

TEST'YANDV, A.P.; NIKOLAYEV, L.A.; CHEN KHIA-DIN [Ch'eng Hsu-ting];
KREKOVA, M.V.; TULUPOV, V.A.

Cleaning oil sections of coolers without dismantling them
from the diesel locomotive. Trudy NIIT no.110:125-150 '59.
(MIRA 13:4)

(Diesel locomotives--Maintenance and repair)

NIKOLAYEV, L.A., hand.tothe.mak; NIKITIN, D.M., tech.

Heating system of diesel engine with air cooling. Trakt.
i sol'mennoch. 30 no.10:0-11 0 '60. (MIRA 1)'8)

(Diesel engine--Cold weather operations)

ACC NR: 000006

SOURCE CODE: UR/0076/66/040/011/2665/2670

AUTHOR: Nikolayev, L. A.
ORG: Moscow Institute of Railroad Engineers (Moskovskiy Institut Inzhenerov zhelezнодорожного transporta)
TITLE: General problems of stability and biogenesis
SOURCE: Zhurnal fizicheskoy khimii, v. 40, no. 11, 1966, 2665-2670
TOPIC TAGS: physical chemistry, thermodynamics, biochemistry, general physiology
ABSTRACT:

In a recent issue of the *Journal of Physical Chemistry*, L. A. Nikolayev discusses general problems of stability and autoregulation of various physical and chemical systems, ranging from purely mechanical systems, such as a pendulum in a medium of different temperature, to intelligent beings, such as man.

The purpose of the paper was to classify these systems according to their ability to maintain stability. The concept of aspects and subsystems in each given system is introduced; e.g., the above-mentioned system of a pendulum consists of two subsystems: the pendulum itself and the surrounding air. Attainment of mechanical and thermal equilibriums indicates two aspects of the system, each expressed by an independent function.

UDC: 541.11+577.99

Card 1/3

ACC NR. AP7000006

The author concedes that the definition of the systems with respect to environment is somewhat arbitrary. However, well defined criteria exist for assigning the system to certain classes according to a gradual increase in the ability of the systems to maintain their stability. Such an increase is expressed by the concept of the rank of the system. In total, there are five ranks for all potentially possible systems. A brief description of the stability criteria is given below with a definition of the ranks:

1) Systems of the first rank are mechanical systems; the condition for their equilibrium is that the resultant work of all forces acting on the system is equal to zero.

2) Systems of the second rank are thermodynamic systems. Here a minimum or maximum of some thermodynamic function is the criterion of stability, e.g., if the volume and the inner energy of a system are constant, the maximum of entropy will be the condition of stable equilibrium.

3) Systems of the third rank are kinetic flux systems in which irreversible processes take place. The condition of equilibrium is a minimum value of the first derivative of entropy with respect to time.

Card 2/3

ACC NR. AI7000006

Systems thus conditioned return to the initial state if deviated. A decrease in entropy is possible for such systems if, e.g., work is added or heat removed.

4) Systems of the fourth rank are biological systems. In this connection, the author quotes a statement by van der Waals from his "Course of Thermostatics" (1938): "Science does not know whether a principle analogous to that of entropy exists in living matter, and, therefore, conditions given by Gibbs rule are completely inapplicable to the peculiarities of a living system."

Stabilization of living systems is achieved by forced deviation of their subsystems from equilibrium. There is a certain analogy with flux systems: in the case of the latter, the entropy is allowed to decrease, while in biological systems, partial deviations from equilibrium are necessary to maintain the stability of the whole.

Biological subsystems are interconnected and this seems to be a pattern of biological evolution. The interconnection of biological subsystems results in the formation of an autoregulation or a feedback mechanism. This basic principle seems to be a universal characteristic of life. By this, a defense of life forms and is achieved against

Card 3/5

ACC NR. AP7000006

the damaging of adverse effects of the environment; this leads to the conclusion that the chemical evolution of life was completed long ago and that further development of life consisted of combining the available biochemical units or subsystems into suitable complexes.

The destructive effect of the environment is countered by the dynamic character of living systems. This dynamic character of the structure provides a solution for regeneration. A simple example of this dynamic character is seen from a chemical system of a crystal of some aluminum salt placed into an alkaline solution. The membrane of aluminum hydroxide is continuously dissolved on the outer side and regenerated in the vicinity of the crystal surface where the pH value is suitable. This simple example gives an idea of a dynamic feedback acting in living systems.

5) The systems of the fifth rank are intelligent living systems. Such systems can choose the safest environment in addition to the autoregulating mechanisms inherent to their structure. Mental activity serves to stabilize the living organism.

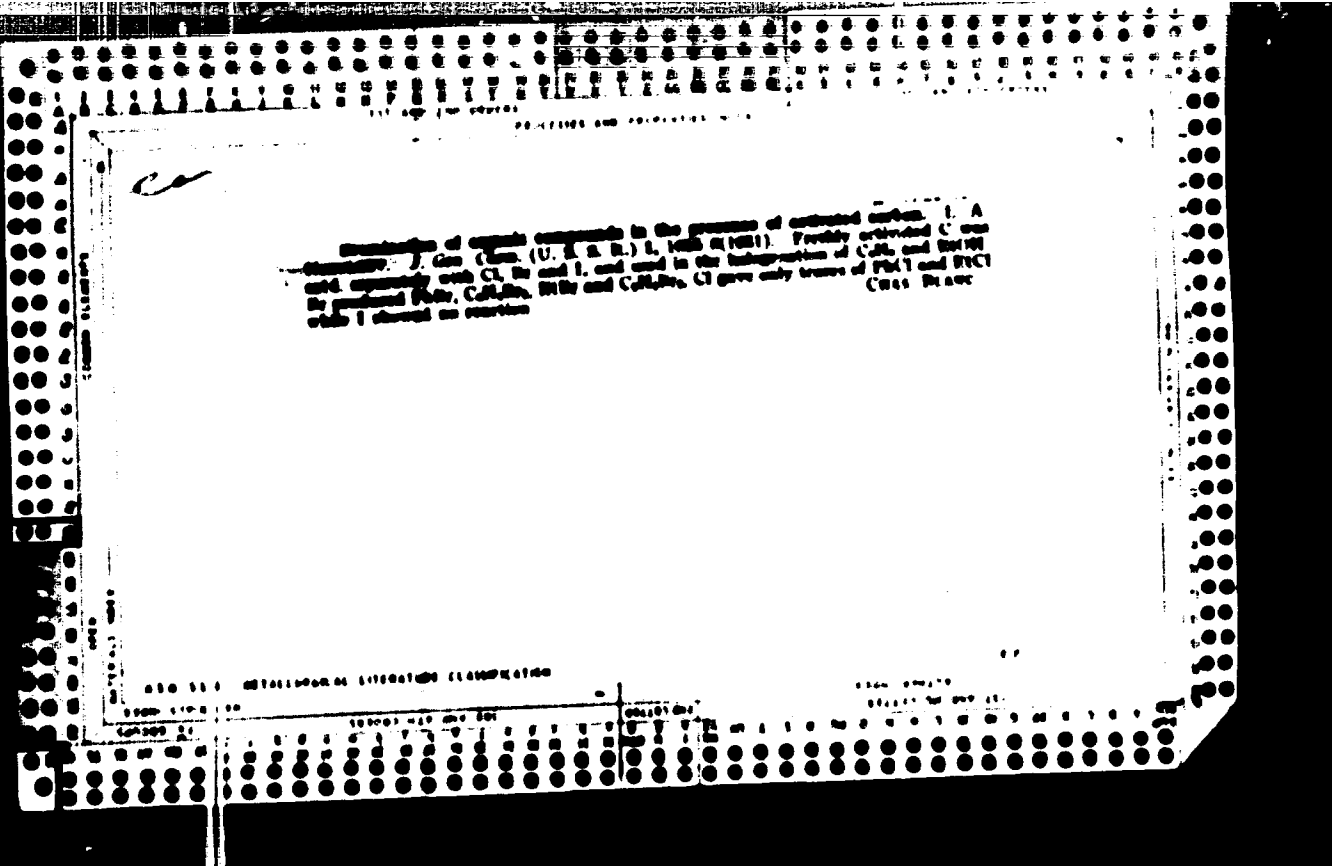
The problem of modeling the biosystem is also mentioned in the article. It is noted that some functions of the most intricate biosys-
Card 4/5

