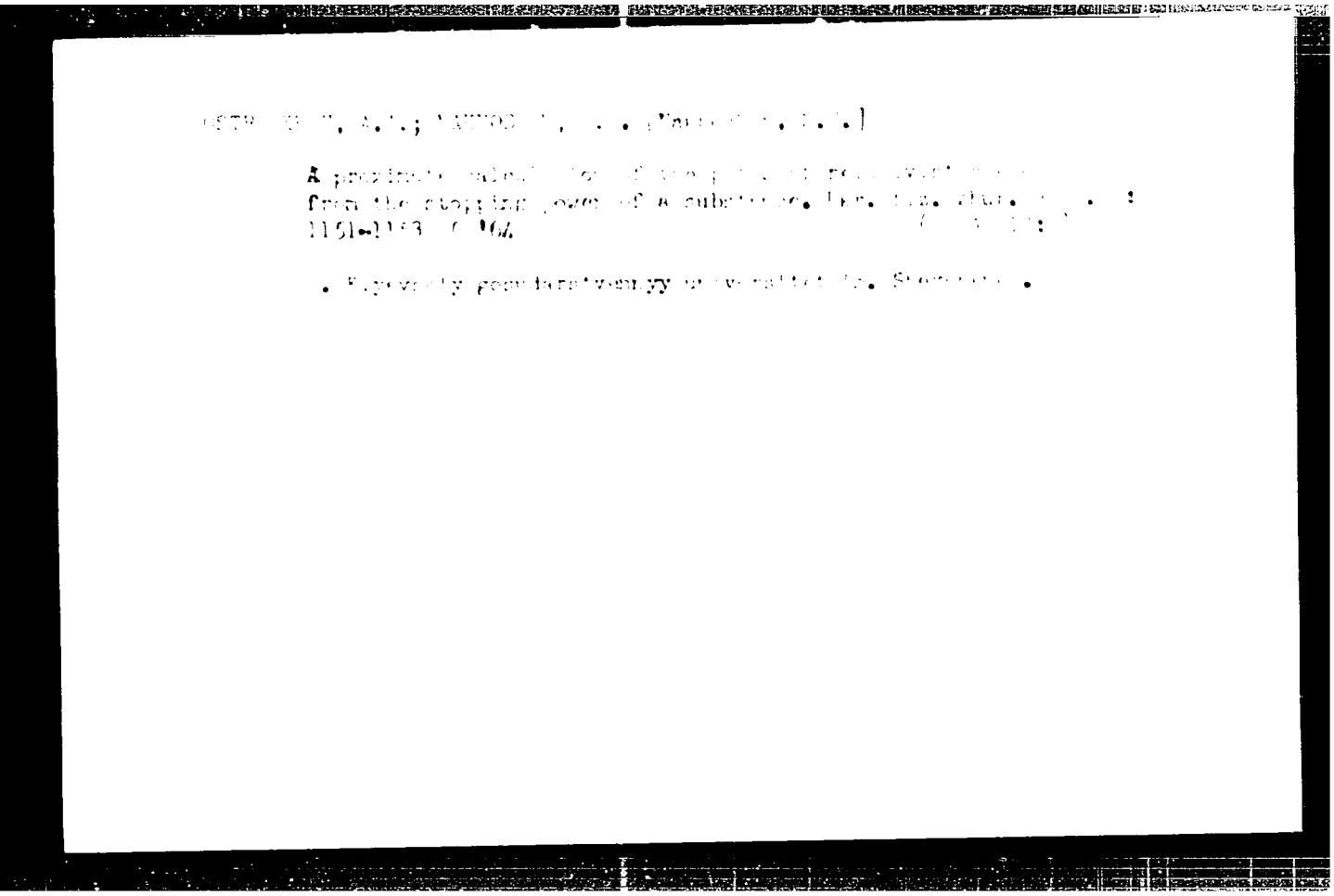


L 26984-65 EWT(l)/EWT(m)/T/EEC(b)-2/EWP(t)/EWP(b) IJP(c) JD/GG
ACCESSION NR: AP5003438 S/0181/65/007/001/0210/0216

32
AUTHORS: Nakhodkin, N. G.; Ostroukhov, A. A.; Romanovskiy, V. A. 31

TITLE: Inelastic scattering of electrons in thin films 14 13

SOURCE: Fizika tverdogo tela, v. 7, no. 1, 1965, 210-216

TOPIC TAGS: inelastic scattering, electron scattering, thin film, reflection coefficient, transparency coefficient

ABSTRACT: In view of the fact that the theory of elastic scattering developed in earlier papers by the authors (FTT v. 4, 1514, 1962 and v. 5, 41, 1963) yields results that are somewhat too high for the flux density of the unscattered electrons and for the coefficient of inelastic reflection in the case of heavy substances, the authors have modified in the present paper the approximate theory for large-angle scattering of electrons, taking a more consistent account of the conditions of the fast-electron emission. An integral transport

Card 1/2

L 26984-65
ACCESSION NR: AP5003438

equation is derived with an account of the conditions of motion and is solved for the case of normally and obliquely incident beams. The thickness dependence of the transparency coefficient is calculated for normal incidence. The connection between the total range and the extrapolated range is examined and it is noted that the extrapolated range coincides with the electron scattering length. The dependence of the coefficient of reflection on the atomic number of the target is calculated and found to agree with the experimental data for both small and large atomic numbers. Orig. art. has: 5 figures and 18 formulas.

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

SUBMITTED: 13Jul64 ENCL: 00 SUB CODE: NP, SS

NR REF SOV: 005 OTHER: 009

Card 2/2

L 58776-65 EWT(1)/EPA(w)-2/EEC(t)/EWA(m)-2 Pz-6/Pl-4 IJP(c) AT
ACCESSION NR: AP5010753 UR/0181/65/007/004/1256/1259

AUTHOR: Nakhodkin, N. G.; Ostroukhov, A. A.; Romanovskiy, V. A.

TITLE: Effect of atomic screening factor on inelastic reflection of electrons

SOURCE: Fizika tverdogo tela, v. 7, no. 4, 1965, 1256-1259

TOPIC TAGS: screening factor, inelastic reflection, electron reflection, electron energy distribution

ABSTRACT: This is a continuation of earlier work by the authors (FTT v. 4, 1514, 1962 and v. 5, 41, 1963), in which an approximate theory was developed for the calculation of the inelastic reflection and transparency coefficient and for the calculation of the energy distribution of inelastically scattered electrons. The results of this theory disagree with experiment at large angles of incidence of the

ence of the coefficient of inelastic reflection, so that allowance for the screen-

Card 1/2

L 52776-65
ACCESSION NR: AP5010753

ing does not change essentially the previous results for the angular dependence of the elastic reflection coefficient, and the discrepancy at large angles still remains. Even if further calculations show that the effective cross section at small scattering angles must be modified, the influence of the atomic form factor on the

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

SUBMITTED: 17Nov64 ENCL: 00 SUB CODE: NP

NR REF SOV: 005 OTHER: 005

Card 2/2

OSTROUKHOV, A.A.; NAKHODKIN, N.G.

Approximate analytic expression for the run of particles retarded according to Bethe's law. Radiotekh. i elektron. 10 no.3:[illegible] Mr '65. (MIRA 18:3

1. Kiyevskiy gosudarstvennyy universitet im. T.G. Shevchenko.

USSR/Microbiology - General Microbiology.

Abs Jour : Ref Zhur - Biol., No 3, 1958, 9777

Author : Bekker, Z.E., Ostroukhov, A.A., Smirnova, A.D., Kosheleva, N.A., Fadeeva, N.P.

Inst : -

Title : Growth Manifestations in Submerged Cultures of Peninillium Chrysogenum Thom.

Orig Pub : Antibiotiki, 1956, 1, No 3, 40-47

Abstract : Mycelial cells of P. chrysogenum Q 176 in a submerged culture on a Stoun and Farrel medium in a 1000 liter apparatus with mixing at 200 rpm and aeration of 1 volume of air per volume of medium per minute, undergo very characteristic transformation during cultivation, which may be provisionally represented in the form of 6 growth phases. The I phase: germination of conidia (begins in 13-24 hours from the time conidia are inoculated in the nutrient medium). Conidia swell and form one or several growth tubes.

Card 1/4

Abs Jour : Ref Zhur - Biol., No 3, 1958, 9777

II.phase: Expansion of hyphae (begins in 36-48 hours from the time of conidia inoculation in the nutrient medium). Still no activity is manifested in the culture liquid.
III phase: Accumulation of reserve substances (observed after 48-56 hours from the time of conidia inoculation or after 24-36 hours from the time of mycelium transplantation from the inoculating apparatus to the fermentation apparatus). Large numbers of fatty inclusions appear. Activity of the culture liquid is very low.
IV phase: Disappearance of fatty substances and the beginning of vacuolization (observed after 36-48 hours from the time of transplanting inoculated mycelium into the fermentation apparatus). Activity of the culture liquid is notably increased.
V Phase: Formation of large central vacuoles (observed in 48-72 hours from the time of transplanting the inoculated

BREKKER, Z.Ye., OSTROUKHOV, A.A.; SMIRNOVA, A.D.; KOSHELEVA, N.A.; FADEYVA, N.P.

Growth phenomena of submerged cultures of Penicillium chrysogenum Thom. Antibiotiki, Moskva 9 no.2:40-47 Mar-Apr 56 (MLRA 9:3)

1. Vsesoiuznyy nauchno-issledovatel'skiy institut antibiotikov.
(PENICILLIUM
chrysogenum Thom, growth phases of submerged aerated cultures)

BEKKER, Z.E., BEREZINA, Ye.K. VEYS, R.A., MILOVANOVA, S.N., OSTROUKHOV, A.A. RODIONOVSKAYA, E.I., TRAKHTENBERG, D.M., KHOKHLOV, A.S., CHAYKOVSKAYA, S.M.

Velutinin, an antibiotic from the mold fungus Aspergillus velutimus. [with summary in English]. Antibiotiki 3 no.4:104-105 Jl-Ag '58 (MIRA 11:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov.
(ANTIBIOTICS)

OSTROUKHOV, A.A.; ABYZOVA, L.F.

Method of preparing of herbarium of mold fungi. Lab. delo 7 no.6: 44-45 Je '61. (MIRA 14:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov, Moskva.

(FUNGI)

OSTROUMOV, A.A.; KUZNETSOV, V.D.

Rapid method of selecting active variants of penicillin producer with the aid of rH2 indicators. Antibiotiki 8 no.1: 33-35 Ja'63. (MIRA 16:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov.
(PENICILLIN) (OXIDATION-REDUCTION REACTION)

USSR / Pharmacology and Toxicology. Medicinal Plants. V-8

Abs Jour : Ref. Zhur - Biologiya, No 17, 1958, No. 80648

Author : Ostroukhov, A. F.
Inst : Not given
Title : Pharmacognostic and Pharmacological Investigations of Sophora Japonica

Orig Pub : Tr. Krymsk. med. in-ta, 1957, 17, 194-197

Abstract : The basic active substance from Sophora japonica (I) is rutin. Its greatest quantity is found in the flowers, significantly less in the leaves, and comparatively little in the fruit. Tinctures of the different parts of I showed practically no toxic effects on frogs, mice or cats. The slightest amount of the tincture is used to increase the tonus of the CNS, to excite respiration and to insignificantly decrease blood pressure, while large doses are used to cause some depression of the reflex activity. The

Card 1/2

Abs Jour : Ref. Zhur - Biologiya, No 17, 1958, No. 80648

presence of rutin and ascorbic acid in I provides the possibile explanation of the wide use of its tincture in folk medicine with great success.

BOCHKOVSKAYA, I.V.; OKUNEV, A.L.; OSTROUKHOV, A.I., redaktor; SINYAVSKAYA, YE.K., redaktor; ANDREYEV, S.P., tekhnicheskiy redaktor.

[Work practice in operating the BES-2 type drilling machine in the Krivoy Rog Basin] Opyt ekspluatatsii burovogo stanka tipa BES-2 v Krivorozhskom basseine. Khar'kov, Gos.nauchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1955. 28 p. (MLRA 9:6)
(Krivoy Rog)

SHOSTAK, A.G.; OSTROUKHOV, A.I.

Results of progressive mine operations in the Krivoy Rog Basin.
Gor. zhur. no.3:29-33 Mr '57. (MLRA 10:4)

1. Nachal'nik tekhnicheskogo otdela tresta Dzerzhinskruda (for Shostak).
2. Nachal'nik tekhnicheskogo otdela tresta Leninruda (for Ostroukhov).
(Krivoy Rog--Iron mines and mining)

05921

9(2) SOV/107-59-7-4/47

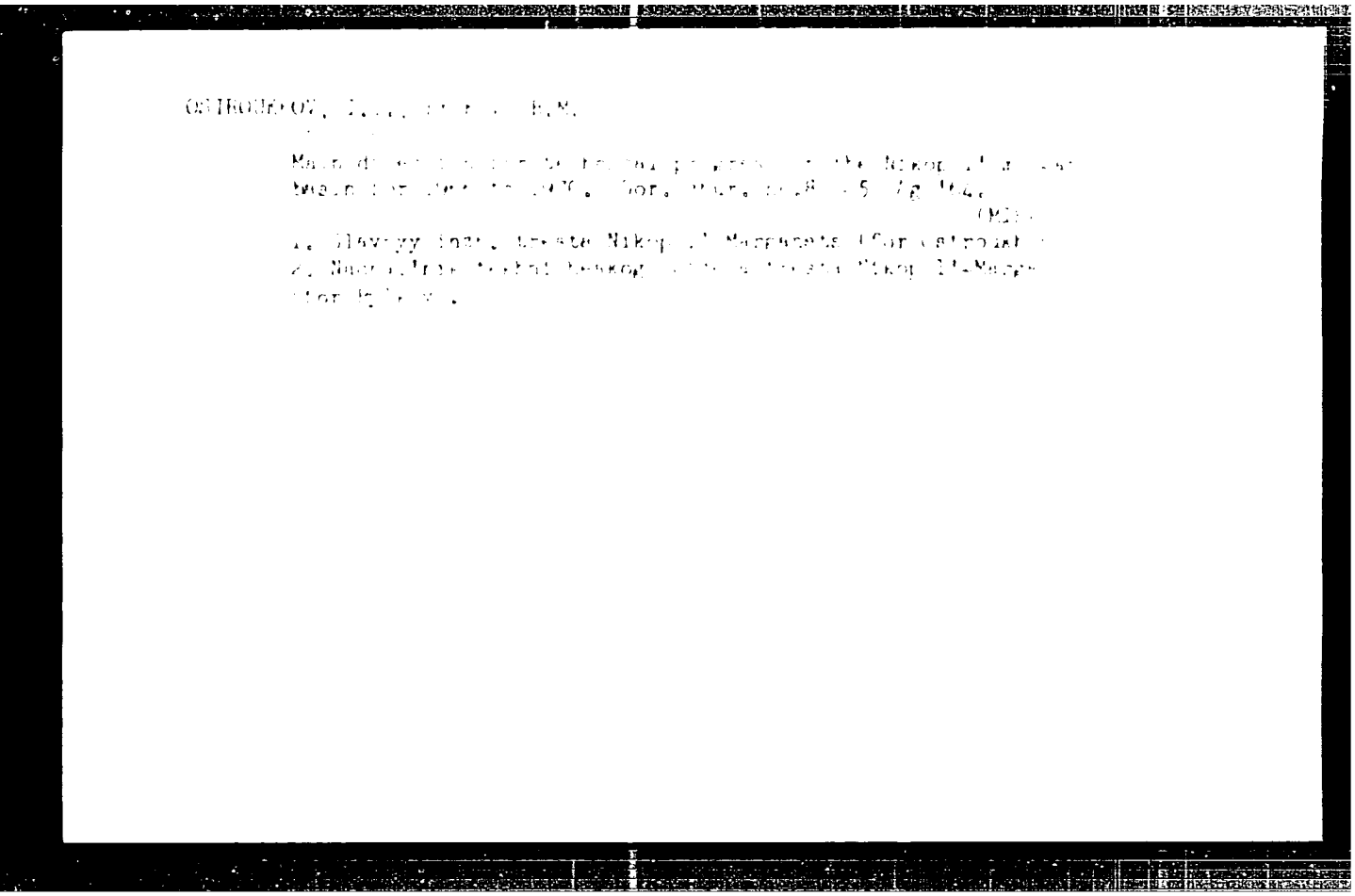
AUTHOR: Ostroukhov, I.

