

Evaluation of naphthenic lyes - .....

R/007/62/013/002/001/001  
D014/D105

In an "acidity index" and "distilled quantity" system of coordinates, if the acidity curve is a straight line as shown in Fig.4, the ABM and CDM triangles are identical, thus

$$c_1 = c_2 \quad \text{and} \quad a_1 - a = a - a_2.$$

To obtain from a fraction with an acidity index  $a_1$  a product with an acidity index  $a$ , it is necessary to mix the fraction with an equal amount of heavier fractions from the same acid having an acidity index  $a_2$ . If the acidity index is a flat parabolic curve as shown in Fig.5, the same relation (3) may be used for the curvilinear triangles ABMR and CDSM. For the calculation, only the surfaces of the ABM and CDM rectilinear triangles may be used, while the plus or minus corrections should be carried out by the AMR and DMS sector surfaces. ↙

Knowing the ABMR triangle, it becomes necessary to find the position of the CD vertical side, so that the CDSM triangle would have a surface equal to the first one. Thus, if the  $a$  and  $a_1$  acidity indices and the  $c_1$  quantity from the light components are known, the  $a_2$  acidity index and the  $c_2$  quantity from the heavy components may be graphically determined. These values are necessary to obtain

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D014/D105

Evaluation of naphthenic lyes - .....

$c_1 + c_2$  quantity of a mixture of naphthenic acids with an acidity index  $a$ .  
The evaluation of naphthenic lyes by the graphical method recommended by the authors eliminates long-lasting experiments and excludes the evaluation errors arising in conventional methods. There are 6 figures, 2 tables and 7 references: 4 Soviet-bloc and 3 non-Soviet-bloc. The two references to English-language publications read as follows: A.N. Sachanen, "Constituenții chimici ai petrolului" (Chemical components of petroleum), Rheinhold, Publ. Comp., New-York, 1945; Chem. Week, 78, no. 38, 1955, Sept., 24, 105. ✓

ASSOCIATION: Uzina petrochimică (Petrochemical Plant), Ploiești.

SUBMITTED: June 23, 1961.

Card 4/6

ACC NR: AF6029142

ORIG: 0001 001/0007/66/017/002/0075/0000

AUTHOR: Dobin, G. H. (Doctor; Engineer); Fasut, A. (Engineer); Fleau, D. (Engineer)

ORG: none

TITLE: Concerning petroleum refining with sulphuric acid. Production of alkanic solvents from cracked gasoline 24  
0

SOURCE: Petrol si gaze, v. 17, no. 2, 1966, 75-73

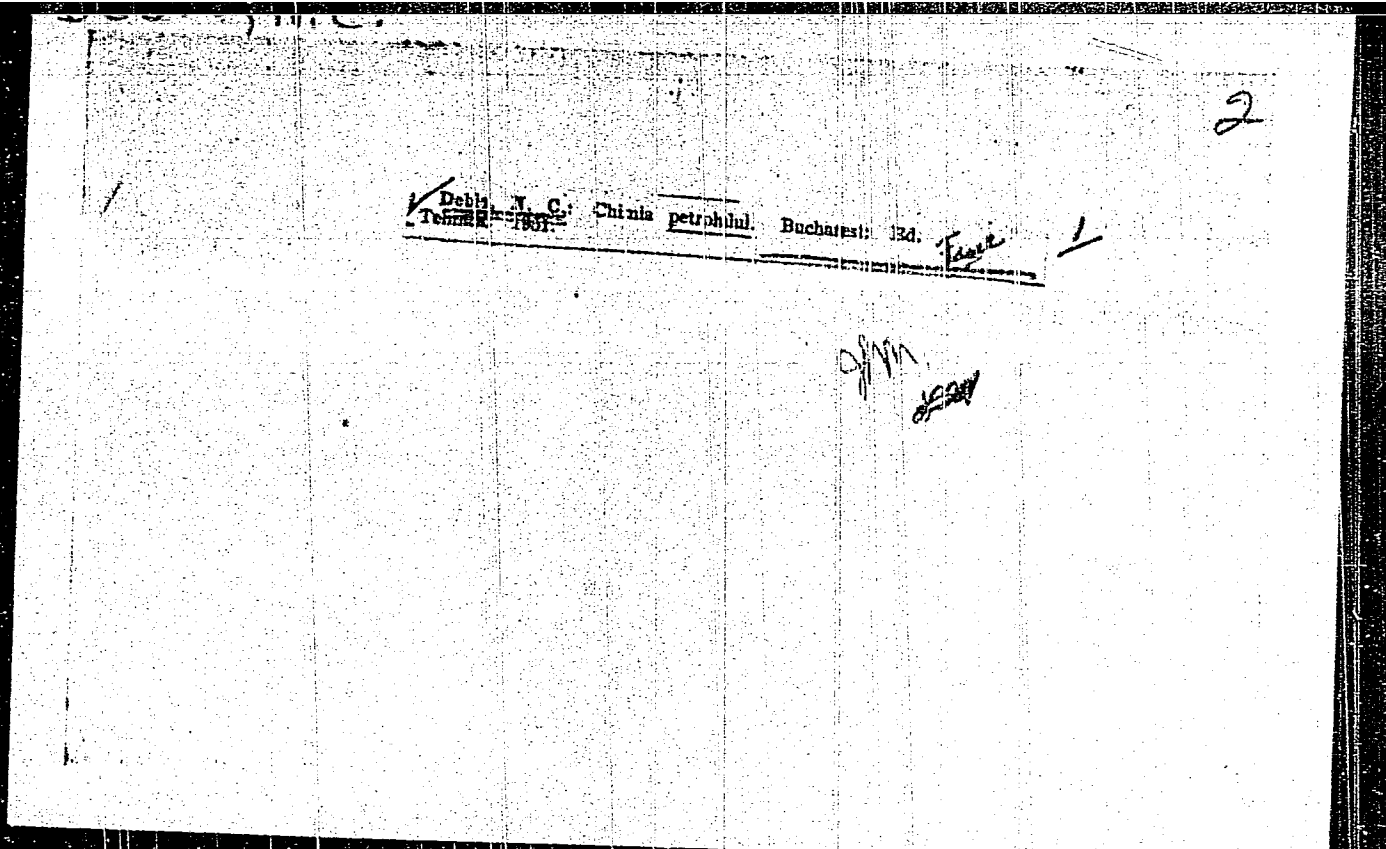
TOPIC TAGS: petroleum refining, gasoline, hydrocarbon, solvent extraction, detergent, chemical production

ABSTRACT: The authors discuss the preparation of pure alkanic solvents consisting of saturated hydrocarbons (used in the polymer industry) from thermally cracked gasolines. The process takes place after previous extraction of the aromatic and unsaturated components during the manufacture of detergents such as sodium alkylaryl sulphonates and sulphonated secondary alcohols. Orig. art. has: 5 figures, 4 formulas and 5 tables. [Based on authors' Eng. abstr.] [JPRS: 36,556]

SUB CODE: 11, 07 / SUBM DATE: none / ORIG REF: 002 / OTH REF: 009

Card 1/1 LC

UDC: 665.542.23



DEBIE, N.C.; SCHORR, V.

Modern pyrolysis techniques. Rev chimie Min petr 13 no.9:528-538  
S '62.

DEBI, N.K. [Debie, N.G.] inzh. Laureat Gosudarstvennoy premii;  
IORGA, Dumitru [translator]; RAPOPORT, I.B., doktor  
khim. nauk, red.; BABUSHKINA, S.I., ved. red.;  
YAKOVLEVA, Z.I., tekhn. red.

[Petroleum chemical technology; processes of petroleum  
chemical synthesis] Neftekhimicheskaya tekhnologiya;  
protssesy neftekhimicheskogo sinteza. Pod red. I.B.  
Rapoporta. Moskva, Gostoptekhizdat, 1963. 531 p.  
Translated from the Rumanian. (MIRA 16:11)  
(Petroleum chemicals)

DEBIEC, Barbara; MARGOLIS, Alina

Kolobierz vacation center for diabetic children. *Pediat.polska*  
34 no.10: 1345-1350 O '59.

1. Z II Kliniki Chorob Dzieci A.M. w Lodzi. Kierownik Kliniki:  
prof.dr.med. F. Redlich i z Sanatorium CZU w Kolobrzegu. Lekars  
Naczelnny: J. Ziomber.

(DIABETES MELLITUS in inf. & child.)

DEBIEC, Barbara; MARGOLIS, Alina

Controlled dosage of insulin in diabetes in children. *Pediat.  
polska* 35 no.2:165-177 F '60.

1. Z II Kliniki Chorob Dzieci A.M. w Łodzi. Kierownik kliniki:  
prof.dr.med. F.Redlich.  
(INSULIN ther.)



DEBIEC, Barbara; KWIATKOWSKA, Maria; MARGOLIS, Alina

Trials with oral therapy of juvenile diabetes with biguanide derivatives. *Pediat. pol.* 37 no.4:359-370 Ap '62.

1. Z II Kliniki Chorob Dzieci AM w Lodzi Kierownik: prof. dr med.  
F. Redlich.

(ANTIDIABETICS ther)

DEBIEC, Barbara; KWIATKOWSKA, Maria; MARGOLIS, Alina

Mental peculiarities of a diabetic child. *Pediat. pol.* 37 no.12:  
1287-1302 D '62.