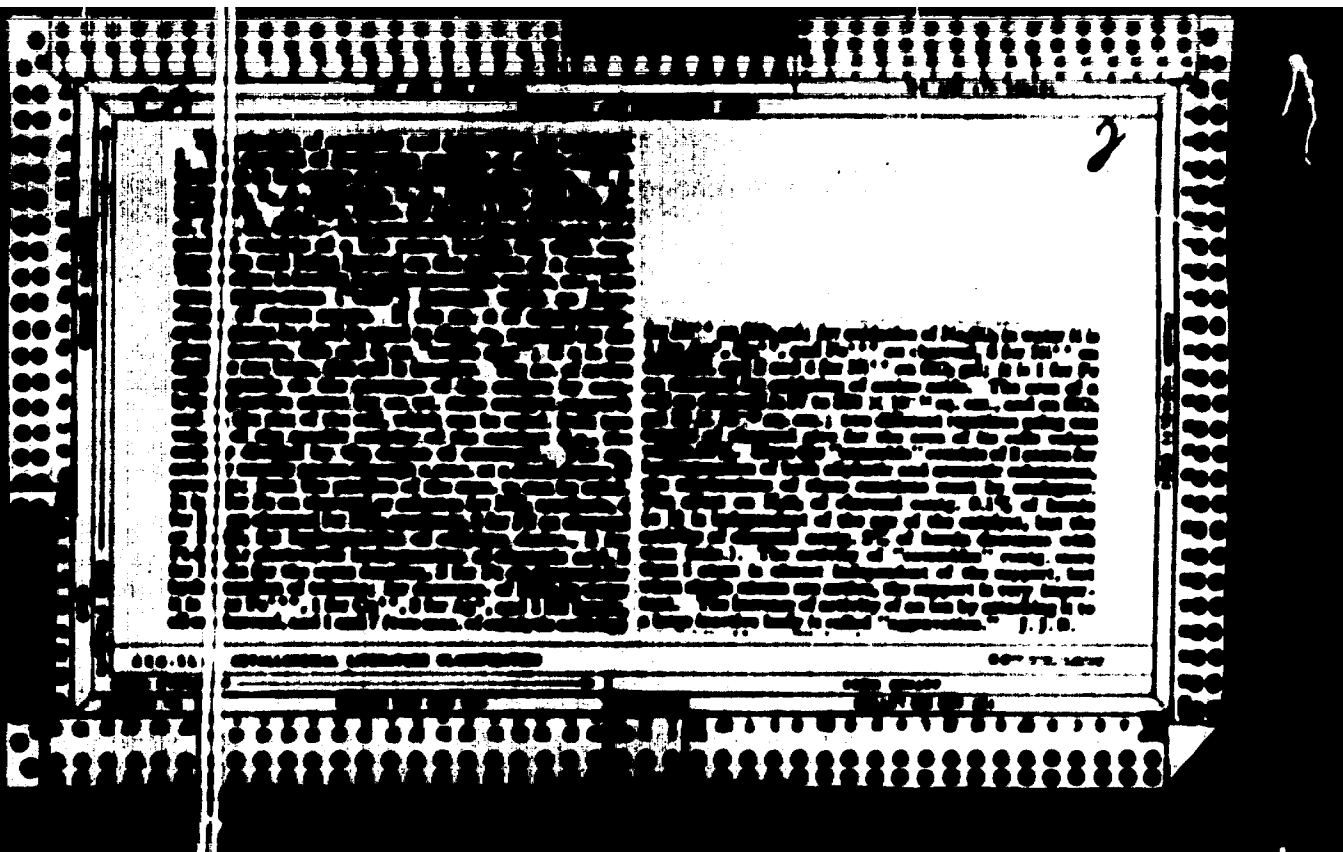
"APPROVED FOR RELEASE: 08/23/2000

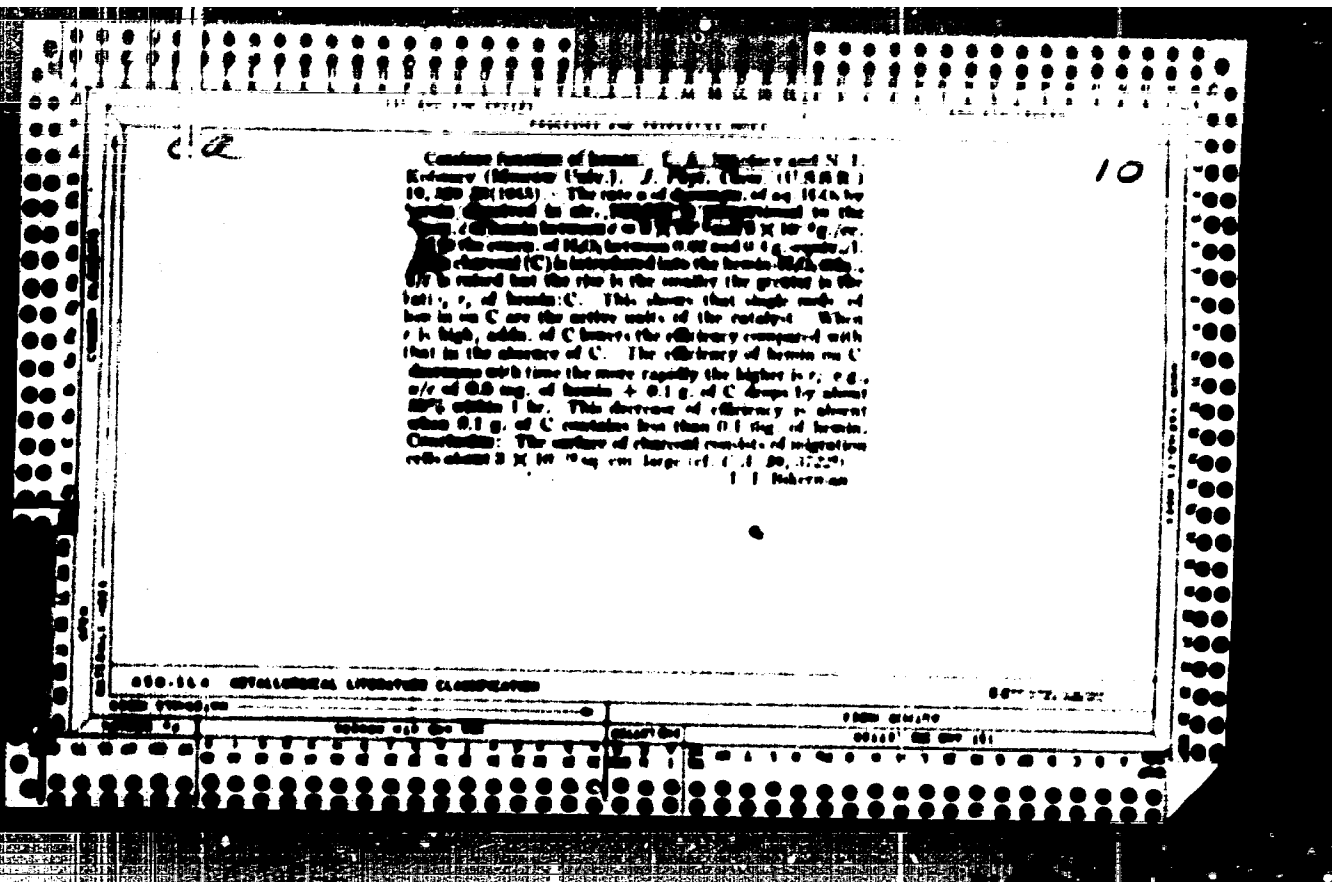
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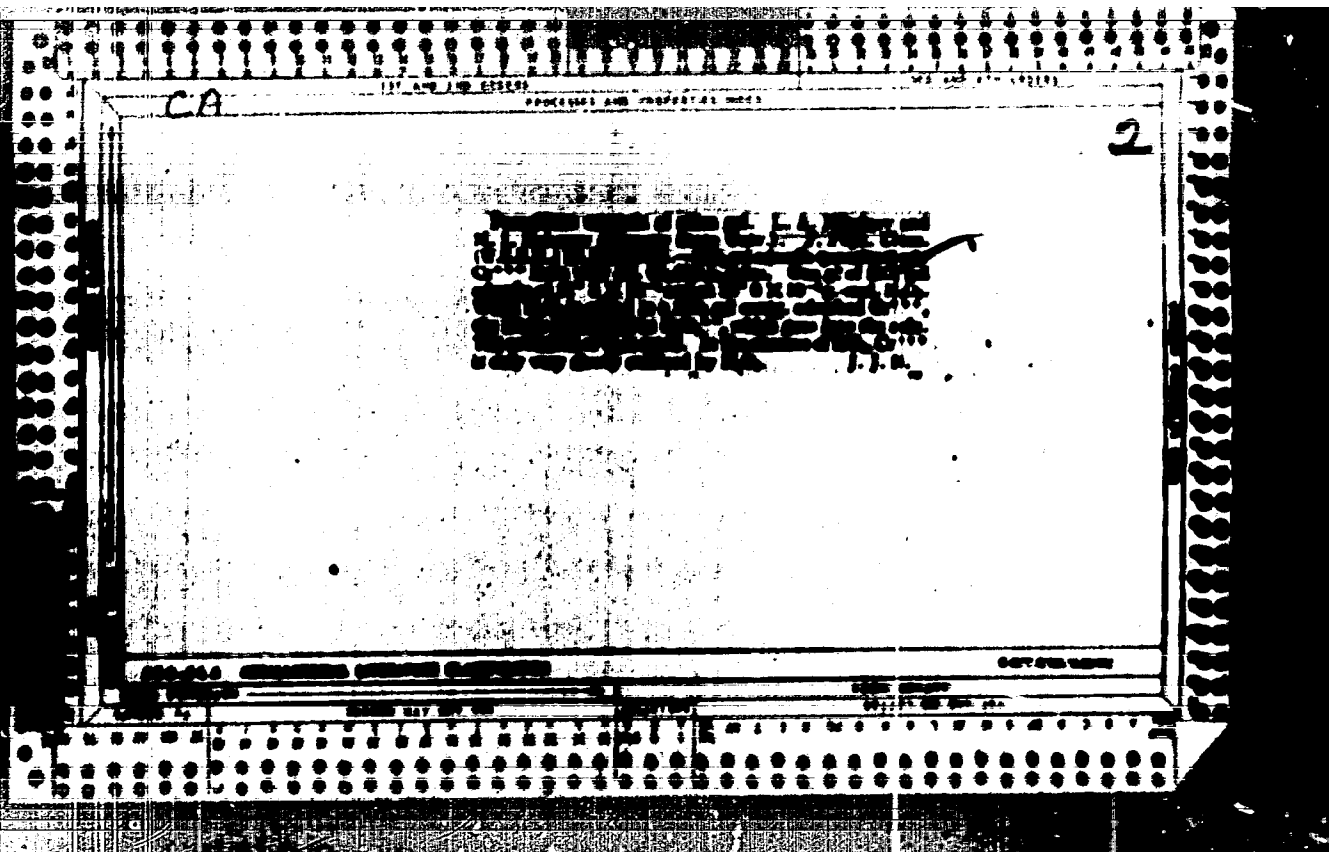
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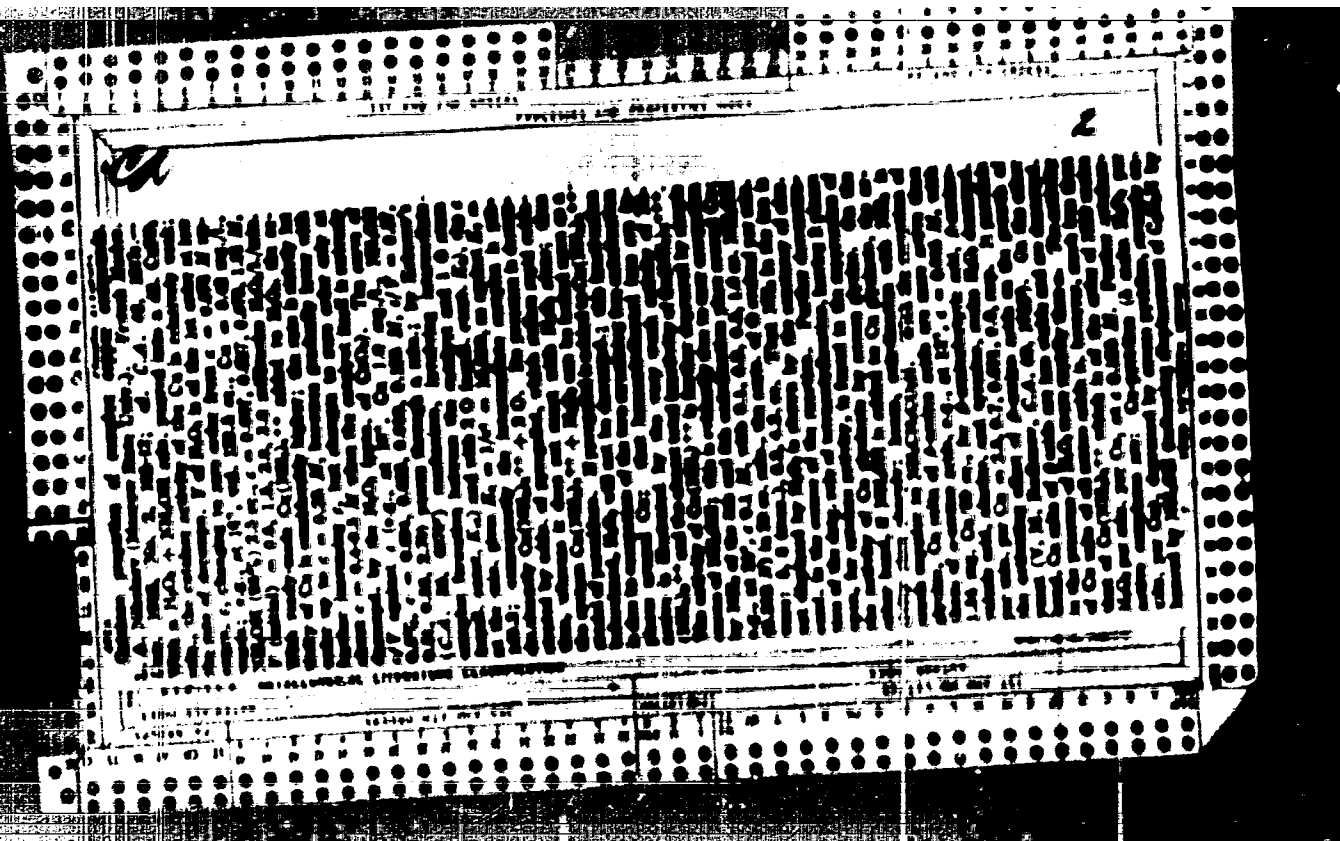
CIA-RDP86-00513R001137110012-4"

