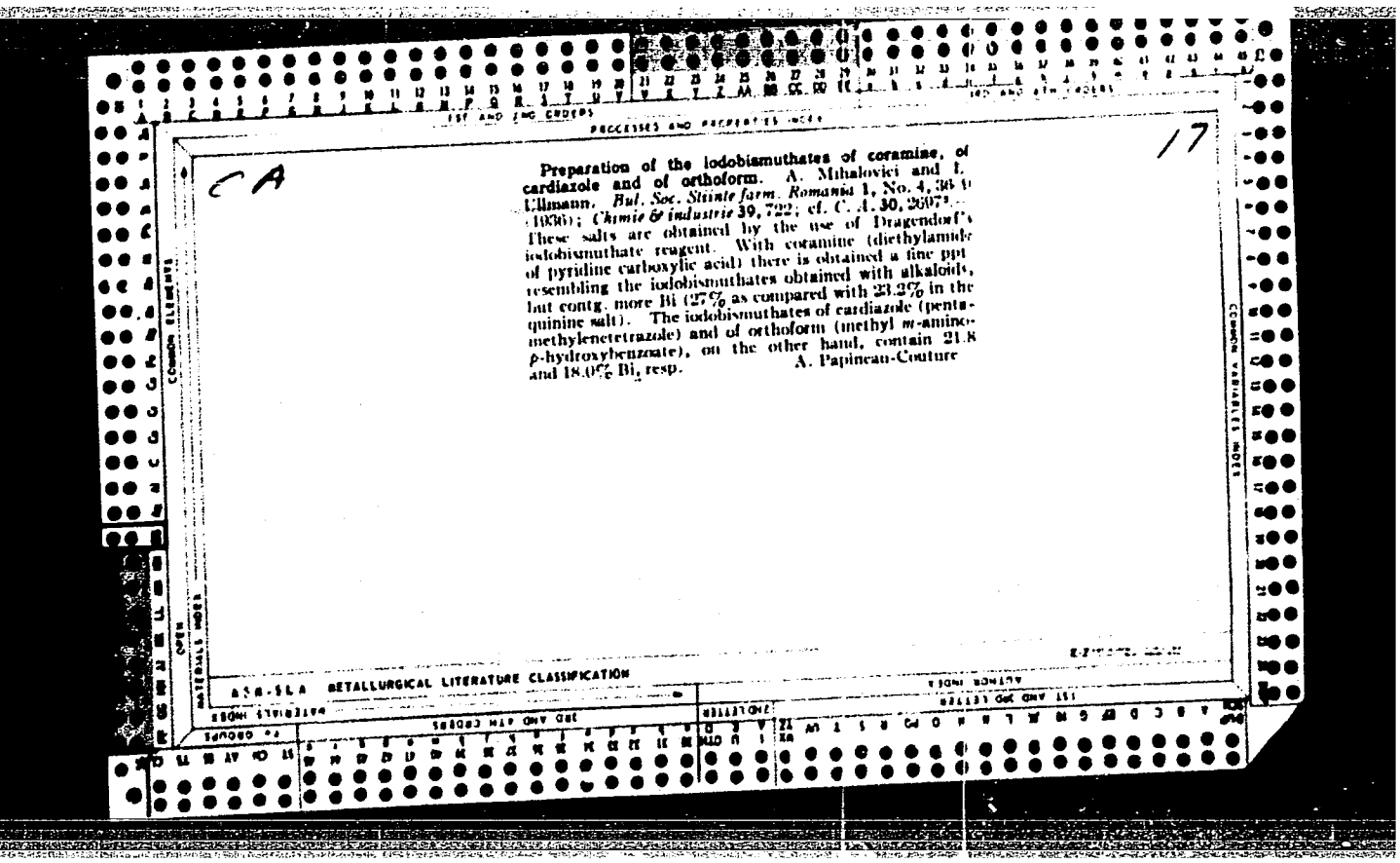
Conversion of phenylglycinonitrile into the amide by means of hydrogen peroxide. Halogen and acyl derivatives of the amide. L. von Ullmann and G. [illegible] (Bul. Soc. Chim. România, 193[illegible], [illegible], 177—180).—Anilinoacetonitrile yields anilinoacetamide (I), m.p. 13[illegible]° (nitrosamine, m.p. 14[illegible]°; Ac, m.p. 1[illegible]°, and Bz derivative, m.p. 178°), with H_2O_2 and 5% aq. KOH at [illegible]°. Similarly p-bromo-, m.p. 91°, and p-iodo-anilinoacetonitrile, m.p. 104°, yield β-p-bromo-, m.p. 140°, and β-p-iodo-anilinoacetamide, m.p. 130°, identical with the products of bromation (acid KBr–$KBrO_3$) and iodination (acid KI–KIO_3) of (I).

F. N. W.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

ULLMANN, L.