1. Z II Kliniki Chorob Dzieci AM w Lodzi Kierownik: prof. dr med.  
F. Redlich.  
(DIABETES MELLITUS JUVENILE) (CHILD PSYCHOLOGY)

7

DEBIEC, Barbara

Contribution to the diagnosis of enlarged upper mediastinum.  
Pediat. pol. 38 no.2:193-197 '63.

1. Z II Kliniki Chorob Dzieci AM w Lodzi Kierownik: prof. dr  
med. F. Redlich.

(MEDIASTINUM) (THYMUS HYPERPLASIA)  
(CORTICOTROPIN) (DIAGNOSIS)

DEBIEC, Barbara; KWIATKOWSKA, Maria; LORENC, Jadwiga;  
MARGOLIS, Alina

Studies on the excretion of uropepsin in diabetic children.  
Pediat. pol. 38 no.3:249-260 '63.

1. Z II Kliniki Chorob Dzieci AM w Lodzi Kierownik: prof.  
dr med. Fr. Redlich i z Zakladu Chemii Fizjologicznej AM w  
Lodzi Kierownik: prof. dr med. B. Filipowicz.  
(DIABETES MELLITUS, JUVENILE)  
(UROPEPSIN) (URINE)

BASZCZYNSKI, J.; DEBIEC, B.; NOWICKI, St.

Acute forms of endocardial fibroelastosis in an infant.  
Kardiol. pol. 6 no.4:281-284 '63.

1. Z II Kliniki Pediatrycznej AM i WAM w Lodzi; kierownik:  
prof.dr. F.Redlich.

\*

PAWLIKOWSKI, Tadeusz, prof. dr.; ROMER, Tomasz E.; ARMATYS, Ję zy;  
DEBIEC, Barbara

Adrogenital syndrome with complete sex reversion in two siblings.  
Endokr. Pol. 15 no.6:587-598 N-D '64

1. Zakład Endokrynologii Akademii Medycznej w Łodzi (Kierownik:  
prof. dr. T. Pawlikowski); Klinika Chirurgii Dziecięcej Akademii  
Medycznej w Łodzi (Kierownik: prof. dr. A. Maciejewski) i II  
Klinika Chorob Dzieci Akademii Medycznej w Łodzi (Kierownik:  
prof. dr. F. Redlich [deceased]).

~~BASZCZYNSKI, Jan; DEBIEC, Barbara; MAJCHERSKI, Tadeusz; NOWICKI,~~  
Stanislaw

Analysis of heart diseases among infants treated in the 2d  
Pediatric Clinic of the Academy of Medicine in Lodz. *Pediat.*  
pol. 38 no.11:973-978 N '63.

l. Z II Kliniki Pediatricznej AM i WAM w Lodzi Kierownik:  
prof. dr med. F. Redlich.

(HEART DEFECTS, CONGENITAL)  
(HEART DISEASES)  
(HEART SEPTAL DEFECTS, VENTRICULAR)  
(AORTIC COARCTATION) (SITUS INVERSUS)  
(TETRALOGY OF FALLOT)

DEBIEC, Barbara; NOWICKI, Stanislaw; REDLICH, Jerzy

A case of gasoline poisoning in a 21-month-old infant. *Pediat.*  
pol. 39 no.1:57-60 Ja'64

l. Z II Kliniki Chorob Dzieci AM i WAM w Lodzi; Kierownik:  
prof.dr.med. F.Redlich.

\*



DEBIEC, Barbara

Studies on the behavior of harmless heart murmurs in children.  
Pediat. Pol. 39 no.2:111-122 F'64

1. Z II Kliniki Chorob Dzieci AM w Lodzi; kierownik: prof.dr.  
med. Fr.Redlich.

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DEBIEC, Barbara; BIELINSKA, Wanda; ROMER, Tomasz E.

Mushroom poisoning (*Amanita phalloides*) in a brother and  
sister. *Pediat. Pol.* 39 no.2:179-183 F'64

1. Z II Kliniki Chorob Dzieci AM w Lodzi (kierownik: prof.  
dr.med. F.Redlich).

\*

DEBIEC, Barbara

Value and differences of the measurement of blood pressure of the lower and upper extremities. *Pediat. Pol.* 39 no.5:565-569 My '64.

1. Z II Kliniki Chorob Dzieci Akademii Medycznej w Łodzi (Kierownik: prof. dr. med. F. Redlich).

SMILGONA, Maria; REBIL, Barbara

Heart murmurs in anemias in children. Ped. Pul. 1974.11:1-4  
30 Feb

Infectious non-rheumatic myocarditis in children. Ibid.13-22

~~Wojciechowski, J.~~  
L. F. II Kliniki Chorob Dzieci Akademii Medycznej w Warszawie  
(historians prof. dr. med. F. Radlich [deceased]).

BASZCZYNSKI, Jan; DEBIEC, Barbara; SUMINSKA, Henryka

Duodenal perforations in children during therapy with adrenal cortex hormones. *Pediat. Pol.* 40 no.6:623-626 Je '65.

1. Z II Kliniki Pediatrycznej AM w Lodzi (Kierownik: prof. dr. med. F. Redlich [deceased]) i z Kliniki Chirurgii Dziecięcej AM w Lodzi (Kierownik: prof. dr. med. A. Maciejewski).

DEBIEC, Barbara; BASZCZYNSKI, Jan; BIELINSKA, Wanda; CHYLINSKA, Hanna

Bacterial endocarditis in children in the era of antibiotics.  
Pediat. Pol. 40 no.8:809-814 Ag '65.

1. Z II Kliniki Chorob Dzieci AM i Wojskowej AM w Lodzi  
(Kierownik: prof. dr. med. F. Redlich [deceased]).

BIELINSKA, Wanda; DEBIEC, Barbara; NAREBSKA, Elzbieta; PACANOWSKA, Maria

Contribution to the problem of liver cirrhosis in children according to our observation. *Pediat. Pol.* 40 no.10:1041-1048 0 '65.

1. Z II Kliniki Chorob Dzieci AM w Lodzi (p.o. Kierownik: dr. med. B. Debcowa; Kurator: prof. dr. med. K. Sroczynski).

DEBIEC, Stanislaw; ZBOROWSKA, Danuta

Variations of eosinophils in postoperative stage. Polski tygod.  
lek. 10 no.24:800-801 13 June '55.

1. Z III Kl.Chir. A.M. w Krakowie, kierownik; prof. dr J.Jasien-  
ski) Krakow, II Klinika Chir.)

(SURGERY, OPERATIVE,  
postop.eosinophil count)

(EOSINOPHIL COUNT,  
postpo. changes)



MICHALE, Wladyslaw; DEBIEC, Tadeusz

Foreign bodies in the esophagus. Polski przegl. chir. 33 no.3:  
229-237 '61.

1. Z Oddzialu Chirurgicznego Szpitala Min. Sprawiedliwosci w  
Lodzi Ordynator: dr W. Michale.

(ESOPHAGUS for bodies)

DEBIEC, Tadeusz

Surgical therapy of pulmonary emphysema. Pol. przegl. chir.  
36 no.4:505-511 Ap '64.

1. Z Kliniki Chirurgii Klatki Piersiowej i Studium Doksztalcania  
Lekarzy (Dyrektor: prof. dr W.Rzepecki) i z Oddzialu Chirurgicznego  
Szpitala MSW w Lodzi (Ordynator: dr F. Baranowicz).

EXCERPTA MEDICA Sec 6 Vol 13/11 Internal Med. Nov 59

6492. RARE COMPLICATION OF CHOLELITHIASIS - Rzadkie powikłanie kamicy  
żółciowej - Debiec T. Odd. Chir. Szpit. MSW, Łódź - PROBL. LEK.  
1958, 5/2 (178-181)

A case of rarely met constriction of the pylorus caused by the breaking through of the stones from the gallbladder into the submucosa layer is presented. The pylorus was almost completely constricted by the prominent mucosa. The gallbladder, 2/3 of the stomach together with the constriction of the pylorus were removed surgically and anastomosis of the stomach and the intestine was performed by the Reichel-Polyn method. The common bile duct was injured during the operation and was anastomosed with the second loop of small intestine. The postoperative course was favourable and the 3 yr. of observation of the patient showed beneficial results of the operation.

DEBIEL, B.

"Dabrowa Tarnowska leads in cattle breeding" p. 18 (Flon, Vol 4, No. 4, Apr. 53, Warszawa)

SO: Monthly List of East European Accessions, Vol 2 No 9 Library of Congress Sept 53 Uncl

DEBIJADJI, Rudi, Kapetan d-r

Reamination. Voj.san.pregl., Beogr. 12 no.3-4:181-184 Mar-Apr 55.

1. Patofiziološki institut VMA.  
(RESUSCIATION)

DEBIJADI, Rudi, sanitetski kapetan I klase d-r; STEFANOVIC, Oren, sanitetski  
potpukovnik d-r; WESLEY, Ines, d-r

On hypoxemic test in a pressure chamber. Voj. san. pregl., Beogr.  
16 no.7-8:591-593 J1-Ag '59.  
(ANOXIA)

DEBIJADI, Rudi, sanitetski major dr; WESLEY-TANASKOVIC, Ines, dr

Electrocardiographic changes during work. Changes of the ventricular systole (QTc wave) and its relation to the diastole (QT/TQ) during work and recovery phases. Voj.san.pregl., Beogr. 17 no.12:1263-1266 D '60.

