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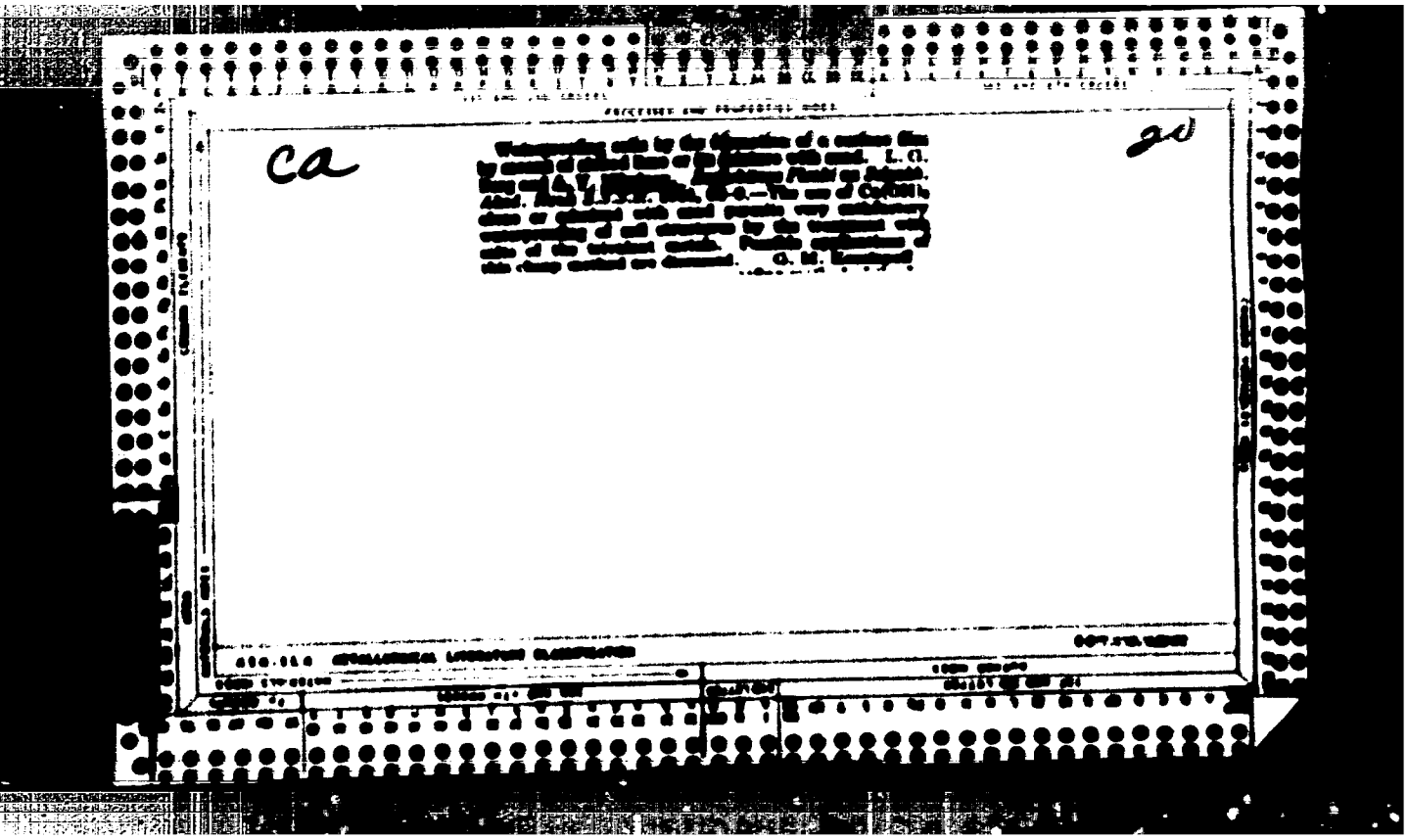

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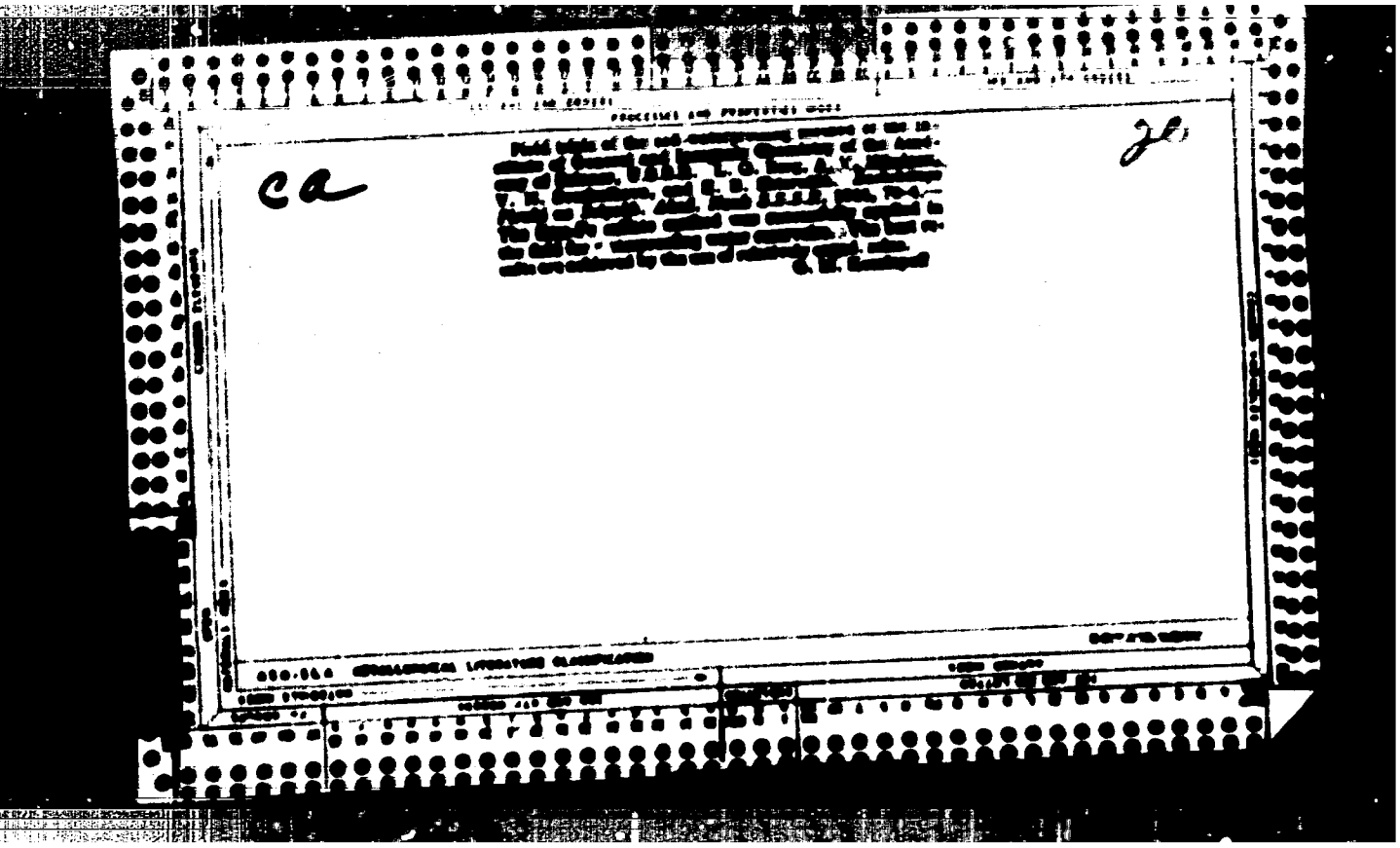

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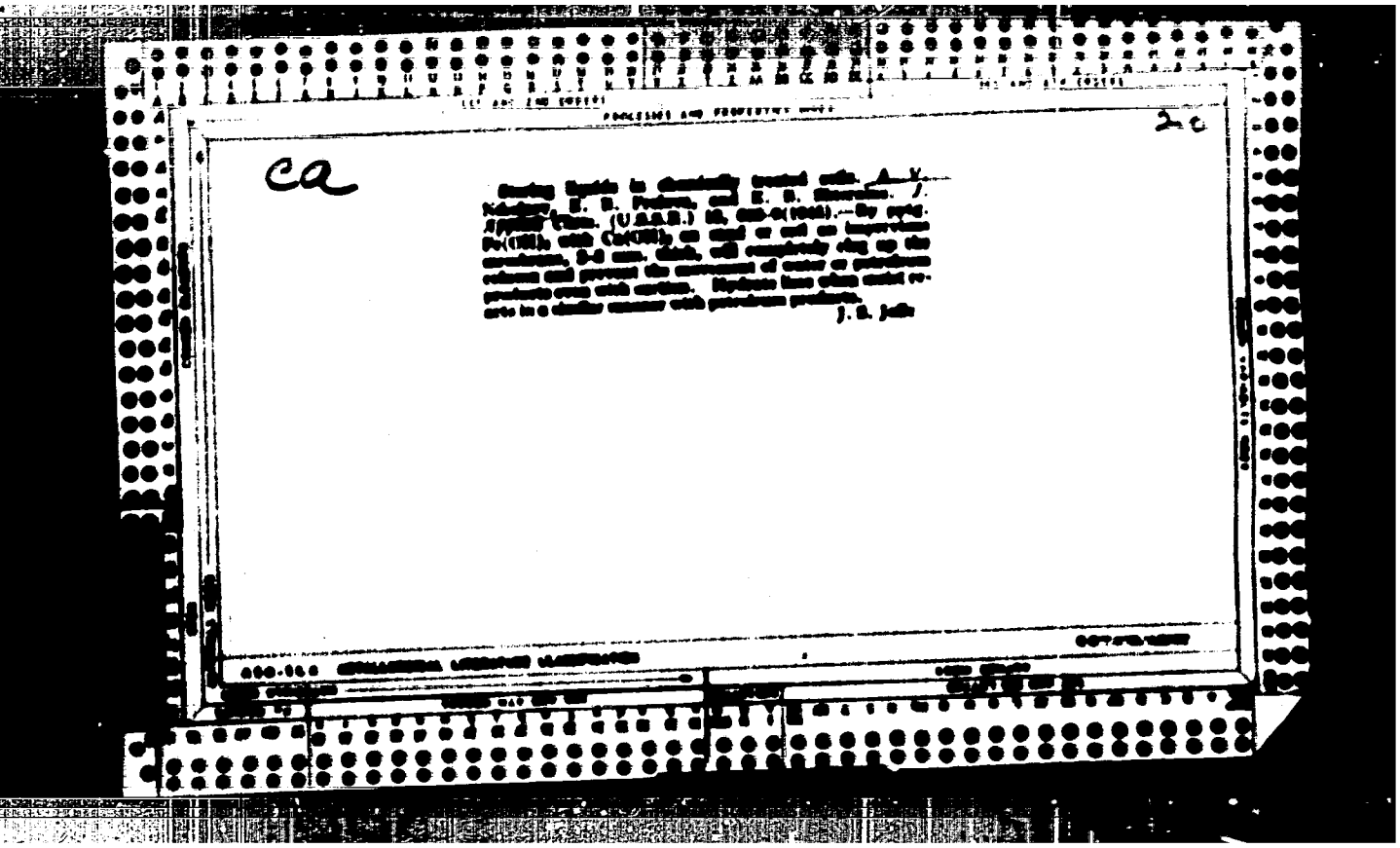

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001137110004-3

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Nikolayev, A. V.: "Irrigation of the cotton plant and lucerne under Vakhsh Valley conditions", Soobsheh. Tadzh. filiala Akad. nauk SSSR, Issue 10, 1948, p. 3-6.

SO: U-3042, 11 March 53, (Letopis 'nykh Statey, No. 10, 1949).

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So: U-3566, 15 March 53, (Letopis 'Zhurnal 'nykh Statey, No. 13, 1949)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001137110004-3"

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NIKOLAYEV, A. V.

Nikolayev, A. V. "The distribution of water over a cotton field with rational operation of irrigation", Soobshch. Tashk. filiala Akad. nauk SSSR, Issue 13, 1949, p. 9-13, - Bibliog: 5 items.

SO: U-411, 17 July 53, (Letopis' Zhurnal'nykh Statey, No. 20, 1949).

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NIKOLAYEV, A. V.

Nikolayev, A. V. "The intensivity of evaporation of water from the soil of a cotton field", Soobshch. tashk. filiala Akad. nauk SSSR, Issue 13, 1949, p. 14-16.

SO: U-411, 17 July 53, (Letopis' Zhurnal'nykh Statey, No. 20, 1949).

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1. NIKOLAYEV, A. V., KUDASHEV, S. T.,
2. USSR (600)
4. Water, Underground
7. Experience of preventing sagging in loess soils. Sobb. TFAN SSSR no. 31, 1951.

9. Monthly List of Russian Accessions, Library of Congress, March 1953. Unclassified.

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NIKOLAYEV, A.V.

Water resources in the soil profile of dry farm land provided with irrigation. Dokl.AN Tadzh.SSR no.12:31-35 '54. (MLRA 9:9)

1.Institut pochvovedeniya, meliorateii i irrigatsii AN Tadzhikskoy SSR. Predstavlena chlenom-korrespondentom AN Tadzhikskoy SSR. V.A.Starikovym.
(Water, Underground)

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001137110004-3

NIKOLAYEV, Aleksey Vasil'yevich; BONCHKOVSKIY, F.N., otv.red.; VINOGRADSKAYA, S.N., red.izd-va; FROLOV, P.N., tekh.red.

[Theory of irrigation cycles for farm crops] K teorii polivnykh rezhimov sel'skokhozyaistvennykh kul'tur. Stalinabad. Izd-vo AN Tadzh.SSR. 1956. 266 p. (Akademiia nauk Tadzhikskoi SSR, Stalinabad.Trudy, vol.46) (MIRA 12:6)
(Irrigation farming)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001137110004-3"

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Experience in the preparation of magnesite sorbent and in the de-silication of feed-water for high-pressure boilers. SOV/96-58-10-10/25

available at the power station, is sketched in Fig.1., and the procedure used to manufacture the sorbent is described. The chemical analysis of the sorbent was: 35.5% MgO; 22% $MgCl_2$; 1.2% $CaCl_2$; 6.2% $FeCl_3$, the remainder being mainly water. Each filter was loaded with 6.8 tons of sorbent, to the heights given in Fig.2. Before the filters were used, excess chloride was washed out of the sorbent; a graph of the washing process appears in Fig.3. Full-scale operation of the filters commenced in March, 1957 and the results of six months operation are plotted in Fig.4. which shows that the silica content of the treated water has gradually risen to about 1.4 mg/litre SiO_2. The increase has probably resulted from contamination of the sorbent with organic substances and iron oxides. The chemical analysis of the sorbent after 8½ months operation is given in Table.2; although the chemical composition has altered, the mechanical strength is unchanged. There is a considerable increase in the silica and iron-oxide contents of the sorbent. The silica content of the water was somewhat higher than it should be, and attempts to improve matters by raising the treating temperature by 5°C to 42°C were

Card 2/4 ineffective. Tests were made of the influence of rate of

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filtration on the effectiveness of purification. It will be seen from the graph in Fig.5. that as the rate is increased from 4 to 10.7 m/hr the silica content increases by 0.51 mg/litre. The results plotted in Fig.6. show that by reducing the hydrated alkalinity of the water delivered to the sorbent filters, their effectiveness is improved. However, tests could not be made at pH values below 8.5 because coagulation of the water by the iron sulphate was impaired. Thus the best condition for removing silica from water by magnesite sorbent is the carbonate condition of lining with which the pH value of the water is 8.5 - 9. In six months of operation the magnesite sorbent absorbed 572 kg of silica, a third of the theoretical capacity. The use of magnesite sorbent simplified the process of water treatment and reduced the silica content of the feed water from its former value of 0.8 - 1.3 mg/litre to 0.25 - 0.5 mg/litre. Boiler blow-down was correspondingly reduced. There is an editorial

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NIKHAYEV, A.V., insh.; SAMUSENKO, A.P., insh.; TUSH, K.N., insh.

Industrial desiliconization of water by magnesia sorbents. Elek. sta. 29 no.11:26-28 N '58. (MIRA 11:12)
(Feed-water purification)

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001137110004-3

NIKOL'SKAYA, Yu.P.; NIKOLAYEV, A.V., otv. red.; ANTONENKO, Ye.A., red.; VLASOVA, A.N., tekhn. red.

[Salt formation processes in lakes and waters of the Kulunda Steppe] Protsessy solenakopleniia v ozerakh i vodakh Kulundinskoi stepi. Novosibirsk, Izd-vo Sibirskogo otd-niia AN SSSR, 1961. 179 p. (MIRA 14:10)

1. Chlen-korrespondent AN SSSR i nachal'nik Kulundinskoy ekspeditsii AN SSSR (for Nikolayev).
(Kulunda Steppe—Saline waters)

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VALYASHKO, M.G.; POLIVANOVA, A.I.; ZHEREBTSOVA, I.K.; METTIKH, B.I.; VLASOVA, N.K.; NIKOLAYEV, A.V., otv. red.; STOLYAROV, A.G., red.

[Geochemistry and genesis of brines of the Irkutsk amphitheater] Geokhimiiia i genezis rassolov Irkutskogo amfiteatra. Moskva, Nauka, 1965. 158 p. (MIRA 19:1)

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NIKOLAYEV, A.V.; DYADIN, Yu.A.; YAKOVLEV, I.I.; DURASOV, V.B.; MIRONOVA, Z.N.