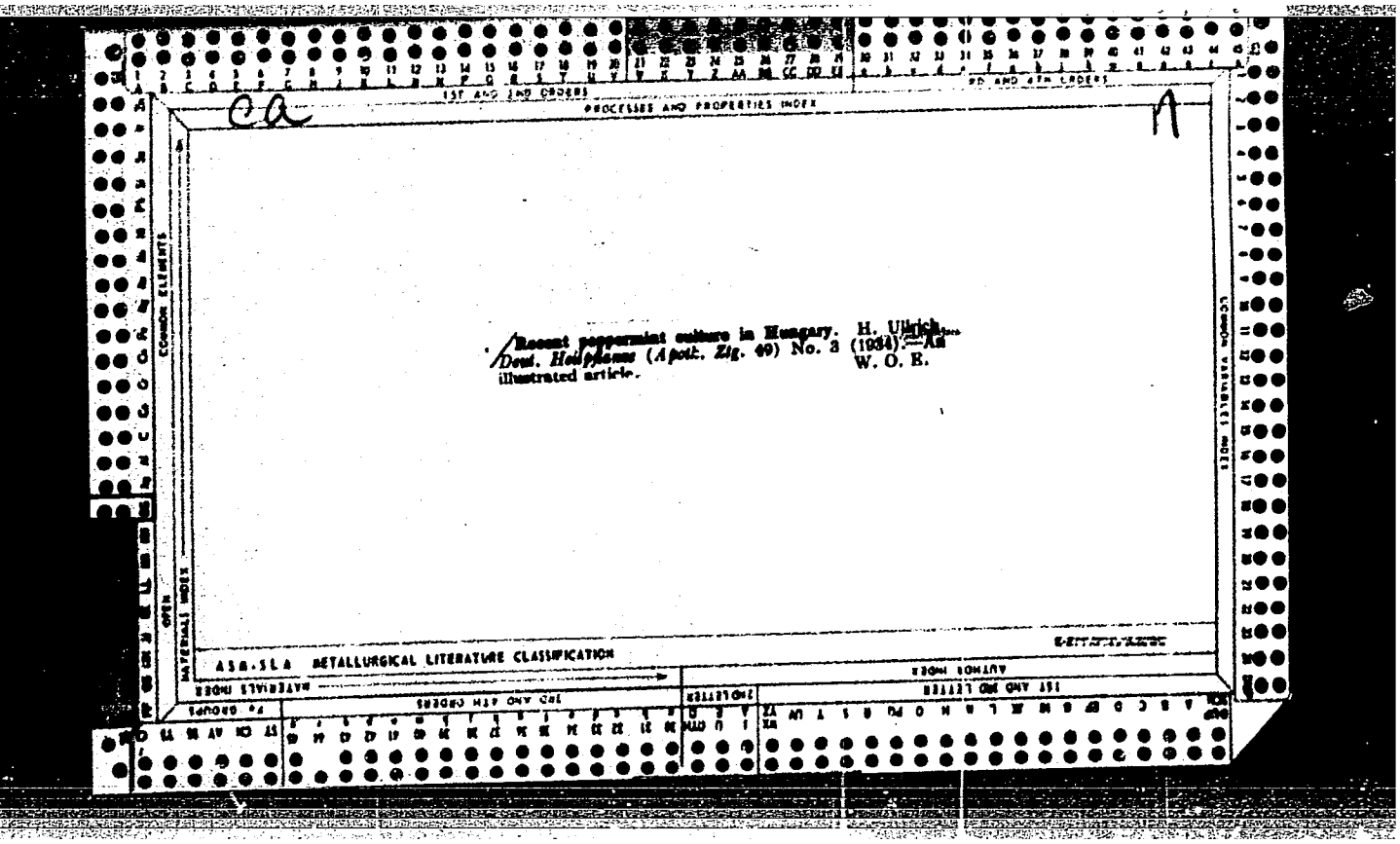
Preparation of the iodobismuthates of coramine, of cardiazole and of orthoform. A. Mihalovici and L. Ullmann. *Bul. Soc. Stiinte farm. Romania* 1, No. 4, 30-50 (1936); *Chimie & industrie* 39, 722; cf. *C. A.* 30, 2697⁴.—These salts are obtained by the use of Dragendorf's iodobismuthate reagent. With coramine (diethylamide of pyridine carboxylic acid) there is obtained a fine ppt. resembling the iodobismuthates obtained with alkaloids, but contg. more Bi (27% as compared with 23.2% in the quinine salt). The iodobismuthates of cardiazole (pentamethylenetetrazole) and of orthoform (methyl *m*-amino-*p*-hydroxybenzoate), on the other hand, contain 21.8 and 18.0% Bi, resp. A. Papineau-Couture



CA

17

Preparation of the iodobismuthates of coramine, of cardiazole and of orthoform. A. Mihalovici and I. Ullmann. *Bul. Soc. Stiinte farm. Romania* 1, No. 4, 36 (1936); *Chimie & industrie* 39, 722; cf. C. A. 30, 2607⁹. These salts are obtained by the use of Dragendorf's iodobismuthate reagent. With coramine (diethylamide of pyridine carboxylic acid) there is obtained a fine ppt resembling the iodobismuthates obtained with alkaloids, but contg. more Bi (27% as compared with 23.2% in the quinine salt). The iodobismuthates of cardiazole (pentamethylenetetrazole) and of orthoform (methyl *m*-amino-*p*-hydroxybenzoate), on the other hand, contain 21.8 and 18.0% Bi, resp. A. Papineau-Couture



APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001857920006-3"

ULLRICH, L.

"Progress in production and utilization of oils and fats."
Chemicke Zvesti, Bratislava, Vol 6, No 3/4, Mar./Apr. 1952, p. 245

SO: Eastern European Accessions List, Vol 3, No 10, Oct 1954, Lib. of Congress

ULRICH, Ladislav, MUDr.,(Bratislava, Dukelska 18--20)

Studies on pneumoconiosis and the problem of biological aggression of dust. Prac. lek. 17 no.7:297-299 S '65.