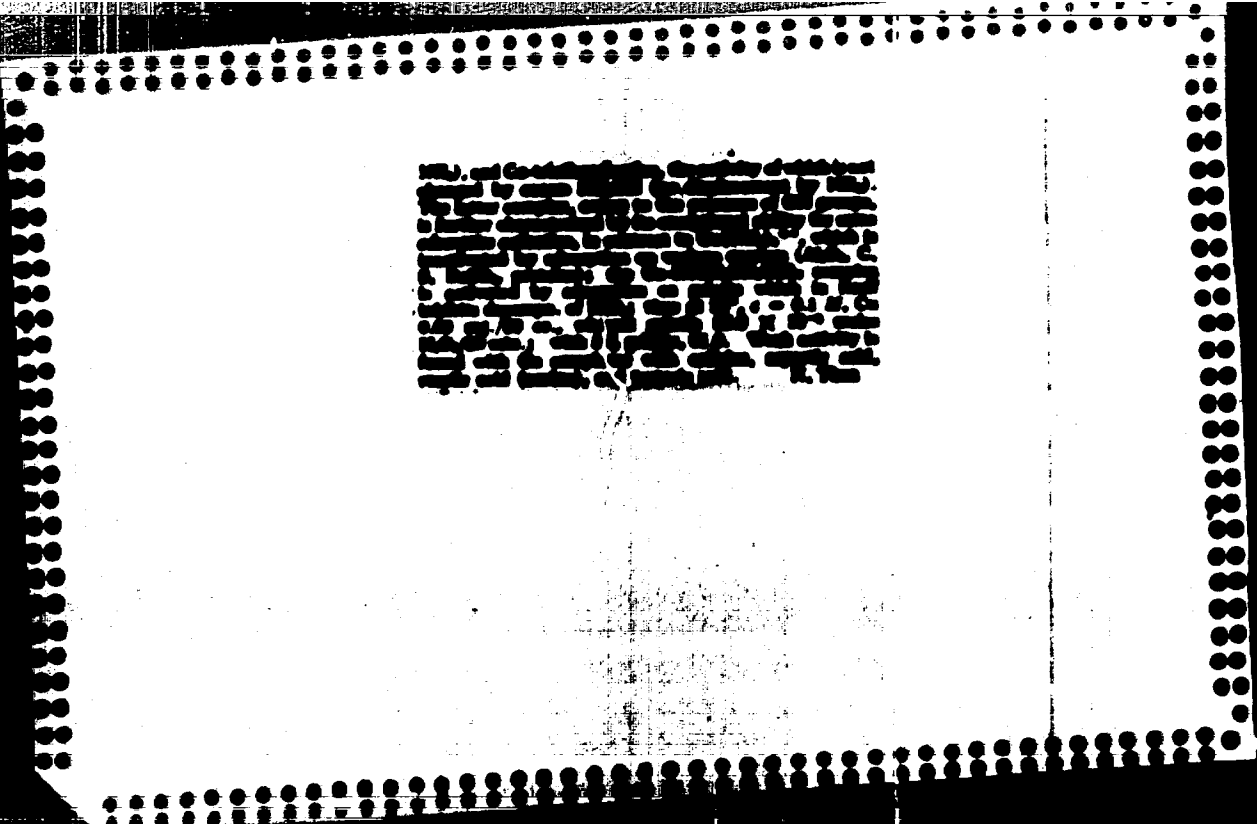




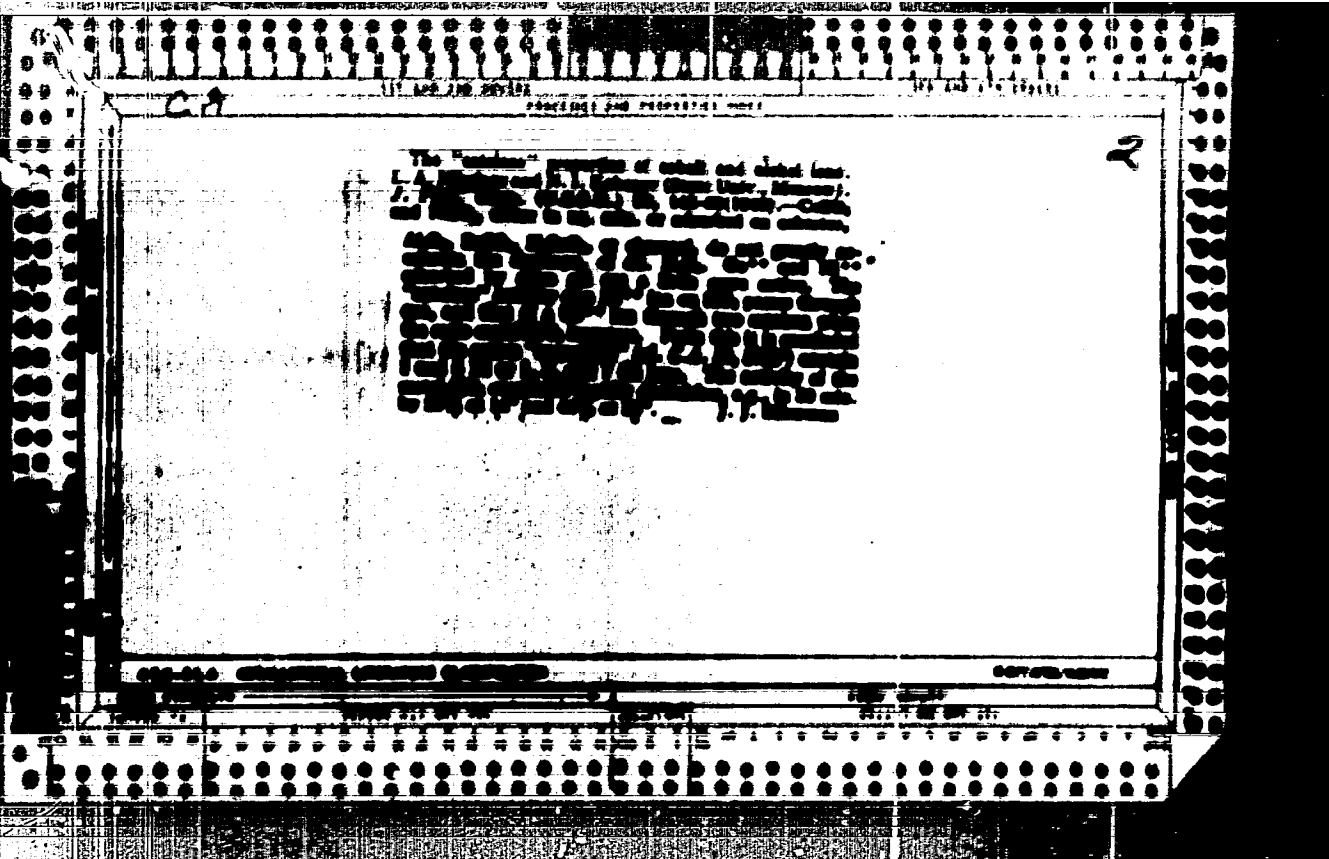


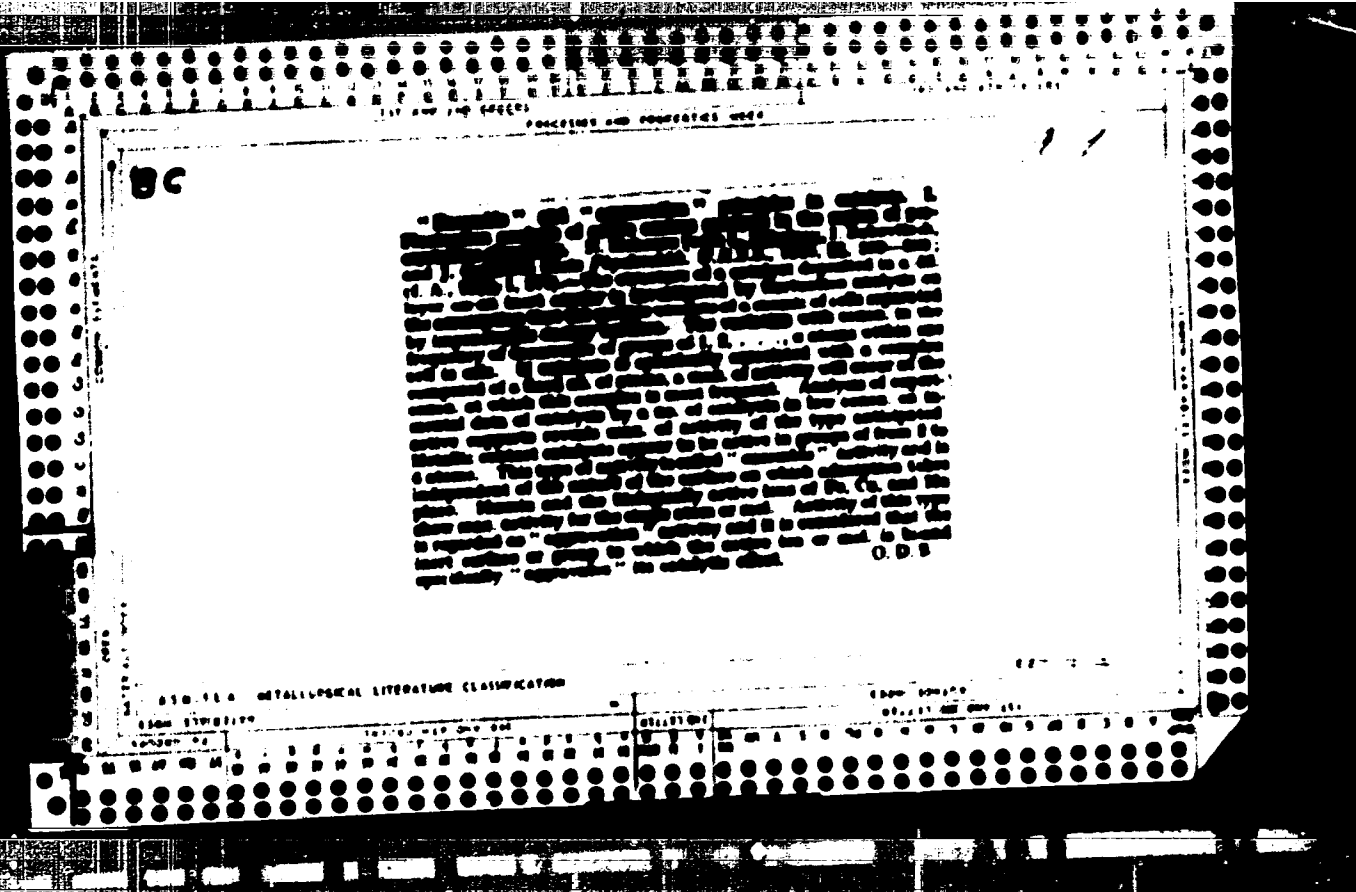




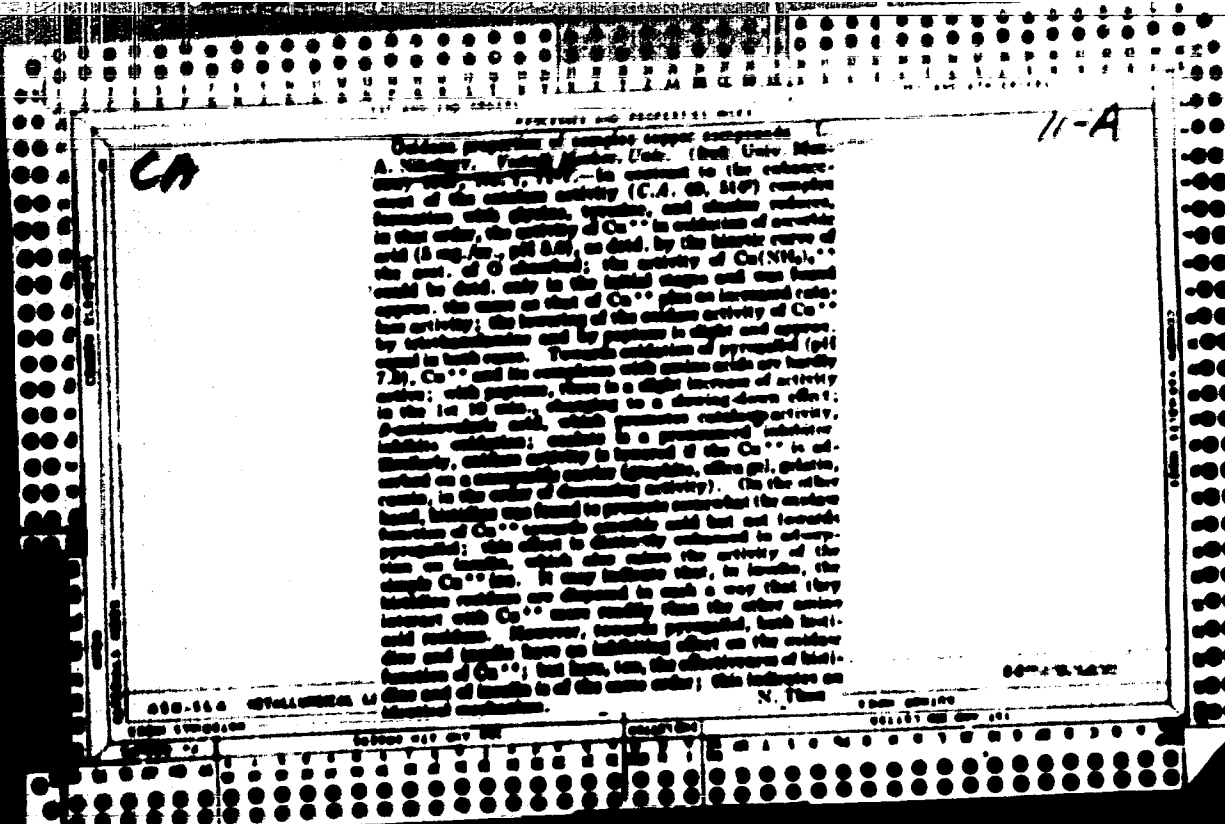