TITLE: A High-Quality VHF Unit

PERIODICAL: Radio, 1959, Nr 7, pp 27 - 30 (USSR)

ABSTRACT: The author describes a VHF/FM receiver unit which was developed at IRPA imeni A.S. Popov for use in modern radio AM/FM radios. The circuit diagram of the VHF/FM unit is shown in Figure 1. One of the most important features is the comparatively low signal radiation from the heterodyne frequency. The r-f amplifier consists of one 6N14P, while the converter is built with one 6F1P tube. The unit works on frequencies of 64.5-73 Mc. IF signal attenuation is more than 60db. Image attenuation at 73 Mc is 48 db. The actual sensitivity of a receiver with such an FM unit will change from 0.8 to 1.5 microvolts. There are 3 circuit diagrams, 2 diagrams and 1 table.

Card 1/1



OSTROUKH, N.P.

Canned tomatoes in infectious colds and laryngotracheitis in chickens.
Veterinariia 33 no.9:42 S '56. (MLRA 9:10)

1.Starshiy veterinarnyy vrach Belogorskoy Mashinnotrakternoy stantsii no.2 Krymskoy oblasti.
(Poultry--Diseases) (Tomatoes)

S/081/62/000/004/019/087
B149/B101

AUTHORS: Ostroumov, E. A., Volkov, I. I.

TITLE: Separation of iron, aluminum, and chromium from manganese, nickel, cobalt, and zinc with cinnamic acid

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 4, 1962, 133, abstract 4D52 (Tr. In-ta okeanol. AN SSSR, v. 47, 1961, [illegible])

TEXT: The method of separating Fe, Al, and Cr from Mn, Ni, Co, and Zn is based on the precipitation of Fe^{3+}, Al^{3+} and Cr^{3+} with cinnamic acid with which they form insoluble salts while Mn^{2+}, Ni^{2+}, Co^{2+}, and Zn^{2+} form soluble complex compounds. The most complete precipitation of Fe, Al, and Cr occurs at pH 5.0 - 5.1. Coprecipitation of divalent elements is prevented by the addition of ammonium chloride. To 460 ml of the solution to be analyzed containing about 0.1 g of the sesquioxides, 10 - 15 g of [illegible] are added, then a concentrated solution of NH_4OH is added until the appearance of turbidity, which is cleared with 2 - 3 drops of HCl. The solution

Card 1/2

Separation of iron, aluminum, and... B/051/62/[illegible]/[illegible]/[illegible]
B147/B101

is diluted with water to 80 - 90 ml, and heated to boiling. [illegible] ml of ammonium cinnamate (I) are added; the beaker is covered, the liquid gently boiled for 1 - 2 min and left on a boiling water bath for 1 - 1½ hours, with occasional stirring. The precipitate is filtered, stirred twice with 20 - 25 ml portions of the following solution: 10 g NH_4Cl dissolved in hot water, mixed with 20 ml of 5% solution of I and diluted with water to 100 ml, and finally with hot 4% solution of I; it is then dried and calcined. This method is suitable for the analysis of marine ferromanganese concretions. [Abstracter's note: Complete translation.]

Card 2/2

PA - 2922

AUTHOR BEZRUKOV P.L., OSTROUKHOV, E.A.

TITLE On Phosphorus Distribution in the sediments of the Okhotsk Sea. (O raspredelenii fosfora v osadkakh Okhotskogo moraya -Russian)

PERIODICAL Doklady Akademii Nauk SSSR, 1957, Vol 113, Nr 1, pp 142-145, (U.S.S.R.)

Received 6/1957 Reviewed 7/1957

ABSTRACT Inorder to explain some questions concerning the origin of phosphorites it is necessary to know the rules governing phosphorus distribution in the sediments of recent seas. In contrast to other seas the Pacific has scarcely been investigated in this respect. Considerable quantities of material of soil sediments was investigated which had been collected by the ship "Vityaz" in the North Western Pacific. The close connection of the Okhotsk Sea with the Pacific, the penetration of phosphorus-rich abyssal-waters from this ocean, the high productivity of its plankton, the variety of geological structure and of the petrographic composition of the surrounding continent, aswellas the existence of upper-teriary phosphorites on Sakhalin render this investigation important. 150 stations on the ground were investigated with respect to surface-samples, (2-5 cm) and a chart (illustration 1) was made. This chart shows that there are two teritories with a relatively high phosphorus-content. 1) A continental shoal in the nothern part of the sea and 2) the Kamchatka- and Kuril Isles shoal. In the former region the coastal zone has less phosphorus(0,07-0,04%) than the middle parts of the shoal (0,12-0,15%). In the latter region the highest phosphorus-content is

Card 1/2

PA - 2924

On Phosphous Distribution in the Sediments of the Okhotsk Sea.

found in the sand of the shore (o,o9-o,135°/o) and it becomes less nearer the sea. In East of Sakhalin the phosphorus-content increases again, not on the shore itself,(o,o2-o,o4°/o) but somewhat more to the East in the Deryugin depression (o,o6-o,o7°/o). Summary. Phosphorus distribution in the sediments of the Okhotska Sea is on the whole governed by the same rules that Strakhov, N.M.,found to exist for a number of other waters. The phosphorus-compounds come into the Okhotsk Sea as solid phase with denudation- and abrasion products of the continents and partly perhaps with products of volcanic activity.
(1 ill.,13 citations from published works).

ASSOCIATION Oceanographical Institute of the Academy of Science of the U.S.S.R (Institut okeanologii Akademii Nauk SSSR)
PRESENTED BY STRAKHOV, N.M., Member of the Academy.
SUBMITTED 12.11.1956.
AVAILABLE Library of Congress.
Card 2/2

OSTROUMOV, G. A.

"Hydrodynamic explanations of the electrical properties of insulating fluids."

Report presented at the 1st All-Union Conference on Heat- and Mass- Exchange, Minsk, BSSR, 5-9 June 1961

OSTROUKHOV, G.D.

OSTROUKHOV, G.D.; YAKOBSON, S.S., redaktor; VORONIN, K.P., tekhnicheskiy redaktor.

[Manual on safety techniques in gas welding and cutting] Pamiatka po tekhnike bezopasnosti dlia gazosvarshchika i gazorezchika. (V voprosakh i otvetakh) Moskva, Gos. energ. izd-vo, 1953. 30 p. (MLRA 7:8)
(Welding--Safety measures)

ZIL'BEROV, I.S., gornyy inzh.; ZITSER, I.S., gornyy inzh.;
OSTROUKHOV, I.I., gornyy inzh.

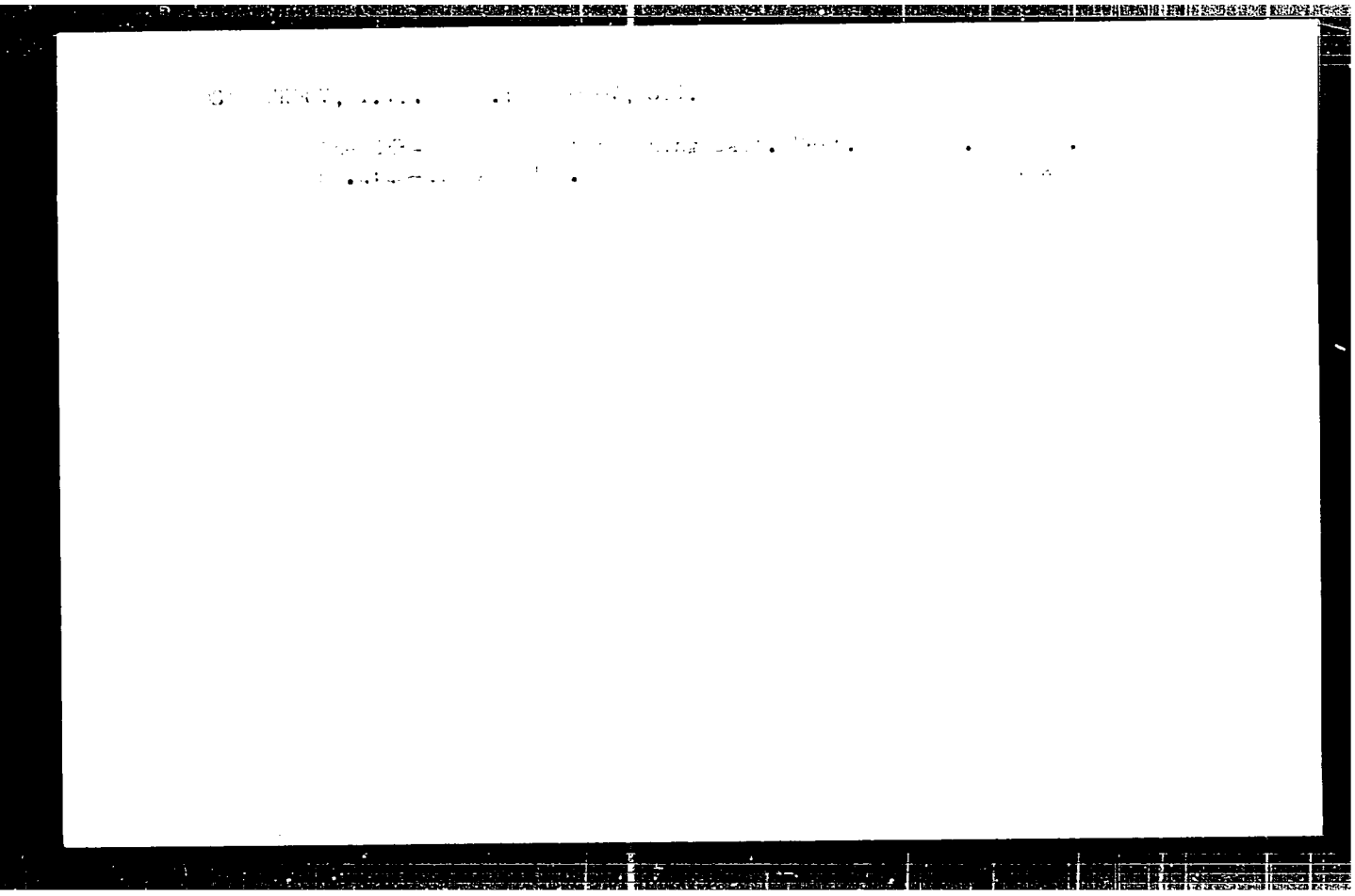
Using precast reinforced-concrete supports in the "Grushevskii" Mine of the Nikopol' Manganese Trust. Gor. zhur. no.10:48-50 O '61. (MIRA 15:2)

1. Grushevskiy rudnik tresta Nikopol'-Marganets (for Zil'berov). 2. Nauchno-issledovatel'skiy gornorudnyy institut, Krivoy Rog (for Zitser). 3. Trest Nikopol'-Marganets (for Ostroukhov). (Nikopol' Region(Denpropetrovsk Province)—Mine timbering) (Precast concrete construction)

OSTROUKHOV, I.I., gornyy inzh.; DEMCHENKO, V.V., gornyy inzh.

Using new types of equipment to develop strip mines for exploitat[illegible]
Gor. zhur. no.11:22-25 N '61. (MIRA 14:12)

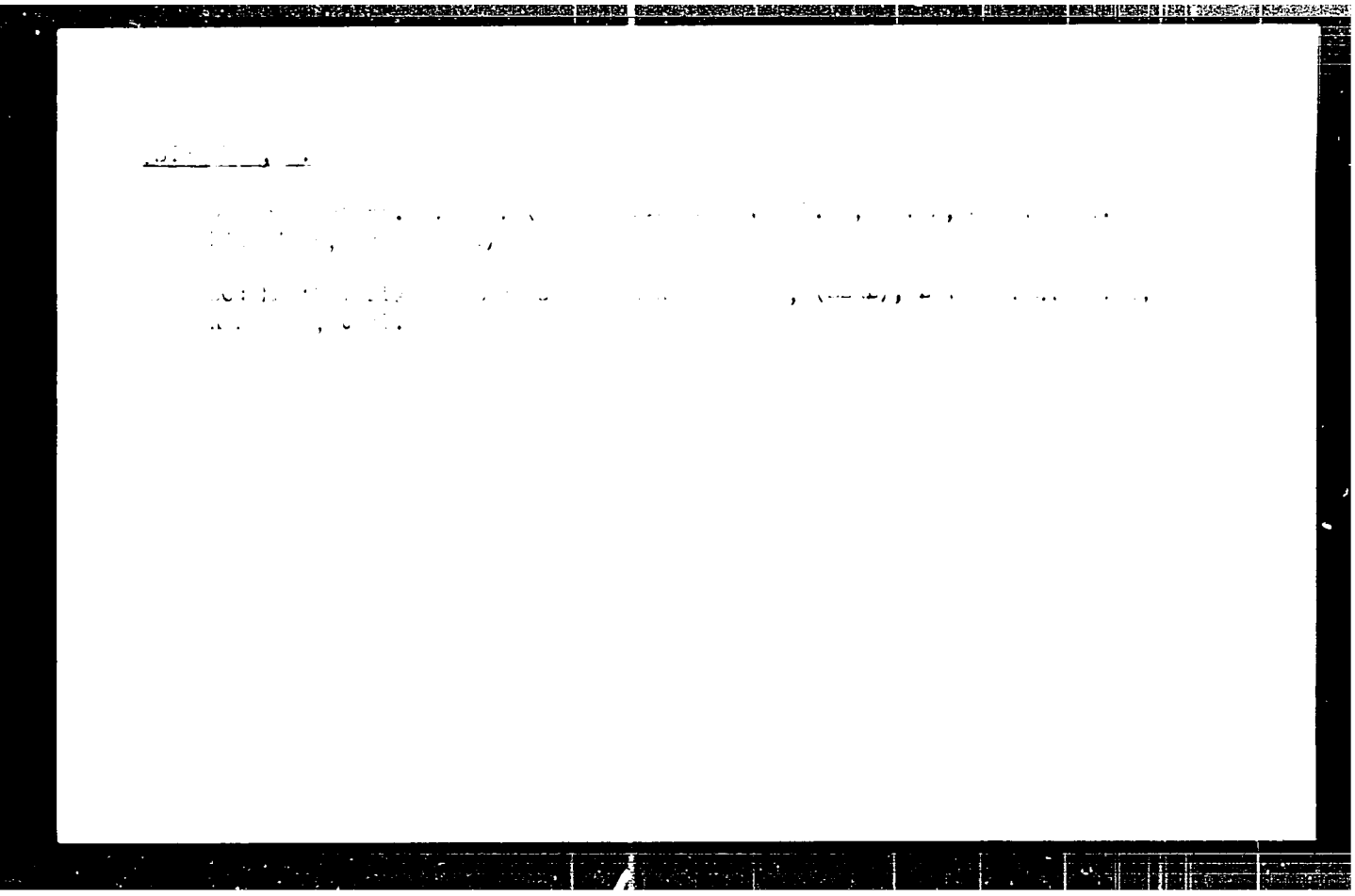
1. Trest Nikopol'-Marganets, g. Marganets.
(Nikopol' region (Dnepropetrovsk Province)--Manganese mines and mining--Equipment and supplies)



APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

LITVINYUK, A.F., gornyy inzh.; GUSHCHUKHOV, I.I., gornyy inzh.; SINYAVSKIY, L.L., gornyy inzh.