1. Vyzkumny ustav hygieny prace a chorob z povolania v Bratislave (riaditel prof. dr. M. Nosal). Submitted May 10, 1965.

ULLRICH, M.

16(2) PHASE I BOOK EXPLOITATION CZECH/2556

Conference on Information Theory, Statistical Decision Functions, Random Processes. 1st, Liblice, 1956.

Transactions. Prague, Czechoslovak Academy of Sciences, 1957. 354 p. 1,000 copies printed.

Sponsoring Agency: Československá Akademie Věd. Sekce Technická.

Reviewers: Václav Dupač and Miloslav Jiřina; Scientific Ed.: Jaroslav Kožešník, Corresponding Member, Czechoslovak Academy of Sciences; Resp. Ed.: Ludek Böhm; Tech. Ed.: František Končický.

PURPOSE: This book is intended for specialists interested in information theory and related subjects.

COVERAGE The book contains papers read at the First Prague Conference on Information Theory, Statistical Decision Functions, and Random Processes, held on November 28 - 30, 1956. The Conference was sponsored by the Czechoslovak Academy of Sciences and organized by the Institute of Radio Engineering and Electronics. The papers discuss various mathematical approaches to the problems of communications: information theory, probabilistic properties of communication, stochastic properties of communication, entropy, transformations of stochastic properties, statistical decision functions, randomized functional analysis, etc. Participants from China, Germany, Poland, Sweden, the United States, and the Soviet Union were present at the Conference. Of the 21 articles in the book, 14 are in English, 4 in French, 2 in German, and 1 in Russian.

AVAILABLE: Library of Congress

Card 5/5

LK/jb
12-1-59

ULLRICH, M.

"Some theorems on random Schwartz distributions. In English."

p.273 (Vol. 42, 1956, Prague, Czechoslavakia)

Monthly Index of East European Accession (EEAI) LC, Vol. 7, No. 8, August 1958

ULLRICH, M. (Prague); URBANIK, K. (Wroclaw)

A limit theorem for random variables in compact topological groups. (EEAI 10:1)
Col math 7 no.2:191-198 (193-198 wanting) '60.
(Groups, Theory of) (Topology)

ULLRICH, Milan

Some probability methods in automation. Tech praca 14 no.3:191-194 Mr '62.

1. Ustav teorie informace a automatizace, Ceskoslovenska akademie ved, Praha.

ULLRICH, Milan, inz., CSc.

"Probability analysis of automatic control systems" by N.A. Livsic [Livshits, N.A.], V.N.Pugacev [Pugachev,V.N.]. Reviewed by Milan Ullrich. Automatizace 7 no.11:Suppl:Technicka literatura insert N '64.

L 21348-66 EWP(v)/EWP(k)/EWP(h)/EWP(l)
ACC NR: AP5014287 SOURCE CODE: CZ/0038/65/001/003/0236/0270

AUTHOR: Kubat, L. (Engineer, Candidate of sciences); Ullrich, M. (Engineer, Candidate of sciences)

ORG: Institute for the theory of information and automation CSAV, Prague (Ustav teorie informace a automatizace CSAV)

TITLE: Some variants of fault-finding procedures in a system

SOURCE: Kybernetika, v. 1, no. 3, 1965, 236-270

TOPIC TAGS: system maintenance, signal measurement, element measurement, signal element, fault finding

ABSTRACT: Three types of fault-finding procedures are determined by the probability method. The maintenance of complex devices and systems becomes a very important problem as more maintenance hours are used in finding the nonoperative unit of a device than for actual repair work. Thus, good fault-finding procedures are necessary for fast and efficient maintenance. There is great variation in possible fault-finding procedure. In the present paper three basic procedures are discussed, which, according to the author, are most important and theoretically interesting: 1) the signal-measurement procedure, 2) the element-measurement procedure, and 3) the replacement-of-

Card 1/2

L 21348-66

ACC NR: AP5014287

element procedure. All three types are solved in general and illustrated with simple examples. Orig. art. has: 20 figures and 6 tables. [Based on author's abstract.] [KS]

SUB CODE: 14/ SUBM DATE: 10Nov64/ ORIG REF:

Card 2/2

L 31587-66 EWP(v)/EWP(k)/EWP(h)/EWP(l) BC

ACC NR: AP6022974 SOURCE CODE: CZ/0080/65/000/008/0203/0206

AUTHOR: Ullrich, Milan (Engineer; Candidate of sciences)

33
B

ORG: UTIA, Csav

TITLE: Fundamentals of statistical dynamics

SOURCE: Automatizace, no. 8, 1965, 203-206

TOPIC TAGS: automatic control theory, probabilistic automaton, statistics

ABSTRACT: The article provides an introduction to the calculation of probabilities from the point of view of the theory of automatic control. It concerns itself with defining and explaining the principal terms used, as that had not previously been done in the Czechoslovak literature. Orig. art. has: 2 formulas. [JPRS]

SUB CODE: 09, 13 / SUBM DATE: none

Card 1/1 BLG

UDC: 519.2:62-53

0915 1059

HRUBISKO, M.; HRUBISKOVA, K. Technicka spoluprace: CIRANOVA, M.; ULLRICHOVA, G.

Hemorrhage in von Willebrand's disease, its nature and therapy. Bratisl. lek. listy 2 no.1:25-33 '64

1. Fakultna transfuzna stanica, subkatedra hematologie a transfuzie krvi SYDL v Bratislave; veduci: doc. MUDr. M.Hrubisko, C.Sc.