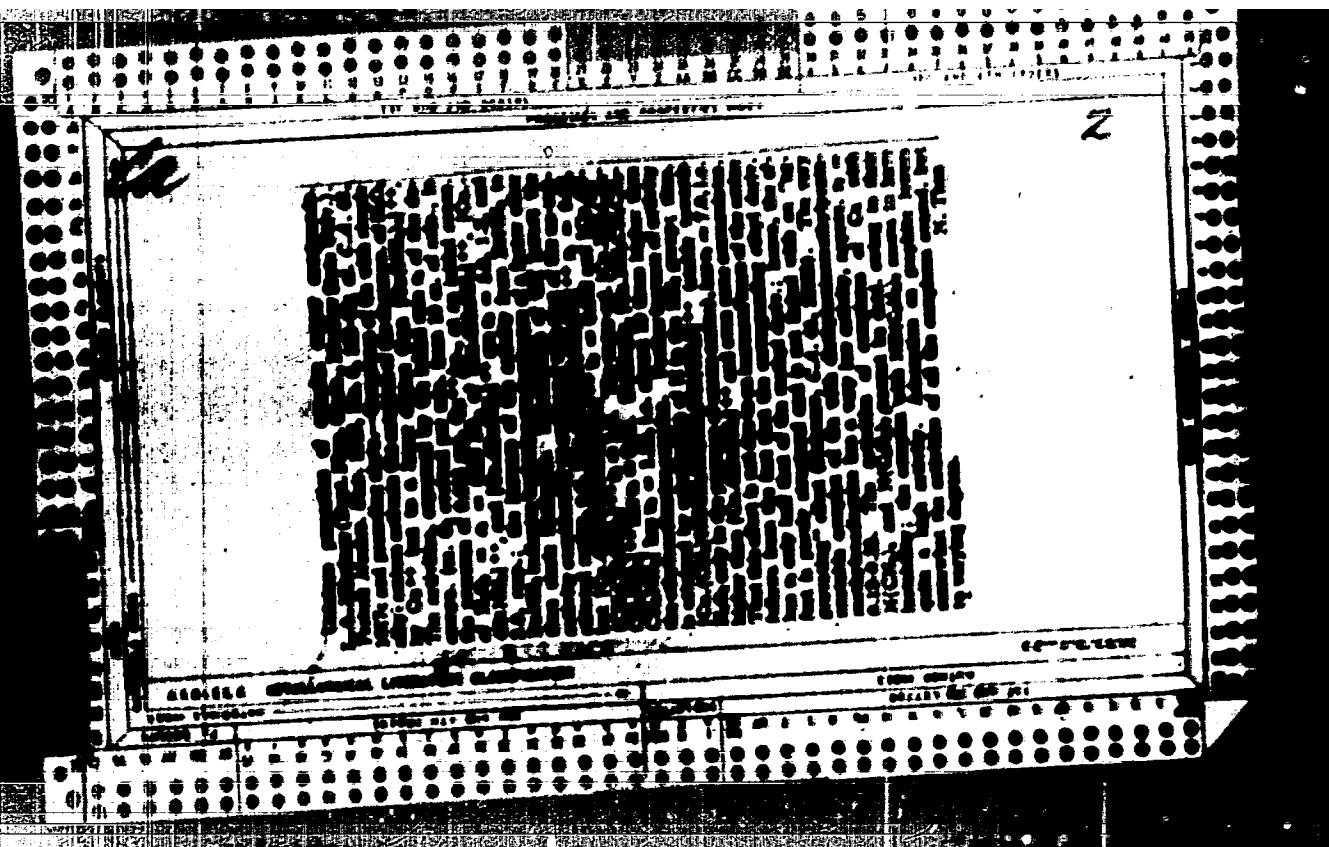
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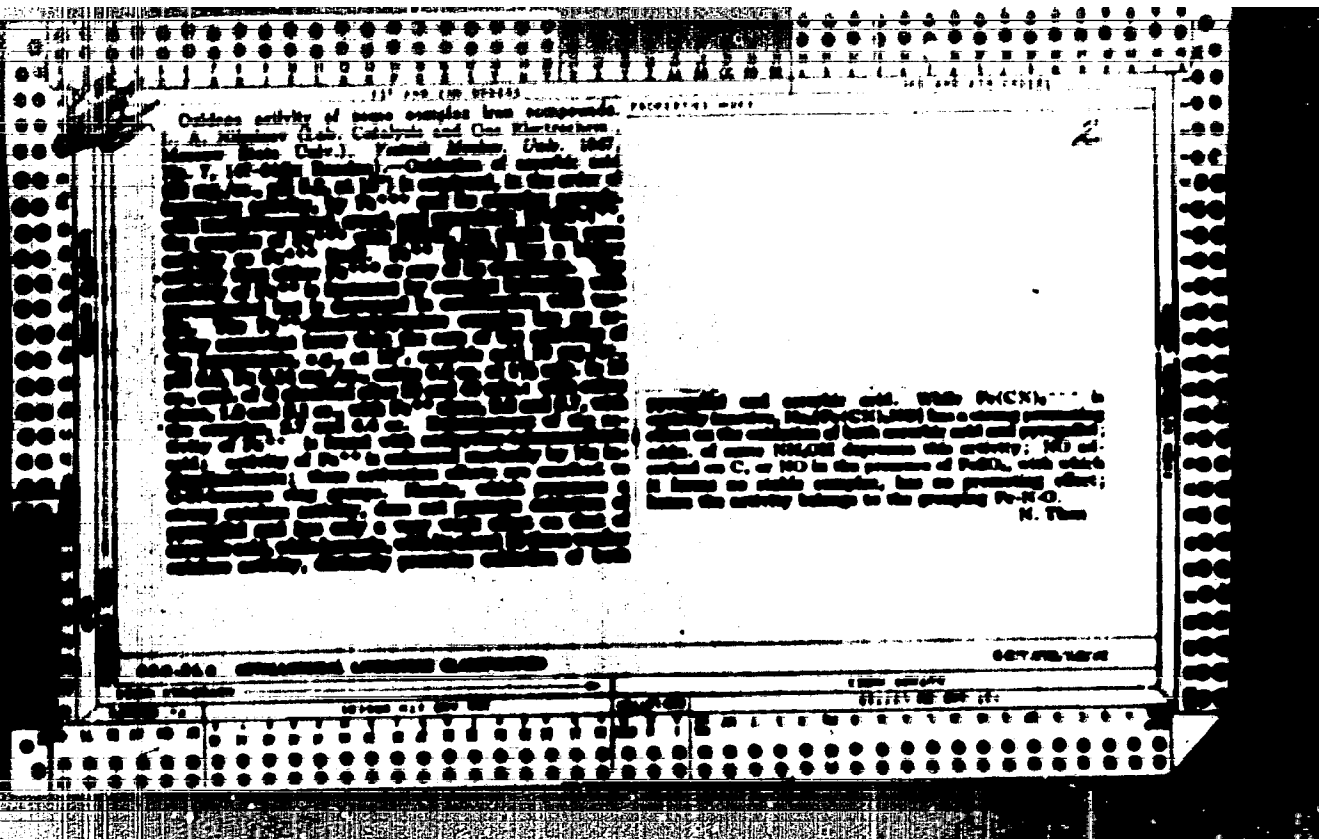