Practice and prospects for over-all mechanized mining of manganese ores. Gor. zhur. no.4:41-46 Ap '60. (MIRA 13:5)
(Manganese mines and mining--Equipment and supplies)



OSTROUHOV, V.

Yugoslavia (430)

Technology

Automatic voltage regulating for alternating current. p. 17, Nova Proizvodnja, Vol. 2, no. 1, February 1951.

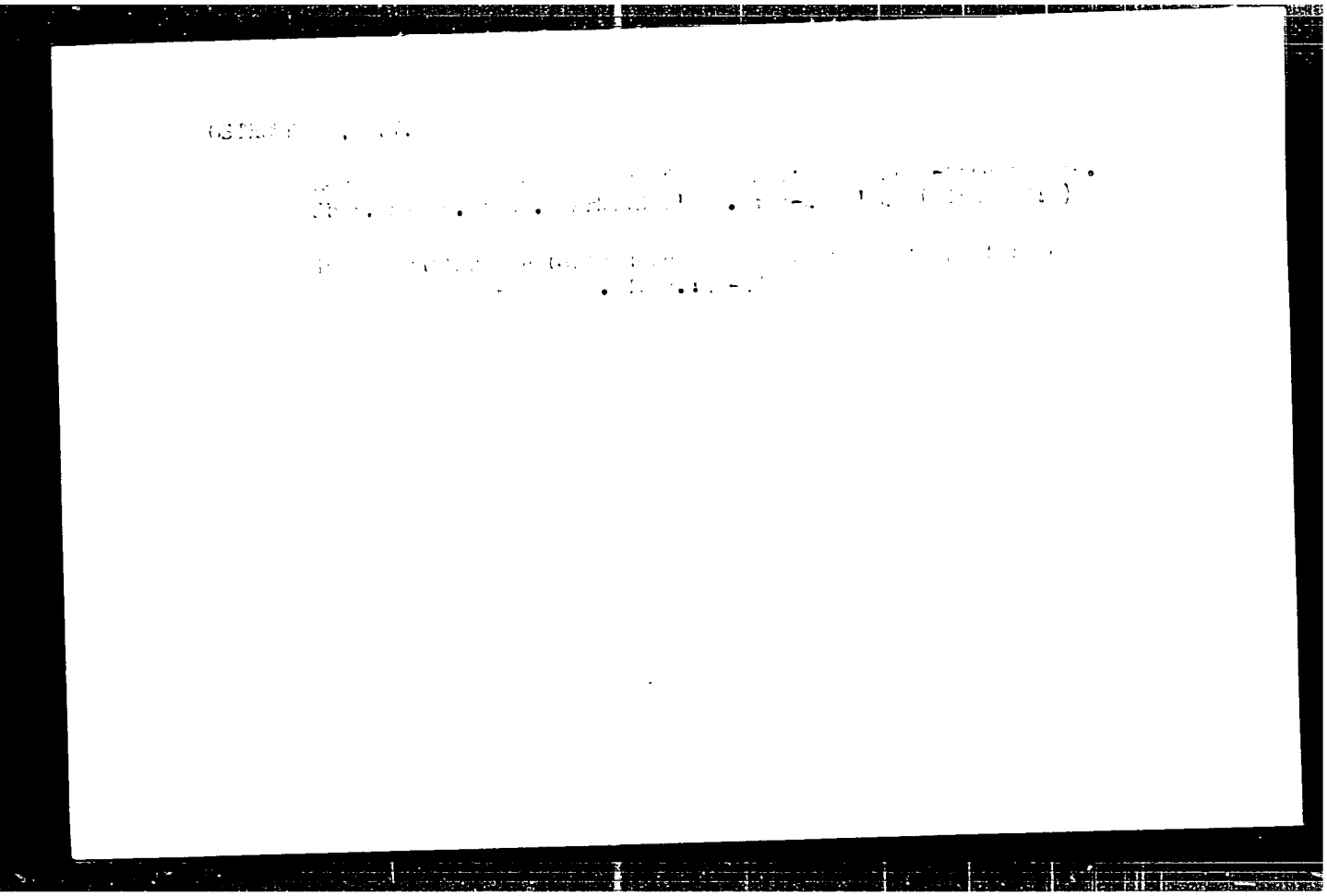
East European Accessions List, Library of Congress, Vol. 2, no. 3, March 1953. UNCLASSIFIED.

OSTROUMOV, A. V.

APPLE

Elimination of irregular fruit-bearing of apple trees. Sad i og. No. 4, 1[illegible].

9. Monthly List of Russian Accessions, Library of Congress, June 1953, Uncl.



OSTROUKHOV, L.V.; TUL'CHUK, Ye.N.

Analyzing the operation of the planetary tool of the PKG-3 combine. Sbor. nauch. trud. UkrNIISol' no.7:69-77 '64. (MIRA 18:1)

OSTROUKHOV, L. Ya.

PA 58T35

USSR/Engineering
Metallurgical Plants
Furnaces, Metallurgical

Jun 1947

"Review of 'Construction, Equipment and Operation of Present-Day Dome-Furnace Plants' by Prof V. A. Sorokin," L. Ya. Ostroukhov, Leningrad Polytech Inst, 1 p

"Stal'" No 6

Collection of articles, by various authors, dealing with construction, equipment, and operation of present-day dome-furnace plants in USSR. Reviewer states that although worthwhile, book would have been improved had Sorokin limited himself to discussing subject material he had intended to discuss.

58T35

STESHENKO,A.I.; ZHURAVLEV,S.P.; TARAN,P.E.; KUDRYASHOV,K.V.; ZHUKOV,M.E.; HELYI,P.L.; KADYRVAYEV,R.A.; PASTUSHKIN,P.M.; SHOSTAK,A.G.; OSTROUKHOV,A.I.; POLOZSKIY,M.I.; OSTROUKHOV,I.I.; LUGOVSKIY,S.I.; SEMENKO,P.I.; KHOROSHEV,O.V.; IBRAYEV,Sh.I.; NEYKOV,O.D.

"Dust control in the mines of Krivoy Rog Basin." V.V.Nedin. Reviewed by A.I.Steshenko and others. Gor.shur. no.9:61-62 S '55. (MLRA 8:8)

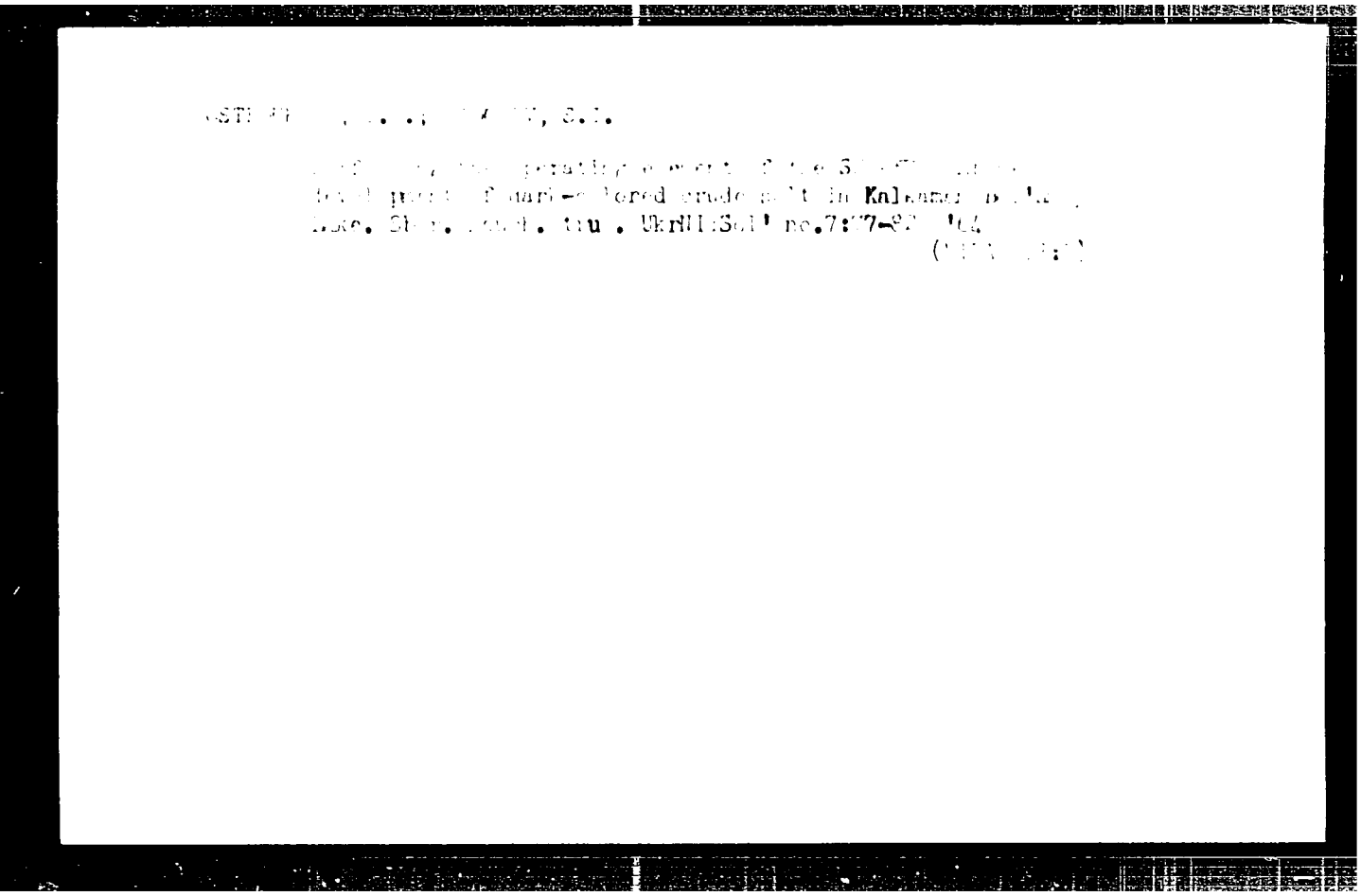
(Krivoy Rog--Mine dusts) (Nedin,V.V.)

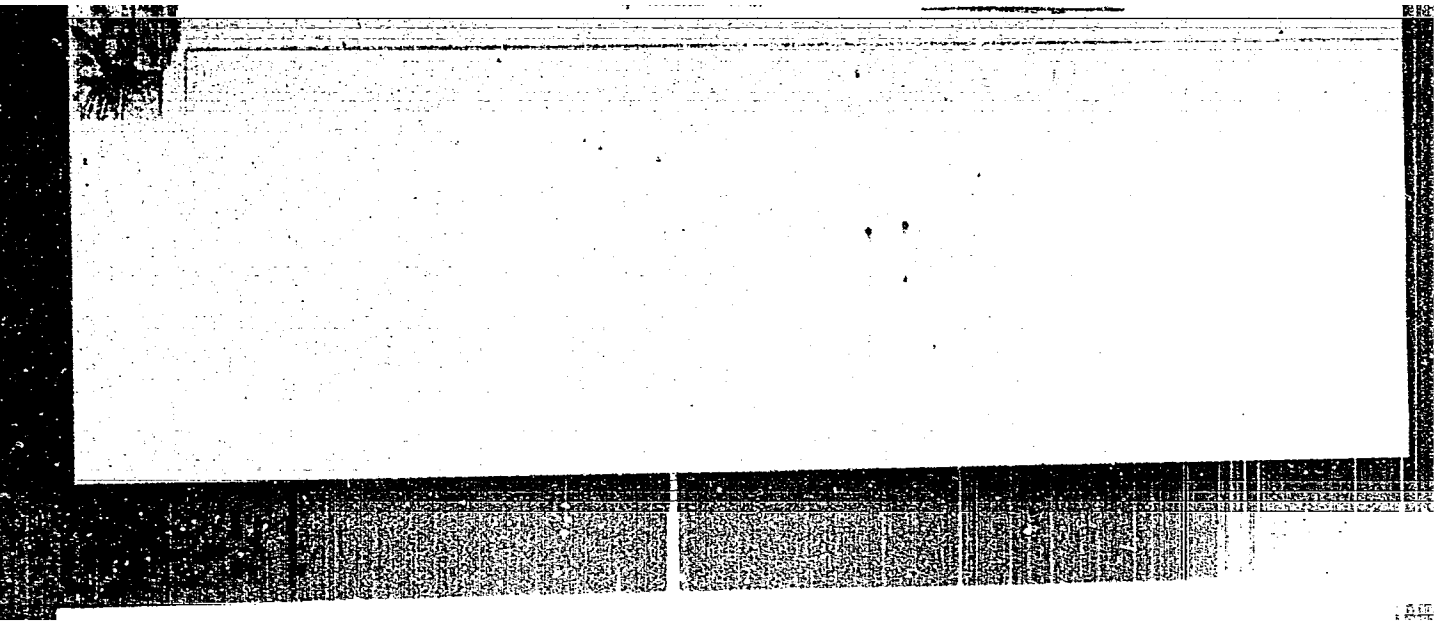
Ostroukhov, I I

STESHENKO,A.I.; ZHURAVLEV,S.P.; TARAN,P.N.; KUDRYASHOV,K.V.; ZHUKOV,M.N.; KELYY,P.L.; KADYRVAYEV,R.A.; PASTUSHKIN,P.M.; SHOSTAK,A.G.; OSTROUKHOV,A.I.; POLOMSKIY,M.I.; OSTROUKHOV,I.I.; LUGOVSKIY,S.I.; SEMENKO,P.I.; KHOROSHEV,O.V.; IBRAYEV,Sh.I.; NEYKOV,O.D.