SIMKOVICOVA, M.; SILVAYOVA, O.; SIMKOVIC, I.; SILVAY, J.; Technicka spolupraca: CERNUSAKOVA, M.; FITTOVA, E.; HROCHOVA, L.; ULLRICHOVA, G.

Contribution to the use of ACD preserved blood in extracorporeal circulation. Bratisl. lek. listy 44 no.7:391-397 15 O '64.

1. Fakultna transfuzna stanica v Bratislave, (vedouci doc. MUDr. M. Hrubisko, C.Sc.); II. chirurgicka klinika Lek. fak. Univerzity Komenskeho v Bratislave, (veduci prof. MUDr. K. Siska, Dr. Sc.,) a Oddelenie experimentalnej chirurgie Ustavu experimentalnej mediciny Slovenskej akademie ved. v Bratislave, (veduci akademik CSAV K. Siska).

MARSA, J.;HAKOVA, D.;ULLRYCH, J.

Role of a clinicist in antiepidemic work. Cas. lek. cesk. 92 no.15:406-408 10 Apr 1953. (CIML 24:4)

1. Of KUNZ, Ceske Budejovice.

CZECHOSLOVAKIA

GOLDA, V.; ULLSPERGER, P.; BEYER, L.; PETREK, J.; LISONEK, P.; Laboratory of HNA, Medical Faculty, Palacky University, Olomouc; Institute of Anatomy, Medical Faculty, Palacky University, Olomouc. /Original version not given/.

"Laterality of Forelegs in Cats Determined by Two Different Tests."

Prague, Activitas Nervosa Superior, Vol 8, No 2, Jun 66, pp 181-182

Abstract: Laterality was determined by the Cole test and the Grastyan-Molnar tests. 12 cats were studied in 10 sessions, each with 25 trials. 10 cats showed statistically different results in the 2 tests. A significantly higher variance in results was shown in the second test. In the first method the prevalence of one limb is more pronounced; 10 cats showed laterality in 80% of experiments, while only 3 cats showed a definite laterality in the second test. No references. Submitted at the 4th Interdisciplinary Confer. of Exper. and Clin. Study of Higher Nerv. Functions at Marianske Lazne, 12-15 Oct 65. Article is in English.

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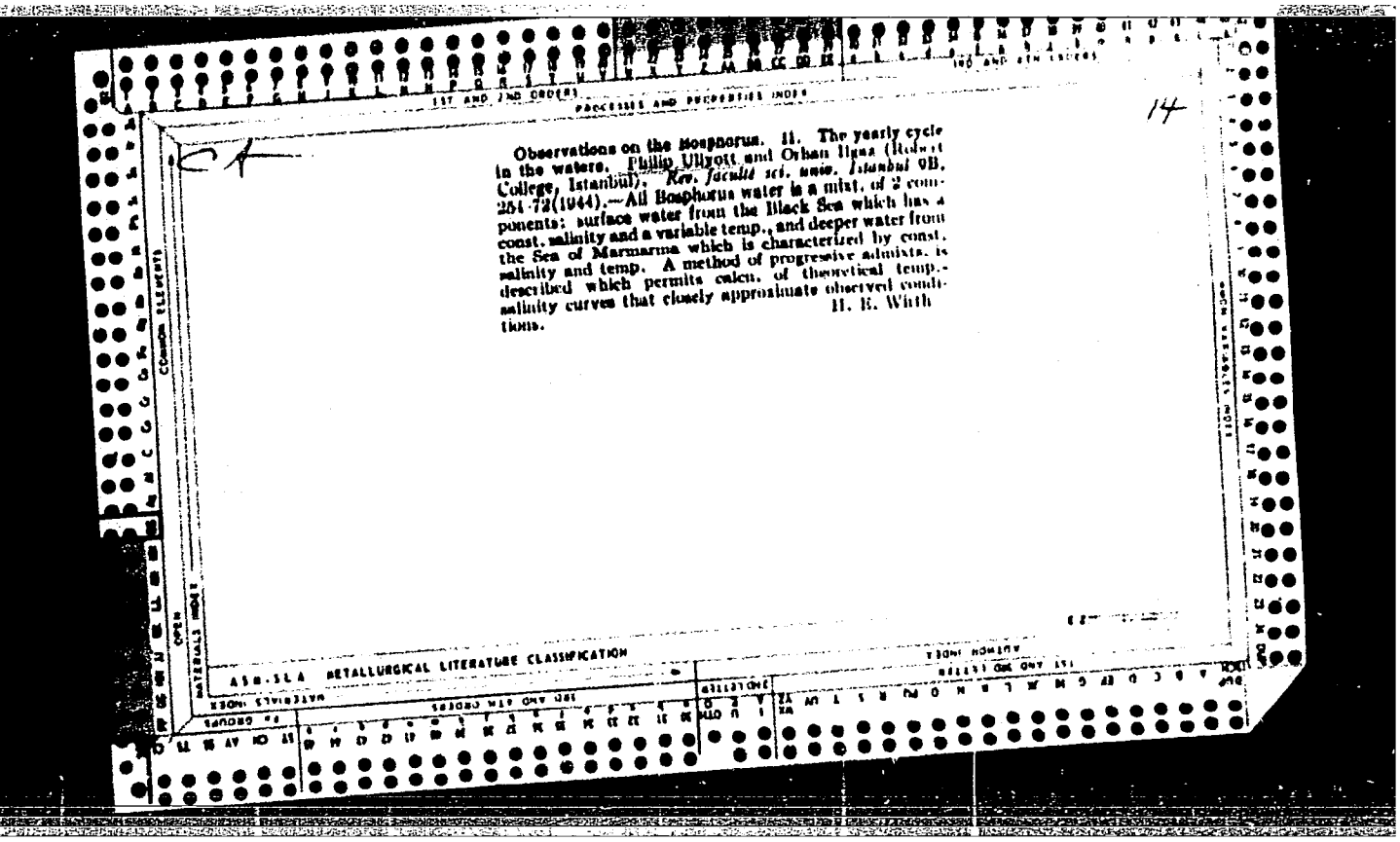