1. Vozduhoplovnomedicinski institut u Zemunu  
(ELECTROCARDIOGRAPHY)  
(EXERTION)

BIDOVEC, Franc, sanitetski potpukovnik dr; DEBIJADI, Rudi, sanitetski major  
dr; RISAVI, Antun, sanitetski potpukovnik dr.; STRMOTIC, Emilija,  
prof; VASIC, Zivorad, prof.

Certain practical problems in aviation medicine. Voj.san.pregl.,  
Beogr. 17 no.12:1319-1328 D '60.

1. Vozduhoplovnomedicinski institut u Zemunu.  
(AVIATION MEDICINE)



DEBLJADI, R., sanitetski potpukovnik dr.; DEKLEVA, N., dr.; RADOVIC, A., sanitetski major dr.; DAVIDOVIC, J., dr.; BOKOVIC, V., veterinarpatolog

Contribution to the attempt of treatment of cerebral edema by simulated altitude. Vojnosanit. pregl. 22 no.10:621-624 0 '65.

1. Vazduhoplovnomedicinski institut.

RADOVIC, Aleksandar, sanitatski major dr.; DEBIJADI, Rudi, sanitatski  
potpukovnik dr.; DAVIDOVIC, Jovan, biolog dr.

Effect of the pressure suit on the cardiovascular systems.  
Vojnosanit. pregl. 22 no.10:610-615 O '65.

1. Vazduhoplovnomedicinski institut.

DAVIDOVIC, Jovan, biolog dr.; DEBIJADI, Rudi, sanitetski potpukovnik dr.;  
ELCIC, Stojanka, biolog; DAVIDOVIC, Vukosava, biolog

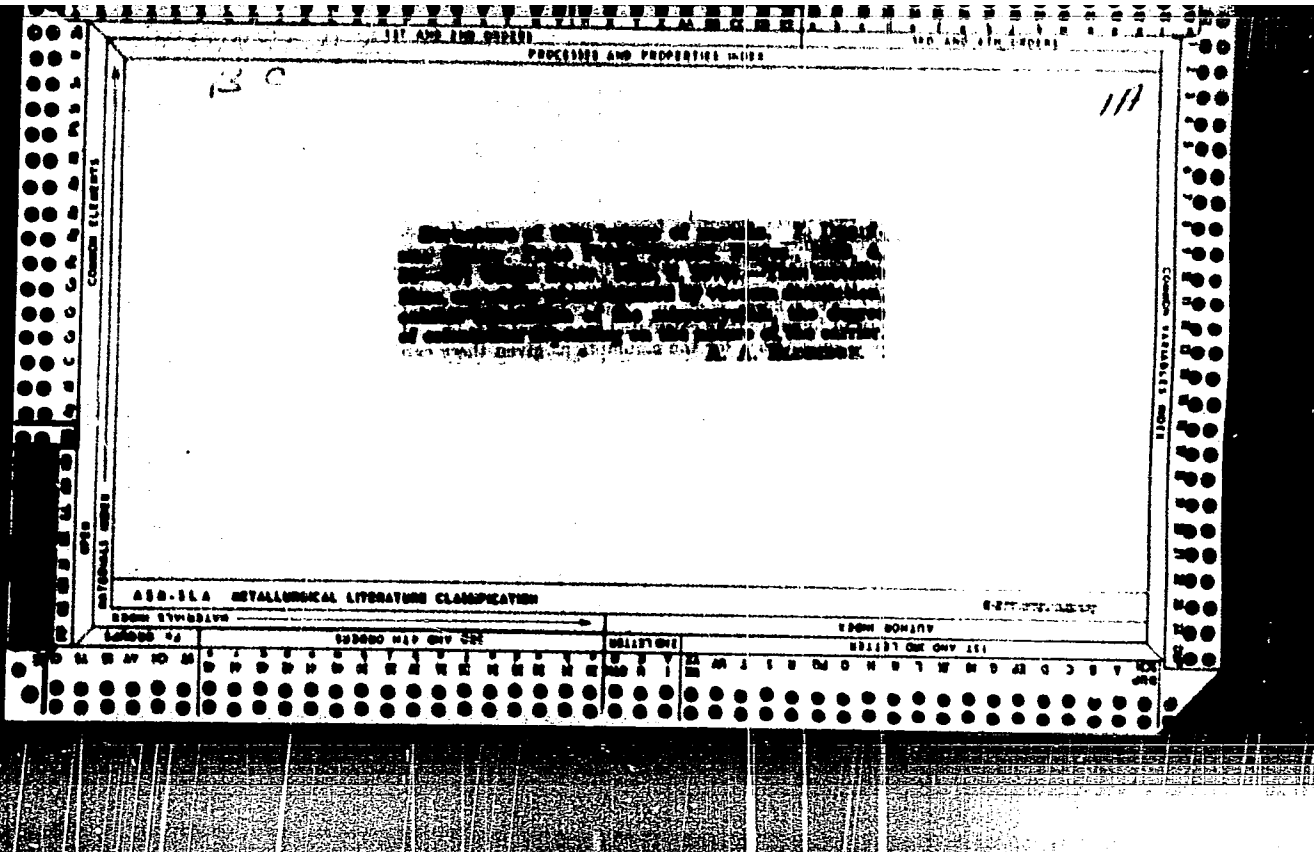
The effect of noise on the resistance to acute hypoxia.  
Vojnosanit. pregl. 22 no.10:625-627 0 '65.

1. Vazduhoplovnomedicinski institut.

DEBINA, Teofil

Pharyngeal fistulas as a complication following cancer of the larynx. Otolaryng. Pol. 19 no.1:125-128 '65.

1. Z Kliniki Otolaryngologicznej Akademii Medycznej w Lodzi (Kierownik: prof. dr. med. A. Radziminski).



1ST AND 2ND CODES      PROCESSES AND PROPERTIES INDEX      3RD AND 4TH CODES

A 34  
L

**1782. Crystal Structure of Kathode Deposits.** (Anna Z. Dobinska. *Acad. Polonaise Sci. et Lettres, Bull. 9 10. A. pp. 460-465, Nov-Dec., 1930.*— An experimental study of the influence of temperature of the kathode plate, during the period of pulverisation or deposition of the layer on its surface, upon the size and orientation of the microcrystals in the layer. The order of thickness of the layer is some few  $\mu$ . The practical details record the adaptation of a special type of discharge tube. It is found that the minute particles covering the electrode forming the surface layer obtained at temperatures from  $-80^{\circ}$  to  $-180^{\circ}$  C. have not a crystalline structure. A temperature of several hundreds of degrees, however, produces both crystalline structure and orientation of the crystals. A minimum temperature exists below which the phenomena are non-existent. S. G. B.

A.S.B.-S.L.A. METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND CODES      3RD AND 4TH CODES

1ST AND 2ND CODES      3RD AND 4TH CODES

2

The Applications of X-Rays in Foundry Practice. Z. Dobin-  
ska. (Przeplod Odlewnictwa, 1952, 8, Mar., 87-100). (In  
Polish). Methods using X-rays and  $\gamma$ -rays in foundry prac-  
tice are described.—v. 0.

LISOWSKI, Zbigniew, doc.; DEBINSKA, Zofia, dr

Nondestructive tests on the Polish State Railroads; their present state and future. Przegl kolej mechan 24 no.1:1-5 Ja '62.



24133

P/046/60/005/009/004/006  
D241/D302

21,4100

AUTHORS: Perec, Mieczysław, Mucha, Franciszek and Debínski,  
Apoloniusz

TITLE: Production of uranium by reducing  $UF_4$  with  
metallic calcium

PERIODICAL: Nukleonika, v. 5, no. 9, 1960, 559 - 568

TEXT: This work was aimed at the eventual production of "nuclear  
purity" uranium, containing  $B \leq 0.1$ ,  $Cd \leq 0.15$ ,  $Li \leq 0.1$ ,  $Co \leq 5$ ,  
 $Mn \leq 15$ ,  $V \leq 10$ ,  $Ni \leq 30$ ,  $Cu \leq 5$ ,  $Cr \leq 20$ ,  $Fe \leq 150$ ,  $Al \leq 50$ ,  $P \leq 25$ ,  
 $Si \leq 20$ , and  $C \leq 100$  ppm. Reduction with metallic Ca was chosen  
by the Instytut badań jądrowych PAN (Nuclear Research Institute  
PAS). The reaction is exothermic to the extent of  $-134$  kcal/  
mole U and theoretically occurs at  $2240^\circ C$ ; in practice the temp-  
erature is lower, depending on the scale of the process, heat  
losses, etc. Initial reductions were carried out on a small  
scale (1 kg  $UF_4$ ) in the apparatus shown in Fig. 1, consisting  
of a steel, water-cooled cylinder (1), closed by a lid (2) with

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Production of uranium...