Study of the polytherm of mutual solubility in the system water - organophosphorus extractant. Report No.2. Izv. SO AN SSSR no.7 Ser. khim. nauk no.2:28-32 '65. (MIRA 18:12)

1. Institut neorganicheskoy khimii Sibirskogo otdeleniya AN SSSR, Novosibirsk. 2. Chlen-korrespondent Sibirskogo otdeleniya AN SSSR. (for Nikolayev). Submitted June 24, 1964.

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001137110004-3

L 36241-66 EWT(m)/EWP(t)/ETI IJP(c) JD/HW

ACC NR: AP6008420 SOURCE CODE: UR/0289/65/000/003/0050/0056

30
27
B

AUTHOR: Nikolayev, A. V.; Grigor'yev, V. A.

ORG: Institute of Inorganic Chemistry, Siberian Branch, AN SSSR, Novosibirsk (Institut neorganicheskoy khimii Sibirskogo otdeleniya AN SSSR)

TITLE: Occlusion of cations of elements of groups I, II, and III of the D. I. Mendeleyev periodic table by precipitates with complex anions

SOURCE: AN SSSR. Sibirskoye otdeleniye. Izvestiya. Seriya khimicheskikh nauk, no. 3, 1965, 50-56

TOPIC TAGS: chemical precipitation, cobalt compound, zinc compound, cadmium compound, mercury compound

ABSTRACT: The occlusion of various cations by water-insoluble compounds of the complex tetrathiocyanomercurate ion $[Hg(SCN)_4]^{2-}$ ($K_{diss} \sim 10^{-22}$) with divalent zinc, cobalt, and cadmium cations was studied. The absolute value of the occlusion of micro-impurities (elements of groups I, II, and III of the periodic table) was determined by the method of two indicators, which makes it possible to exclude the activity introduced by the

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L 36242-66 EWT(m)/FCC/EWP(t)/ETI/EWP(n) IJP(c) JD/JG

ACC NR: AP6005424 SOURCE CODE: UR/0289/65/000/003/0094/0098

32
31
B

AUTHOR: Nikolayev, A. V.; Sorokina, A. A.; Tsubanov, V. G.

ORG: Institute of Inorganic Chemistry, Siberian Branch, AN SSSR, Novosibirsk (Institut neorganicheskoy khimii Sibirskogo otdeleniya AN SSSR)

TITLE: Kinetic mechanism of occlusion of impurities by precipitates

SOURCE: AN SSSR. Sibirskoye otdeleniye. Izvestiya. Seriya Khimicheskikh nauk, no. 3, 1965, 94-98

TOPIC TAGS: lanthanum compound, praseodymium compound, holmium compound, yttrium compound, nitrate, chemical precipitation

ABSTRACT: An attempt is made to elucidate the role of certain kinetic factors in systems where no occlusion of impurities by the precipitate should occur in the state of equilibrium. The case of nonequilibrium systems which slowly tend toward an equilibrium is considered, and the rate of this transition for two coexisting precipitates is discussed. Specifically, the time of dissolution of nonequilibrium precipitates formed by a drop of precipitant (10.2 N ammonia solution) in 1.5 and 3% rare earth nitrate solutions was studied. This

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L 13845-66 EWP(e)/EWT(m)/T/EWP(t)/EWP(b) IJP(c) JD/WW/GD

ACC NR: AP6005425 SOURCE CODE: UR/0289/65/000/003/0150/0152

41

AUTHOR: Nikolayev, A. V.; Bogatyrev, V. L. B

ORG: Institute of Inorganic Chemistry, Siberian Department, Academy of Sciences SSSR, Novosibirsk (Institut neorganicheskoy khimii Sibirskogo otdeleniya Akademii nauk SSSR)

TITLE: Extraction of boron from datolite

SOURCE: AN SSSR. Sibirskoye otdeleniye. Izvestiya. Seriya khimicheskikh nauk, no. 3, 1965, 150-152

TOPIC TAGS: boron, boron mineral, chemical separation, boron compound

ABSTRACT: A study has been made of the effects of the nature and concentration of the acid on the boron extraction from acid solutions of datolite mineral using methanol as extracting agent. Procedures of the acid digestion of datolite containing 18.2% B_2O_3, distillation of the methyl borate, and analysis of the condensate were described. Tabulated data indicated that the maximum percent of boron extraction (about 95%) was achieved from 52% H_2SO_4 and 7% HCl solutions. These acid concentrations were considered optimum for B extraction. By saponification of methyl borate with alkali or soda ash, 98—99% of the

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L 10113-66 EWT(m)/EWP(1)/T IJP(c) R/JD/RM

ACC NR: AP6013910 (A) SOURCE CODE: UR/0076/66/040/004/0848/0849

AUTHOR: Nikolayev, A. V.; Gribanova, I. N.; Yakovleva, N. I.; Khol'kina, I. D.

ORG: Institute of Inorganic Chemistry, Siberian Branch, Academy of Sciences, SSSR (Akademiya nauk SSSR, Sibirskoye otdeleniye, Institut neorganicheskoy khimii)

TITLE: Radiation resistance of chelating phosphor-organic resins

SOURCE: Zhurnal fizicheskoy khimii, v. 40, no. 4, 1966, 848-849

TOPIC TAGS: resin, organic phosphorus compound, chelate compound, uranyl nitrate, sorption, exchange reaction, radiation effect

ABSTRACT: Six sorbent resins based on diallyl esters of phosphinic acids were exposed to gamma radiation in distilled water (Co^{60} source, 600 rad/sec, $0.9 \cdot 10^8$ rad dose) to evaluate their radiation resistance. Irradiated materials were characterized by significantly lower capacity for sorption of uranyl nitrate and the appearance of a capacity for sodium exchange (See Table 1). The sorption mechanism is thought to have been altered in the process of irradiation. Orig. art. has: 3 tables.

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[redacted], O.M.; kandidat tekhnicheskikh nauk.; NIKOLAYEV, A.V., inzhener.

Stage compensation of changes in network voltage during automatic arc welding. Vest. elektroprom. 27 no.4:43-47 Ap '56. (MLRA 9:11)

1. Akademiya nauk SSSR.
(Voltage regulators) (Electric welding)

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KULAGIN, I.D.; NIKOLAYEV, A.V

Determining current density in welding arc spots. Trudy Inst.met. no.3: 250-261 '58. (MIRA 12:3)
(Electric charge and distribution)
(Electric welding)

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001137110004-3

AUTHOR: MAMET,A.P. Dr.Tech.Sc., and NIKOLAYEV,A.V. and KABANOVA,A.I., engineers, Tsentroenergochermet. PA - 2405

TITLE: Water Regime of the Open-Hearth Furnace Evaporation Cooling System. (Vodnyy rezhim system isparitel'nogo okhlazhdeniya martenovskikh pechey, Russian).

PERIODICAL: Stal'. 1957, Vol 17, Nr 2, pp 173 - 178 (U.S.S.R.)

Received: 5 / 1957 Reviewed: 5 / 1957

ABSTRACT: The investigation was carried out in two open-hearth furnaces of different plants. The technical requirements can be summarized as follows: With respect to feed water: Practically full transparency (not less than 150 cm crosswise), a hardness of not more than 0,1 mg/liter, an oxygen content not exceeding o,1 mg/liter, an overall saline content of up to 10 %, and the absence of free carbon dioxide, if the water is heated above 25 - 30° C.

With respect to evaporating water: The water should comply with the operating regulations determined by pyrometric tests: (An alkaline content of not more than 20 - 25 and not less than 10 eval/liter, a saline content of 15 - 20 mg/liter presumably, not 15000 - 20000 as in the abstract in the paper).

With respect to the steam: Saline content corresponding to the specifications for feedwater in boiler systems. The content of carbon dioxide is not specified. The separators have to be equipped with

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SOV/24-58-11-20/42

AUTHORS: Kulagin, I. D. and Nikolayev, A. V. (Moscow)

TITLE: Thermal Balance of a D.C. Welding Arc in Gases During the Period of Drop Formation (Teplovoy balans svarochnoy dugi postoyannogo toka v gazakh v period formirovaniya kapli)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1958, Nr 11, pp 89-91 (USSR)

ABSTRACT: During the process of burning of a welding arc a considerable part of the energy which is released in the near electrode regions is spent on fusion and evaporation of the electrode material. It was found in earlier work of the authors (Ref 1) that due to the considerable concentration of the arc energy in the anode and cathode spots, intensive illumination fluxes are emitted from the finer particles of the electrode material. These fluxes transmit a considerable part of the energy from one electrode to the other, which influences appreciably the energy distribution between the electrode and the component. The energy distribution between the electrode and the component is affected to a great extent by the transfer from the electrode to the component of large

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Thermal Balance of a D.C. Welding Arc in Gases During the Period of Drop Formation

drops of liquid metal. Thereby, the energy transfer by the light flux is continuous, whilst the energy transfer caused by the large drops is periodic and has a certain frequency. However, the drops of the liquid metal do not have a very high energy content and will not affect greatly the process of fusion of the parent metal. Therefore, for evaluating the process of penetration as well as the process of fusion of the electrode metal, it is of interest to investigate the thermal balance of the arc during the period of drop formation. The experiments related to a d.c. arc with a burning time of 0.03 to 0.7 sec, which is shorter than the time of separation of the drop from the electrode. The experiments have shown that the instantaneous thermal balance of the arc during this time remains practically constant. The investigations were carried out on a test-rig which enabled the following to be done simultaneously: measurement of the energy in the electrode and the component and of the radiation energy of the arc and also to photograph the arc. The heat in the electrode and in the component were measured separately

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Thermal Balance of a D.C. Welding Arc in Gases During the Period of Drop Formation

in two water calorimeters with variable temperature and an isothermal shell of a capacity of 150 millilitres each. As a component a 37 mm dia., 12 mm high cylinder was used, whilst the electrode was a rod, 10 to 12 mm long, fixed in a steel cylinder of 37 mm dia. and 7 mm high. 0.5 to 1 sec after quenching the arc, the component as well as the electrode were placed into the calorimeters. The full radiation energy was measured in the direction perpendicular to the arc axis by means of a probe consisting of a copper disc with a welded-on thermocouple. The main experiments were effected for a Fe-Fe arc of direct and reverse polarity, 60 to 1300 A and an arc length of 2.2 to 20 mm; the electrodes were of 5 mm dia. A series of experiments were also carried out for determining the thermal balance of a W-Ti arc inside an argon atmosphere. The current intensity influences greatly the thermal balance of the arc. In a Fe-Fe arc of direct polarity burning in air 40 to 45% of the full power of the arc is released in the electrode and 30 to 37% in the component in the case of low current intensities up to about 150 A; for current

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Thermal Balance of a D.C. Welding Arc in Gases During the Period of Drop Formation

intensities of 300 to 3000 A the proportion of energy released in the electrode is reduced by 30-35% and that in the component is increased by 45-50%, Fig.1a. The observed redistribution of the arc energy between the electrode and the component is attributed to a change in the direction of the current flow; in the 60-150 A range the current was directed from the component to the electrode, whilst in the 300 to 1300 A range the current flowed in the opposite direction. In Fig.4 the influence is graphed of the length of the arc gap for a Fe-Fe arc. In Fig.5 the influence is graphed of the ambient medium on the thermal balance of a Fe-Fe arc.
There are 5 figures and 2 Soviet references.

SUBMITTED: July 1, 1953

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Use of the Ionized Stream of an Electric Arc for Heating Materials

to 0.24 times the voltage-current product for the arc in the channel. Fig 3 shows the heating power (cal/sec) and efficiency as functions of the rod-to-ring distance (curves a and b), respectively). Efficiency is practically independent of this distance. The effective heating power is, to a first approximation, directly proportional to current (Fig 4a) but efficiency decreased (Fig 4 b). Fig 5 shows the heating power and efficiency as functions of argon flow (a and b , respectively): efficiency increases to 30 - 32% at a flow of 500 - 600 litres/hr, remaining at this value at higher flows. With 86% helium - 14% argon mixture the heating power was almost doubled that with pure argon, but efficiency remained practically unchanged; neither heating power nor efficiency was appreciably affected by replacing the tungsten electrode by carbon or by changing electrode diameter in the range 1.3 - 3 mm (table). The authors point out that the ionized stream can provide a heat flow approximating to that obtained by direct arc

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18(5,7) SOV/135-59-9-1/23

AUTHOR: Kulagin, I. D., Candidate of Technical Sciences and Nikolayev, A. V., Engineer

TITLE: Arc Plasma Jets as a Heat Source During Material Treatment

PERIODICAL: Svarochnoye proizvodstvo, 1959, Nr 9, pp 1-4 (USSR)

ABSTRACT: The article presents a method and design of a device to produce plasma jets. These shall be used as an independent heat source. The author also discusses in which cases they can be used in the treatment of different metals. In the active spots of the arc the high current density causes a fast heating and evaporation of the electrode material. The vapors, which are ionized in the area near the electrode, move with high speed from the electrode and form a brightly luminous jet, with a length up to 15-20 mm and more (Fig 1). The spectrum research was made by N. N. Sobolev, who showed, that the jet mainly consists of ionized atoms of the electrode material. The speed of jet corpuscles can reach 300-1000 m/sec. The temperature of the jet is about

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Arc Plasma Jets as a Heat Source During Material Treatment

10,000°C at a distance of 2-3 mm from the electrode end, and about 6,000°C at a distance of 6-8 mm. There is always a considerable ionization of the atoms. Fig 2 shows the heat and mechanic characteristics of the jet within an argon atmosphere. Fig 3 shows two principal schemes of a device which produces arc plasma jets. In the Institut metallurgii AN SSSR (Institute of Metallurgy of AS USSR) four types of arc plasma jet producing devices were constructed: IMET-101 for the research of the devices energetic parameters, IMET-102 for use by hand (Fig 6), IMET-103 and IMET-104 for machine-driven use. Fig 7 shows how the heat power, effective efficiency and arc voltage depend: 1) on the nozzle arrangement on the surface which is to be heated and 2) from the cavity of the core electrode. The authors state that there are great possibilities for using an arc plasma jet for the welding of sheet materials, including heat resistant metals. Especially efficient is the use of plasma jet for soldering. There are 4 photographs, 1 drawing, 2 graphs, 1 table and 4 Soviet

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SOV/135-59-9-1/23

Arc Plasma Jets as a Heat Source During Material Treatment

references.

ASSOCIATION: Institut metallurgii imeni A. A. Baykova AN SSSR
(Institute of Metallurgy imeni A. A. Baykov AS USSR)

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12300

AUTHORS: Kulagin, I. D., Nikolayev, A. V.

TITLE: A torch for heat-treatment of various materials (welding, soldering, cutting, etc)

SOURCE: Sbornik izobreteniy; svarochnaya tekhnika. Kom. po delam izobr. i otkrytiy. Moscow, Tsentr. byuro tekhn. inform., 1961, 176
(Authors' Certificate no. 121889, cl. 21h, 30_{01}; no. 614253 of December 18, 1958)

TEXT: A torch is proposed for welding, cutting and soldering metals with an electric arc of indirect action. The arc burns in a gas flow between a rod electrode and a ring-shaped, water-cooled electrode, which is placed at the tip of a water-cooled nozzle with a central conduct. The position and direction of the rod electrode can be regulated. The torch is equipped with three connection pieces for the gas and water supply, and water evacuation. The arc is excited by short-circuiting the electrodes with an auxiliary carbon electrode after their approach. The arc can also be excited by auxiliary, high-voltage high-frequency

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SILIN, L.L., insh.; NIKOLAYEV, A.V., insh.; KLIMANOV, G.E., kand.tekhn.nauk; KUZNETSOV, V.A., insh.

New methods of welding and cutting. Svar. proizv. no.12:34-37 D '60. (MIRA 13:11)

(Electric metal cutting) (Welding)

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A006/A101

11110 also 1573

AUTHORS: Kulagin, I. D.; Petrunichev, V. A., Candidates of Technical Sciences, and Nikolayev, A. V., Engineer

TITLE: Investigating the cutting with arc plasma jet singled out from a cathode flame

PERIODICAL: Svarochnoye proizvodstvo, no. 5, 1961, 1-4

TEXT: A plasma jet is used for severing and surface-planing of different materials. The plasma jet is produced by discharge of an arc excited between tungsten electrode 1 and water cooled copper nozzle 2 (Fig. 1), (Ref. 1, 2). Gas is blown through the nozzle along the cathode flame which is ionized and leaves the nozzle in the form of a bright plasma jet attaining temperatures of 10,000 - 15,000°C and more. Of the two existing methods of plasma cutting, namely with the use of a plasma arc, singled out from or coinciding with the cathode flame, the authors selected the second method to investigate the heat characteristics and the cutting properties of the plasma arc. The information includes the designing of a plasma torch developed for the cutting of a number of materials. The efficiency of the cutting process depends considerably on the effective

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Investigating the cutting with arc plasma ...

power and the cutting properties of the plasma jet which are determined by the arc current and voltage, gas consumption and composition, length and diameter of the nozzle channel and the distance of the nozzle from the surface to be cut (Fig. 2 and 3). Maximum efficiency of plasma arc cutting is assured by maximum possible welding current and arc voltage, least possible distance of the nozzle from the surface of the sheets to be cut, minimum length of the nozzle channel, and optimum gas consumption and nozzle diameter. The cutting rate can be increased by using gases or gas mixtures of high ionisation potentials. Comparison data on the cutting rate by various methods are given in a table. Plasma arc cutting with a jet singled out from the cathode flame can be employed for cutting various non-electric conducting materials, such as refractory bricks, concrete, granite, carborundum etc. The process can be performed either manually or automatically. According to data submitted by engineer V. P. Morenko of Kramatorsk at the Moscow Welding Conference in March 1960, the method assures satisfactory properties of the cut when preparing stainless steel sheets for welding. On the basis of DGT-104 torch, an improved design - the MMST-106 (DGT-106A) torch was developed in 1960, intended for automatic and manual cutting, at 300 - 350 amp current and 15 kw maximum power. The water-cooled adapter contains a screwed-in nozzle with a conical contact surface and threaded lower section (Fig. 6).