"Dust control in the mines of Krivoy Rog Basin." V.V.Nedin. Reviewed by A.I.Steshenko and others. Gor.shur. no.9:61-62 S '55. (MLRA 8:8)

(Krivoy Rog--Mine dusts) (Nedin,V.V.)





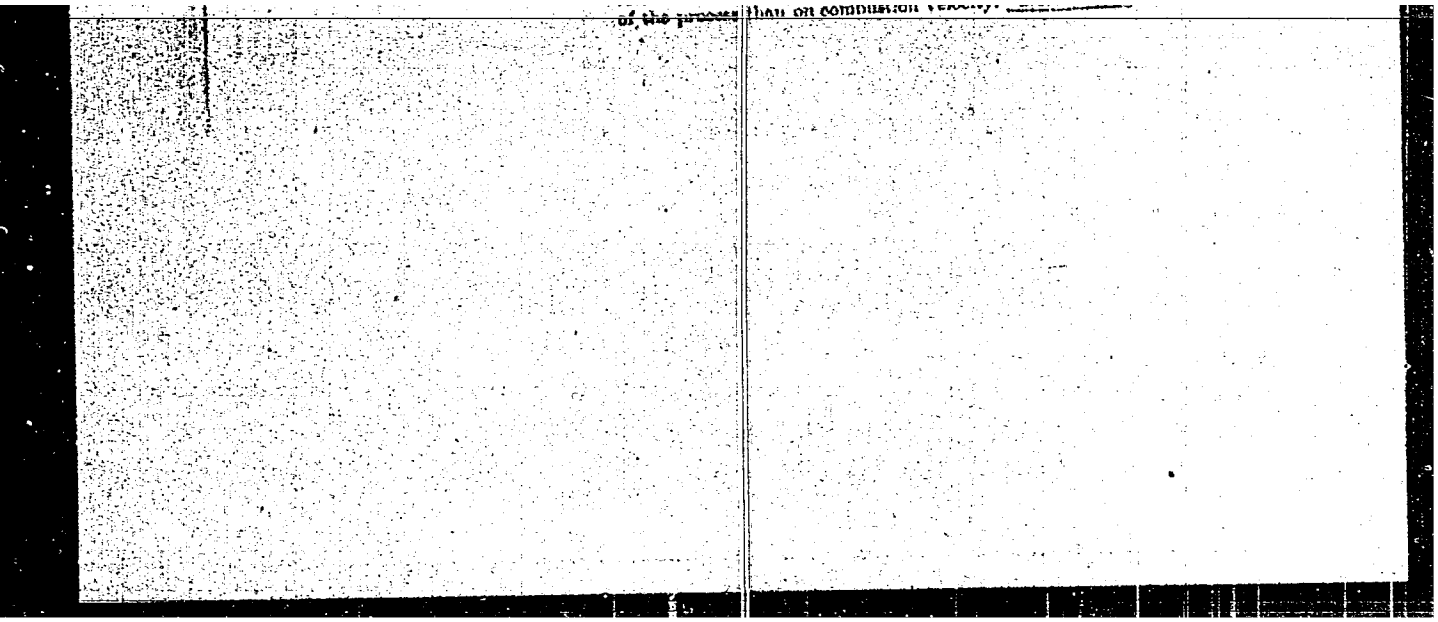
APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

√3333 Effect of Coke Granulation on Coke Consumption in Blast Furnaces. I. P. Bardin, M. Ya. Ostroukhov, L. Z. Khodak, and [illegible]. [illegible] 3621, 20 p. (Abridged from Izvestiya Akademii nauk SSSR OTN, 1953, no. 1, p. 80-95.) Henry Brutcher, Altadena, Calif. Previously abstracted from original. See item 10458, v. 4, Aug. 1953.

Ostrovkhov, M. Ya.

Methods of economizing coke in blast-furnace smelting. M. Ya. Ostrovkhov. *Metallurg* 1931, No. 2, 5-6.—Reduction in consumption of coke by 200 kg./ton of Fe since 1917 was brought about by increased strength of coke, higher blast temps., reduced ash and S content of coke, fluxing of agglomerate to a basicity of 0.7-0.8 (currently 1.3-1.4), thus reducing the limestone charge and lowering the amt. of layalite, and reduction of Mn content.

V. N. Bednarski



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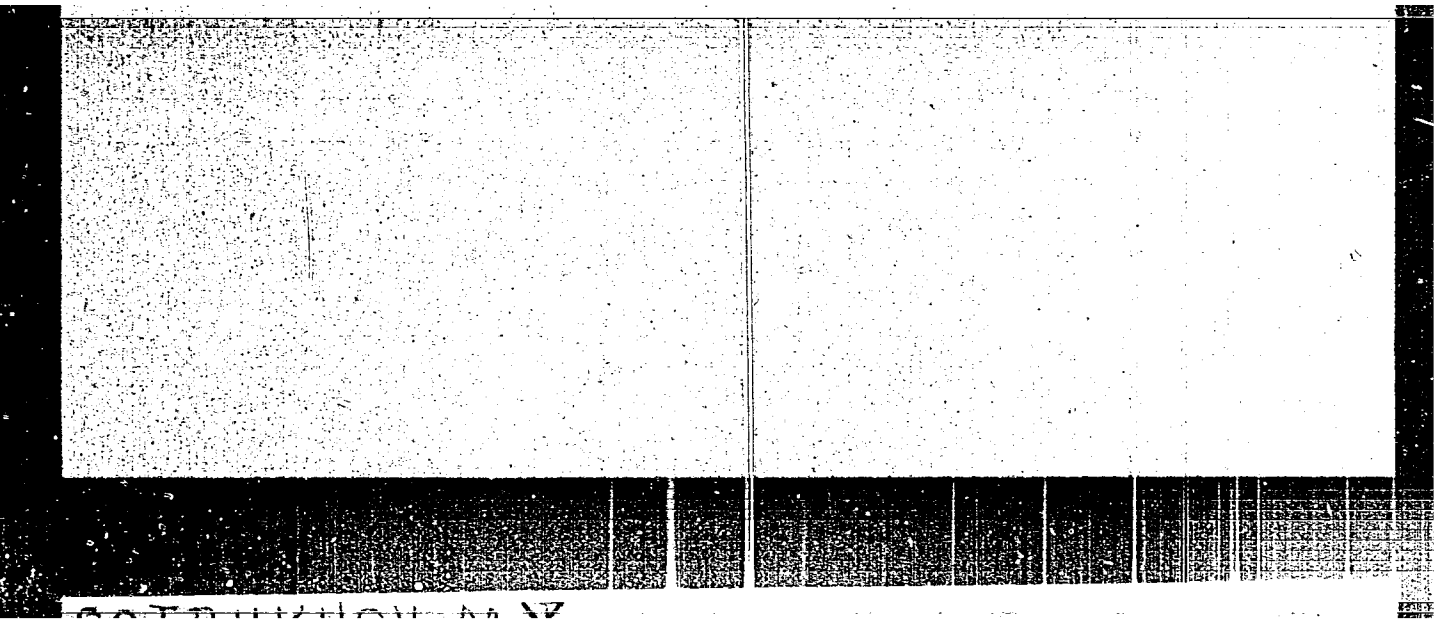

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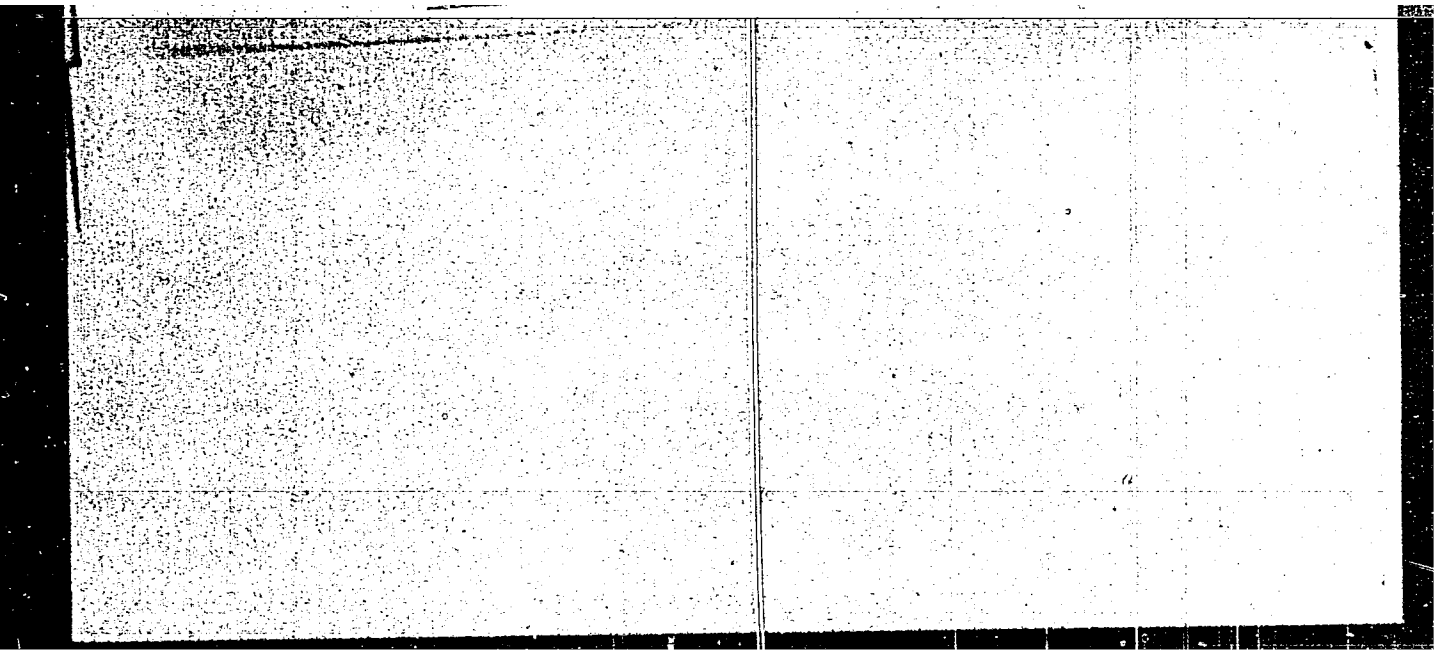

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

OSTROUKHOV, M. Ya.

3
1

Distr: 4E2c

The Influence of Moisture in the Blast on the Process of Combustion of Coke in a Blast Furnace. A. A. Markin and M. Ya. Ostroukhov. (Izvest. Akad. Nauk, Otdelenie Tekh. Nauk, 1954, (11), 65-81). (In Russian). An investigation of the influence of moisture in the blast (up to 50 g/m³) on the size of the combustion zone in front of tuyeres was carried out on a furnace of 700 m³ working volume producing foundry iron. The method consisted of sampling gases in front of tuyeres at various distances from the tuyere nozzle and their analysis. It was established that on increasing the amount of moisture by 10-20 g/m³ no change in the length of the combustion zone takes place. If the consumption of heat for the decomposition of the moisture added is not compensated by an appropriate increase in the blast temperature, the velocity of the combustion of coke decreases. The beneficial influence of moisture in the blast, (when it is not totally compensated by a rise in blast temperature) is explained by a decrease in the temperature on the boundary of the oxidizing zone. This decrease in the temperature is accompanied by a decrease in the volume of the gas i.e. its velocity.—V. S.

BARDIN, I.P.; TSYLEV, L.M.; OSTROUKHOV, M.Ya.; KHODAK, L.Z.

Combustion of coke in blast-furnace tuyeres. Trudy Inst. met. no.2: 3-8 '57. (MIRA 10:11)

(Combustion) (Blast furnaces) (Coke)

AUTHOR: Ostroukhov, M.Ya. 130-8-3/20

TITLE: Increasing the Intensity of Blast Furnace Smelting (O povyshenii intensivnosti domennoy plavki)

PERIODICAL: Metallurg , 1957, No. 8, pp. 7 - 10 (USSR)

ABSTRACT: Maintaining that the main factors preventing the acceleration of smelting in blast furnaces are aerodynamical, the author discusses these and also considers operating factors on the basis of experience at various Soviet plants. He shows (Fig.1) that there is a certain intensity of smelting (tons of coke consumed per day per m^3 of furnace volume) which gives a coke-rate minimum, the value of the intensity depending on the type of burden and being 0.8- 0.9 for the unprepared burdens at "Zaporozhstal'" and Azovstal'" works and 1.0 tons/m^3 day for the well-prepared burdens at Magnitogorsk. He distinguishes three regions of the intensity vs. coke-rate relationship (Fig.2): below the optimal, near the optimal and above the optimal smelting intensity. The same figure shows how the make of a furnace actually decreases when the intensity is raised beyond a certain value. He considers factors influencing reductions of coke rate and increases in smelting intensity including the role of coke in maintaining charge permeability, high-top-pressure operation, blast humidification and oxygenation, layer charging, burden

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SOV/180-59-1-7/29

AUTHORS: Ostroukhov, M.Ya., Rudneva, A.V. and Tsylev, L.M. (Moscow)

TITLE: The State of Slag-Forming Materials in the Blast Furnace Oxidizing Zone (O sostoyanii shlakoobrazuyushchikh materialov v okislitel'noy zone domennoy pechi)

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo, 1959, Nr 1, pp 37-43 (USSR)

ABSTRACT: The authors point out that most of the comparatively few investigations (Refs 1-6) in which samples of liquids were taken from the blast-furnace hearth relate to furnaces working without raceways in front of the tuyeres. They describe their own investigation which had the aim of studying the behaviour of slag-forming materials under the conditions of present operation, characterised by raceways with their associated strongly oxidizing zones. The work was carried out at the imeni Dzerzhinskogo (Dzerzhinskiy) works with the participation of A.A. Krivosheyev and I.G. Polovchenko of the Central Works Laboratory. The furnace on which the trials were carried out had a hearth diameter of 8.2 m and sixteen 180 mm diameter tuyeres. The burden consisted of 30% raw Krivoy-Rog ore (grades 25 and 34) and 70% fluxed sinter of two basicities (0.25 and

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The State of Slag-Forming Materials in the Blast-Furnace Oxidizing Zone

0.5-0.55), the first containing some manganese. The blast temperature and volume were 450-600°C and 3000-3300 m^3/min, respectively. Pig-iron containing 0.4-0.7% Si, 1.7-2.5% Mn, 0.01-0.05% S, 0.08-0.1% P was smelted with a slag basicity (CaO : SiO_2) of 1.15 - 1.25. At times furnace working was uneven. Gas and material samples were taken at 200 mm intervals along a hearth radius with a 60 mm diameter water-cooled tube. The materials solidifying in the tube were drilled out, separated from pig-iron nodules and the portions corresponding to given sampling points were mixed. Larger (50-100 g) samples were subjected to complete chemical analysis, smaller ones were analysed for metallic iron, FeO and Fe_2O_3. The results of gas sampling are given in Fig 1, which shows composition against distance (mm) from nose of tuyere: the oxygen content falls to 2% at a distance of 1450 mm, CO_2 disappears at 1600 mm and the O_2 : N_2 ratio falls over the first 800 mm and then rises. The iron-oxide content of the slag-forming materials and the iron content of the oxides are shown in Fig 2 as functions of distance. A high CaO : SiO_2 ratio was found in the oxidizing zone, indicating that coke ash

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The State of Slag-Forming Materials in the Blast Furnace Oxidizing Zone

does not participate in slag formation there. The manganese content of iron samples taken from the oxidizing zone is below that of the pig iron (Fig 3 shows manganese content against distance from the nose of the tuyeres). A detailed petrological examination of samples (Figs 4-9) indicated that part of the slag-forming materials are in the solid or plastic states in the oxidizing zone, consisting of sintered particles of iron oxide, lime and reoxidized iron sponge as well as droplets of iron and slag frozen by the blast. Sintering processes in the oxidizing zone lead to the formation of high-calcium silicates and calcium ferrites; recrystallisation of materials occurs in the plastic state directly at contact surfaces, but in the interval 1000-1300 mm from the tuyeres melting occurs. A minor part of the materials entering the oxidizing zone in the solid or plastic states

The State of Slag-Forming Materials in the Blast-Furnace Oxidizing Zone

is not affected appreciably.
There are 9 figures 3 tables and 9 references, 4 of which are Soviet 3 German and 2 English.