Observations on the Bosporus. II. The yearly cycle in the waters. Philip Ullyott and Orhan Ilgaz (Robert College, Istanbul). *Rev. faculté sci. univ. Istanbul* 9B, 254-72(1944).—All Bosphorus water is a mixt. of 2 components: surface water from the Black Sea which has a const. salinity and a variable temp., and deeper water from the Sea of Marmarma which is characterized by const. salinity and temp. A method of progressive admixts. is described which permits calcn. of theoretical temp.-salinity curves that closely approximate observed conditions. H. E. Wirth

UL'M, I. A., Candidate Biol Sci (diss) -- "The effect of mud from Tambukan Lake on the activity of certain enzymes and the content of ascorbic acid in the tissues of animals". Moscow, 1959. 13 pp (Min Health RSFSR, StateSci Res Inst of Spa Studies and Physiotherapy), 250 copies (KL, No 26, 1959, 124)

UL'M, I.A., nauchnyy sotrudnik

Change in the content of nitrogen substances in the gastric juice of dogs in experimental gastritis with the subsequent use of a high concentration of radon water. Uch.zap.Pyat.gos.nauch.-issl. bal'n.inst. 3:29-37 '60. (MIRA 15:10)
(RADON--THERAPEUTIC USE) (GASTRIC JUICE)
(STOMACH--INFLAMMATION)

JABUREK, Frantisek, dr.; JIRAK, Jaroslav; ULM, Emil, inz.

Raising labor productivity by piece-work wages. Geod kart obzor 2 no.3:41-42 Mr '56.

1. Ustredni sprava geodesie a kartografie.

ULM, E.; JABUREK, F.; JIRAK, J.

Improving the organization and Labor productivity in geodesy and cartography by new efficiency standards. p. 61. GEODETICKY A KARTOGRAFICKY OBZOR. (Ustredni sprava geodezie a kartografie) Praha Vol. 2, no. 4, Apr. 1956.

SOURCE: East European Accessions List, (EEAL), Library of Congress Vol. 5, no. 12, December 1956.

ULM, E.

Distinction awarded to the Regional Geodetic and Cartographic Office in Opava.

P. 150, (Geodeticky A Kartegraficky Obzor) Vol.3, no.7, July 1957, Praha, Czechoslovakia

SO: Monthly Index of East European Acession (EEAI) Vol. 6, No. 11 November 1957

UL'M, S. [Ulm, S.]

Algorithms in the generalized Steffensen method. Izv. AN Est. SSR. Ser. fiz.-mat. i tekh. nauk 14 no.3:435-443 '65.
(MIRA 18:11)

1. Institut kibernetiki AN Estonskoy SSR.

ULM, S.

3

1-F\W

Ul'm, S. On convergence of certain iterational processes in Banach space. Uč. Zap. Tartu. Gos. Univ. 42 (1956), 135–142. (Russian. Estonian summary)

The present author discusses four particular algorithms of the type treated by Kaazik in the preceding review. These are analogues of Newton's process, of the method of tangent hyperbolas [G. S. Salehov, Dokl. Akad. Nauk SSSR (N.S.) 82 (1952), 525–528; MR 14, 91], of a method of tangent parabolas, and of a method due to M. A. Mertvecova [ibid. 88 (1953), 611–614; MR 15, 39]. These have convergence of degrees 2, 3, 3, 4, respectively. Sufficient conditions for convergence are stated. As an example, the author gives one step each of solving by all four methods the integral equation

$$x(s)=.05s\int_0^1 tx^2(t)\,dt+.6625s.$$

G. E. Forsythe (Stanford, Calif.)

MM. 3.

Convergance theory of iteration methods. In Russia. p. 153.

EESTI ICODUS. (Eesti NSV Teaduste Akadeemia) Tartu, Estonia
Vol. 8, no. 3, 1959.

Monthly List of East European Accessions (EEAI), LC, no. Vol. 8 No. 12 Dec, 1959.
Uncl.

67134
SOV/23-59-4-7/10

~~16(1)~~ 16.4100 16.6500

AUTHOR: Ul'm, S.

TITLE: On the Convergence of the Method of Tangential Parabolas for a Real Equation Under Cauchy Type Theorem

PERIODICAL: Izvestiya Akademii nauk Estonskoy SSR, Seriya tekhnicheskikh i fiziko-matematicheskikh nauk, 1959, Vol 8, Nr 4, pp 296-299 (USSR)

ABSTRACT: Proceeding from a work by I.P. Mysovskikh [Ref 1] and furthering his own work [Ref 2], the author shows that the method of tangential parabolas is, under certain conditions, applicable to real equations just as much as in the case of general operator equations. This work shows that in Cauchy's theorem for real equation, the Newton method of convergence can be considerably widened in regard to the convergence conditions. Under such conditions, more precise definitions are likewise possible in the case of a theorem of convergence of tangential parabolas. The author, for the purpose

Card 1/2

On the Convergence of the Method of Tangential Parabolas for a Real Equation Under Cauchy Type Theorem

of investigation, singles out a real equation $P(x) = 0$ and employing the method of tangential parabolas

$$x_{n+1} = x_n - \left[1 + R(x_n)\right] \cdot \frac{P(x_n)}{P'(x_n)}, \text{ where}$$

$$R(x) = \frac{1}{2} \frac{P''(x)P(x)}{\left[P'(x)\right]^2} \quad \text{and } (n = 0,1,\ldots.) \text{ proves}$$

two theorems and the above-mentioned assumption. There are 1 diagram and 2 Soviet references.