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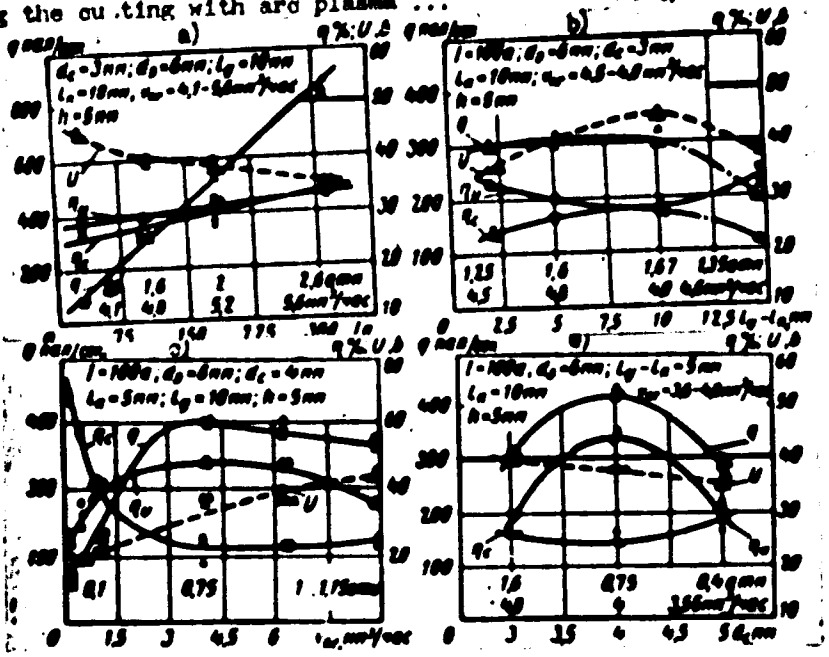
Investigating the cu .ting with arc plasma ...

Figure 2:



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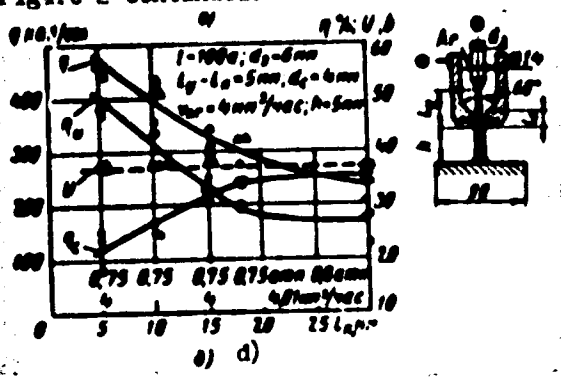
Investigating the cutting with arc plasma ...

Figure 2 continued:



a) d)

Figure 2:
The effect on the effective thermal power q of the plasma jet, singled out from the cathode flame; on the effective efficiency η_{ef} of the plasma heating of the part; on the relative power η_n liberated in the nozzle, and on the arc voltage U, of: a - arc current I; b - electrode sinking l; c - argon consumption V_{Ar}; d - nozzle diameter d_c; e - length of nozzle channel l_{ch}.

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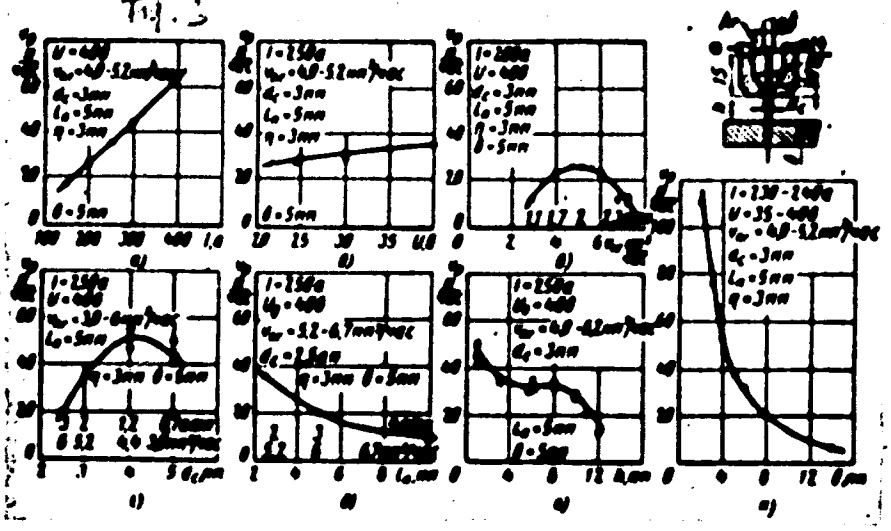
Investigating the cutting with arc plasma...

Figure 3: The effect of basic parameters on the speed of cutting stainless steel with a plasma jet singled out from the cathode flame of: a - arc current I; b - arc voltage U; c - consumption (pressure) of argon V_{Ar}; d - nozzle diameter d_n; e - length of nozzle channel l_{ch}; f - distance from nozzle to surface to be cut h; g - thickness of sheets to be cut δ.



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Investigating the cutting with arc plasma...

Table:

Speed of plasma cutting of metals in m/h

Cutting method	Material	Material thickness in mm								
		6	10	12	20	30	40	50	60	
Plasma jet coinciding with cathode flame (Ref 5)	Aluminum *	-	450	-	130	80	50	35	-	
	Stainless steel **	-	80	-	50	30	20	15	12	
	Copper **	-	50	-	20--30	12--15	8--10	-	5--6	
Plasma jet singled out from cathode flame	Stainless steel ***	80	55	-	30	15	12	-	6	

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Investigating the cutting with arc plasma...

Table continued:

Oxygen-flux cutting (Ref 4, 7)	Stainless steel	21	20	19	18	-	-	12	-	
	copper	9.6	7.8	7.2	4.8	2.6	-	1.3	-	
Oxygen cutting (Ref 4,7)	Carbon steel	36	33	31	27	24	20	-	16	

*) Cutting in a hydrogen-argon mixture at 1:1 volumetric ratio; consumption 3 m^3/h.

**) Cutting in commercial hydrogen; consumption 3 m^3/h.

***) Cutting in a mixture of argon with 20 volume % nitrogen, consumption 2.5 m^3/h, current 250 amp, voltage 45 v.

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Figure 5:

External view of IMET-106A arc plasma torch

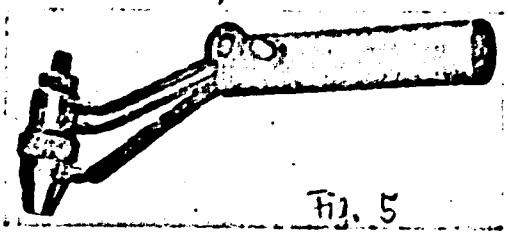

Fig. 5

Figure 6:

Longitudianl section of an exchangeable screwed-in nozzle of IMET-106A torch

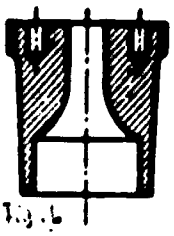

Fig. 6

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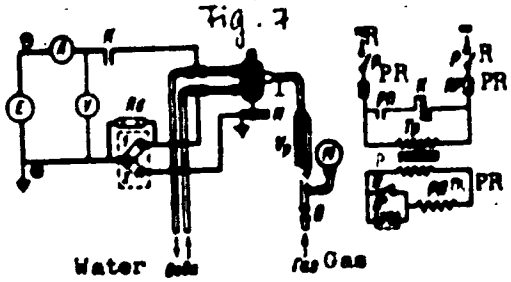
Figure 7:

Connection circuit diagram of DMET-106A plasma torch; I - work piece; M - manometer; V_r - rotarymeter of operational gas; R_b - ballast rheostat; A and V - amperemeter and voltmeter; E - feed source; K - contactor; RP - intermediate relay; V - switch; PR - fuse; R - knife switch.

Fig. 7



There are 7 figures, 1 table and 7 Soviet references

ASSOCIATION: Institut metallurgii im. A. A. Baykova, AN SSSR (Institute of Metallurgy imeni Baykov, AS USSR)

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NIKOLAIEV, A.V., RYKALIN, N.N. AND KULAGIN, I.D.

"Thermal and mechanical gas-shielded arc characteristics."

Report submitted for the Autumn Meeting of the Welding Research Institute. London, England. 29 Oct-2 Nov 1962.

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RYKALIN, N.N.; KULAGIN, I.D.; NIKOLAYEV, A.V.

Thermal characteristics of the interaction between a flow of plasma and the solid being heated. Avtom. svar. 16 no.6:3-13 Je '63. (MIRA 16:7)

1. Institut metallurgii im. A.A.Baykova.
(Plasma (Ionized gases)) (Heat--Transmission)

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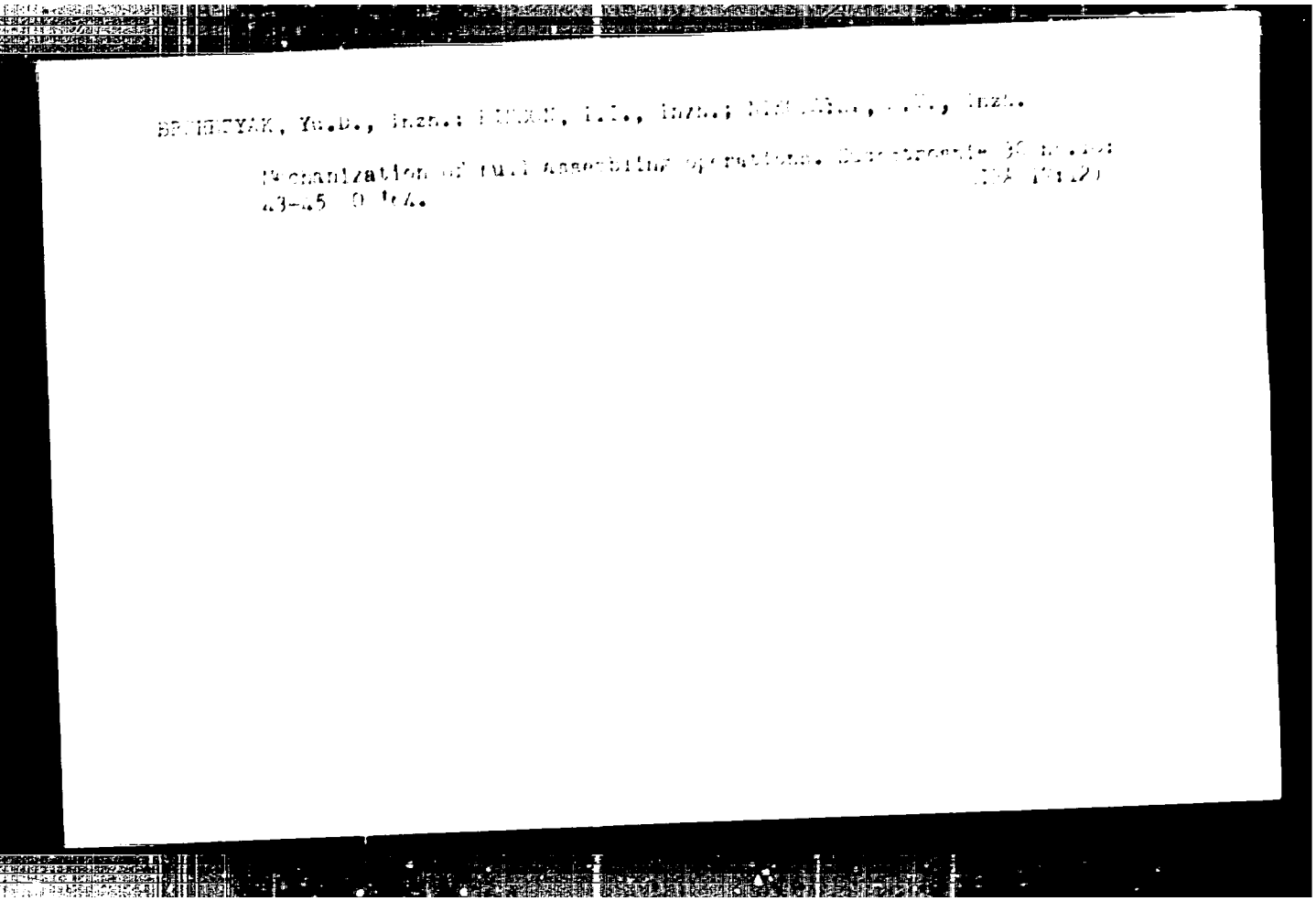

BR[illegible]YAK, Yu.D., Inzh.; [illegible], I.I., Inzh.; [illegible], [illegible], Inzh.

Mechanization of hull assembling operations. Sudostroenie 30 no.10: 43-45 O '64. [illegible]

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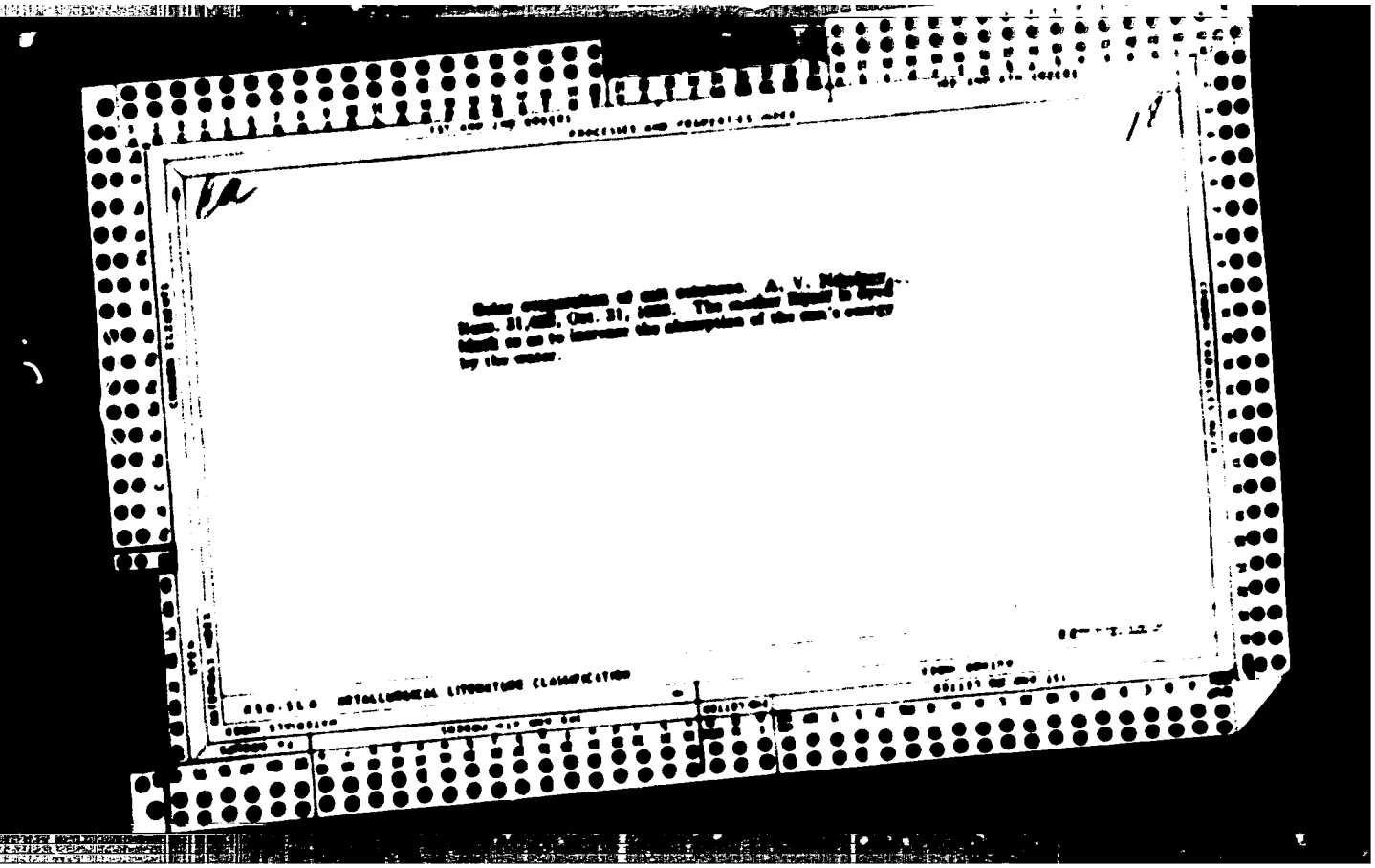