SUBMITTED: June 6, 1958

Card 4/4

OSTROUKHOV, M.Ya.

Impaired performance of large blast furnace hearths.
Metallurg 5 no.9:7-8 S '60. (MIRA 13:8)

1. Chelyabinskiy nauchno-issledovatel'skiy institut metallurgii.
(Blast furnaces)

OSTROUKHOV, M.Ya.; KHOLZAKOV, V.I.; POPOV, Yu.A.

Large capacity blast furnace operations. Metallurg 5 no. 12:4-9 D '60. (MIRA 13:11)

1. Chelyabinskiy metallurgicheskiy zavod i Nauchno-issledovatel'skiy institut matematiki.

(Blast furnaces)

TSYLEV, Leonid Mikhaylovich; OSTROUKHOV, Mark Yakovlevich; KHODAK, Leonid Zalmanovich; ZINGER, S.L., red.izd-va; ATTOPOVICH, M.K., tekhn.red.

[Process of coke combustion in blast furnaces] Protsess goreniia koksa v domennoi pechi. Moskva, Gos.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1960. 98 p.
(MIRA 13:5)

(Blast furnaces--Combustion) (Coke)

OSTROUKHOV, Mark Yakovlevich; REBEKO, A.F., red.; YABLONSKAYA, L.V., red.izd-va; KARASEV, A.I., tekhn.red.

[Saving of coke in blast furnaces] Ekonomiia koksa v domennoi plavke. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1960. 142 p. (MIRA 13:6)
(Coke) (Blast furnaces)

KOPYRIN, I.A.; OSTROUKHOV, M.Ya.

Effect of the character of gas flow on the rate of iron oxide reduction. Report No.2. Izv.vys.ucheb.zav.; chern.met. 5 no.4:29-36 '62. (MIRA 15:5)

1. Chelyabinskiy nauchno-issledovatel'skiy institut metallurgii.
(Iron--Metallurgy) (Gas flow)

KOPYRIN, I. A.; BYALYY, L. A.; OSTROUKHOV, M. Ya.; VOZNESENSKIY, V. A.; KUDRYAVTSEV, A. V.; PLASTININ, B. G.

Investigating the gas dynamics of the blast furnace process with use of helium. Izv. vys. ucheb. zav.; chern. met. 5 no.12: 29-40 '62. (MIRA 16:1)

1. Chelyabinskiy nauchno-issledovatel'skiy institut metallurgii i Orsko-Khalilovskiy metallurgicheskiy kombinat.

(Blast furnaces—Models) (Gas dynamics)

KOPYRIN, I.A.; OSTROUKHOV, M.Ya.; BYALYY, L.A.; VOZNESENSKY, V.A.; PLASTININ, B.G.;
Prinimali uchastiye: KUDRYAVTSEV, A.V.; CHIRKOV, G.G.; BRADCHENKO, V.P.

Investigation of gas dynaimcs in the blast furnace process using helium. Izv. AN SSSR.Otd.tekh.nauk. Met. i topl. no.5:22-28 S-O '62. (MIRA 15:10)

(Blast furnaces) (Gas dynamics)

OSTROUKHOV, M.Ya.

Blast furnace coke combustion processes. Stal' 22 no.7:599-603 Jl '62. (MIRA 15:7)

1. Chelyabinskiy nauchno-issledovatel'skiy institut metallurgii.

(Blast furnaces--Combustion)

BYALYY, L.A.; KOPYRIN, I.A.; OSTROUKHOV, M.Ya.

Effect of various factors on a blast furnace oxidation zone.
Izv. vys. ucheb. zav.; chern. met. 6 no.4:27-33 '63.
(MIRA 16:5)

1. Chelyabinskiy nauchno-issledovatel'skiy institut metallurgii.
(Blast furnaces)

KHOLZAKOV, V.I.; BRATCHENKO, V.F.; OSTROUKHOV, M.Ya.; LUKIN, P.G.; NEKIPELOV, S.P.; POPOV, Yu.A.; GAVRILYUK, L.Ya.

Investigating the processes in the stack and hearth of a blast furnace during smelting with sinter of Bakal and Sokolovka-Sarbay ores. Stal' 23 no.4:297-300 Ap '63. (MIRA 16:4)

1. Chelyabinskiy nauchno-issledovatel'skiy institut metallurgii i Chelyabinskiy metallurgicheskiy zavod.
(Blast furnaces)

OSTROUKHOV, Mark Yakovlevich. Prinimala uchastiye ZHILO, N.L., kand. tekhn. nauk; MANCHINSKIY, V.G., kand. tekhn. nauk, dots., retsenzent; SHAROPIN, V.D., red.

[Slag formation process in the blast furnace] Protsess shlakoobrazovaniia v domennoi pechi. Moskva, Metallurgizdat, 1963. 222 p. (MIRA 18:8)

VYATKIN, N.P.; NEKIFEIOV, S.P.; POPOV, Yu.A.; GAVRILYUK, L.Ya.; FONTALIN, V.N.; VYATKIN, G.P.; OSTROUKHOV, M.Ya.

Experience of five years of operating a 1,719m^3 capacity furnace. Stal' 24 no.11:964-968 N '64. (MIRA 18:1)

BABARYKIN, N.N.; GALATONOV, A.L.; SAGAYDAK, I.I.; SHPARBER, L.Ya.; TSVERLING, A.L.; YAKOBSON, A.P.; BORTS, Yu.M.; ZHILO, N.L.; KOPYRIN, I.A.; OSTROUKHOV, M.Ya.

Experimental smelting with a reduced slag output. Stal' 24 no.12:1069-1075 D '64. (MIRA 18:2)

1. Magnitorskiy metallurgicheskiy kombinat i Chelyabinskiy nauchno-issledovatel'skiy institut metallurgii.

ZIL'BER, Motel' Kushevich, kand. tekhn. nauk; ROZOVSKIY, Leonid Davidovich, inzh. Prinimali uchastiye: GLADOVSKAYA, T.K., inzh.; KOSTINA, T.N., inzh.; MARCHENKO, A.A., inzh., laureat Leninskoy premii, retsenzent; OSTROUKHOV, N.Ya., kand. tekhn. nauk, red.; SVET, Ye.B., red.

[Slag pumice] Shlakovaia pemza. Cheliabinsk, IUzhno-Ural'skoe knizhnoe izd-vo, 1964. 103 p. (MIRA 18:7)

KOPYRIN, I.A.; OSTROUKHOV, M.Ya.; STEFANOVICH, M.A.; BORTS, Yu.M.; SAGAYDAK, I.I.; SHPARBER, L.Ya.; VOLKOV, Yu.P.

Heat balance of smelting with a low slag yield for the Magnitogorsk blast furnace. Izv.vys.ucheb.zav.; chern. met. 8 no.4:45-52 '65. (MIRA 18:4)

1. Chelyabinskiy nauchno-issledovatel'skiy institut metallurgii, Magnitogorskiy metallurgicheskiy kombinat i Magnitogorskiy gornometallurgicheskiy institut.

VOLKOV, Yu.P.; KRYUKOV, N.M.; VIYER, V.I.; OSTROUKHOV, M.Ya.; RYABTSEV, L.Yu.; TKACHENKO, F.F.; SHATILIN, [illegible], L.Ya.

Blowing-in a large capacity blast furnace. Metallurg 10 no.1:4-8 Ja '65. (MIRA 18:4)

CHERNYATIN, A.N.; OSTROUKHOV, M.Ya.; GIMMEL'FARB, R.A.; VOLKOV, Yu.P.; BABARYKIN, N.N.; SHPARBER, L.Ya.; GALATONOV, A.L.

Mastering of MMK [Magnitogorsk Metallurgical Combine] blast furnace operations with the use of natural gas. Metallurg 10 no.8:12-13 Ag '65. (MIRA 18:8)

1. Chelyabinskiy nauchno-issledovatel'skiy institut metallurgii i Magnitogorskiy metallurgicheskiy kombinat.

STARSHINOV, B.N.; OSTROUKHOV, M.Ya.; KOCHINEV, Ye.V.; Prinimali uchastiye: TARASOV, D.A.; SOROKA, P.F.; KARACHENTSEV, M.D.; OS'KIN, V.T.; KORNEV, V.K.; POPOV, Yu.A.; DOLMATOV, V.A.; AYUKOV, A.S.

Blowing-in of large blast furnaces. Sbor.trud. UNIIM no.11:27-32 '65. (MIRA 18:11)

STARSHINOV, B.N.; SIMITSKIY, V.P.; SEN'KO, G.Ye.; GULYGA, I.V.; BABIY, A.A.; KHORUZHIY, A.G.; Prinimali uchastiye: OSTROUKHOV, M.Ya.; SAVELOV, N.I.; PLISKANOVSKIY, S.T.; MISHYEV, Yu.S.; LAVRENT'YEV, M.I.; TARASOV, F.P.; ZAGREBA, A.V.; KAMENEV, P.D.; TKACHENKO, I.A.; FREYDIN, L.M.; LUKIN, P.G.; POPOV, Yu.A.; MISHIN, P.P.; KARACHENTSEV, M.D.; DOLMATOV, V.A.; AYUKOV, A.S.; PALAGIN, V.I.; VYAZOVSKIY, Yu.V.; SOLODKIY, Yu.A.; KONAREVA, N.V.; SAPRONOV, Yu.V.; SIMITSKAYA, S.K.; SAPRONOV, P.V.; LEKAREV, V.I.; STOLYAR, V.V.; PLOKHOTNYUK, Z.A.; BANDINA, Ye.Ye.

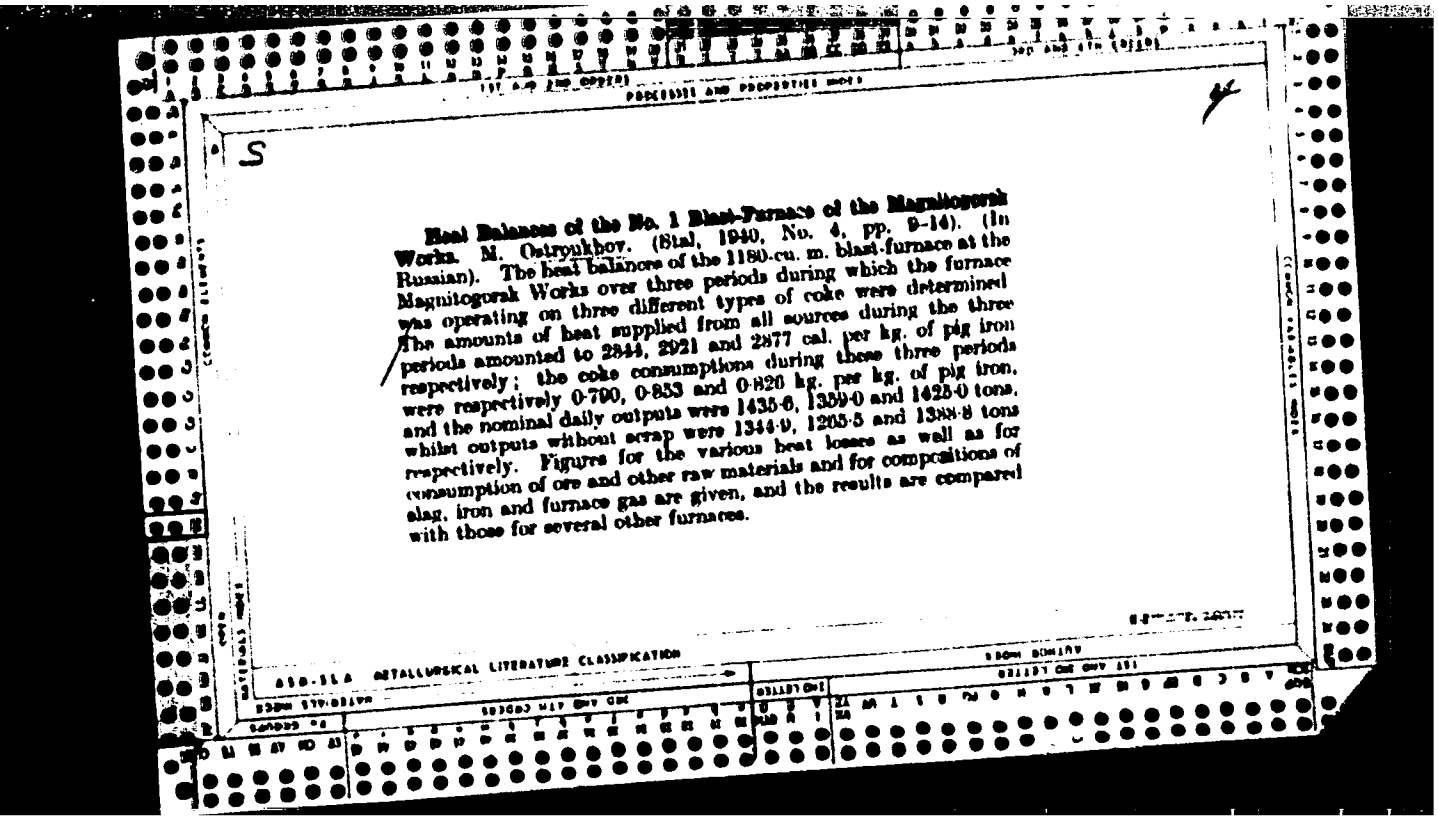
Results of the first year of operation of large capacity blast furnaces. Sbor. trud. UNIIM no.11:34-46 '65.