ASSOCIATION: Tallinskiy politekhnicheskiy institut (Tallin Polytechnical Institute)

SUBMITTED: September 4, 1959

67135
SOV/23-59-4-8/10

~~16(1)~~ 16.4100 16.4100

AUTHOR: Ul'm, S.

TITLE: On the Convergence of Iteration Methods in Jointly Normalized Spaces

PERIODICAL: Izvestiya Akademii nauk Estonskoy SSR, Seriya tekhnicheskikh i fiziko-matematicheskikh nauk, 1959, Vol 8, Nr 4, pp 300-303 (USSR)

ABSTRACT: In this work, the author amplifies on the results arrived at in his other work [Ref 3], showing the transition of those results onto generalized norm spaces and considers the application of some theoretical definitions contained therein to systems of nonlinear equations. Taking a linear space X, normalized by means of a semi-uniformed space Z, and designating the generalized form of elements $x \in X$ with $|x| \in Z$, the author examines a nonlinear operator equation $x = U(x)$ (1) where U transforms X in X. To accomplish an approximate solution of equation (1), the author employs the iteration

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On the Convergence of Iteration Methods in Jointly Normalized Spaces

method $x_{n+1} = U(x_n)$ ($n = 0,1,\ldots$), (2)

confronts the equation (1) with a majorant equation
$z = V(z)$ (3)
and the method (2) with a method $z_{n+1} = V(z_n)$
($n = 0,1,\ldots$) (4)
where V transforms Z in Z. Assuming that U and V are continued differentiable operators and that equations (1) and (3) can be solved, the author proves theorem Nr 1, that the solution of method (2) can be reduced to the definition of x in equation (1). In therorem Nr 2, which constitutes a modification of theorem Nr 1, the author proves that it is possible to obtain a series of theorems on the convergence of varied iteration methods. Therein, the author takes an operator equation $P(x) = 0$ (5), where operator P transforms a

Card 2/3

67135
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On the Convergence of Iteration Methods in Jointly Normalized Spaces

linear space X into a space Y of similar type, and employs a modified Newton's method $x_{n+1} = U(x_n)$ ($n = 0, 1, \ldots$) (6), where $U(x) = x - \Gamma_0 P(x)$, $\Gamma_0 = [P'(x_0)]^{-1}$ / and proves that succession (6) is reduced to a sole in the area $|x-x_0| \leqslant z^*$ determination of x in equation (5). In theorem Nr 3, the author demonstrates how a majorant operator can be constructed on the basis of theprem Nr 2. There are 3 Soviet references.

ASSOCIATION: Tallinskiy politekhnicheskiy institut (Tallin Polytechnical Institute)

SUBMITTED: September 4, 1959

Card 3/3

UL'M, Sulev, Cand Phys-Math Sci (diss) -- "Investigation of some problems of the convergence of iteration methods by the Majorant principle". Tallin, 1960. 7 pp (Acad Sci Est SSR, Dept of Tech and Phys-Math Sci) (KL, No 11, 1960, 128)

L 12466-63 EWT(d)/FCC(w)/BDS AFFTC Pg-4 IJP(C)
S/023/63/000/001/002/004

AUTHOR: Ul'm, S., Candidate of Physicomathematical Sciences

TITLE: Interpolate methods for solving equations in Banach space

PERIODICAL: Akademiya nauk Estonskoy SSR. Izvestiya. Seriya fiziko-matematicheskikh i tekhnicheskikh nauk, no. 1, 1963, 24-30

TEXT: The solution of nonlinear operator equations with the aid of iterative methods is considered. These procedures are interpolate analogs of methods of tangent parabolas (Ref. 4: V.Ye. Mirakov, UMN, 11, 3, 1956, 171-174) and tangent hyperbolas (Ref. 3: M.A. Mertvetsova, DAN, 88, 4, 1953, 611-614). The principle of majorant is applied to prove the convergence of the considered methods. The convergence theorem of the method of chords (Ref. 5: A.S. Sergeyev, Sibirskiy matem. zhurnal, 2, 2, 1961, 282-289) is generalized and made more precise. The iterative methods are:

$$x_{n+1} = x_n + \left[E - U_n(\tilde{x}_{n-1} - x_{n-1})\right](\tilde{x}_{n+1} - x_n) \qquad (1)$$

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L 12466-63 S/023/63/000/001/002/004

Interpolate methods...

$$x_{n+1} = x_n + \left[E + U_n(x_{n+1}-x_{n-1})\right]^{-1} (\tilde{x}_{n+1}-x_n) \quad (2)$$

$$x_{n+1} = x_n + \left[E + U_n(x_{n+1}-x_n)\right]^{-1} \left[E-U_n(x_n-x_{n-1})\right] (\tilde{x}_{n+1}-x_n) \quad (3)$$

n=0, 1, ...for nonlinear operator P(x)=0 in Banach space X; E --unit operator of space X; $U_n = \Lambda_n P(x_n, x_{n-1}, x_{n-2})$; $\Lambda_n = [P(x_n, x_{n-1})]^{-1}$. Methods (1), (2), (3) are more suitable for application in practice than the corresponding differential methods. They do not employ the derivatives of the operator P. They are convenient for use on electric computers since only the values for operator P(x) need be calculated. There are 6 non-English language references.