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an opening (1) to allow the hot vapors to escape. The steel reactor (9) was placed inside a second cylinder (3), on a support (6), and was lined with fluorite (10). The apparatus was filled with gas inlets (12) and outlets (7, 8) and with a tube (4) for the electrical contacts which initiated the reaction. The lining was prepared by the method evolved at the Instytut chemii nieorganicznej w Gliwicach (Inorganic Chemistry Institute at Gliwice). Natural fluorite was crushed to less than 1 mm, leached with aq. HF, washed with distilled water and dried. Fluorite flour was then mixed with the minimum quantity of 1% starch solution in water, rammed into position and dried, raising the temperature to ~300°C over a few days. The lining was shaped to form a funnel-like cavity inside the reactor. A fluorite or graphite crucible was placed at the bottom to receive the molten U. The reactants were deposited, on a supporting thin Al sheet, in the conical part of the reactor cavity, above the U receptacle, in alternate layers (or mixed) using a 20 - 30% excess of Ca shavings. The charge was hand-rammed and a Kanthal wire heater,

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Production of uranium...

thickly covered with a mixture of Mg powder and  $KClO_4$ , was laid on top. Technical quality chemicals were used as the starting materials. The reaction was initiated electrically after filling the apparatus in argon and took place in a few seconds. Orifice (1) was then closed and the apparatus was cooled under argon. The product was porous ( $15 \text{ g/cm}^3$ ) and contained non-metallic inclusions. After remelting in a quartz crucible, at least  $14000^\circ\text{C}$  and at  $10^{-3} \text{ mm Hg}$ , a dense material ( $17.4 \text{ g/cm}^3$ ) free from inclusions was obtained. Experience gained with this apparatus allowed further investigations, using 10 - 20 kg. charges, to be carried out. The starting materials were of known, higher quality to allow an estimate of the purification attained. High purity Ca was obtained from the Instytut metali nieżelaznych, oddział metali lekkich w Skawinie (Institute of Non-Ferrous Metals, Light Metals Department in Skawina). The metal was used in the form of shavings, 3 mm. thick, a few cm. wide and 8 mm long. Reductions were carried out at a pressure of 1 mm Hg. 4. and 8.5 kg. ingots of U were obtained, the latter being non-porous and free from slag, of density  $17.9 \text{ g/cm}^3$ . The amounts of

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Production of uranium...

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X

impurities in the U are tabulated. 99% yields were obtained. It is stressed that the ingots were not entirely homogeneous chemically and were not of "nuclear purity". Remelting under vacuum would improve the product but Fe, Cu, Ni and Si would remain in comparatively high concentrations. Very high purity should be attainable with very pure starting materials, as no contamination is introduced during the calcio-thermic process. There are 6 figures, 1 table and 11 references: 6 Soviet-bloc and 5 non-Soviet-bloc. The references to the English-language publications read as follows: M. Benedict, Th.H. Pigford, Nuclear Engineering, New York, 1957, MacGraw-Hill, p. 145; J. Van Impe, Chem. Eng. Progress, 50, 230, (1954).

ASSOCIATION: Instytut badań jądrowych (Nuclear Research Institute)

SUBMITTED: June, 1960

Card 4/5

DEBROV, G.

Needs of the growing meat industry. Mias. ind. SSSR 28 no.3:30-31  
'57. (MLRA 10:6)

1. Buynakskiy uboynyy punkt.  
(Meat industry--Equipment and supplies)

*DEBITA, M.*  
EXCERPTA MEDICA Sec.2 Vol.9/10 Physiology, etc. Oct56.

4583. DEBITA M. Ul. Wolności 349, Zabrze. \*Elektropneumografia. Electro-  
pneumography POL. TYG. LEK. 1955, 10/32 (1043-1045)  
A piezoelectrical microphone (phonendoscope) transforms pulmonary murmurs in-  
to electrical stimuli. Even non-audible murmurs may be heard through the loud-  
speaker or registered with aid of an oscillograph. The possibilities of electro-  
pneumography in investigation of the physiopathology of the lungs and heart and of  
their diseases are discussed. Gaertner - Cracow (VI,2)

YELISEYEVA, V.N.; DEBITSKAYA, T.A.; LASKINA, Ye.D.

Preparation of aromatic aldehydes by nitrosation. Report No.2.  
Trudy VNIISNDV no.5:18-21 '61. (MIRA 14:10)  
(Aldehydes) (Nitrosation)

DEBKOVA, I.N.; KALUGIN, Yu.K.

Investigating the mechanism of a crosscutter with a duplex four-  
link chain. Bumagodel. mash. no.12:73-78 '64. (MIRA 17:11)



DEBLER, A. V.

AID P - 2419

Subject : USSR/Electricity

Card 1/1 Pub. 26 - 18/33

Author : Debler, A. V., Eng.

Title : ~~XXXXXXXXXXXXXXXXXXXX~~  
Using water to extinguish fires in turbo-generators

Periodical : Elek sta 5, 49-50, My 1955

Abstract : The author recommends a method of extinguishing fires in turbo-generators by installing water ducts under the units and having strong air currents disperse the water. One diagram.

Institution: None

Submitted : No date

AUTHOR: Debler, A.V., Engineer.

SOV/110-59-8-9/24.

TITLE: On the Design of an Electro-magnetic Slip Coupling with Solid Steel Armature.

PERIODICAL: Vestnik elektropromyshleanosti 1959, Nr 8, pp 36-41 (USSR)

ABSTRACT: This article describes the design of a single-pole high-frequency electro-magnetic slip coupling with solid armature which operates on the principle of the surface effect of eddy currents in solid ferro-magnetic bodies. A diagrammatic sectional drawing of such a coupling is given in Fig 1. The magnetic flux is set up by the circular field of a single coil wound in a plane perpendicular to the axis of rotation. The coupling armature is made of a solid ring of low-carbon steel grade St.3, the internal surface being machined smooth. When there is slip between the two parts of the coupling the magnetic induction in the armature varies and eddy currents are set up in it. The shape of the magnetic induction curve on the armature surface depends on the slot geometry, the length of air gap and the tooth proportions. The number of teeth is

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SOV/110-59-8-9/24.

On the Design of an Electro-magnetic Slip Coupling with Solid Steel Armature.

restricted by the ratio of the air-gap length to the pole pitch: the ratio must be kept reasonably low to avoid magnetic leakage losses. The eddy-current distribution on the active surface of the armature is illustrated diagrammatically in Fig 2. The design procedure is based on the circumstance that the torque transmitted by the coupling depends on the slip power. The assumptions made in deriving the design formulae are explained. A typical curve of magnetic induction distribution in the air gap at the surface of the armature is given in Fig 3 and it is evident that the eddy currents will not be of sinusoidal wave form. However, they may be represented by Fourier series, and only the first harmonics need be considered in deriving the equations. Expressions are then derived for the emf on the armature surface and for the impedance of the eddy-current path. The method of correcting for the dependence of the permeability on the field intensity is explained. The method of constructing the vector diagram of the magnetic field is then described

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SOV/110-59-8-9/24.

On the Design of an Electro-magnetic Slip Coupling with Solid Steel Armature.

and the method of determining the component of magnetic field intensity that governs the transmitted torque is explained. The method of determining the iron losses in the current-carrying layer of the armature are then described; formula (9) gives the power loss and formula (10) the torque transmitted by the coupling. This latter formula may be used to construct curves of the torque as a function of slip. It is necessary to check that the temperature rise of the armature is not excessive. Values of permissible specific losses in the armature for a temperature rise not greater than 150°C were derived from tests on an experimental coupling and are tabulated. The magnetic circuit is designed in the usual way as for a d.c. machine. The maximum induction on the armature surface is 9000-9500 gauss. The excitation power of a single-pole coupling is about 0.6% of the transmitted power at low ratings and for large couplings about 0.5%. Fig 6 plots the relationship between the retardation torque and the armature loss in a test coupling as function of the pulsating current frequency with an armature

Card 3/4

SOV/110-59-8-9/24.  
On the Design of an Electro-magnetic Slip Coupling with Solid Steel  
Armature.

temperature of 170°C. The relationship between the torque and the field current for the same coupling is given in Fig 7. The experimental characteristics coincided closely with calculated values. The coupling is simple in construction and reliable in operation. There are 7 figures, 1 table and 4 Soviet references.

SUBMITTED: April 13, 1959

Card 4/4.

DEBNAR, Ernest, inz.; SIMKOVIC, Fedor, inz.

A new transformer for mines. Uhli 5 no.5:187 My '63.

DEBNAR, Ernest, inz.; SIMKOVIC, Fedor, inz.

Transformers with silicon insulation. Elektrotechnik 18 no.7:  
194-197 J1 '63.