(MIRA 18:1)

AGASHIN, A.A.; BABARYKIN, N.N.; VOLKOV, Yu.P.; GALATONOV, A.L.; KRYUKOV, N.M.; MALIKOV, K.V.; OSTROUKHOV, M.Ya.; PISHVANOV, V.L.; CHERNYATIN, A.N.; YUSHIN, F.A.

Experimental operation of blast furnaces on mazut and natural gas. Stal' 25 no.5:393-400 My '65. (MIRA 18:6)

1. Magnitogorskiy metallurgicheskiy kombinat; Vsesoyuznyy nauchno-issledovatel'skiy institut metallurgicheskoy teplotekhniki i Chelyabinskiy nauchno-issledovatel'skiy institut metallurgii.



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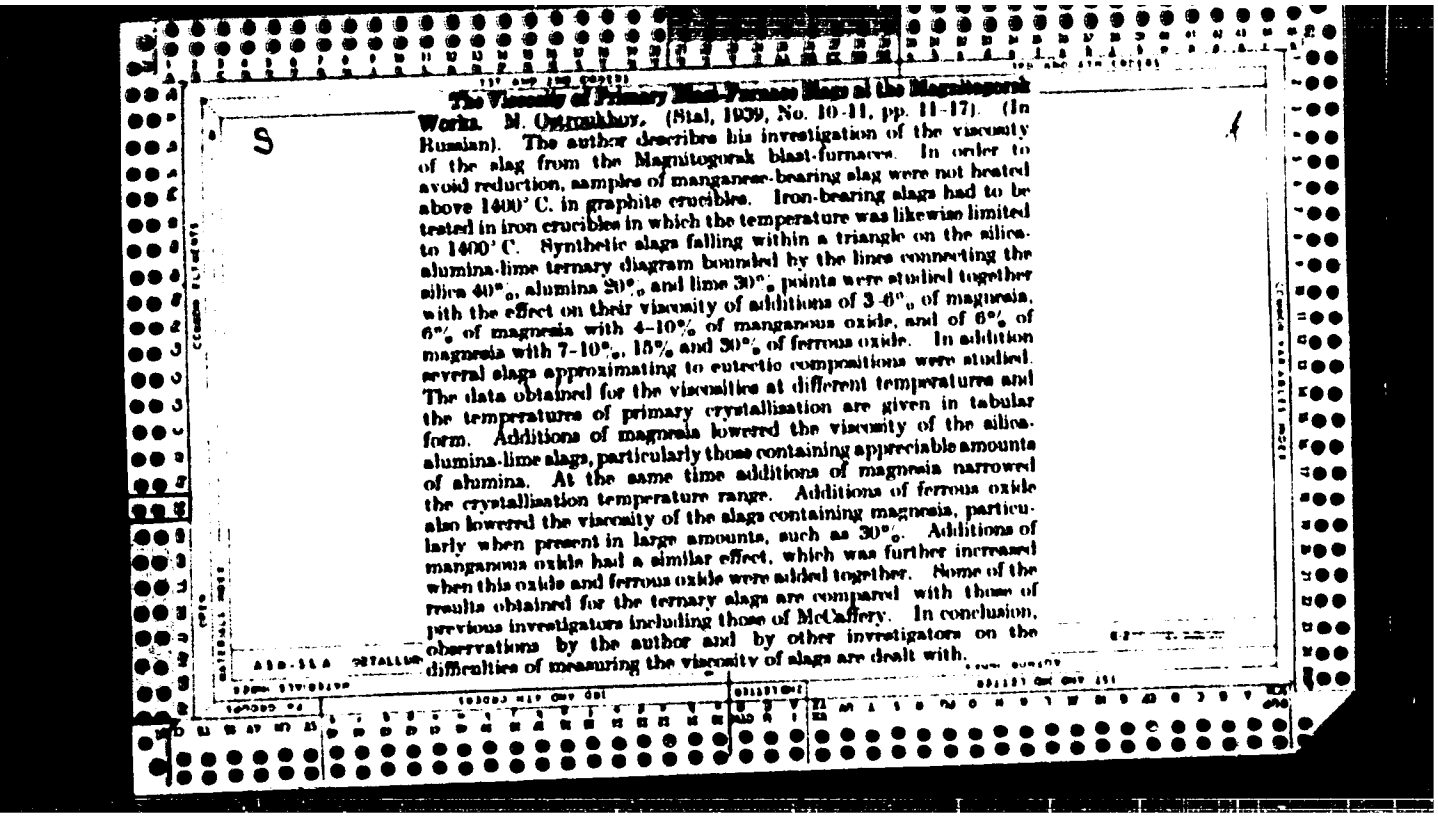
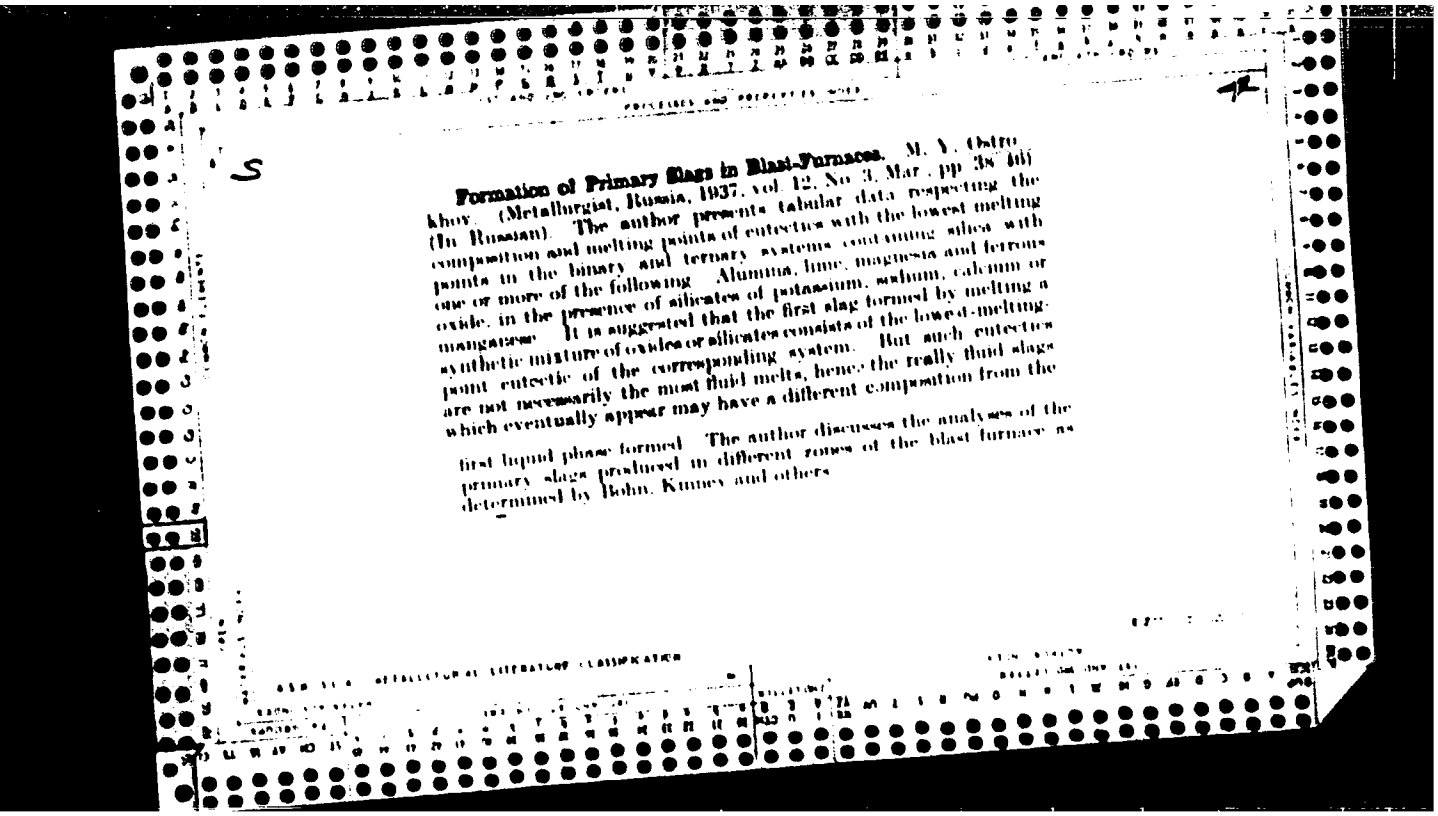
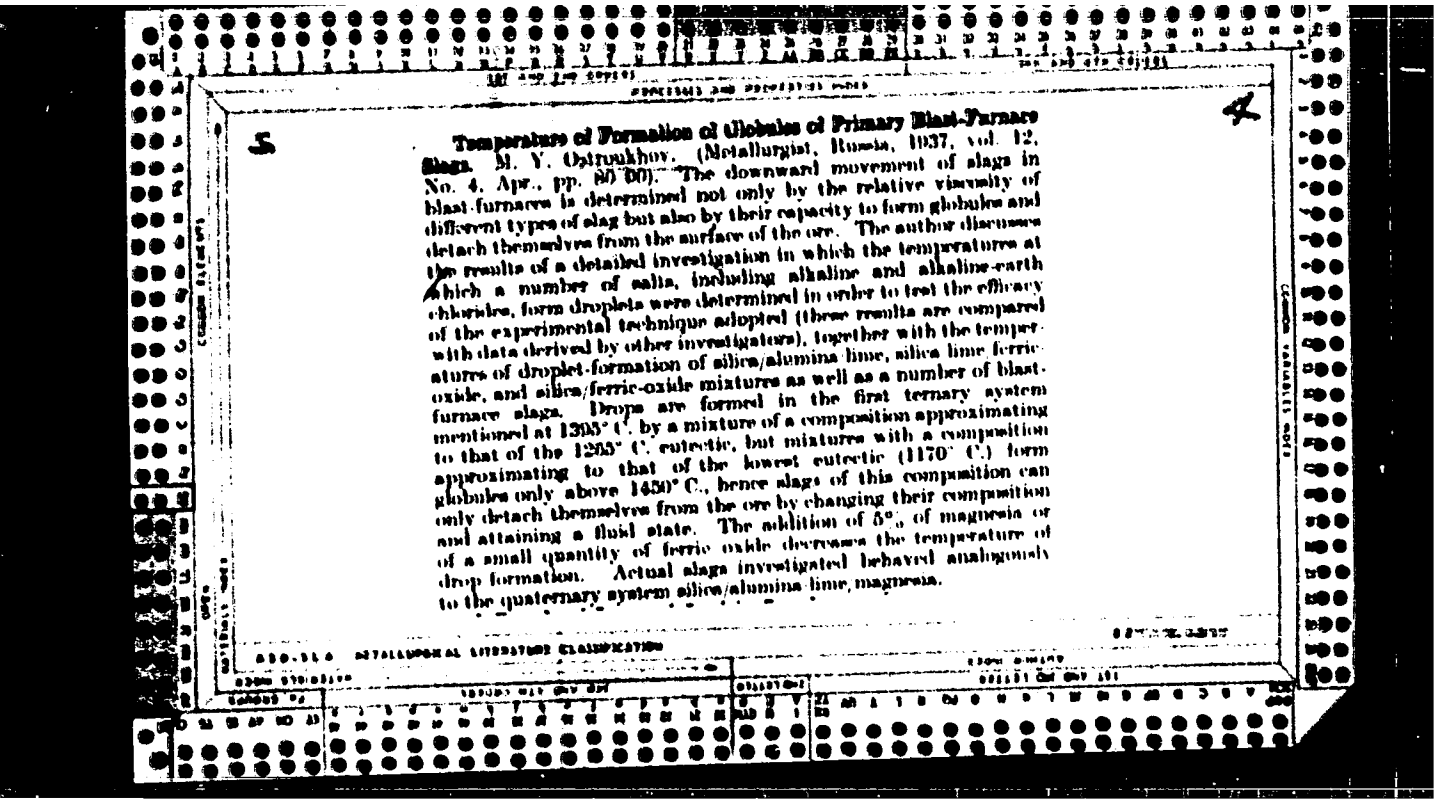
Heat Balances of the No. 1 Blast-Furnace of the Magnitogorsk Works. M. Ostryukhov. (Stal, 1940, No. 4, pp. 9-14). (In Russian). The heat balances of the 1180-cu. m. blast-furnace at the Magnitogorsk Works over three periods during which the furnace was operating on three different types of coke were determined. The amounts of heat supplied from all sources during the three periods amounted to 2844, 2921 and 2877 cal. per kg. of pig iron respectively; the coke consumptions during these three periods were respectively 0·790, 0·853 and 0·820 kg. per kg. of pig iron, and the nominal daily outputs were 1435·6, 1359·0 and 1428·0 tons, whilst outputs without scrap were 1344·9, 1205·5 and 1388·8 tons respectively. Figures for the various heat losses as well as for consumption of ore and other raw materials and for compositions of slag, iron and furnace gas are given, and the results are compared with those for several other furnaces.



The Viscosity of Primary Blast-Furnace Slags at the Magnitogorsk Works. M. Ostrushkov. (Stal, 1939, No. 10-11, pp. 11-17). (In Russian). The author describes his investigation of the viscosity of the slag from the Magnitogorsk blast-furnaces. In order to avoid reduction, samples of manganese-bearing slag were not heated above 1400° C. in graphite crucibles. Iron-bearing slags had to be tested in iron crucibles in which the temperature was likewise limited to 1400° C. Synthetic slags falling within a triangle on the silica-alumina-lime ternary diagram bounded by the lines connecting the silica 40%, alumina 20% and lime 30% points were studied together with the effect on their viscosity of additions of 3-6% of magnesia, 6% of magnesia with 4-10% of manganous oxide, and of 6% of magnesia with 7-10%, 15% and 30% of ferrous oxide. In addition several slags approximating to eutectic compositions were studied. The data obtained for the viscosities at different temperatures and the temperatures of primary crystallisation are given in tabular form. Additions of magnesia lowered the viscosity of the silica-alumina-lime slags, particularly those containing appreciable amounts of alumina. At the same time additions of magnesia narrowed the crystallisation temperature range. Additions of ferrous oxide also lowered the viscosity of the slags containing magnesia, particularly when present in large amounts, such as 30%. Additions of manganous oxide had a similar effect, which was further increased when this oxide and ferrous oxide were added together. Some of the results obtained for the ternary slags are compared with those of previous investigators including those of McCaffery. In conclusion, observations by the author and by other investigators on the difficulties of measuring the viscosity of slags are dealt with.