ASSOCIATION: Institut kibernetiki, Akademii nauk Estonskoy SSR (Institute of Cybernetics, Academy of Sciences of Est SSR).

SUBMITTED: July 6, 1962

Card 2/2

UL'M, S. [Ulm, S.], kand.fiz.-matem.nauk

A class of iterative methods in Hilbert space. Izv. AN Est. SSR. Ser. fiz.-mat. i tekh. nauk 12 no.2:132-140 '63. (MIRA 16:10)

1. Institut kibernetiki AN Estonskoy SSR.

UL'M, S. [Ulm, S.], kand. fiz.-matem. nauk

Interpolation analogue of the method of gradients. Izv. AN Est. SSR, Ser. fiz.-mat. i tekh. nauk 12 no.3:238-243 '63. (MIRA 16:11)

1. Institut kibernetiki AN Estonskoy SSR.

UL'M, S. [Ulm, S.], kand. fiz.-matem. nauk

Iterative methods for solving a nonlinear equation based on linearization by means of Newton's interpolation formula. Izv. AN Est. SSR. Ser. fiz.-mat. i tekh. nauk 12 no.4:384-390 '63. (MIRA 17:1)

1. Institut kibernetiki AN Estonskoy SSR.

UL'M, S.Yu. [Ulm, S.] (Tallin)

Extension of the Steffensen method for solving nonlinear operator equations. Zhur. vych. mat. i mat. fiz. 4 no.6:1093-1097 N-D '64. (MIRA 18:2)

UL'M, S. [Ulm, S.], kand. fiz.-matem. nauk

The principle of majorants and the method of chords. Izv. AN Est. SSR. Ser. fiz.-mat. i tekh. nauk 13 no.3:217-227 '64. (MIRA 17:11)

1. Academy of Sciences of the Estonian SSR, Institute of Cybernetics.

BK

L 6907-65 EWT(d) IJP(c)/ESD(t)/ESD(dp)/ESD(gs)/RAEM(t)

ACCESSION NR: AP4045091 S/0020/64/158/001/0056/0058

AUTHOR: Ul'm, S. Yu.

TITLE: Iteration methods with separated differences of second order (6)

SOURCE: AN SSSR. Doklady*, v. 158, no. 1, 1964, 56-58

TOPIC TAGS: finite differences method, operator equation, nonlinear functional operator, iteration method

ABSTRACT: Given an equation

$$\mathcal{P}(x) = 0, \qquad (1)$$

where $\mathcal{P}(x)$ -- nonlinear operator which transforms a linear normalized space X into a space Y of the same type, and expressing the operator in a form similar to the Newton interpolation formula

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L 8907-65
ACCESSION NR: AP4045091

$$\mathcal{P}(x) = \mathcal{P}(x_n) + \mathcal{P}(x_n, x_{n-1})(x - x_n) + \mathcal{P}(x_n, x_{n-1}, x_{n-2})(x - x_n)(x - x_{n-1}) + R_n, \quad (2)$$

where

$$\mathcal{P}(x_n) + \mathcal{P}(x_n, x_{n-1})(x - x_n) + \mathcal{P}(x_n, x_{n-1}, x_{n-2})(x - x_n)(x - x_{n-1}) = 0 \quad (3)$$

the author proves that if Eq. (1) has a solution x* with

$$\max(|x' - x_0|, |x'' - x|, |x''' - x_0|) \leqslant d$$

and each x', x", x"', x^{IV} from the sphere $\|x - x^*\| \leq d$ satisfies the estimates:

a) $\|\mathcal{P}(x', x'')\| \leqslant B$,

b) $\|\mathcal{P}(x', x'', x''')\| \leqslant H$,

d) $\|\mathcal{P}(x', x'', x''') - \mathcal{P}(x', x'', x^{IV})\| \leqslant K \|x''' - x^{IV}\|$

[illegible]

then the sequence

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ACCESSION NR: AP4045091

$$x_{n+1} = x_n + [E - \alpha U_n(\tilde{x}_{n+1} - x_n)]^{-1}[E - (1+\alpha)U_n(\tilde{x}_{n+1} - x_n) - U_n(x_n - x_{n-1})](\tilde{x}_{n+1} - x_n), \quad (8)$$

converges to the solution x* of Eq. (1) with a speed

$$\|x^* - x_n\| \leqslant \frac{1}{M}(Md)^{t_n} \quad (n = 0, 1, \ldots), \quad (9)$$