SHIBUI, A. H., Academician

"Foremost Scientist of the Stalinist  
Period", Vest. Ak. Nauk SSSR, no. 10  
1944

~~SECRET~~



ALBERT, A. M., Canadian

"Francois-Mari Voltaire-Two Hundred  
Fiftieth Anniversary of His Birth" Vest.  
Ak. Week 3300, no. 11-12, 1944

at-52059019

KOMAROV, V.L., akademik, redaktor; BAYKOV, A.A., akademik, redaktor;  
VOLGIN, V.P., akademik, redaktor; ORBELI, L.A., akademik, akademik-  
sekreter', redaktor; BRUYEVICH, N.G., akademik, redaktor; ~~DERBENT~~  
A.M., akademik, redaktor; MITIN, M.B., akaemik, redaktor; LEBEDEV-  
POLYANSKIY, P.I., redaktor; YUDIN, P.F., redaktor

[Central meeting of the Academy of Sciences of the U.S.S.R., October  
14-17, 1944; in honor of the President of the Academy, Academician  
V.L.Komarov, in connection with his 75th birthday and the 50th anni-  
versary of his scientific activity] Obshchee sobranie Akademii nauk  
SSSR, 14-17 oktiabria 1944 goda; posviashchennoe chestvovaniiu  
prezidenta Akademii nauk SSSR akademika V.L.Komarova, v sviazi s  
75-letiem so dnia rozhdeniia i 50-letiem nauchnoi deiatel'nosti.  
Moskva, 1945. 260 p. (MLRA 9:11)

1. Prezident Akademii nauk SSSR (for Komarov). 2. Vitse-prezident  
Akademii nauk SSSR (for Baykov, Bolgin, Orbeli). 3. Chlen-  
korrespondent Akademii nauk SSSR (for Lebedev-Polyanskiy, Yudin)
4. Akademiya nauk SSSR.  
(Komarov, Vladimir Leont'evich, 1869-1945)

KOVDA, V.A.; KOMAROVICH, M.A.; LIKHTENSHEYN, Ye.S.; SEGAL, B.I.; VAVILOV, S.I., akademik, redaktor; BRUYEVICH, N.G., akademik redaktor; BARDIN, I.P., akademik, redaktor; VOLGIN, V.P., akademik, redaktor; ~~DEROBIN~~, A.M., akademik, redaktor; MINTS, I.I., akademik, redaktor; ~~ORBELI~~, L.A., akademik, redaktor; PODGORNENSKAYA, TS.M., redaktor izdatel'stva; SHKOL'NIKOVA, S.A., tekhnicheskij redaktor

[220th anniversary of the Academy of Sciences of the U.S.S.R.: in two volumes] 220 let Akademii nauk SSSR; v dvukh tomakh [Red. kollegiia S.I.Vavilov i dr. Sost. V.A.Kovda i dr.] Moskva, Vol. 1. 1948. 430 p. (MLRA 9:10)

1. <sup>A</sup>akademiya nauk SSSR. Yubileynaya sessiya, Moscow, 1945. (Academy of Sciences of the U.S.S.R.)

VAVILOV, S.I., akademik, otvetstvennyy redaktor; VOLGIN, V.P., akademik;  
redaktor; BRUYEVICH, N.G., akademik, redaktor; ~~DMBORIN, A.M.~~  
akademik, redaktor; LIKHTENSHTEYN, Ye.S., redaktor; ~~PODCORNENSKAYA,~~  
TS.M., redaktor izdatel'stva; SHKOL'NIKOVA, S.A., tekhnicheskii  
redaktor

[General meeting of the academy of sciences of the U.S.S.R. devoted  
to the observance of the thirtieth anniversary of the Great October  
Socialist revolution] Obshchee sobranie Akademii nauk SSSR posvia-  
shchennoe tridtsatiletiiu Velikoi Oktiabr'skoi sotsialisticheskoi  
revoliutsii; doklady, 23 oktiabria - 2 noiabria 1947 goda. Moskva,  
1948. 718 p. (MLRA 9:10)

1. Akademiya nauk SSSR.  
(Social sciences) (Science)

KONSTANTINOV, B.P.; DEBORIN, A.M., akademik; PEYVE, Ya.V.; IOFFE, A.F.,  
akademik; MIKHAYLOV, A.I., prof.; SATPAYEV, K.I., akademik;  
ZHUKOV, Ye.M., akademik; LAVRENT'YEV, M.A., akademik; SEMENOV, N.N.,  
akademik; PAVLOVSKIY, Ye.N., akademik; MINTS, I.I., akademik;  
SISAKYAN, N.M.; ROMASHKIN, P.S.; FEDOROV, Ye.K.; STECHKIN, B.S.,  
akademik; MYSKIY, I.M., akademik; PAVLOV, Todor, akademik;  
ARBUZOV, A.Ye., akademik; VASIL'YEV, N.V., doktor ekon.nauk;  
BELOUSOV, V.V.; MITIN, M.B., akademik; BLAGONRAVOV, A.A., akademik;  
KANTOROVICH, L.V.; RYBAKOV, B.A., akademik; NEMCHINOV, V.S., akademik

Discussion of the address. Vest. AN SSSR 29 no.4:34-63 Ap '59.  
(MIRA 12:5)

1.Chlen-korrespondent AN SSSR (for Konstantinov, Peyve, Sisakyan,  
Romashkin, Fedorov, Belousov, Kantorovich).  
(Science)

DEBORIN, A.M., akademik

Unpublished article of A.P.Karpinskii on Lenin. Vest.AN SSSR 32  
no.4:108-109 Ap '62. (MIRA 15:5)  
(Academy of Sciences of the U.S.S.R.)  
(Lenin, Vladimir Il'ich, 1870-1924)

KORSHAK, V.V.; VINOGRADOVA, S.V.; VALETSKIY, P.M.; DEBORIN, M.G.

Synthesis of homogeneous and mixed polyarylates from  
allyl-substituted phenols. *Lakokras.mat.i ikh prim.*  
no.1:3-9 '63. (MIRA 16:2)

1. Institut eksperimental'noy optiki i spektroskopii  
AN SSSR i Moskovskiy khimiko-tekhnicheskiy institut imeni  
D.I. Mendeleyeva.  
(Phenols) (Arylation)

117 AND 119, 00078  
PROCESSES AND PROPERTIES INDEX

3

CA

The platinum electrode. VI. The adsorption of hydrogen and oxygen on platinum at high temperatures. H. Fröhler, G. Deborin and A. Frumkin. *Bull. acad. sci. U. R. S. S., (Mitt. Inst. math. nat., Ser. chim.* 1937, 1105-72 (in English 1073). -- Pt annealed in H<sub>2</sub> becomes poisoned and the amt. of easily removable H<sub>2</sub> on its surface is reduced to 40% of the amt. adsorbed on unheated Pt. In addn. a certain amt. of the H<sub>2</sub> becomes very firmly bound. A smooth Pt electrode poisoned with As loses most of its capacity to adsorb H<sub>2</sub> and the oxidation of the electrode begins at a lower cathode potential. The polarization curve begins to change its form when the As adsorption is less than  $4 \times 10^{-6}$  g. As per sq. cm. of Pt surface. When Pt is heated up to 900° for 10 sec. a monomol. layer of O<sub>2</sub> is adsorbed on its surface. Prolonged heating of Pt results in O adsorption sufficient to form several at. layers and in addn. the O is more firmly bound. Oxidation with air of electrolytically reduced Pt proceeds faster in an alk medium than in an acid or neutral one. John Livak

ASB-516 METALLURGICAL LITERATURE CLASSIFICATION

147300 182000 182000 182000

147300 182000 182000 182000



PROCESSES AND PROPERTIES INDEX

1ST AND 2ND EDITIONS

M

**\*On the Platinum Electrode. VI.—Adsorption of Hydrogen and Oxygen by Platinum at High Temperatures.** H. Eröcher, G. Deborin, and A. Frumkin (*Acta Physicochimica U.R.S.S.*, 1938, 8, (5), 565-576).—[In German.] The cathodic adsorption of hydrogen by a platinum electrode in N sodium sulphate solution, and the effect of poisoning the cathode by arsenic were studied. By long-continued heating of an anodically polarized platinum electrode in air, an adsorbed layer of oxygen, a few molecules thick, is produced.—J. S. G. T.

A S B S L A METALLURGICAL LITERATURE CLASSIFICATION

1930-1939

1930-1939	1930-1939	1930-1939	1930-1939
A	B	C	D
E	F	G	H
I	J	K	L
M	N	O	P
Q	R	S	T
U	V	W	X
Y	Z		

1ST AND 2ND ORDERS      PROCESSING AND PROPERTIES INDEX      100 ANI 4TH ORDER

COMMON ELEMENTS      COMMON VARIABLES INDEX

Ca

2

The polarization capacity of a smooth gold electrode. G. Deleens and B. Brunel. *Ann Physicochim. U. R. S. S.* 11, 507-51 (1955) (in English). — Repet. data on the potential curve for removal of O<sub>2</sub> bound and the charging curves in H<sub>2</sub>SO<sub>4</sub>, HCl and HClO<sub>4</sub> solns. of a gold surface kept for 5 min. to 500° are shown. Success of the preliminary oxidation the charging curves are distorted. The O bound on the Au surface can be removed by cathodic polarization at the H<sub>2</sub> potential, more easily in base than in acids. Anodic oxidation of a cleaned Au surface leads to a semi-to mono-layer of C atoms. The potential arrest at 0.45 to 0.55 v. may be due to a 2.5-atom layer of H. The capacity given by the curve is 70 μ F. per sq. cm. of apparent surface. The potential of the oxidized Au electrode is 0.75 to 0.85 v. P. H. Rathmann

3

Lab. of Surface Phenomena, Physico-Chemical Inst. in. L'Yd.  
Karpov.

ASS-51A METALLURGICAL LITERATURE CLASSIFICATION

FROM SOURCE      TO SOURCE      BY SOURCE      DATE

100 ANI 4TH ORDER

100 ANI 4TH ORDER

25222

DEFORIN, G. Bor'ba za edinstvo rabocheho klassa. Iropagandist I  
apitator, 1948, No. 13, S. 36-44.