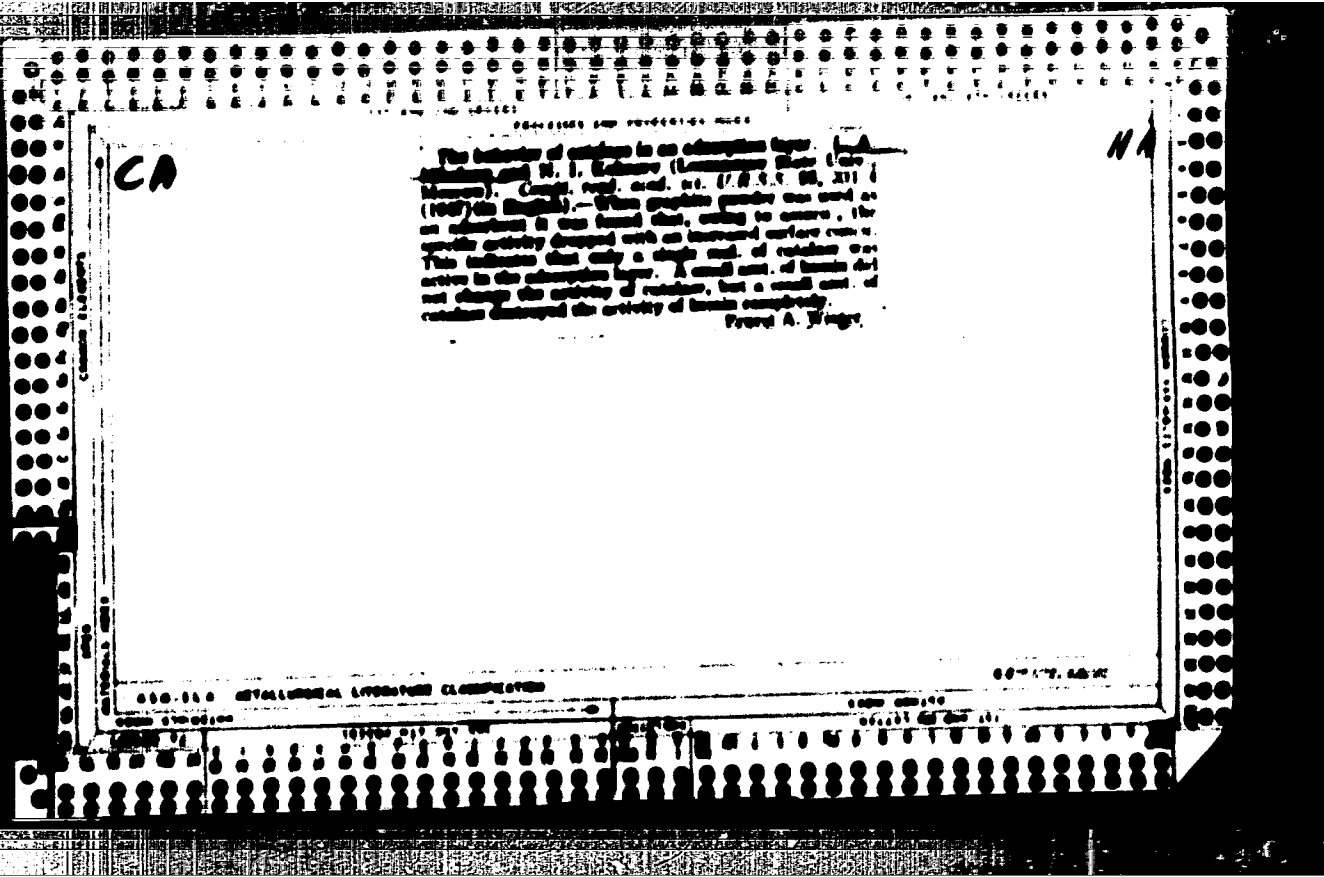


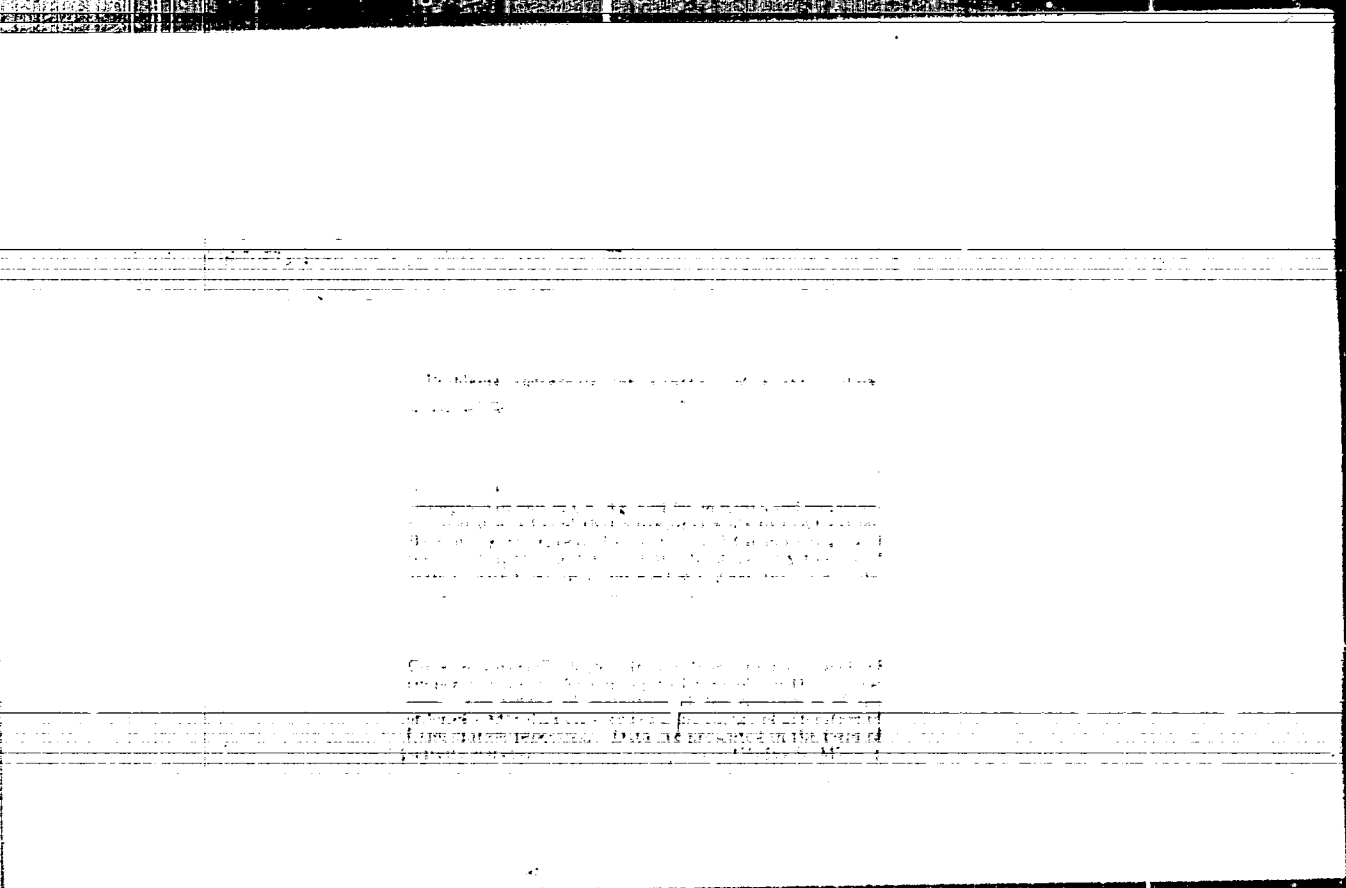
-----, 1946.
"The 'Wrenchie' and 'Merravation' Principles in Catalysis, vol. 11, No. 1,
1946. Div. Dept. Physical Chem., Inst. Catalysis and Electrochemistry of USSR,
Moscow State Univ., -1946-.











CA

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Security, safety of lives and property, and
the well-being of the community. The
Government is committed to the protection
of the rights of all citizens and to the
maintenance of the rule of law. The
Government is committed to the promotion
of the economic and social development
of the country. The Government is
committed to the maintenance of
international peace and security. The
Government is committed to the
promotion of friendly relations with
all states. The Government is
committed to the promotion of
international cooperation for the
benefit of all peoples. The
Government is committed to the
promotion of the well-being of
the people of the country. The
Government is committed to the
promotion of the well-being of
the people of the world.

Catalytic processing of bound metalloproteins

The catalytic activity of metalloproteins is often dependent on the presence of a specific metal ion. The metal ion is coordinated to the active site of the enzyme, and its presence is essential for the enzyme to function. The metal ion can be removed from the enzyme, and the enzyme becomes inactive. The metal ion can be re-added to the enzyme, and the enzyme becomes active again. This process is called catalytic processing of bound metalloproteins.

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AB
7/8/57

Science

Present-day problems in catalysis and its use in industry. Moskva. (Znanie) 1951.

Monthly List of Russian Accessions, Library of Congress, April, 1952. UNCLASSIFIED.

Present-day problems in catalysis and its use in industry.

Po materialam tsikla lektsii o katalize, pročitannykh v Moskve. Moskva Znanie
1951. 30 p. (51-29(96)

TP156.S35N5

NIKOLAYEV, L. A., PROF - DR CHEM SCI

Univ/Biology - Moscow

Nov 51

"Biological Catalysts," Prof L.A. Nikolayev,
Dr Chem Sci

"Zhurnal Khimii" Vol XVIII, No 11, pp 25-28

At the end of a rather elementary and general discussion of enzymes, states that investigations carried out by USSR scientists in recent years demonstrated that the transformation of ATP (adenosine triphosphoric acid) into adenosine diphosphoric acid supplies energy for the formation of new substances in the cell, for bringing about muscle contraction, for developing heat, for generating elec charges (in the body of the

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elec charge or ray), for generating light energy in the body of luminous animals. Asserts that in view of the advanced state of USSR science, practical application of artificial enzymes may be expected in the near future.

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USSR/Chemistry - Hydrogen Peroxide Catalysts Dec 51

"Catalytic Activity of Complex Compounds of Copper," L. A. Nikolayev, Moscow Inst of Railway Transport Engineers Issue 1. V. Stalin

"Zhur Fiz Khim" Vol XIV, No 12, pp 1427-1436

Investigated activity of Cu complexes with 24 different aliphatic and aromatic amines, pyridine, piperidine, picoline, aminopyridine, certain purine derivs, thiourea, and some compounds not containing N atom as catalysts of decomposition of H₂O₂.

LC 1970a

USSR/Chemistry - Nitrogen Peroxide Catalysts (Contd) Dec 51

Studied effect of type of addenda to Cu on activity. Found that activity of Cu complexes increases as their stability under action of H₂O₂ solutions decreases.

LC 1970a

NIKOLAYEV, L. A.

197723

USSR/Chemistry - Hydrogen Peroxide Catalysts Dec 51

"Relation Between Structure and Catalytic Activity of Certain Complex Compounds," L. A. Nikolayev, Moscow Inst of Railroad Transport Engineers (Inst I. V. Stalin

"Zhur Piz Khim" Vol XIV, No 12, pp 1837-1844

Amine complexes of Cu exhibit high catalytic activity in H₂O₂ decomps which depends on nature of chain group. Activity grows with length of hydrocarbon chain. Influence of NH₂, OH, CH₂CH₃, COOH,

LC 197723

USDA/Chemistry - Hydrogen Peroxide Catalysts (Contd) Dec 51

COOH, COOH groups is noticeable even when they are in remote part of mol. Fe complexes are also active.

LC

197723

NIKOLAEV, L.A., doktor khimicheskikh nauk, professor.

[Catalysis and its significance for the development of the
chemical industry] Kataliz i ego znachenie dlia razvitiia khimi-
cheskoi promyshlennosti. Moskva, izd-vo "Khimia", 1953. 31 p.
(MIRA 6:11)

(Catalysis)

ИЗДАНИЕ, Т. А.

Catalysis and its significance for the development of the chemical industry; public lecture Moskva, Znanie, 1953. (Vsesoiuznoe obshchestvo po rasprostraneniю politicheskogo i nauchnykh znaniy. Seriya 3, no. 49) (Mic 55-4137)

Collation of the original, as determined from the film: 31, 1 p.

Microfilm Slavic 473 AC

Nikolayev, L. A.

Catalysis - Cobalt, Hydrogen Peroxide

Oct 53

"Catalytic Activity of Stereoisomeric Forms of Complex Cobalt Compounds," L. A. Nikolayev, Inst of IN Transport Engrs in I. V. Stalin, Moscow

Zhur Vis Khim, Vol 27, No 10, pp 1592-93.

The catalytic activity of cis-tetraamminecobalt(II) nitrate (flavo-salt) differs from that of trans-tetraamminecobalt(II) nitrate (crocea-salt) with respect to the oxidation of benzaldehyde and the decomposition of hydrogen peroxide. While the crocea-salt is more

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active in decomposing hydrogen peroxide in the beginning than the flavo-salt, the difference disappears as the reaction progresses.

NIKOLAYEV, L.A., doktor khimicheskikh nauk, professor.

[Minor elements and their role in the life of plants and animals]
Mikroelementy i ikh rol' v zhizni rastenii i zhivotnykh. Moskva,
Izd-vo "Soviet", 1954. 31 p. (Vnesolunnoe obshchestvo po rasprostra-
neniu politicheskikh i nauchnykh znaniy. Ser. 3, no.15) (MLA 7:5)
(Trace elements)

NIKOLAYEV, L.A.

USSR/Chemistry - Physical: chemistry

Card 1/1 Pub. 147 - 11/27

Authors : Nikolayev, L.A., and Barshchevskiy, I.N.

Title : Photocatalytic properties of ZnO in methylene blue reduction reactions. I.

Periodical : Zhur. fiz. khim. 28/2, 265-270, Feb 1954

Abstract : It was established experimentally that ZnO in the role of a catalyst strongly accelerates the reduction of methylene blue with formaldehyde under the effect of light. Pure ZnO was found to be less active than ordinary commercial compounds. An active photocatalyst was obtained by adding Mn and Cu compounds to the pure oxide. Cu appears to be a stronger activating agent than Mn. The Cu-ions by themselves showed no catalytic effect on the reaction between methylene blue and formaldehyde. The basic kinetic laws, governing the reaction of photo-reduction of dyes in the presence of ZnO as catalyst, are presented. Six references : 4-USSR; 1-USA and 1-German (1926-1948). Table; graphs.

Institution : The I.V. Stalin Institute of Transportation Engineers, Moscow

Submitted : April 21, 1953

NIKOLAYEV, I. I.

USSR/Chemistry - Physical chemistry

Card 1/1 Pub. 147 - 12/27

Authors : Nikolayev, L.A., and Barshchevskiy, I.N.

Title : Photocatalytic properties of ZnO in methylene blue reduction reaction. II.

Periodical : Zhur. fiz. khim. 28/2, 271-274, Feb 1954

Abstract : The effect of Cu-ion concentrations in ZnO on the photocatalytic activity of the latter in the reaction between formaldehyde and methylene blue was investigated. It was found that the catalytic activity, relative to 1% of Cu (specific activity), increases sharply in ratio to the decrease of the total Cu concentration in ZnO. A direct proportionality between the amount of Cu introduced and the photocatalytic activity was observed at greater Cu concentrations. A sharp increase in specific activity was seen in the zone of Cu concentration in which the luminescence nature changes considerably. Pb-ions appeared to be much stronger activators of the photocatalytic activity of ZnO. The luminescence of ZnO samples containing Pb changes with the reduction in Pb content. Two USSR references (1952 and 1954). Tables; graphs.

Institution : The I.V. Stalin Institute of Transportation Engineers, Moscow

Submitted : April 21, 1953

NIKOLAYEV, L. A.

USSR/Chemistry - Physical chemistry

Card 1/1 Pub. 147 - 13/27

Authors : Nikolayev, L.A.

Title : Adsorption activation of the catalase function of Cu and Fe ions and their complex compounds

Periodical : Zhur. fiz. khim. 28/2, 275-281, Feb 1954

Abstract : Experimental data are presented showing that the catalytic properties of Fe and Cu ions can be increased during adsorption by complex organic dyes and that the molecules of the activating carriers contain such groups which activate the ions even in complex compounds. The relative activity of ions bound by adsorption and included in the composition of the complex varies for Cu and Fe ions. Cu-ions form complexes with substances containing NH and CO groups, thus becoming highly active catalysts. Activation due to the origination of adsorption bonds is characteristic of Fe-ions and the activation as result of complex formation is inherent to Cu-ions. Five USSR references (1940-1951). Tables; graphs.