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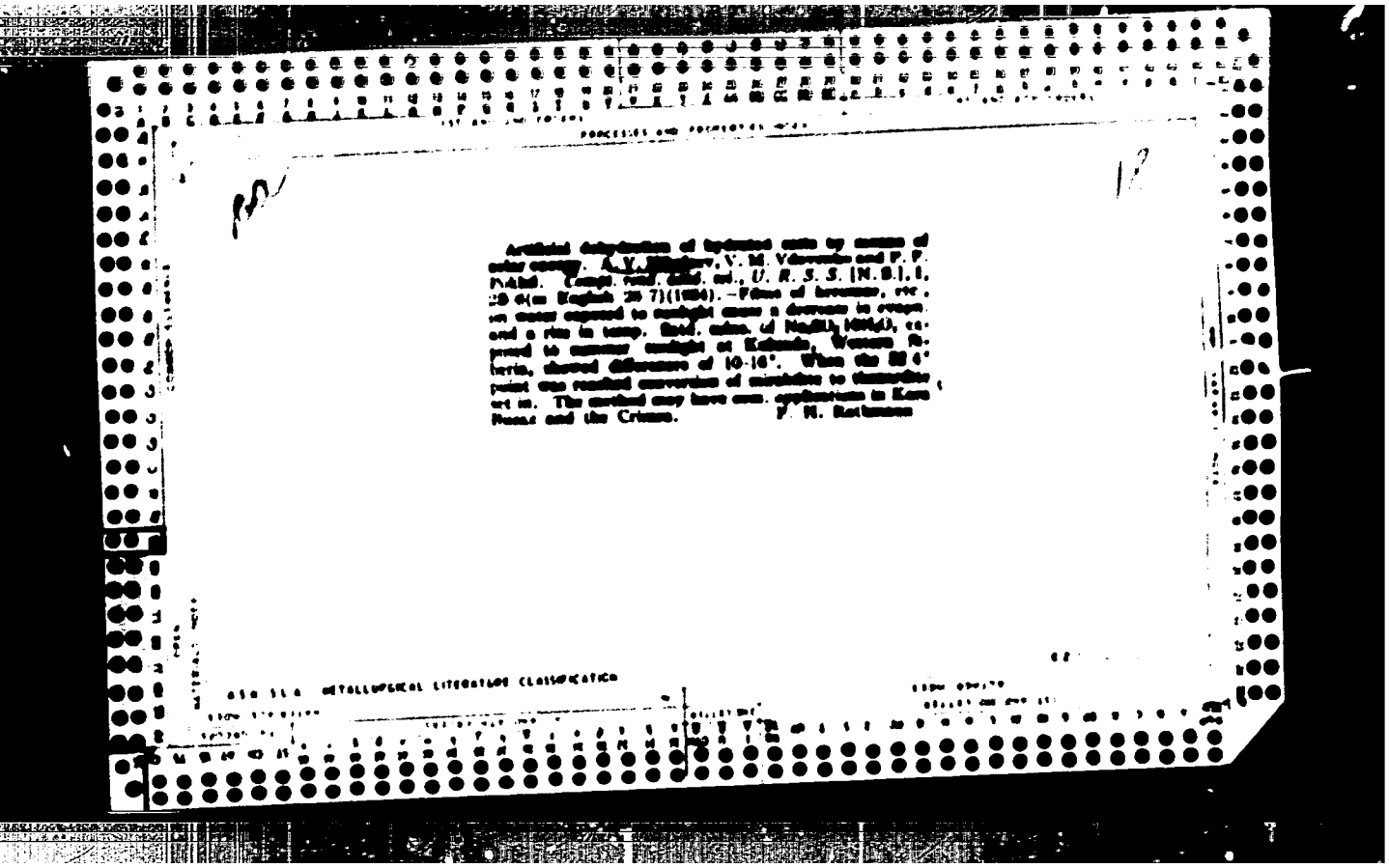

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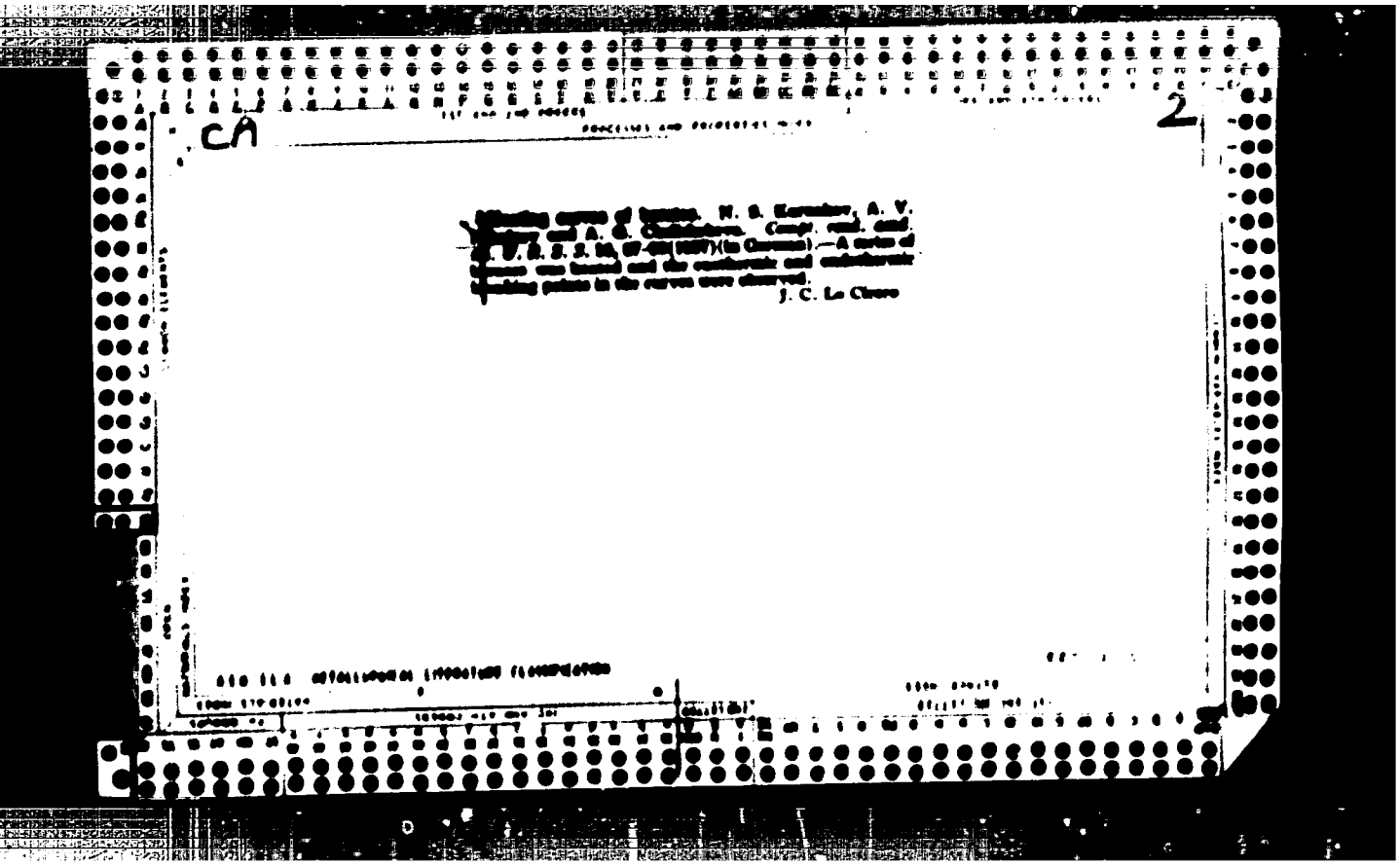

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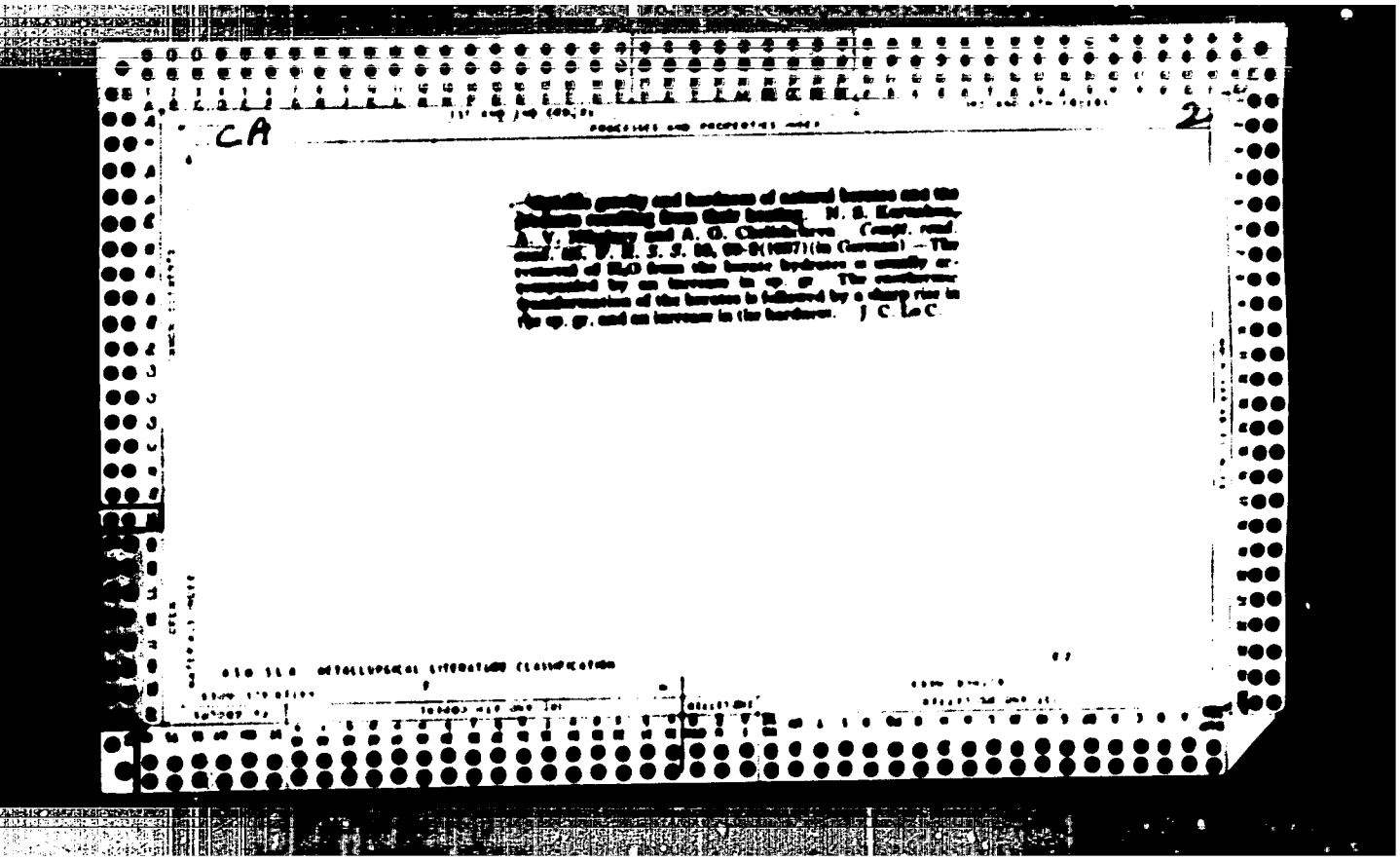

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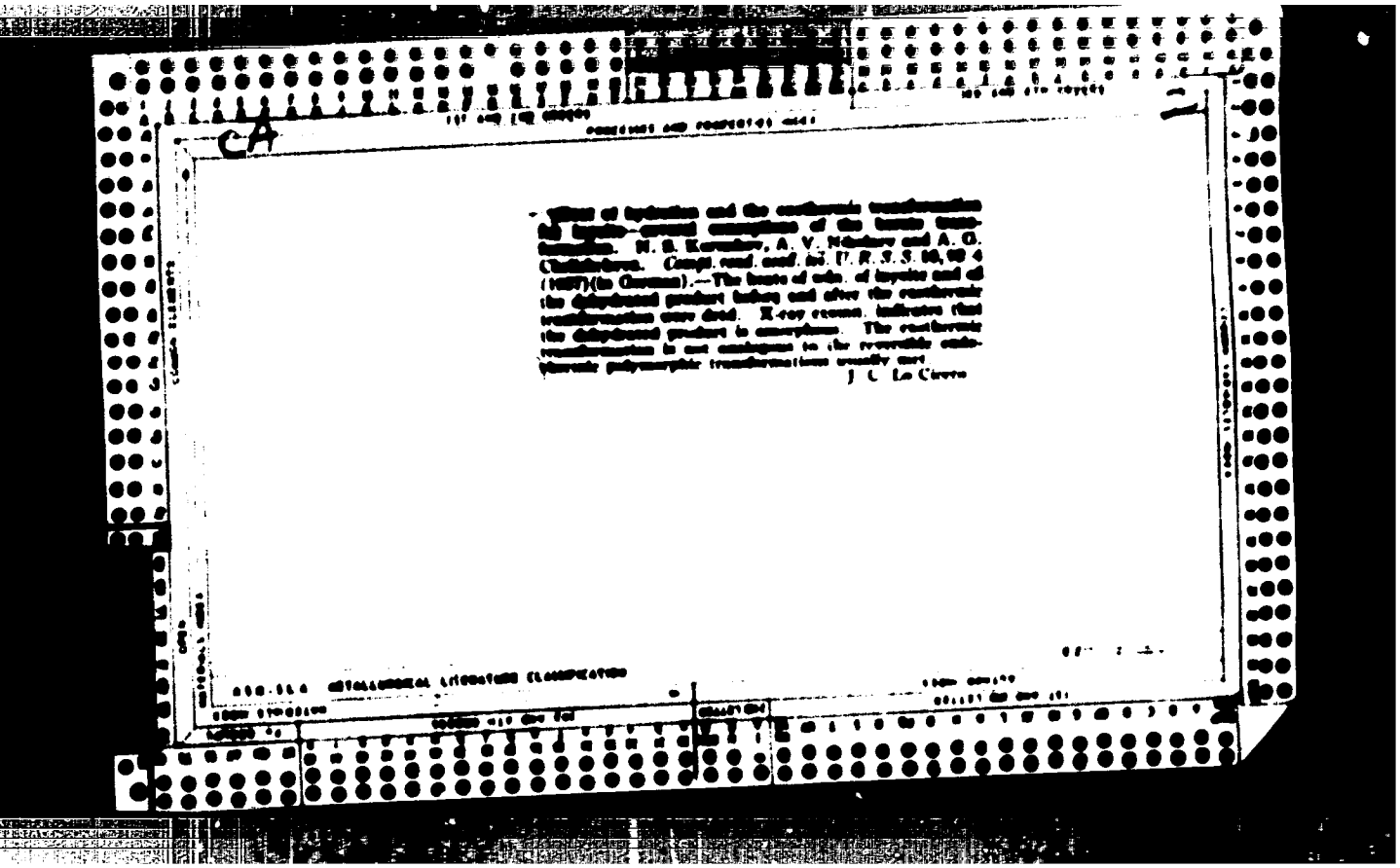

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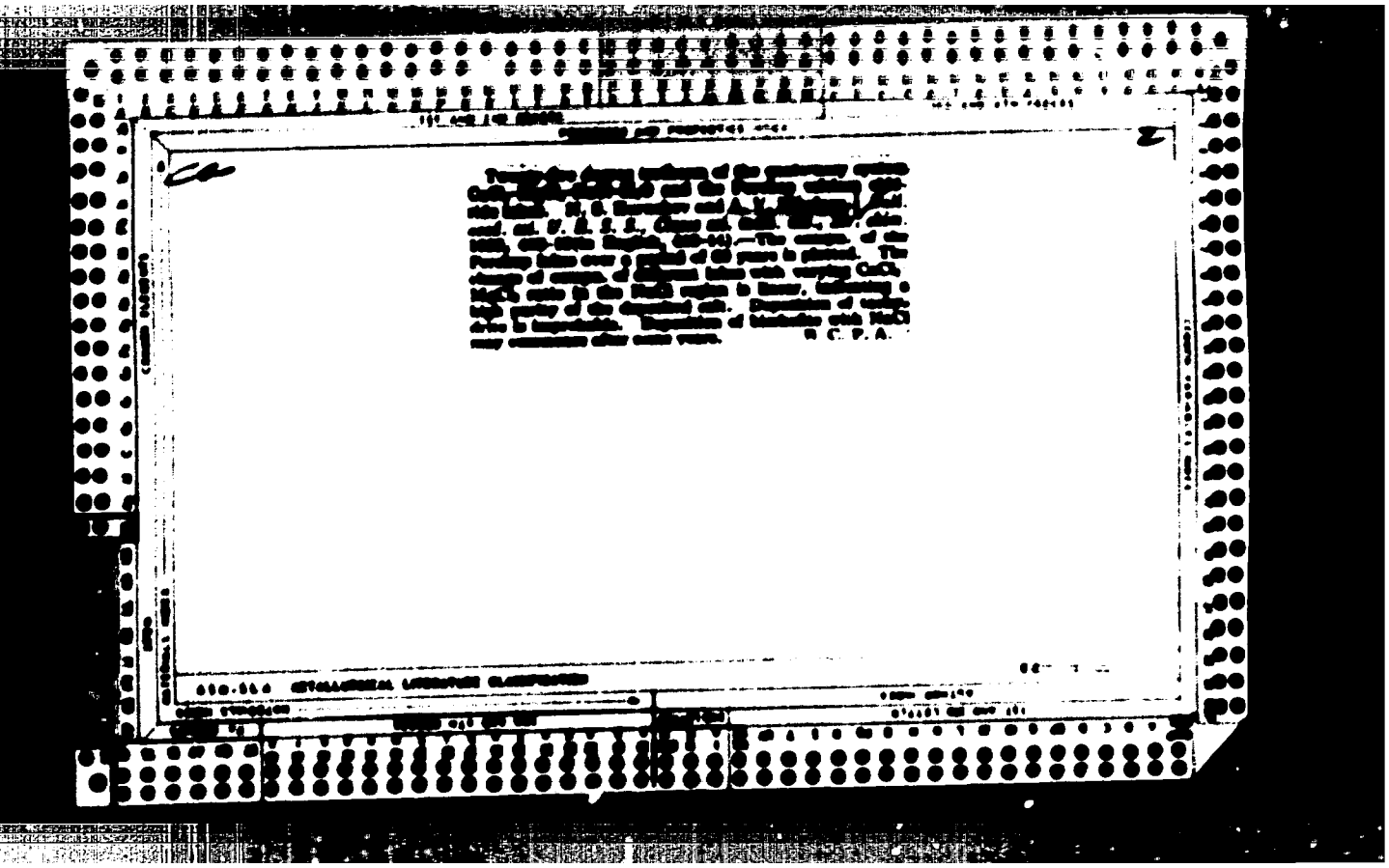