SC: Letonis'Zhurnal Statey No. 30, Moskva, 1948

PA 66/49T18

USSR/Chemistry - Albumin

Surface Pressure Aug 49

"Morphology of Albumin Macromolecules in a Surface Layer," G. A. Deborin, Inst of Biochem Imeni A. N. Bakh, Acad Sci USSR, 4 pp  
"Dok Ak Nauk SSSR" Vol LXVII, No 5, pp 689-92

Reduces the general formula  $(F+a/A^2) (A-b) \cdot RT$ , where  $F$  is the surface pressure in dynes per cm and  $A$  is the area of the film, to the simpler form  $FA - Af + B$  in cases where the interactivity of molecules in the surface film is small. Graphs the relation of  $F$  to  $FA$  for solutions of albumin with varying pH values, USSR/Chemistry - Albumin 66/49T18

(Contd) Aug 49

and shows the area of one albumin molecule for varying pH values based on this relation. Submitted 13 Jun 49.

66/49T18

CA

11A

Catalytic activity of trypsin in a monolayer at air-water interface. G. A. Dzhigalov. *Doklady Akad. Nauk S.S.S.R.* 76, 507-508 (1951).—A monolayer of cryst. egg albumin (deposited from 0.03% aq. soln.) on satd.  $(\text{NH}_4)_2\text{SO}_4$  at pH 7.7 at 37° was studied by the pressure-area method. Upon establishment of equil. trypsin was added ( $1/10$  or  $1/100$  of the protein wt.) and a kinetic pressure-area curve taken over a period of time. Curves are reproduced. Differential curves of the rate of proteolysis against concn. of the substrate gave a sharply descending curve for  $1/100$  trypsin ratio and a sharply peaked curve for the  $1/10$  ratio. The results show that trypsin shows its catalytic properties in the unimol. layer and at pressures below 1 dyne/cm. hydrolyze the protein monolayer. Although the rate is much less than in 3-dimensional continuum, the kinetic behavior is the same. G. M. Kosolapoff

Presented 11 December 1950 by Academician A. I. Uparin.

1951

DEBORIN, G.A.

Nernal, John Desmond, 1901-

Book of a fighter and scientist-materialist ("The physical basis of life." J.D. Nernal,  
P.R.S. Reviewed by G.A. Deberin.) Priroda 41, no. 3, 1952.

9. Monthly List of Russian Accessions, Library of Congress. 1952 ~~1952~~ Unclassified.

27

CA

... ..  
 surface films of proteins that had absorbed hydrophobic substances. (G. A. Deburin and L. B. Gorbacheva (A. N. Bakh Institute, Moscow). *Doklady Akad. Nauk S.S.S.R.* 82, 943-9 (1952).—Sols. of pure egg albumin or horse-serum albumin were treated with a hydrophobic substance (Sudan III) and filtered, and the surface pressure of the soln. was detd. after addn. of 5%  $(NH_4)_2SO_4$  (pH 5.7 with egg albumin) or acetate buffer (pH 4.36 for serum protein); in the region of 0.75-1.0 dyne/cm, the curves are reversible and reproducible. For egg albumin the curve is displaced toward greater area (about 1.5-fold increase of the surface of the monolayer) with retention of 2 plateaus characteristic of phase changes in the protein. Plot of  $\pi$  against  $F_1$  indicates mol. wt. in the monolayer about 48,000 initially and 100,000 after uptake of Sudan III. Serum albumin shows a similar 1.5-2 0-fold area increase and nearly doubled mol. wt. (G. W. Kosolapoff

DEBORIN, G. A.; ROGBACHEVA, G.B.

Studies on surface films of ferments absorbing hydrophobic substances. Doklady Akad. nauk SSSR 85 no. 4:843-846 1 Aug. 1952.  
(CML 23:3)

1. Presented by Academician A. I. Oparin 7 June 1952. 2. Institute of Biochemistry imeni A. N. Bakh, Academy of Sciences USSR.



DEBORIN, G.A.; GORBACHEVA, L.B.

Complexes of proteins and lipoids and their properties. Biokhimiia 18 no.5:  
618-625 S-0 '53. (MIRA 6-10)

1. Institut biokhimii im. A.N.Bakha Akademii nauk SSSR, Moscow.  
(Proteins) (Lipids)

① DEBORIN, G. H.

USSR.  
 The surface films of the gliadins of rye with wheat heredity. V. L. Kretovich, G. A. Debordin, A. A. Buzdal, L. B. Gorbacheva, and V. K. ~~1953~~ ~~1953~~ ~~1953~~. *Dokl. Inst. Biochem. Acad. Sci. U.S.S.R., Moscow and Inst. Genetics, Acad. Sci. U.S.S.R., Biokhim. Zhurn., Akad. Nauk S.S.S.R., Zhurnik 2, 149-6(1954)*.—The surface films of rye grains found in wheat ears were studied. The mol. wt. of gliadin from wheat or rye is 60,000. The mol. wt. of the specimens taken from the "altered" grains is but 45,000; this material also shows significantly greater limiting area in formation of a monolayer, than is the case for the normal wheat or rye. Thus, the formation of these grains is accompanied by a severe alteration of the protein structure.  
 G. M. Kozolapoff

Deborin, G. A.

Complexes of proteins with lipides and their properties. The effect of pH and of guanidino on the stability of the complex of egg albumin with ergosterol. G. A. Deborin and L. E. Gorbacheva (A. N. Bakh Blochenko Institute of Chemistry, U.S.S.R., Moscow). Doklady Akad. Nauk S.S.S.R. 95, 317-20(1953); cf. C.A. 48, 4667f.—The determining factor in the stability of egg albumin complex with ergosterol is the pH of the soln. The 2:1 mol. complex studied by the surface-layer techniques shows max. stability when the underlying medium has pH 4-5; other pH values lead to rapid disocn. The stability range is close to the isoelec. point of the protein; the same phenomenon is observed also in bulk soln. as well as in the surface film. The equil. system of the complex is reversible but requires considerable activation for attainment of reversibility in the usual sense; thus prolonged agitation and temp. rise are usually necessary for reformation of the complex after changes in pH. Addn. of guanidine-HCl does not cleave the complex provided the pH is maintained by a buffer. G. M. K.

DEBORIN, G. A.

USSR/Chemistry - Biochemistry

Card 1/1 : Pub. 22 - 19/41

Authors : Deborin, G. A., and Shibanova, O. M.

Title : Albumin complexes with lipoids and their properties. Strength of solutions of egg-albumin and its complex with ergosterol

Periodical : Dok. AN SSSR 98/2, 241-242, Sep 11, 1954

Abstract : The formation of an egg-albumin complex with ergosterol and its effect in the increase in the asymmetry of the molecules was investigated. The globular effect of the ergosterol absorbed by the albumin on the albumin molecule, which leads to the formation of an albumin associate, is explained. Five references: 3-USSR and 2-USA (1940-1954). Tables.

Institution : Academy of Sciences USSR, The A. N. Bakh Institute of Biochemistry

Presented by : Academician A. I. Oparin, July 3, 1954

*DEBORIN, G. A.*

USER/ Biology

Card 1/1      Pub. 124 - 16/25

Authors      : Deborin, G. A., Cand. of Chem. Sc., and Gel'man, N. S., Cand. of Biol. Sc.

Title         : At the Biological Sciences Department of the Acad. of Sc., USSR

Periodical   : Vest. AN SSSR 25/12, 78-79, Dec 1955

Abstract     : Briefs are presented from the lecture by the renown Danish Biologist, Prof. H. Holter, on the subject of, "Absorption of Liquids by Amebia," held in Moscow on Oct. 12, 1955.

Institution : .....

Submitted   : .....

DEBORIN, G.A.

USSR/Biology - Biochemistry

Card 1/1 Pub. 22 - 30/51

Authors : Deborin, G. A.; El'piner, I. Ya.; and Shibanova, O. M.

Title : Study of surface layers of egg albumin subjected to ultrasonic waves

Periodical : Dok. AN SSSR 101/2, 309-312, Mar 11, 1955

Abstract : Experimental data are presented showing that ultrasonic waves cause decomposition of albumin particles and the appearance of an albumin of much lower molecular weight. The question on whether the albumin dimer acts in these conditions as a single molecule or decomposes into monomeric molecules is discussed. Eleven references: 9 USSR, 1 French and 1 USA (1948-1954). Table; graphs.

Institution : Acad. of Sc. USSR, Inst. of Biophysics, and the A. N. Bakh Inst. of Biochemistry

Presented by: Academician A. I. Oparin, November 18, 1954.

VEDORIN, G.A.