Institution : The I.V. Stalin Institute of Transportation Engineers, Moscow

Submitted : April 21, 1953

NIKOLAIEV, L. N.

USSR/Chemistry - Photocatalysts

Card 1/1 : Pub. 147 - 17/27

Authors : Nikolaev, L. A., and Barshchevskiy, I. N.

Title : Photocatalytic properties of ZnO in the reduction reaction of methylene blue. Part 3. Poisoning of photocatalysts

Periodical : Zhur. fiz. khim. 28/12, 2211-2214, Dec 1954

Abstract : Experiments showed that the ions of heavy metals poison the ZnO photocatalyst but do not affect its luminescence, whereas nitrate and nitrite ions poison the photocatalyst and extinguish its luminescence. Substances which extinguish the luminescence of a photocatalyst must, of course, also be catalytic poisons since they distort one of the component parts of the active center. It is assumed that the active center of a photocatalyst has a double (polar) structure. One of the component parts of the catalyst center is the luminescent center the other is probably the distorted part of the lattice of the basic substance (ZnO) oriented in close vicinity to the luminescence center. Three USSR references (1950 and 1954). Tables; graphs.

Institution : Institute of Transportation Engineers, Moscow

Submitted : May 3, 1954

"APPROVED FOR RELEASE: 08/23/2000

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NOV 1955 - 5

BEHLAX, L. A. and I. N. BARANOVSKIY (Lening Institute of Railroad Engineers).

O. O. OSROSTO STRONNIYA AKTIVNYKH TENTROV V FOTOKATALIZE (Characteristics of formation of active centers in photocatalysis). In Problemy kinetiki i kataliza (Problems of Kinetics and Catalysis), vol. 8. Izdatel'stvo akademii "Nauk SSSR, 1955. Section: effect of light on the absorptability of solids. p. 61 - 67.

The activity of photocatalysts depends greatly on the presence of foreign agents. Bi^{+++} , Pb^{++} , Tl^{++} , Ag , Cu and In introduced into the lattice of ZnO greatly increase the photocatalytical activity of the latter. A catalyst containing Pb -ions is 5 times as active as a catalyst containing Cu -ions. Ions of Ca , Ca , Cu and Pb , gaseous H_2S as well as nitrite and nitrate ions, poison photocatalysts.

To establish the dependence of the catalytic activity on luminescence, the effects of a decrease in the concentration of the activator (Cu and Pb) on the luminescence has been studied and data presented in tables. Since positive and negative ions may serve as catalyst poisons, and some substances may inhibit catalysis without affecting luminescence, it is assumed that the active center has a bipolar structure. Luminescence centers are a part of active catalytic centers, for example, ions of copper and lead are centers of luminescence and at the same time parts of bipolar catalytic centers. Substance-inhibiting catalysis may not

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... KOLATNY, L. A. and I. M. BARCHEN VSKY

quench the luminescence. Substances which quench the luminescence are catalytic poisons.

ZnO activated by ions of heavy metals (Bi, Pb, Tl, Ag, Cu, and Mn) shows high photocatalytic activity. These ions are a part of the active center which are assumed to be bipolar. The active centers of photocatalysts have some characteristics which active catalytic centers do not possess. Calcination of ZnO (activated by Pb) over a period of 2 hours at 600°C decreases the activity by 50% at 800°C - by 20%. Compression at 1,000 kg/cm² decreases the activity by 50%, at 10,000 kg/cm² by 80%.

Various methods of activating zinc oxide are discussed. Other semiconductors, such as titanium dioxide, cadmium oxide, lead oxide and cupric oxide, were also investigated. Introduction of ions which activate zinc oxide is not at all the above mentioned semiconductors.

The systems: for aldehyde-thionine, glycerin-ethylene blue, glycerin-thionine in the presence of ZnO have been investigated. ZnO proved to be an active catalyst.

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USSR/Chemistry - Book review

Card 1/1 Pub. 147 - 25/26

Authors : Nikolayev, L. A.

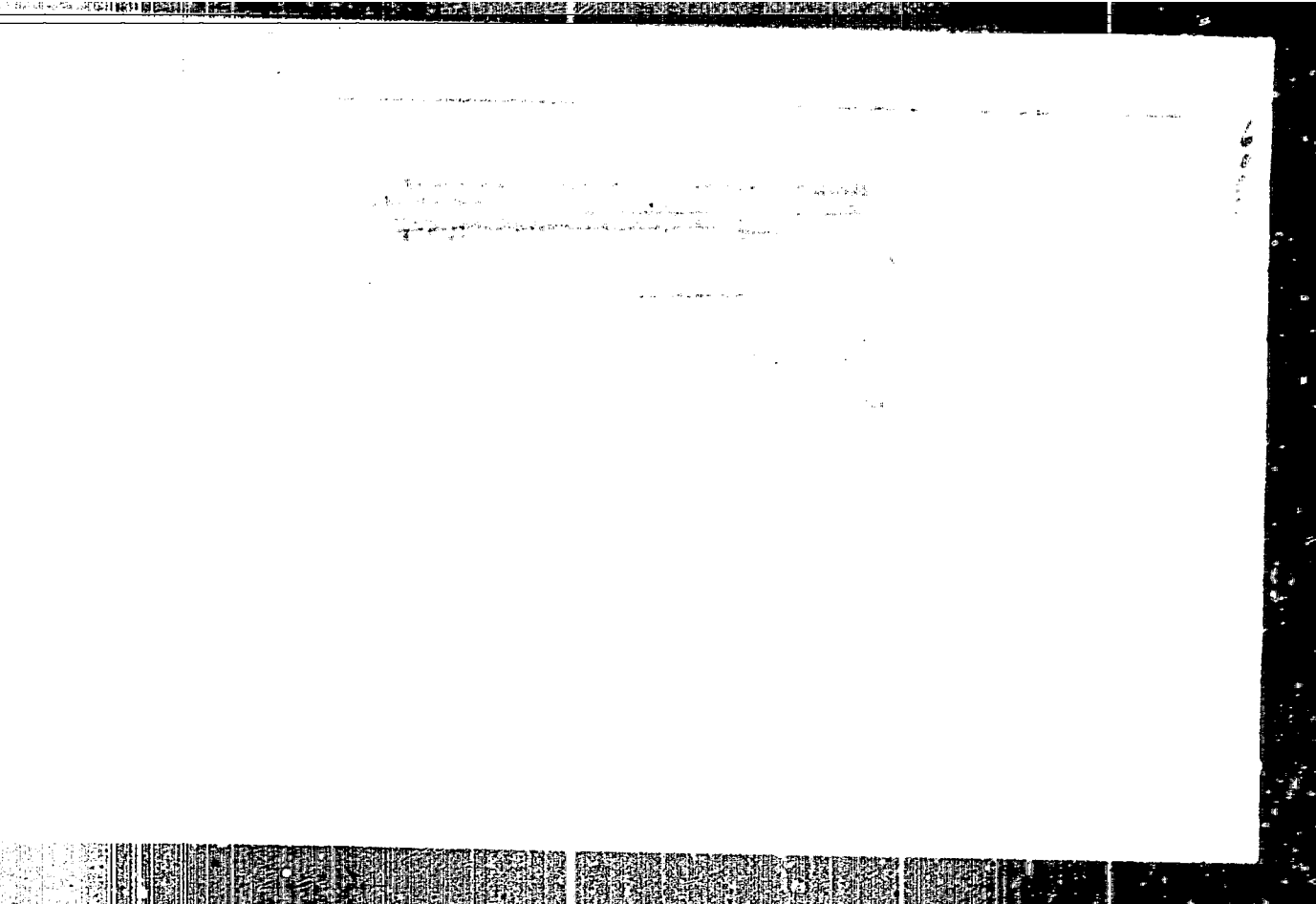
Title : Critique and Bibliography. The book by G. K. Borskov, Catalysis
 in sulfuric acid manufacture

Periodical : Zhur. fiz. khim. 29/1, 203-204, Jan 1955

Abstract : Critical review is presented of the book by G. K. Borskov entitled
 "Catalysis in the Manufacture of Sulfuric Acid", published in 1954.

Institution :

Submitted : September 28, 1954



NICOLAYEV, L.A.

Paris conference on problems of catalysis. *Zhur.fiz.khim.* 29 no.7:
1345-1348 J1 '55. (MLBA 9:3)
(Catalysis)

NIKOLAYEV, L.A., doktor khimicheskikh nauk, professor.

**Effect of the nature of the heating surface on the character of foam
formation. Trudy NIIT no.82/83:84-87 '55. (MLM 9:8)
(Locomotive boilers)**

NIKOLAYEV, L.A., doktor khimicheskikh nauk; AKHMAZAR'YANVS, N.A. asistent.

Investigation of foam inhibitors. Trudy NIIT no.62/63:08-93 '55.
(KGB 9:8)

(Locomotive boilers)

NIKOLAYEV, L. A.

USSR/ Chemistry - Photo-catalysis

Card 1/2 Pub. 22 - 31/50

Authors : Nikolayev, L. A., and Barshchevskiy, I. N.

Title : Catalytic properties of sensitizers

Periodical : Dok. AN SSSR 100/1, 119-122, Jan. 1, 1955

Abstract : The nature of active centers on the surface of ZnO is explained from the view point of photo-catalysis. The question on whether electron levels of admixtures are of importance for the photo-catalytic effect and whether catalysis centers are in approximate ratio to luminescence centers is debated. It was found that pure ZnO free of heavy metal admixtures is not a photo-catalyst and does not accelerate the dye reduction process when exposed

Institution : The I. V. Stalin Institute of Railroad Engineers, Moscow

Presented by : Academician A. N. Terenin, June 26, 1954

Periodical : Dok. AN SSSR 100/1, 119-122, Jan. 1, 1955

Card 2/2 : Pub. 22 - 31/50

Abstract : to light. ZnO containing an admixture of heavy metal ions was found to be a highly active photo-catalyst. H_2S was established to be a catalytic poison for photo-catalysts containing Pb and Cu. The effect of poisoning of photo-catalysts with Ca. and Ba ions does not result in a change in the luminescence. Ten USSR references (1940-1954). Graphs.

1962/11/11

PAPKO, S.I.; ~~XXXXXXXXXX~~

Jet technique for the study of reaction kinetics. Zhur. fis. khim.
30 no.11:2382-2384 N '56. (MLA 10:4)

1. Institut inzhenerov shloznerostroyeniya transporta, Moskva.
(Chemical reaction, Rate of)

[Faint, illegible text, possibly a list or document fragment]

NIKOLAYEV, L.A.
USSR/Physical Chemistry - Kinetics, Combustion, Explosions,
Topochemistry, Catalysis.

B-9

Abs Jour : Referat Zhur - Khimiya, No 1, 1958, 504
Author : L.A. Nikolayev.
Inst : -
Title : Catalytical Properties of Complex Metal Compounds.
Orig Pub : Khim. nauka i prom-st', 1957, 2, No 2, 202-209
Abstract : Review.
Bibliography with 41 titles.

Card 1/1

Nikolayev, L.A.
NIKOLAYEV, L.A.

Modern problems in homogeneous catalysis. Zhur. fiz. khim. 31 no.6:
1185-1202 Jo '57. (MIRA 10:12)

1. Moskveskiy institut inzhenerov transporta im. Stalina.
(Catalysis)

Mechanism of the catalytic action of the Co^{2+} complex
 results are presented in the table of Fig. 1. The
 reaction at lower pH as well as the effect of pH temp
 and the presence of methyl methacrylate on the reaction
 rate. An apparatus described by H. and Pappas (1964) was
 used. A 100 ml. (C 4 H 8 O 2) bottle of all glass in which a
 weighed amount of H_2O_2 was placed in a wide beaker with a
 glass stirrer was used. For the test, the beaker was sus-
 pended in a small cup fastened to a stand. After the stirrer
 into the beaker started a timer and the reaction was
 stopped by tripping a float switch. The timer was
 automatically stopped. The reaction H_2O_2 was titrated with
 KMnO₄. The activation energy of the reaction was 4.8 kcal.
 At a given H_2O_2 concentration the pH decreased the reac-
 tion rate increased as a function of the concentration of
 high pH values. The effect of methyl methacrylate on the
 catalytic activity of the Co^{2+} complex was studied in the
 presence of methyl methacrylate. The reaction rate was
 found to be independent of the concentration of methyl
 methacrylate.