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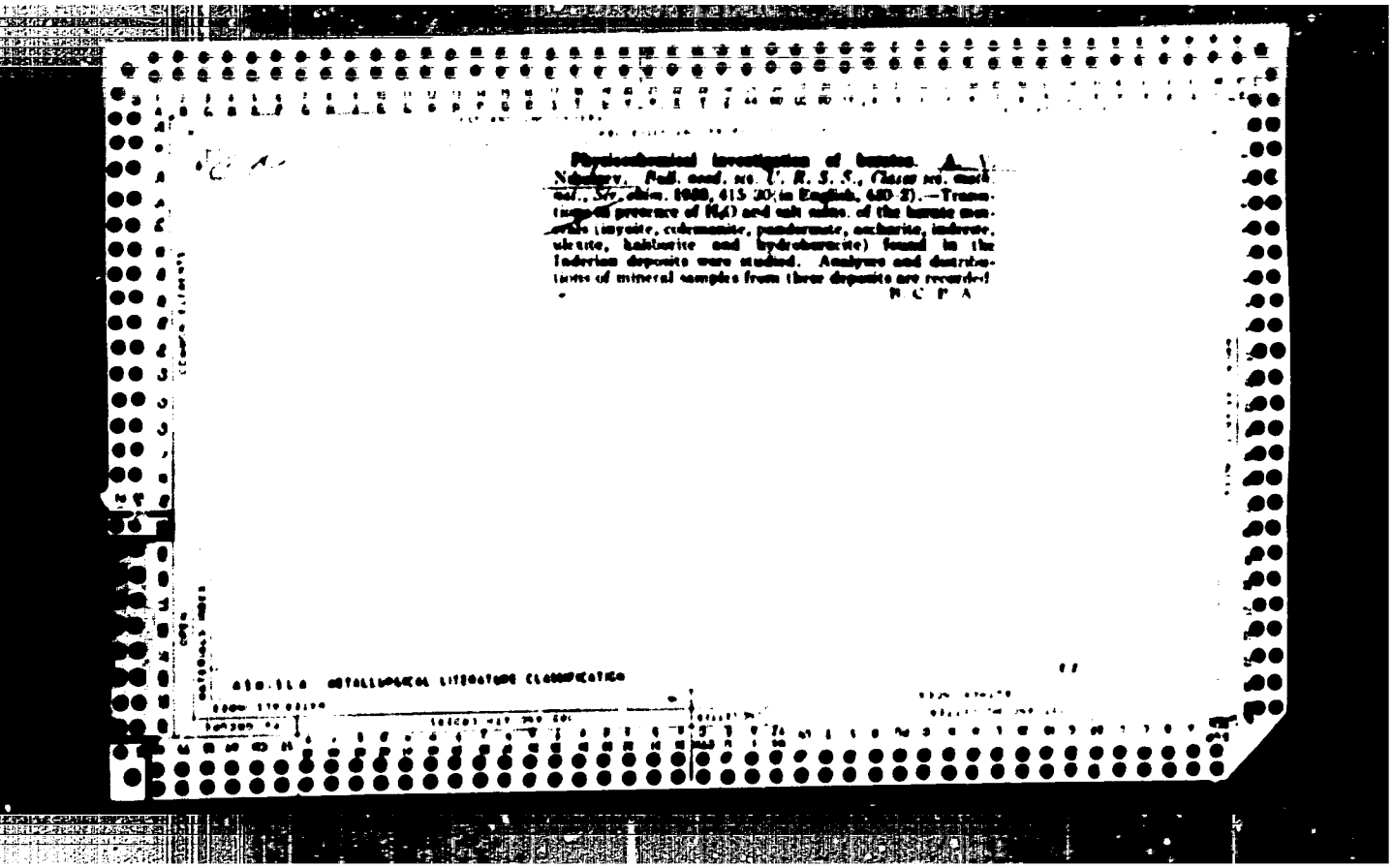

Physicochemical investigation of borates. A. V. Nikolaev. *Bull. acad. sci. U. R. S. S., Classe sci. math. nat., Sér. chim.* 1938, 415-20 (in English, 420-2).—Transitions in presence of H_2O and salt solns. of the borate minerals (inyoite, colemanite, pandermite, ascharite, indrite, ulexite, kaliborite and hydroboracite) found in the Inderian deposits were studied. Analyses and distributions of mineral samples from these deposits are recorded.

B. C. P. A.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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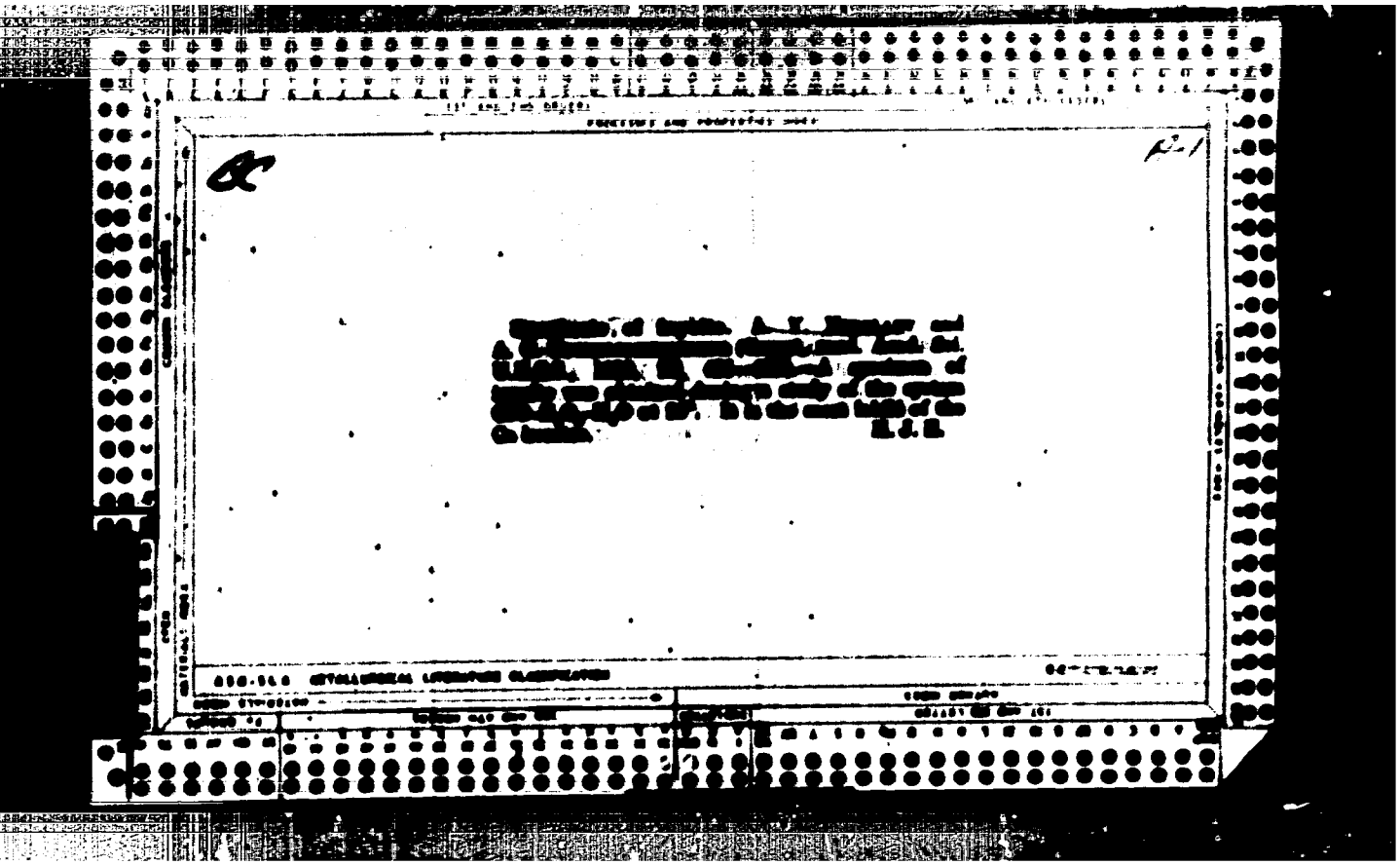

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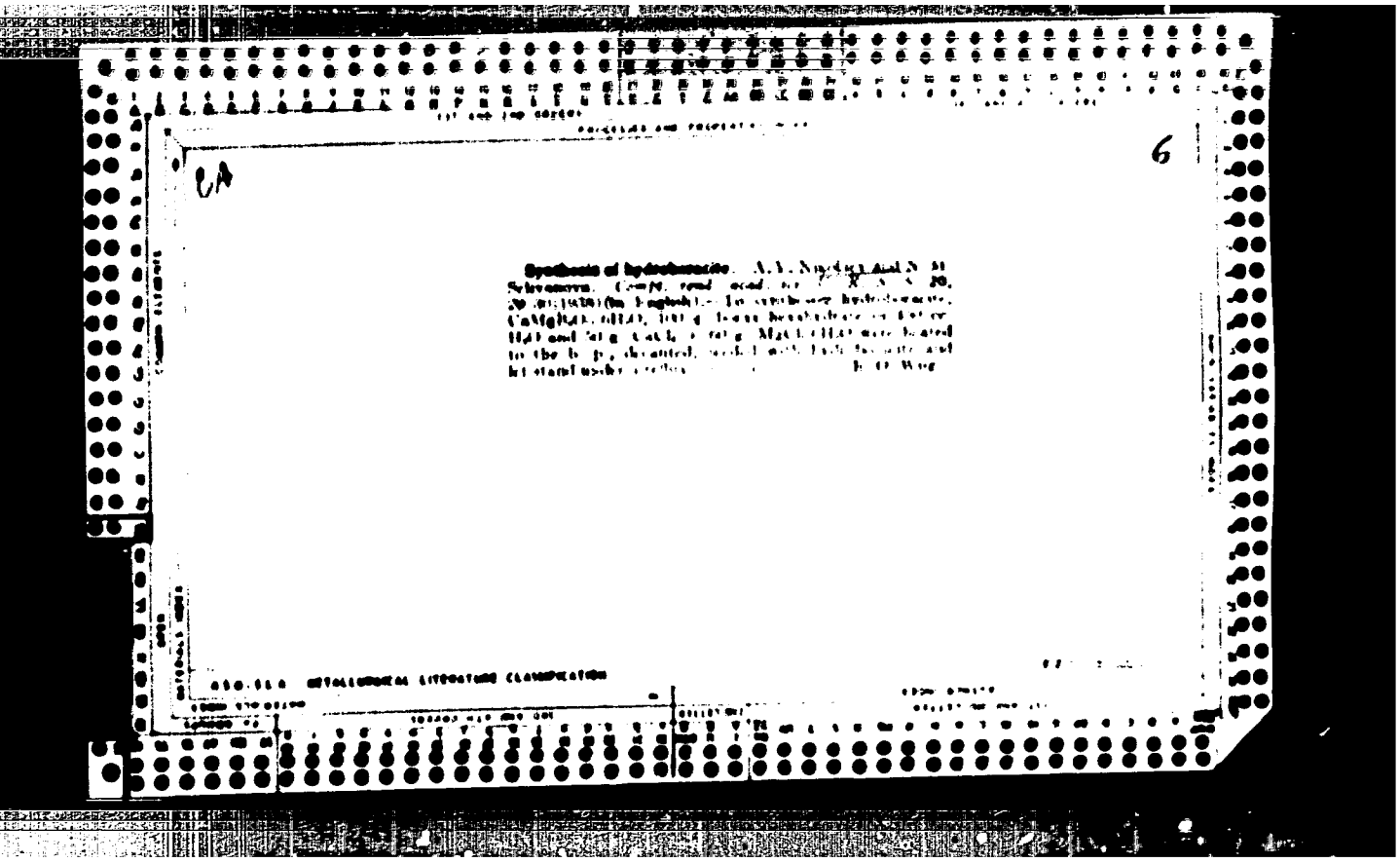

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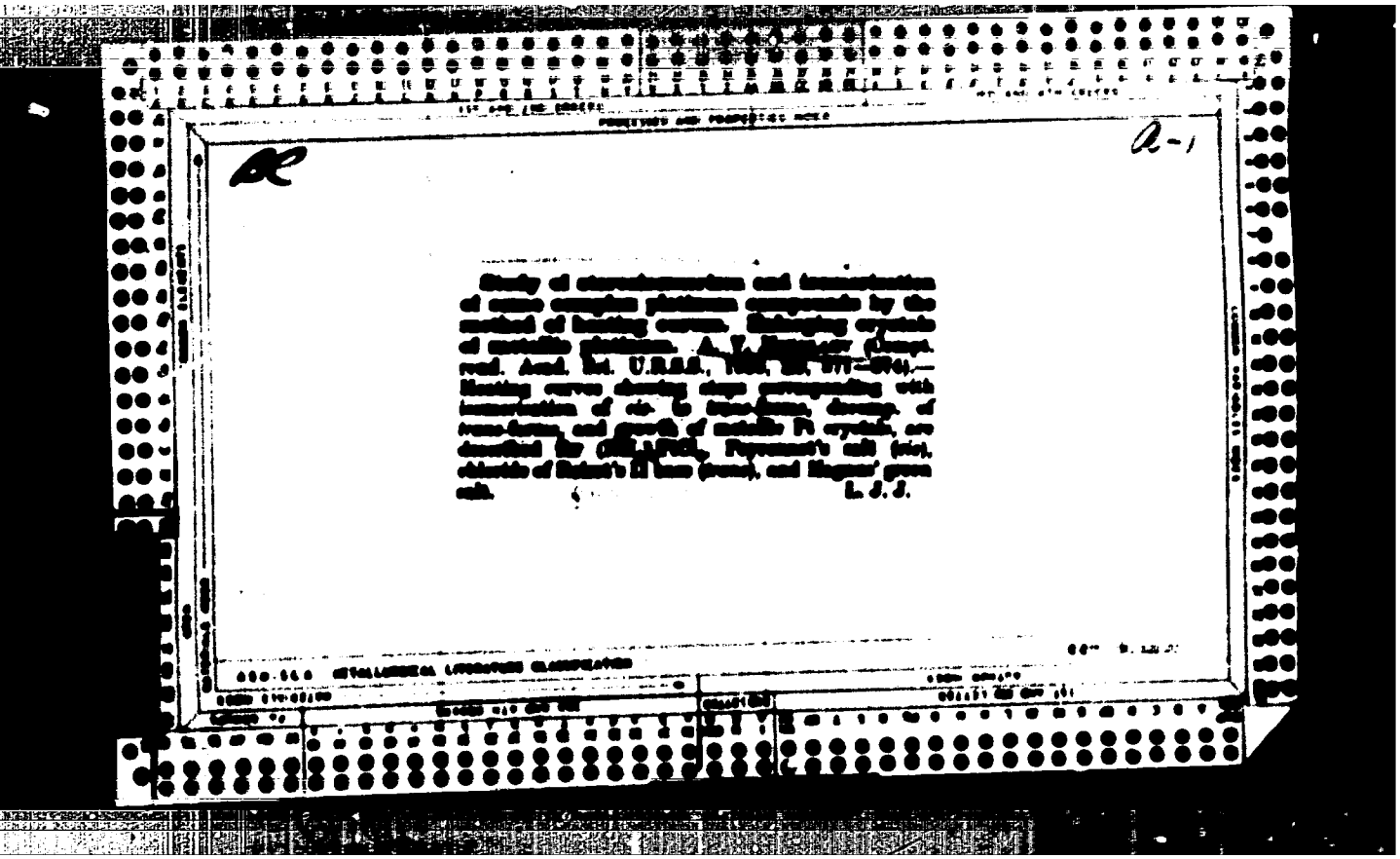