Complexes of proteins with lipides and their properties.  
 Effect of urea and ultraviolet light on the ability of egg albumin to form complexes with ergosterol. G. A. Vedorin and O. M. Shibaeva (A. N. P. kh. Blokhin. All. Acad. Sci. U.S.S.R., Moscow). *Doklady Akad. Nauk S.S.S.R.* 195, 628-8 (1955); cf. *C.A.* 46, 7401d, 49, 1838i. — Complex formation between egg albumin and ergosterol depends on preservation of the natural state of the former, since even mild denaturation blocks this reaction, but action of denaturants on an established complex does not cause its decomposition. The complexes are thus more stable than the protein alone. A 5-30 min. irradiation with ultraviolet or treatment with 5M urea were used as the denaturation causes. The irradiation effect begins to develop after some 15-20 min. exposure only. Small amounts of cysteine exhibit a protective action on the protein in expts. with ultraviolet light.  
 G. M. Kosolapoff

MD (7)

14

*Med* 3

The effect of metallic ions in the stability of complexes of egg albumin with ergosterol. G. A. Deborina, M. I. Bystrova, and G. F. Ivashchenko (A. I. Bakh Institute, Moscow). *Izv. Akad. Nauk S.S.S.R., Ser. Biol.* 1956, No. 4, 118-20; cf. C.A. 50, 7902f.—The identification of albumin-ergosterol complexes can be accomplished by paper electrophoresis as well as by compressibility of monolayers. The electrophoresis can be run in veronal buffer at pH 4.0-5.2. Cu ion catalyzes the oxidation of the lipid component in artificial and natural protein-lipid complexes. Fe<sup>++</sup>, Zn, Ag, Pb<sup>++</sup>, and Mn<sup>++</sup> ions are ineffective. G. M. K.



Effect of oxidation of ergosterol on stability of its complex with protein: G. A. Deborin (A. N. Bakh. Biochem. Inst., Acad. Sci. U.S.S.R., Moscow). Doklady Akad. Nauk S.S.S.R. 108, 690-2(1956).—In absence of air the ergosterol-egg albumin complex is not destroyed even by storage for 48 hrs.; addn. of cysteine stabilizes the complex by some 80-100% in terms of time. The complex cannot be restored by stirring a spin. of the decomposed complex, but addn. of fresh ergosterol did form the complex. Calciferol and egg albumin did not form a complex under conditions used for egg albumin. Under ordinary conditions in contact with air the ergosterol-albumin complex can be kept only 7-10 hrs. The results indicate that this decomposition is caused by oxidation of ergosterol. G. M. Kozhupoff

DEBORIN, G. A.

"Protein Complexes as Biochemically Active Systems," a paper presented  
at the International Symposium on the Origin of Life, Moscow, 19-24 Aug 1957.

DEBORIN, G.A.

International symposium on the origin of life on the earth.  
Biokhimiia 22 no.6:1056-1062 N-D '57. (MIRA 11:2)  
(LIFE--ORIGIN)

AUTHOR: Deborin, G. A., Candidate of Chemical Sciences. 30-12-12/45

TITLE: The **Present State** of the Problem Concerning the **Origin of Life** (Sovremennoye sostoyaniye problemy vozniknoveniya zhizni). On the Results Obtained by the International Symposium (K itogam mezhdunarodnogo simpoziuma).

PERIODICAL: Vestnik AN SSSR, 1957, Vol. 27, Nr 12, pp. 55-61 (USSR)

ABSTRACT: The problem of the creation of life belongs to the few problems that arose before and during the creation of mankind, and which have hitherto not been solved. The reason hereof is, however, not that the problem cannot be solved, but attempts to solve it have hitherto been made from wrong points of view. In 1924 A. I. Oparin, in his book "The Creation of Life" compiled a voluminous material which had been collected by natural scientists in previous years. He endeavored to give a plausible account of the evolution of matter on its way to the creation of life as well as to determine the stages of this evolution. In 1955 the general assembly of the International Biochemical Society, which met at Brussels, expressed the wish to convene an international symposium in the USSR on the creation of life. In August of this year the symposium met at Moscow. Besides Soviet scientists, more than 40 prominent

Card 1/4

The **Present State** of the Problem Concerning the **Origin of Life**. . . 30-12-12/45  
On the Results Obtained by the International Symposium.

scientists and men of learning of all fields and of 16 countries were present. More than 100 persons took part in the discussions. As first stage of the evolution of matter at present the development on the earth of primary organic substances from anorganic material is looked upon. Opinions differed considerably with respect to the atmosphere of the original earth before the creation of life. The following learned men and scientists defended their points of view: The well-known American astronomer and physicist professor G. Juri, professor V. A. Sokolov, professor B. Yu. Levin, members of the AN V. G. Fassenkov and A. P. Vinogradov, professor M. Calvin (USA), the young chemist S. Miller (USA), member of the AN A. N. Terenin, the professor A. G. Pasynskiy, I. Ye. El'piner and A. Ye. Braunshteyn. The second higher stage of the evolution of matter was the forming of complicated compounds such as albumen, ferment, and nucleoproteids. Two sessions were devoted to this problem. They were attended by professors Sh. Akabori (Japan), O. Hoffmann-Ostenhof (Austria), L. A. Nikolayev, L. Poling (USA), E. Chargaff (USA), doctor M. Grünberg-Manago (France), the professors A. N. Belozerskiy, V. Stenli (USA), G. Fränkel-Konrat (USA), and G. Schramm

Card 2/4

The Present State of the Problem Concerning the Origin of Life. 30-12-12/45  
On the Results Obtained by the International Symposium.

(German Federal Republic). The last and most important stage of the evolution of matter was that during which the transformation of complicated organic compounds, the polynucleotides, albumen-like substances, and other chemical compounds into complicated polymolecular system took place. These systems already showed signs of life, but this fact is the least investigated and the most contested. As characteristic signs of life there is metabolism, interrelation with the surrounding world, assimilation, and dissimilation. The discussion included: A. I. Oparin, member of the AN, professor I. Prigozhin (Belgium), and professor A. G. Pasyanskiy. The lecture delivered by A. I. Oparin caused particular interest. Other lectures were delivered by professor E. Makovskiy (Roumanian People's Republic), T. N. Yevreinova, H. E. Sisakyan, corresponding member of the AN, and professor D. Bernal (England). Though agreement was reached with respect to individual problems, there was, at the same time, disagreement as regards the question in principle as to whether life was created in form of individual molecules or in form of complex polymolecular systems, as well as with respect to the question as to the nature of original systems that facilitated the forming of primary living organisms.

Card 3/4

The Present State of the Problem Concerning the Origin of Life. 30-12-12/45  
On the Results Obtained by the International Symposium.

Participants in the discussion: professors N. Gorovits (USA), A. Ye. Braunshteyn and member of the AN A. I. Oparin. During the last two sessions of the symposium, which dealt with biochemical problems in connection with the further evolution of metabolism in the living organism, the speakers were: professors M. Florcken (Belgium), M. Isimoto (Japan), A. Ye. Braunshteyn, V. L. Kretovich, E. Obalja (France), I. Oda (Japan), S. Rid (Canada), A. A. Krasnovskiy, T. I. Godnev, candidate for Biological Sciences Yu. I. Sorokin and others. In the final session the entire program of the symposium was discussed. Professor S. Foks (USA) suggested that the symposia should be carried out systematically, which was agreed to unanimously. The chairman, professor M. Kalvin (USA), praised the excellent work performed by A. I. Oparin and thanked the AN USSR for the excellent organization of the symposium in the name of all participants. He expressed the opinion that an important contribution had been made towards solving the problem dealt with and towards promoting the international cooperation of scientists.

Library of Congress

AVAILABLE:  
Card 4/4

1. Life--Origination--Conference

20-114-5-41/60

**AUTHORS:** Deborin, G. A., Ivashchenko, G. F., Smirnova, T. I.

**TITLE:** Determination of the Molecular Weight of Some Albumins in a Monomolecular Layer (Opredeleniye molekulyarnogo vesa nekotorykh belkov monomolekulyarnom sloye)

**PERIODICAL:** Doklady Akademii Nauk SSSR, 1957, Vol. 114, Nr 3, pp 602-605 (USSR)

**ABSTRACT:** Recently theoretical foundation has been given to the determination of albumins in the above circumstances, and the molecular weights of more than ten different kinds of albumin were obtained. These results were almost always in agreement with the relevant results obtained by other methods. For several reasons, these investigations have so far been limited to different animal albumins, whereas of the vegetable albumins only the molecular weights of gliadin and zein have been determined (25,000 - 27,000 and 20,000, respectively). Thus it appeared to be of interest to find such conditions under which it would be possible to determine the molecular weights of such vegetable albumins as glycinin and edestin, as well as of the ferment albumin of ribonuclease. Surface pressure was measured by means of a vertical scale of the Wilhelmi type,

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Determination of the Molecular Weight of Some Albumins in a Monomolecular Layer

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with a torsion wire of phosphor bronze (diameter 0.1 mm). Glycinin was obtained from the endosperm of soybean, edestin from hemp seeds. Ribonuclease was obtained from the pancreas of cattle. The determination of the molecular weights of the two former substances (concentrations 0.07 % and 0.05 %, respectively) was carried out with a 20 % solution of ammonium sulphate at a pH = 4.5. Tables Nr 1 and Nr 2, as contained in the paper under review, represent the characteristics and changes in the molecular weights of the albumins concerned. Figure Nr 1 shows the results of the analysis, figure Nr 2 the molecular weights of ribonuclease, and figure Nr 3 the curves of dependence  $F_a$  upon  $F$  for the same substance. It follows from the experimental results that, subject to an appropriate selection, it is possible successfully to apply the methods of monomolecular layers to the determination of the molecular weights of all three substances under consideration. There are 3 figures, 2 tables, and 11 references, 4 of which are Soviet .