Formation of Primary Slags in Blast-Furnaces. M. V. Ostrokhov. (Metallurgist, Russia, 1937, vol. 12, No. 3, Mar., pp. 38–46) (In Russian). The author presents tabular data respecting the composition and melting points of eutectics with the lowest melting points in the binary and ternary systems containing silica with one or more of the following: Alumina, lime, magnesia and ferrous oxide, in the presence of silicates of potassium, sodium, calcium or manganese. It is suggested that the first slag formed by melting a synthetic mixture of oxides or silicates consists of the lowest-melting joint eutectic of the corresponding system. But such eutectics are not necessarily the most fluid melts, hence the really fluid slags which eventually appear may have a different composition from the first liquid phase formed. The author discusses the analyses of the primary slags produced in different zones of the blast furnace as determined by Bohn, Kinney and others.

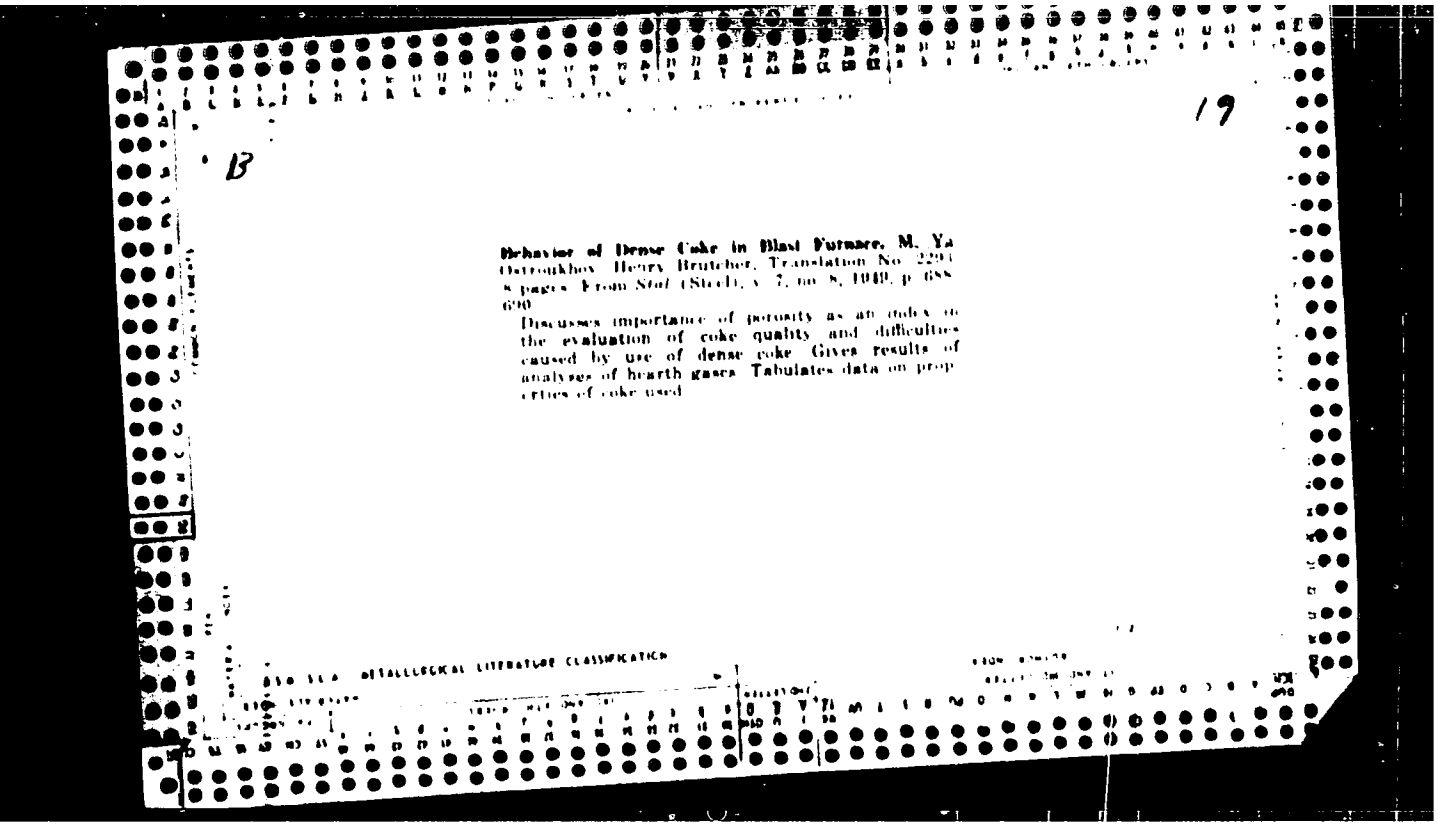


Temperature of Formation of Globules of Primary Blast-Furnace Slags. M. Y. Ostrovskhov. (Metallurgist, Russia, 1937, vol. 12, No. 4, Apr., pp. 80-90). The downward movement of slags in blast-furnaces is determined not only by the relative viscosity of different types of slag but also by their capacity to form globules and detach themselves from the surface of the ore. The author discusses the results of a detailed investigation in which the temperatures at which a number of salts, including alkaline and alkaline-earth chlorides, form droplets were determined in order to test the efficacy of the experimental technique adopted (these results are compared with data derived by other investigators), together with the temperatures of droplet-formation of silica/alumina-lime, silica-lime-ferric-oxide, and silica/ferric-oxide mixtures as well as a number of blast-furnace slags. Drops are formed in the first ternary system mentioned at 1305° C. by a mixture of a composition approximating to that of the 1255° C. eutectic, but mixtures with a composition approximating to that of the lowest eutectic (1170° C.) form globules only above 1450° C., hence slags of this composition can only detach themselves from the ore by changing their composition and attaining a fluid state. The addition of 5% of magnesia or of a small quantity of ferric oxide decreases the temperature of drop formation. Actual slags investigated behaved analogously to the quaternary system silica/alumina-lime-magnesia.

F

2-49. [illegible] OF DENSE COKE IN [illegible] [illegible]. Ostrouk[illegible]ov, [illegible].Ya. (Stal, 1947, vol. 7, [illegible]; abstr. in Chem. Abstr., 1948, vol. 42, 4195). Tests were carried out with two kinds of coke of varying porosity: 31-37 and [illegible]-12%. With the denser coke the oxidation zone extended farther (radially) [illegible] coke the [illegible] temperature within the zone was higher than with the less dense coke. This fact causes the furnace to work hard [illegible] charge to hang.

METALLURGICAL LITERATURE CLASSIFICATION



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Behavior of Dense Coke in Blast Furnace. M. Ya Ostroukhov. Henry Brutcher, Translation No. 2291, 8 pages. From *Stal* (Steel), v. 7, no. 8, 1949, p. 688-690

Discusses importance of porosity as an index to the evaluation of coke quality and difficulties caused by use of dense coke. Gives results of analyses of hearth gases. Tabulates data on properties of coke used.

USSR METALLURGICAL LITERATURE CLASSIFICATION

OSTROUKHOV, M. YA.

The effect of blast humidification on the coke-burning process in a blast furnace. A. A. Markin and M. Ya. Ostroukhov. *Izvest. Akad. Nauk S.S.S.R., Otdel. Tekh. Nauk* 1950, No. 11, 58-63.—The exptl. work was done in a 700-cu. m. blast furnace with cast iron containing 3.0-3.5% Si. The furnace operated with above normal pressure at the throat. Gas samples were taken every 100 mm., and 200 mm. apart in the oxidizing zone. Thirty-five test series were taken, and 400 gas tests were run. Gas was sampled in the oxidizing zone every 30 min. with the addn. of 10-20 g. H_2O/cu. m. of the blast. H_2O addn. was found to accelerate the coke combustion in 11 tests, and retarded it in 6 tests, while no changes were observed in 6. In general, the combustion zone length is practically unchanged in higher H_2O content in the blast. The combustion process is accelerated when the heat consumption for the H_2O decompn. is compensated by higher temp. Benefits from the blast humidification are seen in the cooling effect near the oxidation zone boundary due to H_2O decompn. A lower temp. reduces the gas vol., and therefore also its velocity, which results in an improved operation. Tests show that when the heat for the H_2O decompn. is not completely compensated, the smelting intensity is considerably increased, and the relative coke-consumption is somewhat reduced. W. M. Stephens

OSTROUKHOV, M. YA.

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8847. COMBUSTION PROCESS AT BLAST FURNACE TUYERES. Ostroukhov, M.Ya., and Khodak, L.Z. (Stal (Steel, Moscow), 1958, vol. 16, 867-872; abstr. in Chem. Abstr., 1957, vol. 51, 2498). By means of small water-cooled pipes occupying 4-7% of the tuyère opening and swivelling packing in the tuyère stock, samples of gases in the combustion area were obtained. Combustion takes place in a cavity made by the blast in the charge and surrounded by a compact layer of coke 100-200 mm thick. Stereoscopic high speed photography showed that coke entering this cavity from above is circulated by the blast in two planes. In the horizontal, the blast swirls coke to the right and to the left of the tuyère plane along the cavity wall returning it to the tuyère level, in the vertical, which practically does not extend below the tuyère level, coke is made to rotate in the plane of the tuyères. Distribution of gas components in the combustion zone is given as diagrams showing it as a function of the distance from the tuyère. They do not agree with the conventional diagrams, because most measurements on which the latter are based were made below the level of the tuyères. The maximum temperature is reached about 100 [illegible] the boundary line between the stream of gases and the coke shell of

the size of the combustion zone, ... the latter is a function of the kinetic energy of the blast, where temperature is only one of the factors.

C.I.

OSTROUKHOV, Mark Yakovlevich; TIMOFEYEV, Ivan Georgiyevich; ZAGIN, Vladimir Timofeyevich; KUZHOVA, M.L., red. izd-va; MAL'KOVA, N.T., tekhn. red.

[Life of blast-furnace charging equipment during operation at high gas pressure] Sluzhba zasypnykh apparatov domennykh pechei pri rabote s povyshennym davleniem gaza. Sverdlovsk, Metallurgizdat, 1962. 74 p. (MIRA 15:7)
(Blast furnaces--Equipment and supplies)

OSTROUKHOV, M.Ya. (Chelyabinsk), KHODAK, L.Z. (Moskva)

Analysis of the coke combustion process in blast furnaces by furnace gas constitution diagrams. Izv. AN SSSR. Otd. tekh. nauk. Met. i topl. no.6:5-13 N - D '60. (MIRA 13:12)
(Blast furnaces--Combustion)

OSTROUKHOV, N.Ya. (Moskva); RUDNEVA, A.V.(Moskva); TSYLEV, L.M.(Moskva)

Condition of slag forming materials in the oxidizing zone of a blast furnace. Izv.AN SSSR.Otd.tekh.nauk Met.i topl. no.1:37-43 Ja-F '59. (MIRA 12:6)
(Blast furnaces) (Slag)

SOV/137-58-9-18524

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9 p48 (USSR)

AUTHOR: Ostroukhov, M. Ya.

TITLE: On the Disintegration of Coke in a Blast Furnace (O razrushenii koksa v domennoy pechi)

PERIODICAL: V sb.: Issled. domennogo protsessa. Moscow AN SSSR 1957, pp 176-195

ABSTRACT: The mesh size of coke (C) and its capacity for breaking down into fines in the blast furnace determine the work of the latter to a considerable degree. The best apparatus for the determination of the durability of C is the blast furnace itself. To investigate the behavior of C in the blast furnace, test samples of C weighing 250 - 400 kg were drawn through the tuyere or through the tuyere heat exchanger. After cleansing it from slag, lime and pig and sponge iron, the samples of C were subjected to screen analysis. To determine its strength C was subjected to tests in the Rubin barrel mill by the method of successive application of crushing forces. For comparison, C from the disc screen was subjected to the same investigations. Besides, in order to evaluate the disintegration of C on the way from the disc screen to the large

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On the Disintegration of Coke in a Blast Furnace

bell. test samples of C were taken from the large bell during a prolonged shut down of the blast furnace. The data thus obtained indicate that the main mass of tuyere C consists of 60 - 40 and 40 - 25 mm fractions, while the C from the screen consists mainly of > 60 mm fractions. To reproduce the fractional composition of tuyere C from the initial C (from the screen) a small number of revolutions (from 35 to 120) of the Rubin barrel mill are needed. Likewise a considerable disintegration of C occurs on its way from the screen to the large bell. The analysis of the disintegration curves of test samples of C indicates that the barrel-mill tests cannot reproduce fully the process of the breakdown of C which occurs in the blast furnace. No considerable disintegration of C is observed from the action of high temperatures in the lower sections of the blast furnace; the screen size of C has practically no relation to the time (from one to ten days) spent in the heart and the boshes of the blast furnace To obtain high production indicators for the blast furnace it is necessary that the C should be sufficiently lumpy and homogeneous in screen size and structure.

1. Blast furnaces--Operation 2. Coke--Decomposition

F K

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OSTROUKHOV, M. Ya.

LEONIDOV, N. K.

18(5) PHASE I BOOK EXPLOITATION SOV/1497

Akademiya nauk SSSR. Institut nauchnoy i tekhnicheskoy informatsii

Metallurgiya SSSR, 1917-1957, t. 1 (Metallurgy of the USSR, 1917 - 1957, Vol. 1) Moscow, Metallurgizdat, 1958. 785 p. 3,000 copies printed.

Ed. (Title page): I. P. Bardin, Academician; Ed. (Inside book): O. V. Popova; Tech. Ed.: O. G. [illegible].

PURPOSE: The book is intended for scientific workers and engineers in metallurgical plants and in the machine-building industry. It may also be used by students in advanced courses in metallurgical vuzes.

COVERAGE: This collection of articles covers extensively practical and theoretical developments in Soviet metallurgy during the last 40 years. The material deals with the discovery and development of the major ore deposits and the growth of the metal industry in various parts of European and Asiatic USSR. Research institutes, laboratories, their location, and the names of the scientists and engineers involved are listed. Many papers contain so many references and names of various personalities that it was considered beyond the scope of the coverage of each article to list them. The authors claim that the processes, methods and theories described in this book reflect the most recent developments in Soviet metallurgy.

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Metallurgy of the USSR (Cont.) SOV/1497

[illegible], L. N., and M. Ya. Ostroukhov. Development in the USSR of the Theory of Blast Furnace Process 187

The article deals with the design and operation of very large blast furnaces with 950 to 1300 cubic meter capacity. A number of experiments were carried out to study the operating regimes in those furnaces. The physical and chemical characteristics of the charge were studied to obtain optimum results and to insure free travel of the charge in the furnace and the permeability of the charge to gases. The thermal reactions were investigated and the results graphed. Reduction and slag formation as well as the combustion process proper were the object of intensive studies. The need for the proper control of blast furnace operation is stressed. It is claimed that at present Soviet scientists are attempting to develop a fully automated system for blast furnace operation which will automatically compensate for the variables involved in the process. There are 46 Soviet and 3 English references.

[illegible], A. Ya., and A. M. Samarin. The Rise of Steel Production in the USSR 187

The article contains a review of the Soviet steel industry. Production figures for the Five Year Plans are given. The use of oxygen blowing in the production of converter steel is regarded as an important develop-

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ZHEREBIN, B.N., inzhener; MINKIN, V.M., inzhener; NIKULINSKIY, I.D., inzhener; OBSHAROV, V.M., inzhener; SUCHKOV, I.A., inzhener; OSTROUKHOV, M.Ya., kandidat tekhnicheskikh nauk.