W. M. Stenzenberger

WMS

5(1)

PHASE I BOOK EXPLOITATION

SOV/1268

Nikolayev, Lev Aleksandrovich, Professor

Sinteticheskiye materialy v narodnom khozyaystve (Use of Synthetic Products in the National Economy) Moscow, Izd-vo "Znanie," 1958. 36 p. (Series: Vsesoyuznoye obshchestvo po rasprostraneniya politicheskikh i nauchnykh znaniy. Seriya VV, 1958, vyp. II, no. 20) 46,500 copies printed.

Sponsoring Agency: Vsesoyuznoye obshchestvo po rasprostraneniya politicheskikh i nauchnykh znaniy.

Ed.: Faginboym, I. B.; Tech. Ed.: Berlov, A. P.

PURPOSE: The book is intended for the general reader.

COVERAGE: The book deals with the development and uses of synthetic products: synthetic fibers, plastics, rubbers, etc. No personalities are mentioned. No references are given.

Card 1/3

Use of Synthetic Products (Cont.)

80V/1268

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Use of Synthetic Products (Cont.)

807/1268

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Card 2/3

AUTHORS: Nikolayev, L. A., Sychev, A. P. SOV/156-58-1-22/46

TITLE: The Peculiarities of the Catalytic Effect of Complex Compounds
(Osobennosti kataliticheskogo deystviya kompleksnykh soyedineniy)

PERIODICAL: Nauchnyye doklady vysshey shkoly, Khimiya i khimicheskaya
tekhnologiya, 1958, Nr 1, pp. 69 - 93 (USSR)

ABSTRACT: The natural complex compounds fulfill many catalytic functions important for the life of the cell. The authors succeeded in their laboratory in detecting a great number of complex compounds of copper, iron, cobalt, silver, and others which are active with respect to various redox processes. Above all the copper compounds with various amines turned out to be active. The authors succeeded in increasing the activity of copper in the cleavage reaction of hydrogen superoxide by a factor of 10^6 even by binding copper to ammonia. In the present report the results of the same reaction are given in the presence of complex compounds of copper with pyridine, ethanol amines, propanol amine, methylamine, and propylene-diamine. These complexes have a different activity, therefore its investigation permits to explain the causes of the activation during the

Card 1/3

The Peculiarities of the Catalytic Effect of Complex
Compounds

SOV, 156-58-1-22/46

complex formation. The authors had to explain whether a high activity is connected with a low activation energy, and to what an extent this applies in the case of true ferrents or if the complex formation influences the pre-exponential multiplier in the case of an equalization of the velocity. The working method is described. Copper acetate or -sulfate was mixed with a corresponding amine. The activation energy was measured in an ultra-thermostat. On the strength of the obtained results (Tables 1,2, Figs 1,2) the authors drew the following conclusions: 1) The activation energy of the decomposition of hydrogen superoxide which is catalyzed by the complex compounds of copper is practically independent of the chemical nature of the addendum (amine) and approaches the activation energy of the thermal dissociation of the peroxide. 2) The authors present considerations favoring an assumption that highly unstable intermediate products played a decisive rôle in the catalysis caused by these complexes. There are 2 figures, 2 tables, and 7 references, 5 of which are Soviet.

Card 2/3

The Peculiarities of the Catalytic Effect of Complex
Compounds

SOV, 156 58-1-22/46

ASSOCIATION: Kafedra khimii Moskovskogo instituta inzhenerov transporta
im. I.V. Stalina (Chair of Chemistry of the Moscow Institute
of RR Engineers imeni I.V. Stalin)

SUBMITTED: October 5, 1957

Card 3/3

AUTHOR: Voronova, N. D., Nikolayev, L. A. 1957, 156-00-00-00

TITLE: Catalytic properties of some complex compounds of copper and their addenda. (Kataliticheskiye svoystva nekotorykh kompleksnykh soedineniy meidi i ikh addendov)

SYNOPSIS: Nauchnyye doklady vysshey shkoly, Khimiya i khimicheskaya tekhnologiya, 1958, Nr 2, Pp. 233-237 (USSR)

ABSTRACT: Polyphenyl-oxidase is one of the most important oxidizing ferments, catalyzing the oxidation of polyphenols. This enzyme belongs to the metallic proteids and contains copper. So far nobody has advanced a theory concerning the form in which copper, in this case, participates in reactions. It can be affirmed that a complex compound is concerned and that the complex formation is looked upon the very cause of the characteristic specificity of the ferment. The complex compounds of copper accelerate the process of oxidation (oxidation of pyrogallol and phloroglucinol by means of oxygen) (Ref 2). This influence depends largely on the chemical properties of the addenda. The present paper was intended to clear up the problem of the addenda in complex compounds, as in the title mentioned (i.e. the problem of amines of different

Card 1/3

REV 156-58-2-9/49

Catalytic Properties of Some Complex Compounds of Copper and their Addenda

types) and to compare their activity with that of the complexes. The kinetics of the processes was studied volumetrically. Tests brought some interesting results: the amines themselves turned out to be substances of striking catalytic properties with regard to the oxidation of pyrogallol. Table 1 shows curves giving the absorption of oxygen by pyrogallol solutions containing equimolar quantities of different amines. A mixture of 0,01 moles of pyridine, Diethanol amine or monoethanol amine rapidly accelerates the process of oxidation. Triethanol amine is less active. The rate of oxidation is inferior without catalyst. The copper ion accelerates oxidation in acid and weak alkaline solutions but its activity decreases rapidly because of a formation of a less active complex of pyrogallol. Table 1 shows the curves showing oxygen absorption of pyrogallol solutions containing 1 mole copper as corresponding complex. The catalytic effect in this case, greater than that of the copper ion and that of the amines together. Thus, the complex is rather more active than the amines, but most violently than of the di- and monoethanol amines. The activity of free amines is

10-1-53

007 156-58-1-3/23

Catalytic Properties of Some Complex Compounds of Copper and Their Ions

ethylene and propylene diamine remains, after the formation of the complex, virtually the same. These results stress a certain dependence between the chemical properties of the addendum and of the thermodynamic peculiarities of the transition state. There are 3 figures, 2 tables, and 5 references, 4 of which are Soviet.

ASSOCIATION: Kafedra Khimii Medovskogo Institute, Inzhenerov i Tekhnicheskimi . N. Stalina
(Chair of Chemistry of the Moscow Institute for Transport-Engineers named I. N. Stalin)

RECEIVED: October 14, 1957

Card 3/3

NIKOLAYEV, L.A.; AKADSKIY, A.A.

Effect of ultrasonic waves on catalytic processes. *Khim. nauka i pron.*
3 no.1:191-192 '98. (NIRA 11:9)

1. *Nafedra khimii Moskovskogo instituta inzhenerov transporta.*
(Ultrasonic waves--Industrial applications) (Catalysis)

NIKOLAYEV, L A

71-1-32/32

AUTHOR: Nikolayev, L. A.

TITLE: Ivan Alekseyevich Kablukov. 1857 - 1942

PERIODICAL: Zhurnal Fizicheskoy Khimii, 1958, Vol. 32, Nr 1, pp.204-205 (USSR)

ABSTRACT: In commemoration of the 100th birthday. His "weltanschauung" developed under Mendeleev's influence. He was a student of the famous Russian chemists V. V. Markovnikov and A. M. Butlerov. He worked in the fields of electrochemistry and thermochemistry, of organic and anorganic chemistry. He wrote about apiculture, about the Crimean lakes, a series of articles for the encyclopedia, and many biographies of famous scholars. Born in the family of a country doctor, in 1857, as the 8th child. With the age of 19 he studied at the Moscow University, which he left with a gold medal. In 1881 he began the investigations for the purpose of representing the oxymethylene in Butlerov's laboratory. 1885 - unsalaried lecturer at the Moscow University, 1887 - master, 1889 - doctorate (theory of the electrolytic solutions). 1889 - professor of the Agricultural Institute of Moscow, 1903 - professor of the Moscow University. 1915 - 1933 director of the Thermal Laboratory at the Moscow University. 1932 - Member of the AS USSR. Participator of many con-

Card 1/2

76-1-32/30

Ivan Alekseyevich Kablukov. 1857 - 1942

grew up in Paris, Berlin, London, and New York, and was directly connected with Ostwald and Arrhenius. There is 1 figure.

AVAILABLE: Library of Congress

USOONI-DC-54651

Card 2/2

76-32-5-28/47

AUTHOR: ~~Nikolayev, L. A.~~

TITLE: The Nature of the Catalase Activity in an Homogeneous Medium
(K voprosu o prirode katalaznogo deystviya v gomogennoy srede)

PERIODICAL: Zhurnal fizicheskoy khimii, 1958, Vol. 32, Nr 5, pp.1131-1135
(USSR)

ABSTRACT: In the present paper the influence of benzene and methylmethacrylate on the reaction velocity of the decomposition of hydrogen peroxide in the presence of various catalysts is investigated in order to determine if these two compounds always exert the same influence, as well as if there exists a relation between the chemical nature of the catalyst and its action mechanism. Catalysts with an action through the radical chain mechanism as well as those forming intermediary products are used. The investigations were carried out volumetrically with kinetic curves being taken. From the results given in tabular form can be seen that benzene and methylmethacrylate exert the same influence, which is explained

Card 1/3

76-32-5-28/47

The Nature of the Catalase Activity in an Homogeneous Medium

by the reaction of the OH-radicals. The catalysts can be divided into two groups: those the action of which is decreased by the addition of the two substances (the ions of iron, copper, the chromate-ions and nitroprussidion), and those which are insensitive (molybdate-ion, ferrocyanide-ion, tungstate-ion and the complex cations of copper). The former apparently act according to the radical chain mechanism, while the latter most probably form intermediary products. The catalytic effect of the molybdates and tungstates was already investigated by Ye. I. Shpital'skiy and A. Funk (Ref 5) and G. A. Bogdanov (Ref 6), while the effect of nitroprusside was explained by Baxendale (Ref 3), the ferrocyanides by Kistiakowski (Ref 10) and aquopentacyanoferrates by Sal (Ref 12), who investigated the light effect. An interesting change of the mechanism of the catalase effect was observed in the transition from the simple to the complex ion, a strong increase of catalytic activity taking place on this occasion. In order to be able to give a more exact evaluation on the existence of a relation between the structural type of the catalyst and its mechanism of effect a greater number of catalase reactions had to be carried out according to the above

Card 2/3

76-32-5-28/47

The Nature of the Catalase Activity in an Homogeneous Medium

mentioned method. There are 5 figures and 12 references, 5 of which are Soviet.

ASSOCIATION: Moskovskiy institut inzhenerov zheleznodorozhnogo transporta im. I. V. Stalina, Moskva
(Moscow Institute for Railroad Transportation Engineers imeni I.V. Stalin)

1. Hydrogen peroxide--Decomposition
2. Benzenes--Chemical reactions
3. Acrylic resins--Chemical reactions
4. Catalysts--Performance

Card 3/3

WIEDLATH, L.A.

~~Scientific and intercollegiate convention on the questions of
catalysis in April 1958. Zhur. fis. khim. 32 no.6:1928-1933 Ag
'58. (MIRA 11:10)~~

(Catalysis--Congresses)



The image shows the word "BEEP" written in a thick, hand-drawn, black, blocky font. The word is centered within a white rectangular area that is framed by a thick black border. Surrounding the word are several short, black, radiating lines of varying lengths and orientations, suggesting a sound effect or a signal. There are four lines above the word, four lines below, and two lines on each side, all pointing towards the word.