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Determination of the Molecular Weight of Some Albumins in a Monomolecular  
Layer 20-114-3-41/60

ASSOCIATION: Institute for Biochemistry imeni A. N. Bakh, AN USSR  
(Institut biokhimiim im. A. N. Bakha Akademii nauk SSSR)

PRESENTED: February 6, 1957, by A. I. Oparin, Member of the Academy

SUBMITTED: January 30, 1957

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DEBORIN, G. A.

20-2-30/50

- AUTHORS: Oparin, A. I., Academician, Deborin, G. A., and Baranova, V. Z.
- TITLE: The Influence of Desoxyribonucleic Acid on the Breaking Down of Proteins by Trypsin (Vliyaniye dezoksiribonukleinovoy kisloty na rasshchepleniye belkov tripsinom)
- PERIODICAL: Doklady AN SSSR, 1957, Vol. 116, Nr 2, pp. 270 - 272 (USSR)
- ABSTRACT: The influence exerted by substances from the above-mentioned group on the enzymatic activity in in-vitro-tests drew the attention of scientists upon itself during recent years. After a survey of publications the authors state that the interaction mechanism of nucleic acids with the enzymatic proteins was hitherto not sufficiently solved. The formation of complexes is assumed whose components are connected with each other by means of electrostatic interaction, hydrogen binding, Van der Waals's forces or a co-valent chemical bond. The authors studied the influence of a highly-polymeric deoxyribonucleic acid (called DNS in the following) on the proteolytic process under conditions above the isoelectric point, i.e. when the interaction of DNS with the enzyme does not lead to precipitation. DNS was produced from the thyroid gland of calves.

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The Influence of ~~De~~oxyribonucleic Acid on the Breaking Down of Proteins by Trypsin

Its molecular weight was  $0,8 - 1,4 \cdot 10^6$ . Crystalline trypsin was produced according to Kunitz & Nortrop. The test method is described. Figure 1 shows the curve of proteolysis by trypsin of : serum albumin, egg albumen and casein, together with control curves. In the case of individual substrata this process is markedly inhibited. In order to determine the nature of the process of inhibition in the presence of DNS, the influence of a previous incubation with DNS with an enzyme or with a substratum on the course of proteolysis was investigated. Figure 2 shows the data obtained from a test of this series. The curves show that a rapid inhibition only takes place in the case of a previous incubation of the substratum with DNS, and not of the enzyme with DNS. On the basis of the test results the conclusion may be drawn that DNS influences only the substratum and not the enzyme. In the case of a large excess of DNS, e.g. in the relation DNS : serum albumin = 1 : 0,6 and 1 : 0,5 no further inhibition is caused, although the increase in this relation up to this value increased the inhibition. In the case a very large excess of serum albumin over DNS, inhibitions of proteolysis were observed. As high-polymeric nucleic acids are highly capable of interaction with proteins, an investigation was made of the influence exerted by the polymerism of DNS on the

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The Influence of **Desoxyribonucleic Acid** on the Breaking Down of Proteins by Trypsin

course of the proteolysis of casein by trypsin. Figure 3 shows that the strongest inhibition of the proteolysis took place when DNS with the highest molecular weight was used. The smallest inhibition was obtained when a DNS was used that had been treated with deoxyribonuclease. It was already earlier proved that enzymatic processes outside the organism may depend on the presence of small amounts of lipoids which form complexes with proteins. The totality of these and the above-mentioned factors indicates a great variety of the manners of regulation in a system so complicated and rich in components as the cell. There are 3 figures and 12 references, 3 of which are Slavic.

ASSOCIATION: Institute for Biochemistry **Imeni A. N. Bakha, AN SSSR**  
(Institut biokhimii im. A. N. Bakha Akademii nauk SSSR)

SUBMITTED: June 26, 1957

AVAILABLE: Library of Congress

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OPARIN, Aleksandr Ivanovich, akademik; ~~DEBORIN~~, Gavriil Abramovich, kand. khim. nauk; ~~BENYUMOV~~, O.M., red.; ~~SAVCHENKO~~, Ye.V., tekhn. red.

[Present-day science on the origin of life on earth; results of the International Symposium on the Origin of Life in Moscow, August 19-24, 1957] Sovremennaya nauka o vzniknovenii zhizni na Zemle; k itogam Mezhdunarodnogo simpoziuma po proiskhozhdeniiu zhizni, sostoiavshegosia v Moskve 19-24 avgusta 1957 goda. Moskva, Izd-vo "Znanie," 1958. 34 p. (Vsesoiuznoe obshchestvo po rasprostraneniu politicheskikh i nauchnykh znani. Ser. 8, vyp.1, no.5).  
(Life--Origin) (MIRA 11:9)

DEBORIN, G. A.

(Gabriel A.)

"Protein-Lipid Complexes and their Enzymatic Activity"

Inst. of Biochemistry, im A. N. Bakh, Moscow

paper presented at the 4th Intl. Congress of Biochemistry, Vienna, 1-6 Sep 58.

AUTHOR: Deborin, D. A., Candidate of Chemical Sciences 1958 9-9, '26

TITLE: Experiments Prove Theory (Opyty podtverzhdaiut teoriyu)  
PERIODICAL: Tekhnika molodezhi, 1958, Nr 5, pp. 12, 13, 14, 15.

ABSTRACT: The theory of the development of life elaborated in the works of A. I. Oparin, Member, Academy of Sciences, offered great possibilities for research in this field. The Soviet scientist, Member of the Academy of Sciences, A. N. Terenin proved by his experiments that the action of strong ultra-violet waves on the original atmosphere of the earth caused the formation of complicated organic substances, aldehydes and amino acids. Similar data are supplied by T. Ye. Pavlovskaya and A. G. Pasynskiy as well. Professor I. Ye. El'piner reported on experiments in which organic substances formed on the action of ultrasound. Recently the young American chemist Stanley Miller made it his aim to check the ideas of A. I. Oparin experimentally. All experiments carried out point out that the synthesis of complex organic compounds could take place in the primary (reducing) earth atmosphere on the in-

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Experiments Prove Theory

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fluence of different energy sources. Modern chemistry convinces us that during a prehistoric epoch albumin-like substances had to be formed of different amino acids and their predecessors in the water cover of our planet. In 1955 the Japanese biochemist Sh. Akabori uttered the opinion that the primary albumina did not necessarily have to form of finished amino acids. The data of modern biochemistry maintain convincingly that life is impossible without the collaboration of specific catalysts of the albumin type, called ferments. The well known Austrian biochemist O. Goffman-Ostengof (Hoffmann-Ostenhof) is of opinion that already in the lifeless world numerous substances existed which had the capability of carrying out catalytic functions. In modern biologic literature the problem concerning the role of nucleic acids in the biological process of the albumin synthesis is unsettled. The synthesis of nucleic acids is realized just like that of other protoplasmic compounds by means of a complicated ferment apparatus. This is also proved by the experiments of the French biochemist Marianna Gryunberg-Manago. Based on his experiments Professor A. N. Belc-

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zerskiy arrived at the conclusion that ribonucleic acid is apparently connected with general phenomena of life activity and had been formed at an earlier date. Desoxyribonucleic acid is connected with more limited functions and was formed at a much later date of the development of organism.  
There are 4 figures.

1. Biology--Theory
2. Organic materials--Synthesis

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SCV/20-121-1-33/55

AUTHORS: El'piner, I. Ye., Deberin, G. A., Zorina, O. M.

TITLE: The Molecular Weight of Serum Albumin, Exposed to Ultra-Sonic Waves in the Presence of Different Gases (Molekulyarnyy ves syvorotochnogo al'bumina, obluchennogo ul'trazvukovymi volnami v prisutstvii razlichnykh gazov)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 121, Nr 1, pp. 138-140 (USSR)

ABSTRACT: Under the influence of ultra-sonic waves not only synthetic polymers but also a number of polymerized substances are depolymerized from organism cells. This takes place in the field of these waves with nucleic acids, starch, dextrane, and with several mucopolysaccarides (Refs 1-4). One fact is common for all these substances: no monomers are produced, but particles which still have a comparatively high molecular weight. The mentioned depolymerization process is stopped after a certain loss of molecular weight. Thus egg-albumin and its complexes with ergosterol after having been exposed to ultra-sonic waves for 20 minutes lose approximately 20% of their molecular weight. After this no further changes are observed (Ref 5). In the

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The Molecular Weight of Serum Albumin, Exposed to Ultra-Sonic Waves in the Presence of Different Gases

present paper the same is proved for other proteins (serum albumin). In this case, however, an enlargement of the protein molecules takes place. The character of the changes mainly depends on the nature of the gas with which the protein solution exposed to ultra-sonic waves is saturated. Aqueous solutions of horse albumin recrystallized twice and dried lyophilically, served as experimental object. The solution was poured into the glass tubes in the so-called ultra-sonic fountain (oscillation frequency 740 kilo cycles, sound pressure of waves  $\sim 4$  watt/cm<sup>2</sup>). Table 1 shows the values of the molecular weight of the serum albumin which was exposed to ultra-sonic waves in the presence of air. This shows that the molecular weight is reduced with a longer duration of acoustic irradiation. After 50 minutes the reduction amounts to almost 50%. Such a loss could not be caused by the splitting off of the one or other lateral- or terminal group. In the case of the used intensity forces develop which are sufficient for the breaking of C-C bonds (Ref 7). We may assume that polypeptide bonds are broken here and rather great molecular splinters are formed.

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