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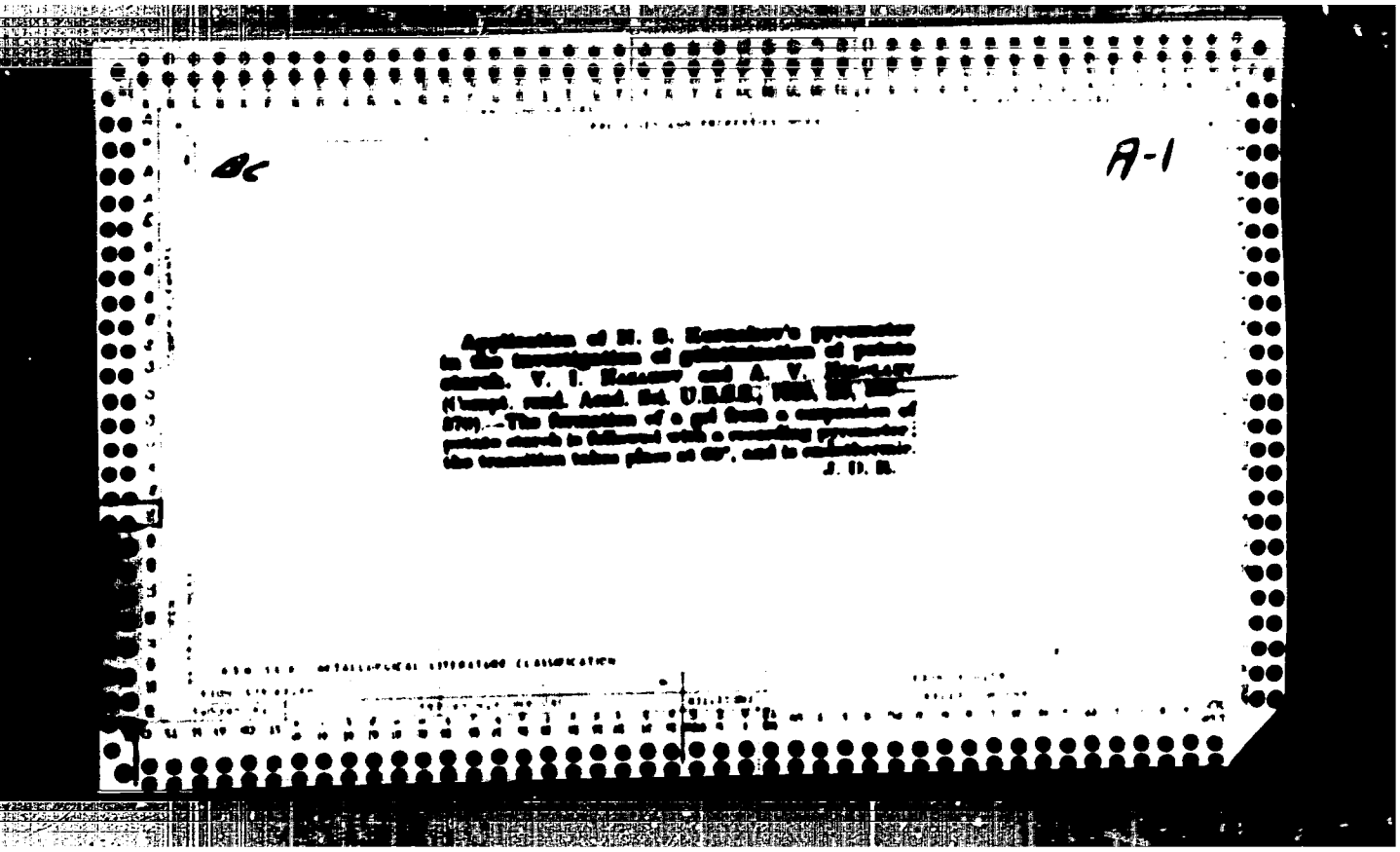

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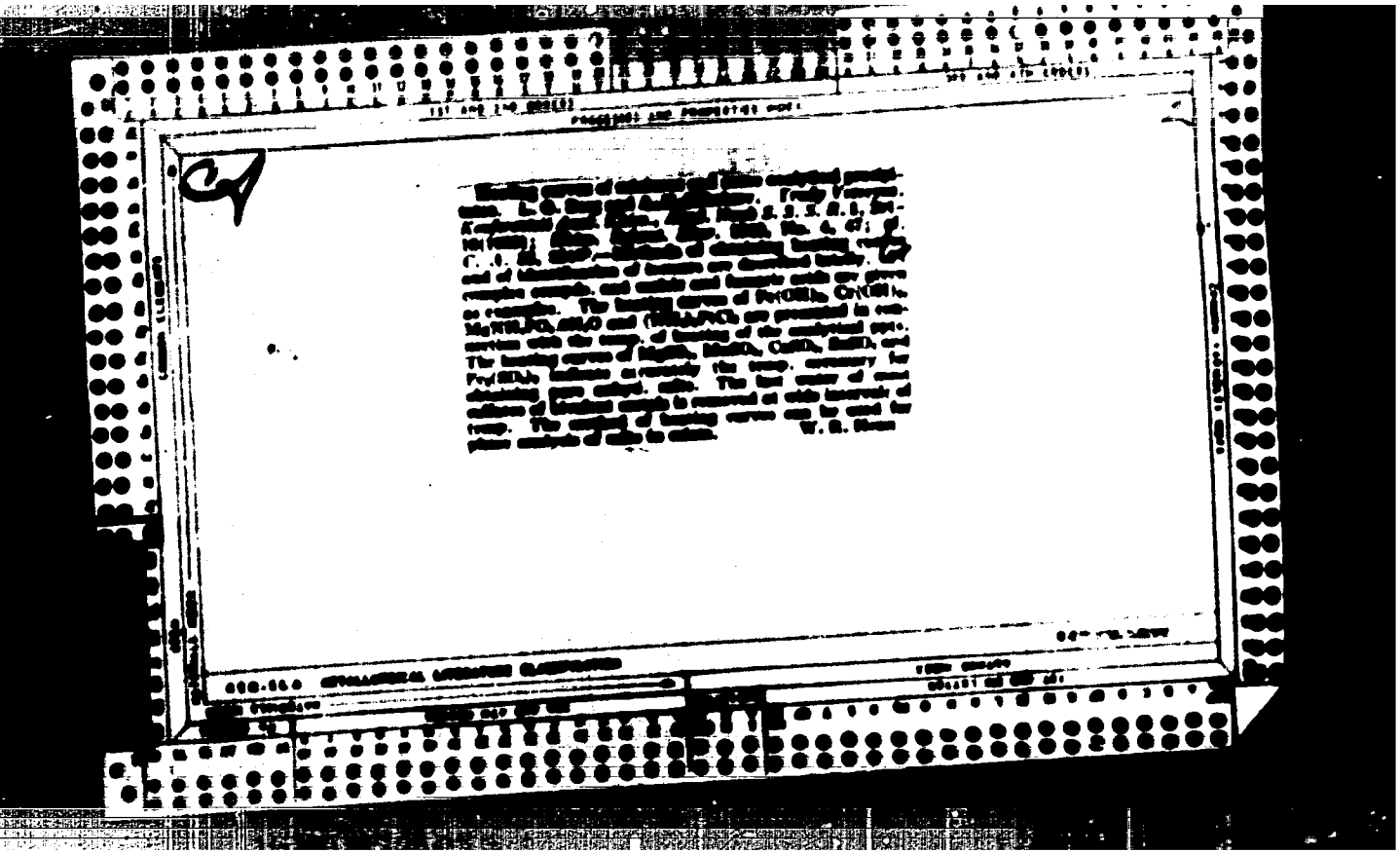

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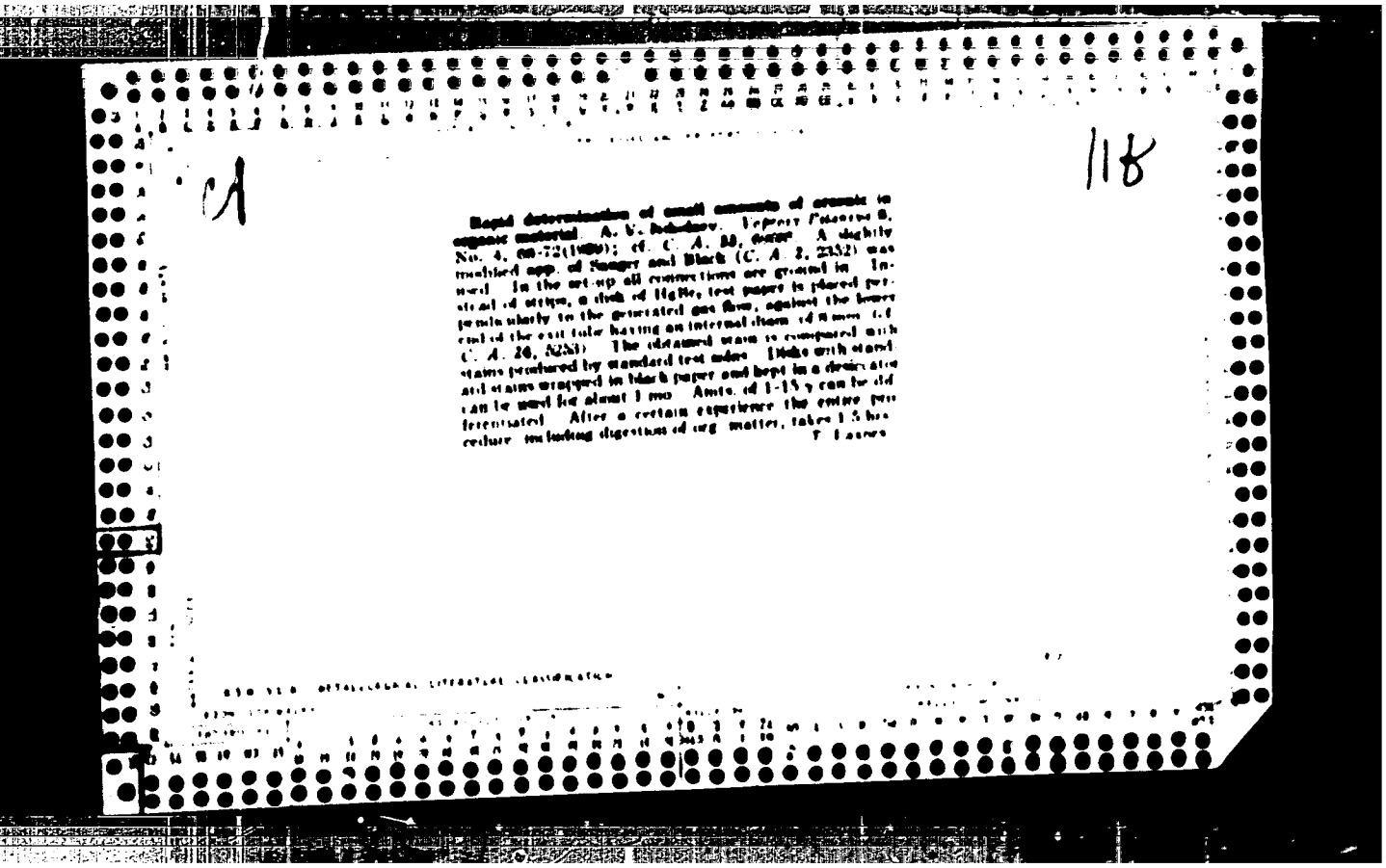

118

Rapid determination of small amounts of arsenic in organic material. A. V. Iskolsev. *Vopros Pitaniya* 8, No. 4, 68-72(1939); cf. C. A. 33, [illegible]. A slightly modified app. of Sanger and Black (C. A. 2, 2352) was used. In the set-up all connections are ground in. Instead of strips, a disk of $HgBr_2$ test paper is placed perpendicularly to the generated gas flow, against the lower end of the exit tube having an internal diam. of 8 mm. (cf. C. A. 26, 5253). The obtained stain is compared with stains produced by standard test soln. Disks with standard stains wrapped in black paper and kept in a desiccator can be used for about 1 mo. Amts. of 1-15 γ can be differentiated. After a certain experience the entire procedure, including digestion of org. matter, takes 1.5 hrs.

T. Lazarev

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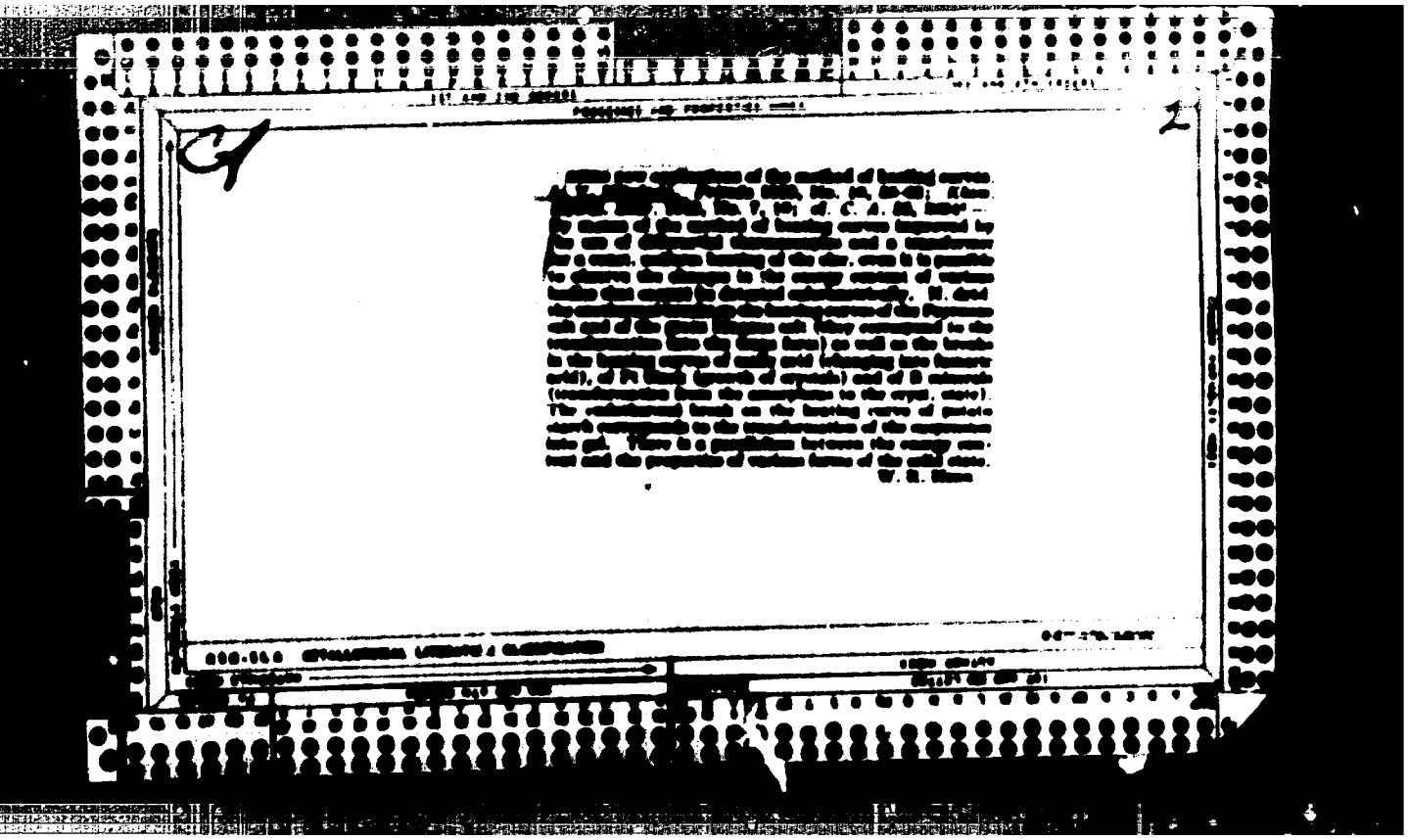

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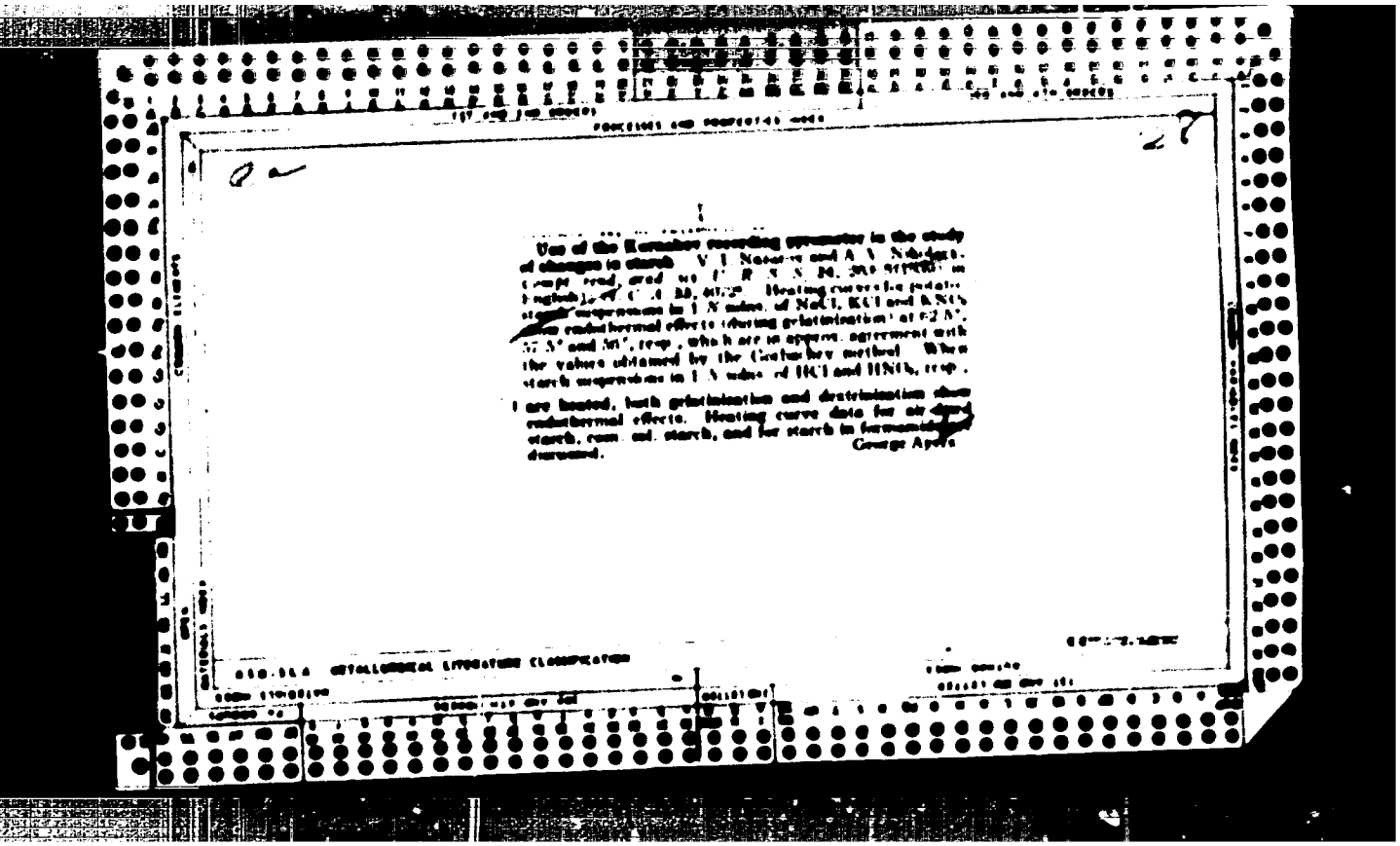