CENSORED

NIKOLAYEV, Lev Aleksandrovich

[Chemistry of the cell] Khimii kletki. Moskva, Nauka,
1964. 148 p. (MIRA 18:11)

"APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R001137110012-4

APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R001137110012-4"

NIKOLAYEV, L.A., prof., doktor khim.nauk

[High polymer compounds and their technical importance;
chemistry lecture for first-year students in all fields of
specialisation] Vysokopolimernye soedineniia i ikh tekhnicheskoe
znachenie; lektsiia po khimii dlia studentov 1 kursa
vssh spetsial'nostei. Moskva, Vses. soobchnyi in-t inzhenerov
shel-dor.transporta, 1959. 21 p. (MIRA 13:5)
(Polymers)

8(1)

PHASE I BOOK ESTIMATION

SOV/2790

Drachev, Gennadiy Grigor'yevich, and Lev Aleksandrovich Nikolayev

Akкумуляторы подвижного состава и их облушvaniye (Rolling Stock Storage Batteries and Their Maintenance) Moscow, Transzheldorizdat, 1959. 125 p. 10,000 copies printed.

Ed. L.A. Nikolayev, Professor, Doctor of Chemical Sciences; Ed. (Inside book): I.A. Belyayev, Engineer; Tech. Ed.: P.A. Khitrov.

PURPOSE: The book is intended for locomotive crews and repair crews of electric locomotive, Diesel-electric locomotive, and railroad car depots, who are connected with the operation of storage batteries of the railroad rolling stock.

COVERAGE: The book describes the various types of storage batteries used in railroad rolling stock. Problems of their preparation for operation, rules for maintenance and repair, and also faults occurring in the operation and methods of their elimination are described. There is a short historical description of storage batteries. There is a short historical description of the development of storage batteries. The following contemporary Soviet scientists, physical chemists, and electrochemists, who contributed to the theory and technology of storage batteries are

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Rolling Stock Storage Batteries (Cont.)

SOV/2790

mentioned; V.A. Kistyakovskiy, N.A. Izgaryshev, B.V. Gortachev, A.N. Franklin, and others. There are no references.

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Rolling Stock Storage Batteries (Cont.)

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Card 4/5

NIKOLAYEV, L.A.

Theoretical foundations of the present-day study of catalysis.
Khim.v shkole 14 no.5:7-18 S-O '59. (MIRA 12:12)
(Catalysis)

NIKOLAYEV, Lev Aleksandrovich, prof., doktor khim.nauk; FAYBOYM, I.B.,
red.; SAVCHENKO, Ye.V., tekhn.red.

[Catalysts; from the Sunday lectures, "News of science and
engineering", given at the Polytechnic Museum] Katalizatory;
po materialam Voskresnykh chtenii Politekhnicheeskogo muzeia
"Novosti nauki i tekhniki." Moskva, Izd-vo "Znanie," 1960.
47 p. (Vseobshnee obshchestvo po rasprostraneniю politicheskikh
i nauchnykh znaniy. Ser.9, Fizika i khimiya, no.3)

(MIRA 13:2)

(Catalysts)

FRANCOIS, L.A.

1. **Section I** - The theory of...
 2. **Section II** - The theory of...
 3. **Section III** - The theory of...
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 19. **Section XIX** - The theory of...
 20. **Section XX** - The theory of...

Report to be processed as the 2nd full Congress on Chemistry, Paris, France, 6-9-61 (1961)

NIKOLAYEV, Lev Aleksandrovich; MAKSIMOVA, V.V., red.; TATURA, G.L.,
tekhn.red.

[Polymers in the service of man] Polimery na sluzhbu u cheloveka. Moskva, Gos.uchebno-pedagog.izd-vo M-va prosv.RSSR, 1960. 68 p. (NIRA 13:9)

(Polymers)

NIKOLAYEV, Lev Aleksandrovich, prof., doktor khim.nauk; KARPOVA, N.L.,
red.; KOSKOVA, Ye.N., tekhn.red.

[Synthetic materials and their application in railroad equipment]
Sinteticheskie materialy i ikh primeneniye v shesnodorozhnoi
tekhnike. Moskva, Vses.izdatel'sko-poligr.ob'edineniye N-va puti
soobshcheniya, 1960. 130 p. (MIRA 13:9)
(Railroads--Equipment and supplies)
(Synthetic products)

NIKOLAYEV, L. A.

Catalytic functions of metal ions in a homogeneous medium. Kin.
i kat. 1 no. 1:94-105 Mg-Je '60. (NIRA 13:8)

1. Moskovskiy institut inzhenerov sholesno-dorozhnogo transporta.
im. I.V. Stalina.
(Metals) (Catalysis)

AUTHOR: Sibolev, L. A., Doctor of
~~Chemical Sciences~~

2/030/60/000/03/002/044
2015/2000

TITLE: Problems of the Simulating of Biocatalysts

PERIODICAL: Vestnik Akademii nauk SSSR, 1960, Nr 3, pp 13-21 (USSR)

TEXT: After a general introduction on the nature and importance of the simulating of biocatalysts, the author describes the simple systems which represent the adsorption activation and the action of isolated active groups, and finally simulators in which the active group is connected with the high-molecular carrier substance and acts as a catalyst through the reduction of the activation energy. According to their structural type these simulators are similar to the ferments. Apart from his numerous previous papers, the author refers to the papers by A. P. Terent'yev, Ye. I. Klabunovskiy, I. A. Shlyapintokh, T. A. Pospelova, N. I. Kobozov, A. Gudo, A. P. Sychev, N. D. Korpuseva, and L. A. Blyumenfel'd. The setup of ferment simulators and their active groups may be seen from the scheme shown. On the basis of numerous investigations, the author finally states that it is not the selection of analogs and simulators that represents the most difficult problem, but the discovery of the laws, owing to which some types of structures of the catalysis are conserved and others are

Card 1/2

NIKOLAYEV, L.A.

Some problems in organic catalysis. Probl. kin. i kat. 10:240-246
'60. (MIRA 14:5)

1. Moskovskiy institut inzhenerov transporta.
(Catalysis) (Chemistry, Organic)

NIKOLAYEV, L.A.

Free radicals. Khim. v shkole 15 no.3:19-28 My-Je '60.

(MIRA 14:7)

Radicals (Chemistry))

NIKOLAEV, Lev Aleksandrovich, doktor khim. nauk; NIKOLYUDOVA, A.S., red.
1st-vy; SMYTEN, I.Y., 2nd. red.

(Nitrogen, phosphorus, potassium) Asst, feafar, kalli. Noshva, Ind-
ve "Znanie" Vses. ob-va po rasprostraneniya polit. i nauchn. znanii,
1961. 39 p. (Narodnyi universitet kul'tury. Estestvoznanychnyy fakul'tet,
no.4) (MIRA 14:7)

(Nitrogen) (Phosphorus) (Potassium)

NIKOLAEV, Lev Aleksandrovich; MAKSIMOVA, V.V., red.; TSYPO, R.V., tekhn.
red.

[Catalysis and catalysts; a manual for teachers] Katalis i katalisa-
turyy posobie dlia uchiteliei. Moskva, Gos. uchebno-pedagog. izd-vo
N-va presy. REFER, 1961. 76 p. (MIRA 14:8)
(Catalysis)

NIKOLAYEV, L.A.

Role of nitrogen and phosphorus compounds in bioenergetics. Khim.
v shkole 16 no.4:47-54 J1-Ag '61. (MIRA 14:8)
(Nitrogen compounds) (Phosphorus organic compounds)
(Biochemistry)

NIKOLAEV, L. A. [Nikolayev, L. A.]

Problems of the evolution of biocatalysts. *Analele chimie* 16 no.4:
100-136 G-B '61.

(Biochemistry) (Catalysts)

NIKOLAYEV, L.A.

Problems of the evolution of biocatalysts. Usp.khim. 30 no.3:313-344
Nr '61. (MIRA 14:3)

1. Moskovskiy institut inzhenerov zheleznodorozhnogo transporta
imeni I.V.Stalina.
(Catalysts)

NIKOLAYEV, Lev Aleksandrovich, doktor khim. nauk, prof.; FAYNEBOYK,
I.B., red.; NAZAROVA, A.S., tekhn. red.

[Ferments and their models] Fermenty i ikh modeli. Moskva,
Izd-vo "Enanie," 1962. 45 p. (Novoe v khimii, nauke, tekhnike,
IX Seriya: Fizika i khimija, no.4) (MIRA 15:5)
(Enzymes)

NIKOLAYEV, Lev Aleksandrovich, prof.; SHUSTOVA, I.B., red.;
ATROSHCHENKO, L.Ye., tekhn. red.

[Catalysis and chemistry of the future] Katalis i khimiya
budushchego. Moskva, Izd-vo "Znanie," 1962. 45 p. (Narod-
nyi universitet kul'tury: Estestvennonauchnyi fakul'tet, no.7)
(MIRA 15:7)

(Catalysis)

NIKOLAYEV, L.A., doktor khim.nauk

The periodical "Uspekhi khimii", 1959-1961. Vest.AN SSSR 32
no.4135-137 Ap '62. (MIRA 15:5)
(Chemistry--Periodicals)

S/076/62/036/001/001/017
B101/B102AUTHOR: Nikolayev, L. A.

TITLE: The thermodynamics of irreversible processes and the problems of biogenesis

PERIODICAL: Zhurnal fizicheskoy khimii, v. 36, no. 1, 1962, 3-14

TEXT: This is an enlarged reproduction of a report held at the khimicheskiy fakul'tet MSU (Chemical Division of MSU) on May 3, 1961, which dealt with the behavior of the entropy of irreversible processes within a system and with that of its external reactions. The internal processes are expressed by $d_i S/dt = (1/T) \sum_q \Delta_q v_q > 0$, where v - reaction rate, and

$\Delta = -\sum \nu_j \mu_j$ expresses the "affinity of the reaction" (ν_j - stoichiometric coefficient, μ_j - chemical potential of the component j). The case $\Delta_1 v_1 < 0$; $\Delta_2 v_2 > 0$, where $\Delta_1 v_1 + \Delta_2 v_2 > 0$, may occur for two reactions. Such a coupling, which is characteristic of biological systems, diminishes the

Card 1/3

The thermodynamics of irreversible...

S/076/62/036/001/001/017
B101/B102

well as the clarification of the development of the regulating mechanisms involved. S. R. de-Groot, A. G. Pasynskiy, I. F. Bakhareva, V. M. Andreyev, and A. N. Terenin are mentioned. There are 12 references. 7 Soviet-bloc and 5 non-Soviet-bloc.

ASSOCIATION: Moskovskiy institut inzhenerov transporta (Moscow Institute of Transportation Engineers)

SUBMITTED: May 5, 1961

Card 3/3

KUDRYAVTSEV, A.S.; SAVICH, I.A.; KUNDO, N.; NIKOLAYEV, I.A.

Catalytic properties of the complex compounds of metals with
Schiff bases. Zhur. fiz. khim. 36 no. (21382-1384) Ja'62
(MIRA 1727)

1. Moskovskiy institut inzhenerov transporta.

KUDRYAVTSEV, A.S.; SAVICH, I.A.; NIKOLAYEV, L.A.

Catalytic activity of complex compounds with Schiff's bases.
Zhur.fis.khim. 36 no.8:1832-1834 Ag '62. (MIRA 15:8)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova, khimi-
cheskiy fakul'tet i Moskovskiy institut inzhenerov transporta.
(Complex compounds) (Schiff bases) (Catalysis)

YUSHINA, V.V.; NIKOLAYEV, L.A.

Interaction of methylene blue with enzymes. *Dokl. Akad. Nauk SSSR*, 1967, no. 10, p. 2277-2281. (MIRA 17:2)

1. Moskviy institut inzhenerov transporta.

KUDRYAVITSEV, A.S.; SAVICH, I.A.; NIKOLAYEV, L.A.

Catalytic properties of complex compounds with Schiff bases.

Part 2. Zhur. fis. khim. 37 no.11:2587-2589 N°63.

(MIRA 17:2)

1. Moskovskiy institut inzhenerov transporta.

NIKOLAYEV, L.A.; AGAPOVA, O.N.

Photocatalytic synthesis of amino acids. Zhur. fis. khim. 37
no.12:2746-2748 D '63. (MIRA 17:1)

1. Moskovskiy institut inzhenerov transporta.