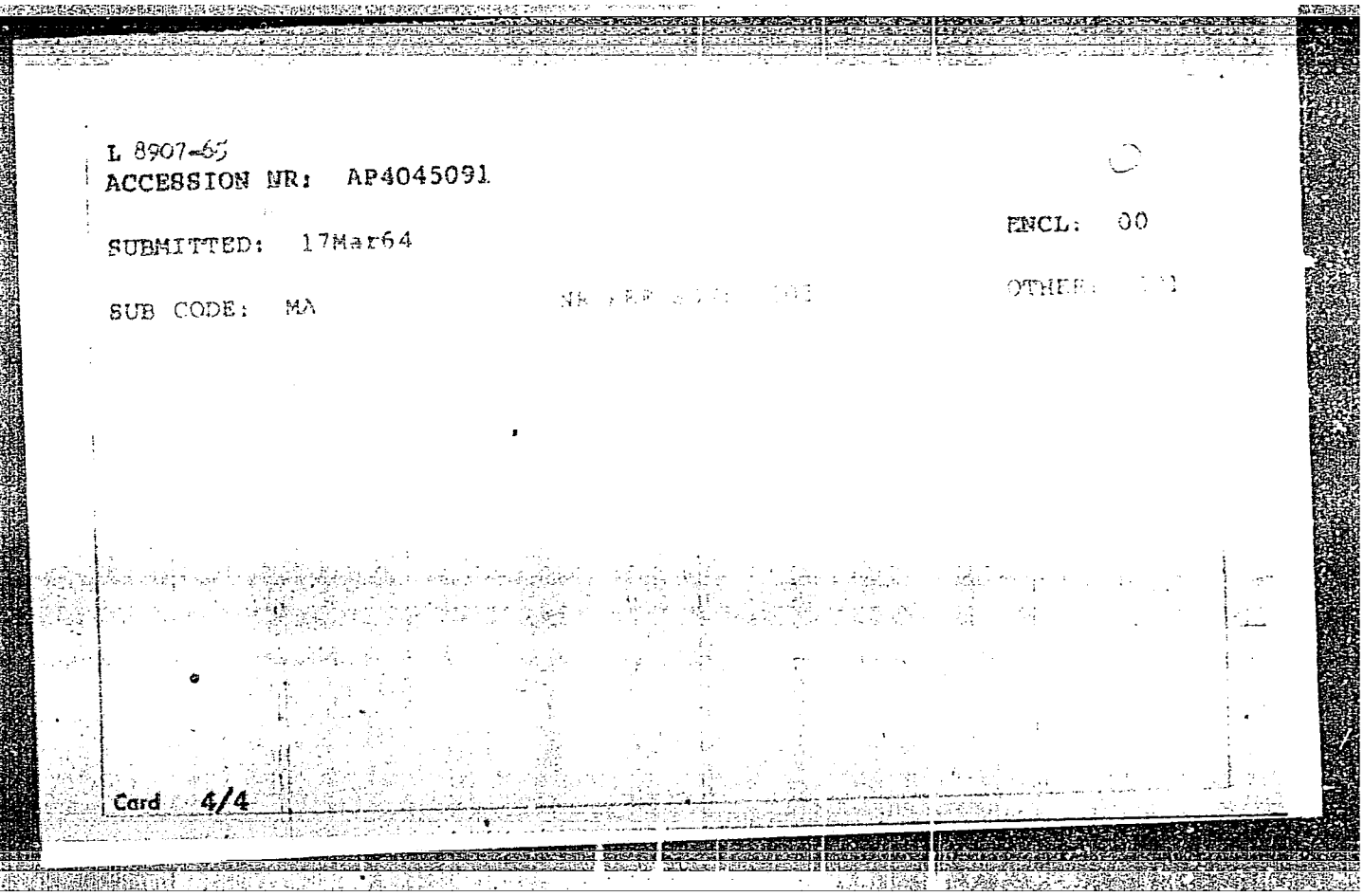
where

$$M = \left[\frac{BK + B^2H^2 + |1+\alpha|B^2H^2(1+BHd)}{1-|\alpha|BHd(1+B^2d)}\right]^{1/n}$$

and the numbers t_n are generalized Fibonacci numbers. The analogy between this interpolation and that given by others is discussed briefly. This report was presented by A. A. Dorodnitsyn [illegible]

ASSOCIATION: Institut kibernetiki Akademii nauk ESSR (Institute of

Card 3/4



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ACCESSION NR: AP4045091

SUBMITTED: 17Mar64 ENCL: 00

SUB CODE: MA OTHER:

Card 4/4

ÜL'M, S. [Ulm, S.]

A class of iterative methods with a third-order convergence rate. Izv. AN Est. SSR. Ser. fiz.-met. i tekh. nauk 14 no. 4: 534-539 '65 (MIRA 19:2)

1. Institut kibernetiki AN Estonskoy SSR. Submitted September 29, 1964.

L 10382-67 EWP(k)/ EWT(d)/EWP(h)/ EWP(l)/EWP(v)
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AUTHOR: Ul'm, S.

ORG: Institute of Cybernetics, Academy of Sciences Estonian SSR (Institut kibernetiki AN EstSSR)

14

TITLE: Construction of algorithms for an approximate solution to some optimum control problems

SOURCE: AN EstSSR. Izvestiya. Seriya fiziko-matematicheskikh i tekhnicheskikh nauk, no. 2, 1966, 167-177

TOPIC TAGS: optimal control, algorithm

ABSTRACT: The solution to certain optimum control problems can be reduced to problems of finding the absolute minima of certain functionals in function spaces. For an approximate solution to the lattor problems use can be made of algorithms developed for the solution of nonlinear equations. In previous works by other authors Newton's method and a particular variant of the method of gradients were generalized for the solution of optimum control problems.

On the basis of methods of functional analysis the present article gives a more general scheme for the construction of methods of this type for the solution of certain optimum control problems. Orig. art. has: 38 formulas. [JPRS: 39,040]

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