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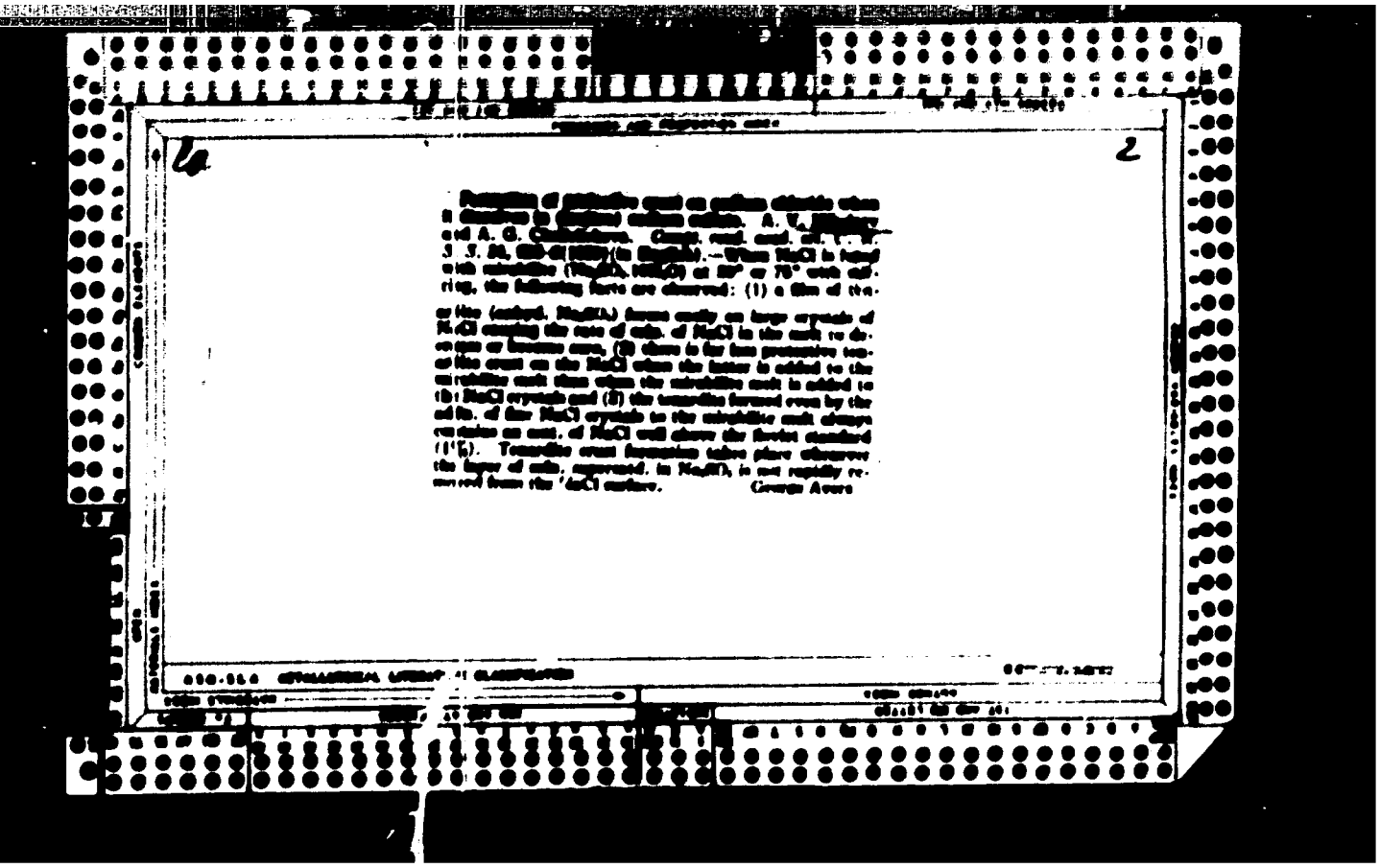

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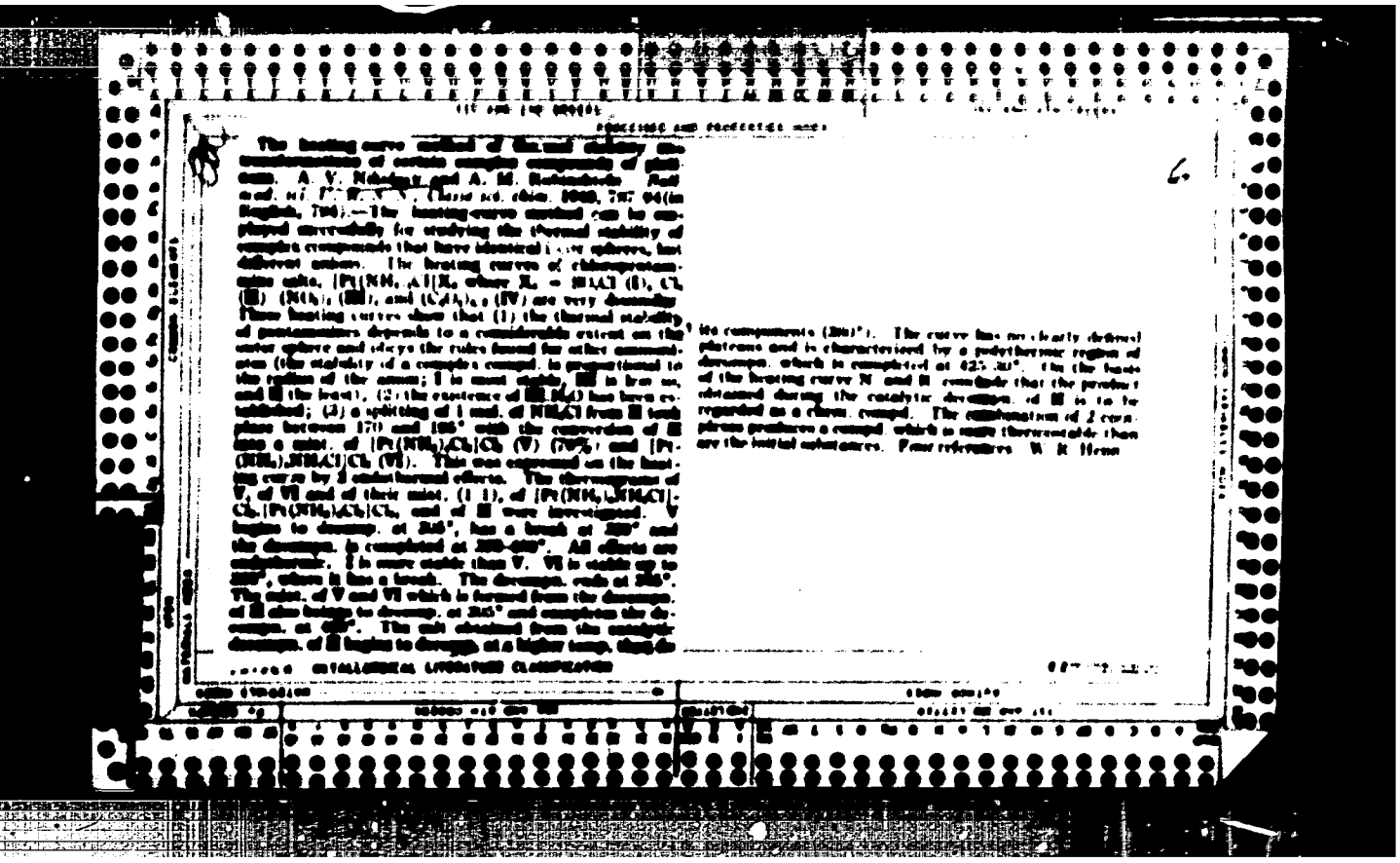

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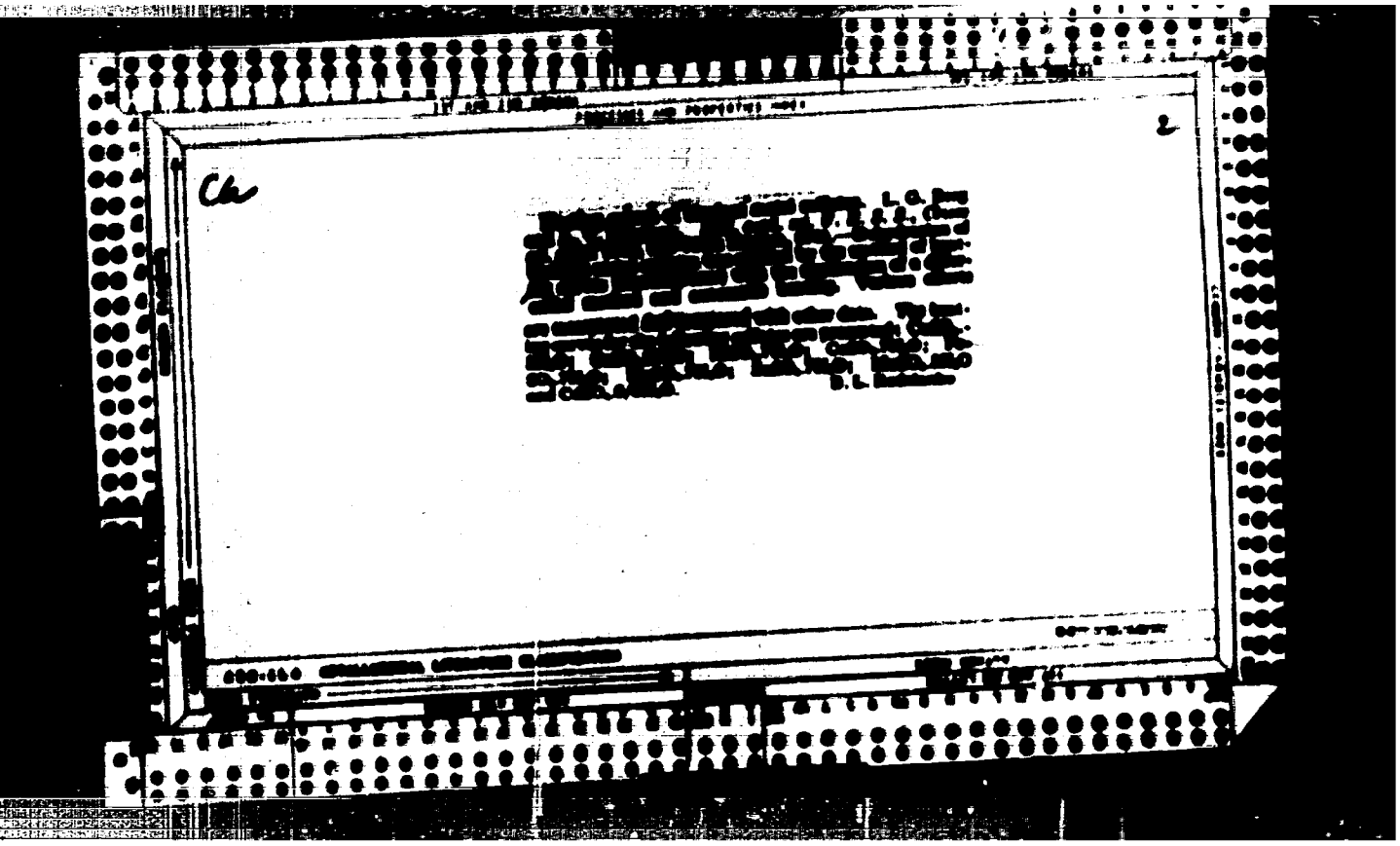

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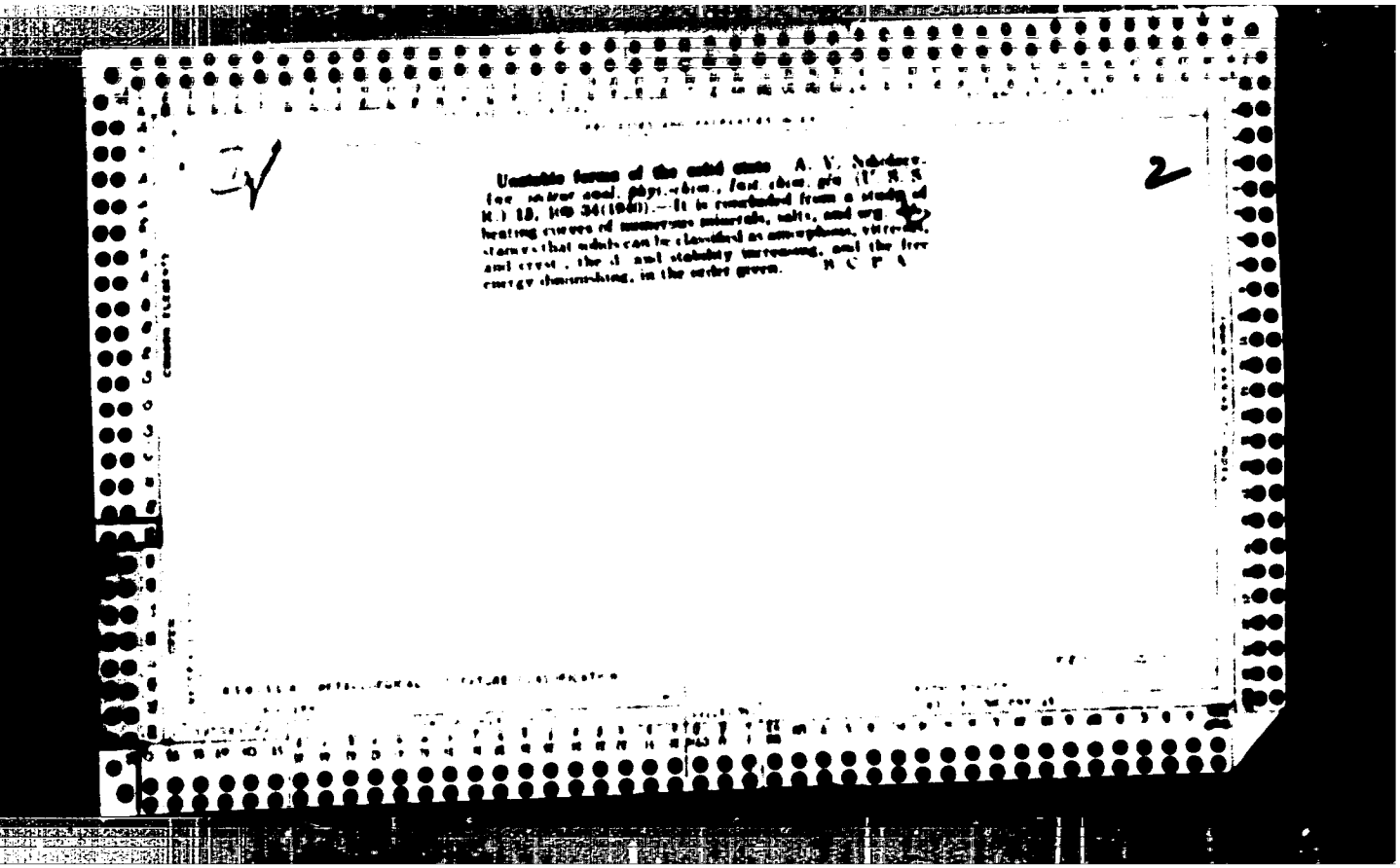

Unstable forms of the solid state. A. V. Nikolaev. Inst. sectoral anal. phys.-chim., Inst. chim. gén. (U. S. S. R.) 13, 109-34(1940).—It is concluded from a study of heating curves of numerous minerals, salts, and org. substances that solids can be classified as amorphous, vitreous, and cryst., the d. and stability increasing, and the free energy diminishing, in the order given. B. C. P. A.