Effect of certain factors on the extent of the oxidation zone. Stal' 16 no.5:391-396 My '56. (MLRA 9:8)

1. Kuznetskiy metallurgicheskiy kombinat i Institut metallurgii AN SSSR.

(Blast furnaces)

ARUTYUNOV, N.B., inzh., red.; VOSKOBOYNIKOV, V.G., doktor tekhn. nauk, red.; GOTLIB, A.D., prof., doktor tekhn.nauk, red.; GUSOVSKIY, A.A., inzh., red.; KRASAVTSEV, N.I., kand. tekhn. nauk, red.; NEKRASOV, Z.I., akademik, red.; OSTROUKHOV, M.Ya., kand. tekhn. nauk, red.; POKHVISNEV, A.N., prof., doktor tekhn.nauk, red.; RAMM, A.N., prof., doktor tekhn. nauk, red.; TSYLEV, L.M., prof., doktor tekhn. nauk, red.; POZDNYAKOV, G.L., red. izd-va; ISLENT'YEVA, P.G., tekhn. red.

[Blast furnace process according to most recent developments; on the 100th. anniversary of Academician M.A.Pavlov's birth] Domennyi protsess po noveishim issledovaniiam; k 100-letiiu so dnia rozhdeniia akad. M.A.Pavlova. Moskva, Metallurgizdat, 1963. 325 p. (MIRA 16:8)

1. AN Ukr.SSR (for Nekrasov).
(Blast furnaces)
(Pavlov, Mikhail Aleksandrovich, 1863-1958)

137-1958-2-2393

Translation from Referativnyy zhurnal. Metallurgiya. 1958. Nr 2 p 27 (USSR)

AUTHORS Bardin, I.P., Tsylev L.M., Ostroukhov, M.Ya., Khodak, L.Z.

TITLE On the Process of Coke Combustion at the Tuyeres of a Blast Furnace (O protsesse goreniya koksa u furm domennoy pechi)

PERIODICAL Tr In-ta metallurgii AN SSSR. 1957. Nr 2. pp 3-8

ABSTRACT In 1954-55, in different regions of the Soviet Union, a study was made on six blast furnaces having effective volumes of 330--1386 m^3. Gas samples were taken along the axis and above and below tha axis of a tuyere. The diagram depicting the change in gas composition in the combustion zone differed markedly from the "classical diagram." From the path of the isorithmic lines for CO_2, CO and O_2 in a vertical plane it was possible to establish the direction of the blast and the pattern of circulation of the coke particles. These experiments led to the conclusion that combustion of the coke does not occur in the bed layer but inside the blast. In addition, the focal combustion zone was found to be distributed along a spherical surface nearly at the boundary of the combustion zone. The length of the oxidation zone was determined basically by the kinetic energy of the blast and did not depend appreciably on other factors. G Ch

Card 1/1

1. Coke--Combustion 2. Blast furnaces--Applications

137-1957 12-23335

Translation from: Referativnyy zhurnal, Metallurgiya, 1957, Nr 12, p 70 (USSR)

AUTHORS: Gol'mshtok, Ya. M., Ostroukhov, M. Ya.

TITLE: The Effect of the Physical Properties of Coke on the Distribution of Gases and on the Dimensions of the Oxidizing Zones in a Blast Furnace (Vliyaniye fizicheskikh svoystv koksa na raspredeleniye gazov i razmery okislitel'nykh zon v domennoy pechi)

PERIODICAL: Tr. Leningr. politekhn. in-ta, 1955, Nr 179, pp 85-104

ABSTRACT: Bibliographic entry

1. Coke-Physical properties-Effects 2. Gas-Distribution-Applications 3. Furnaces-Oxidizing zones-Determination 4. Bibliography

Card 1/1

OSTROUKHOV, M.Ya.

Increasing the output of blast furnace smelting. Metallurg 2 no.8: 7-10 Ag '57. (MLRA 10:9)

1. Institut metallurgii AN SSSR.
(Blast furnaces)

OSTROUKHOV, M.Ya., kandidat tekhnicheskikh nauk.

Ways of saving coke in blast-furnace smelting. Metallurg no.2:5-6 F '56. (MLRA 9:9)

1. Institut metallurgii AN SSSR.
(Blast furnaces)

OSTROUKHOV, M.Ya., kandidat tekhnicheskikh nauk; KHODAK, L.Z.; LEBEDEV, V.V.

Cinematographic study of the process of coke burning. Priroda 45 no.7: 78-81 Jl '56. (MLRA 9:9)

1.Institut metallurgii imeni A.A.Baykova Akademii nauk SSSR, Moskva (for Khodak).2.Laboratoriya nauchno-prikladnoy fotografii kinematografii Akademii nauk SSSR, Moskva (for Lebedev).
(Coke) (Combustion) (Cinematography--Scientific applications)

OSTROUKHOV, M. Ya.

USSR.

19938 Processes Occurring in the Hearth of the Blast Furnace. I. P. Bardin and M. Ya. Ostroukhov. *Henry Brutcher Translation No. 3595*, 18 p. (Abridged from *Izvestiya Akademii Nauk SSSR, OTN*, 1954, no. 3, Mar., p. 79-81.) Henry Brutcher, Altadena, Calif.

Importance of state of materials in this zone for the permeability of the stock column; investigational procedure and sampling technique. Tables, graphs, micrographs. 2 ref.

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(1)

OSTROUKHOV, M. Y., BARDIN, I. P., ZYL'YEV, L. M. and KHODAK, L. S.

"Neue Auffassungen uber den Verbrennungsprozess des Kokes an den Windformen des Hochofens," Neue Hutte, No. 4, 1956

Metallurgical Inst., AS USSR

M Ya.

V 5497. EFFECT OF CIRCULATION OF COKE ON COMBUSTION PROCESS IN A BLAST FURNACE. Ostroukhov, M. Ya. (Izv. Akad. Nauk SSSR, Otdel. Tekh. Nauk (Bull. Acad. Sci. U.S.S.R., Dept. Tech. Sci.), Apr. 1955, 143, 144). Samples of combustion gas, cinematograph pictures taken through the tuyères and model experiments have shown that combustion takes place not in a fixed bed but in a suspension of pieces of coke circulating in spherical paths.

SOV/24-58-6-1/35

AUTHOR: Ostroukhov, M.Ya. (Moscow)

TITLE: Influence of the Kinetics of the Process of Combustion of Coke on the Dimensions of the Oxidation Zone in the Blast Furnace (Vliyaniye kinetiki protsessa goreniya koksa na razmery okislitel'noy zony v domennoy pechi)

PERIODICAL: Izvestiya akademii nauk SSSR, otdeleniye tekhnicheskikh nauk, 1958, Nr 6, pp 3-6 (USSR)

ABSTRACT: Up to relatively recently, the change in the dimensions of the combustion zone in a blast furnace was attributed to the change in the speed of the combustion process of coke, i.e. to the effect of chemical kinetic factors, namely, the temperature, the speed and pressure of the blast, the size, porosity and the reaction ability of the fuel (Refs 1-4). Thereby, it was assumed that combustion takes place in a coke layer of low mobility. It was found (Ref 5) that there is a circulation of bits of coke and this affects the mechanical factors and the formation of the oxidation zones. The influence of the circulation zone depends on the kinetic energy of the blast. On the basis of available experimental results the author studies the influence of the relations between mechanical fa[illegible]

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SOV/24-58-6-1/35

Influence of the Kinetics of the Process of Combustion of Coke on the Dimensions of the Oxidation Zone in the Blast Furnace

and factors of chemical kinetics on the dimensions of the combustion zone. In the first part, the kinetics of combustion of coke in the oxygen zone, and in the second part the kinetics of oxidation of the coke in the reduction zone, are studied. It is concluded that the oxidation zone in a blast furnace can be sub-divided into two strictly differing zones: the oxygen zone and the reduction zone. The first coincides with the circulation zone of the coke and the length of this zone is determined by the kinetic energy of the blast, since analysis of the conditions of the progress of the reaction $O_2 + C = CO_2$ indicates that this reaction takes place in the diffusion zone. The dimensions of the reduction zone where the coke layer is subjected to the reaction $C + CO_2 = 2CO$ depend on chemical kinetics factors (speed of filtration of the gases, temperature, etc). The decrease in the width of the reduction zone which occurs simultaneously with an increase in the length of the oxidation zone as the blast quantity increases, indicates that the

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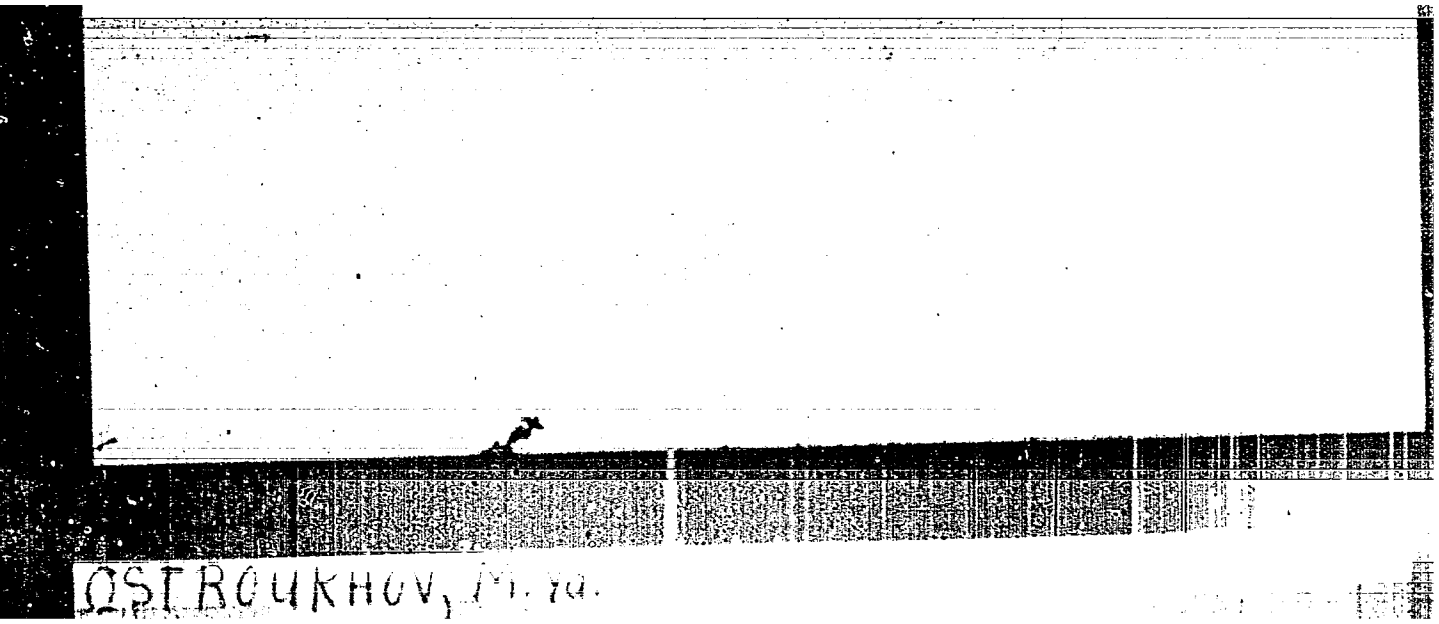
Influence of the Kinetics of the Process of Combustion of Coke on the Dimensions of the Oxidation Zone in the Blast Furnace

reaction $C + CO_2 = 2CO$ takes place in the intermediate zone. The absolute dimensions of the reduction zone are small and change little in the case of change in chemical kinetics factors, and therefore the effect of this on the length of the oxidation zone as a whole can be disregarded. Experimental results of various authors, including the author of this paper, indicate that the length of the oxidation zone of a blast furnace does not decrease and in some instances even increases in the case of temperature increases.
There are 2 figures and 11 references (9 Soviet, 1 English and 1 German)

SUBMITTED: May 30, 1957

Card 3/3



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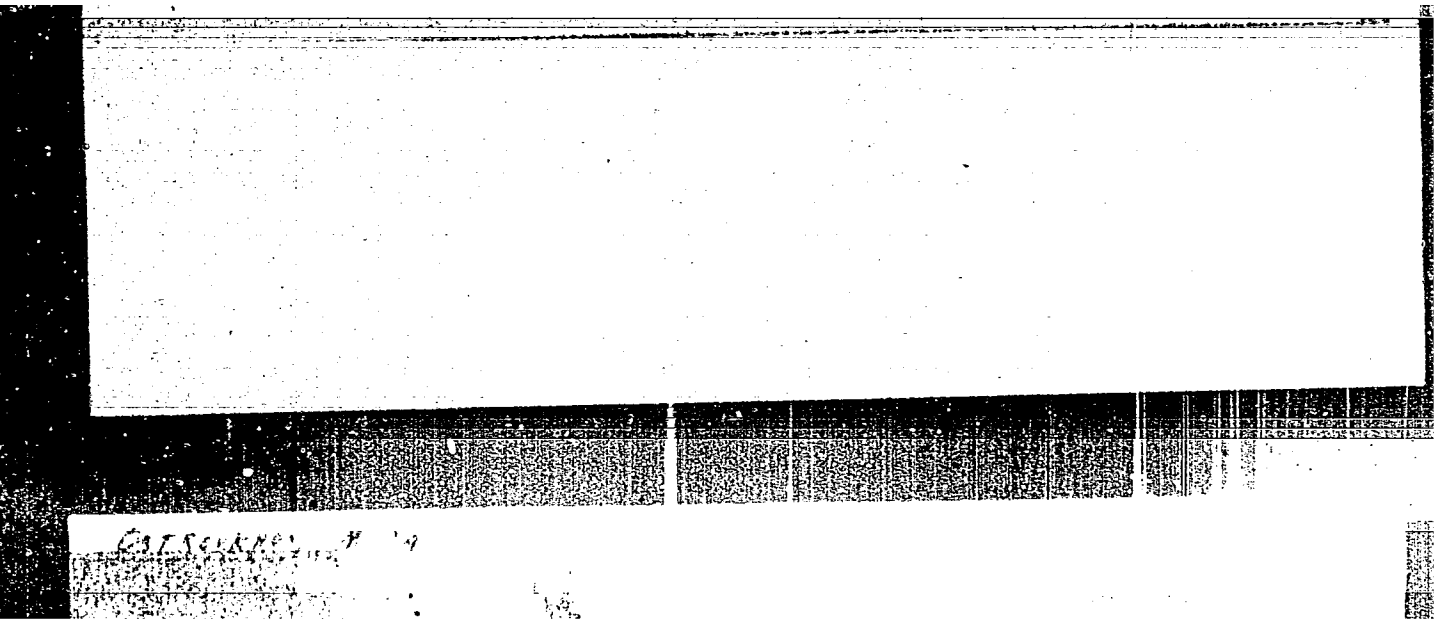

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