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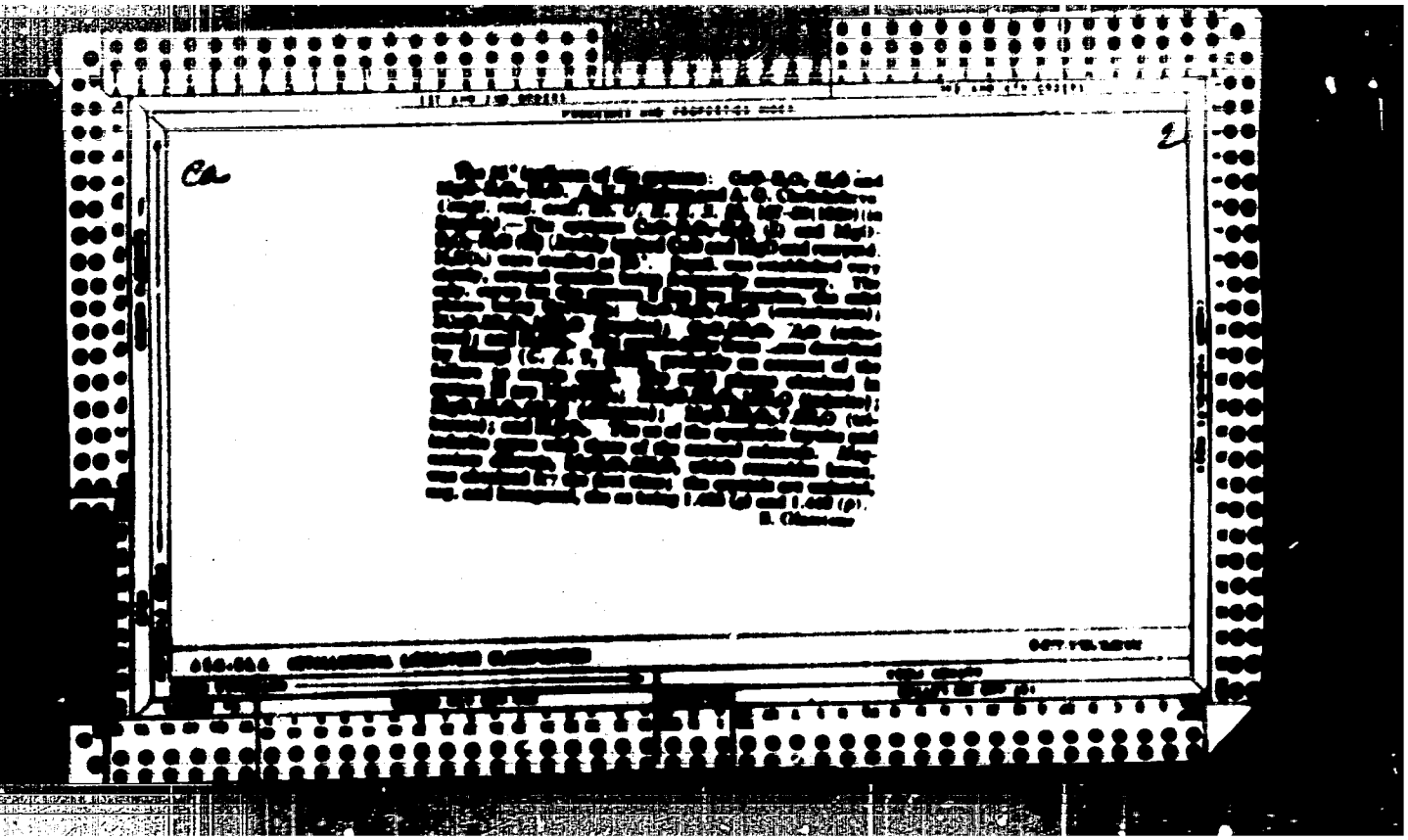

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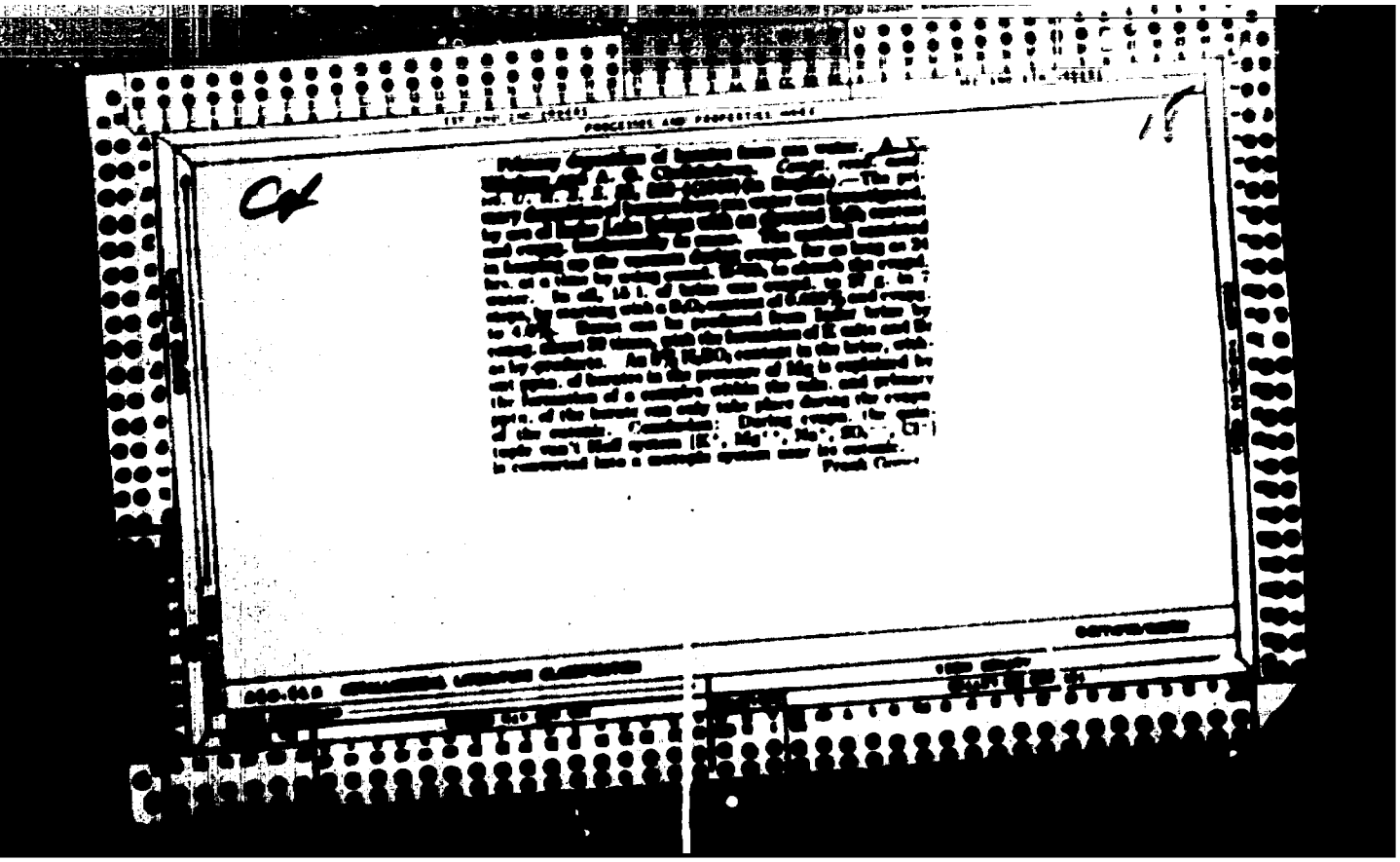

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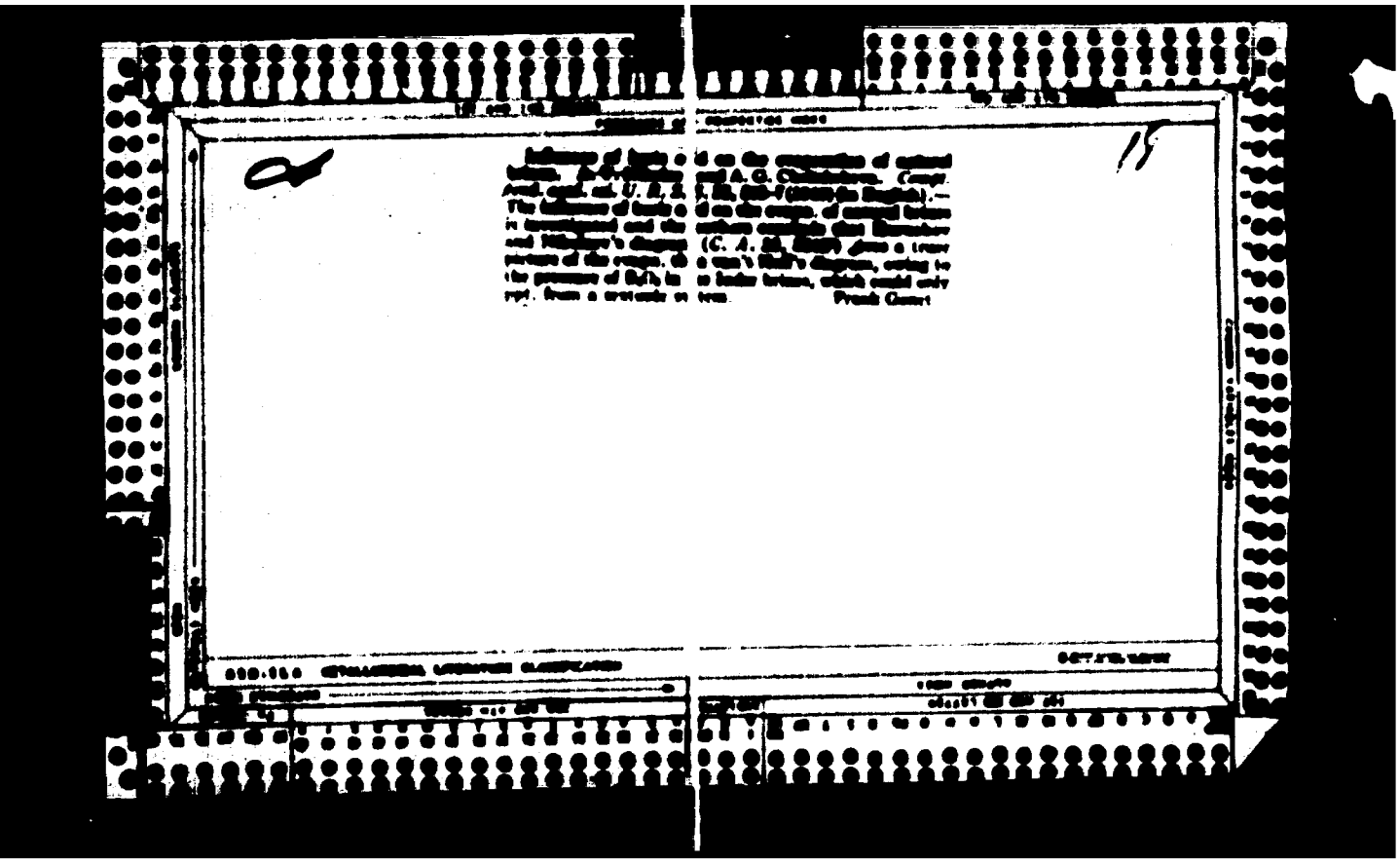

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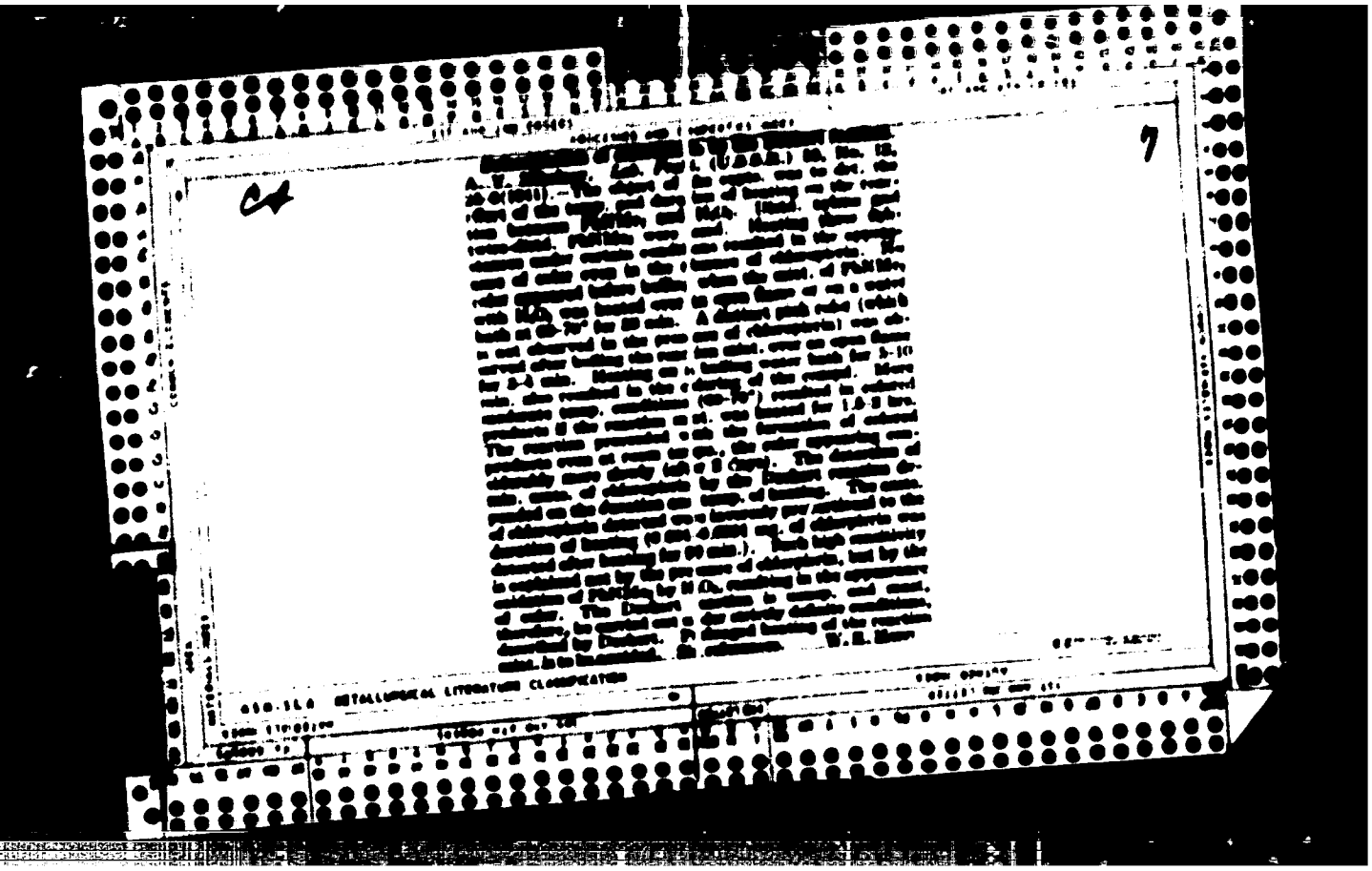

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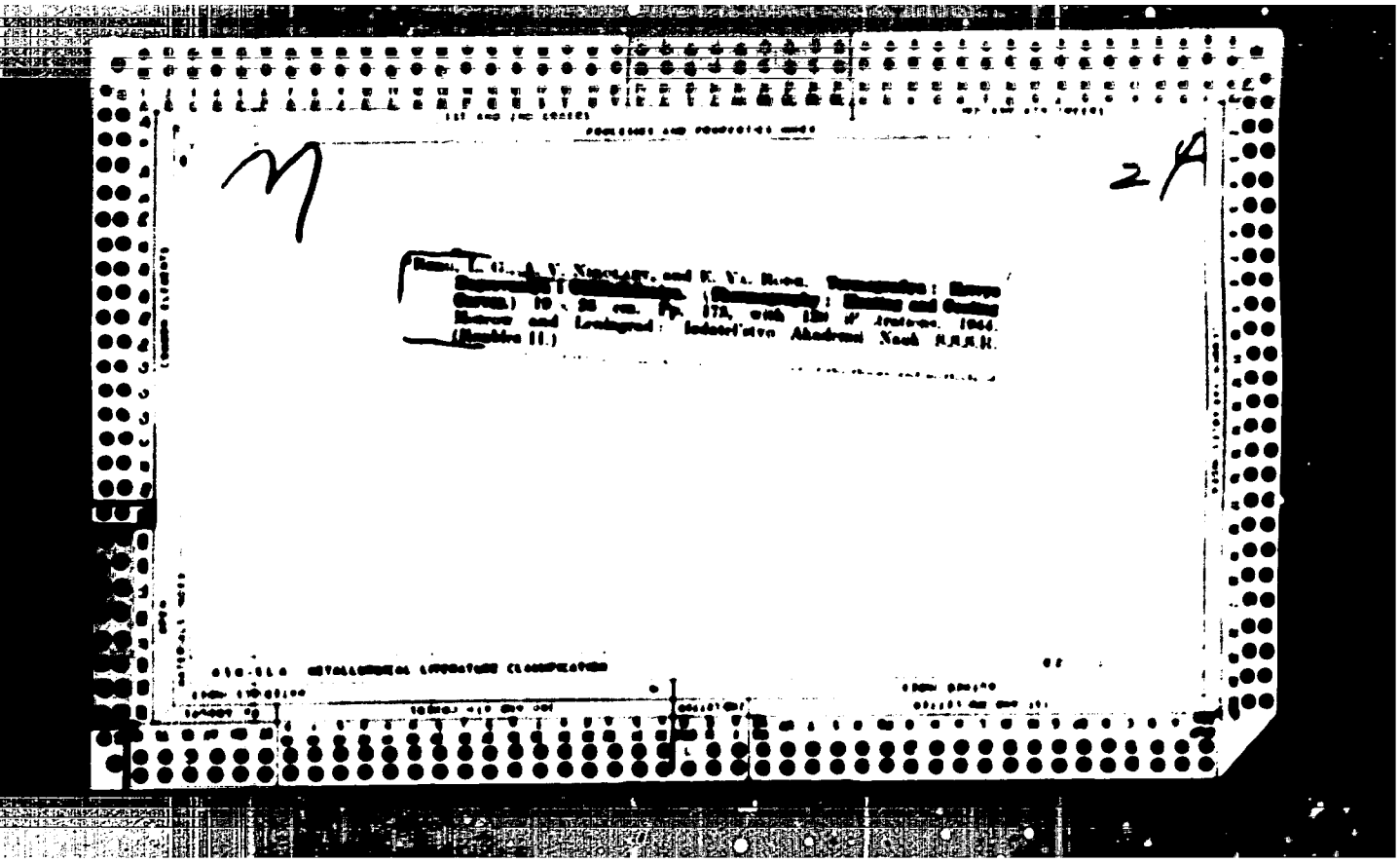

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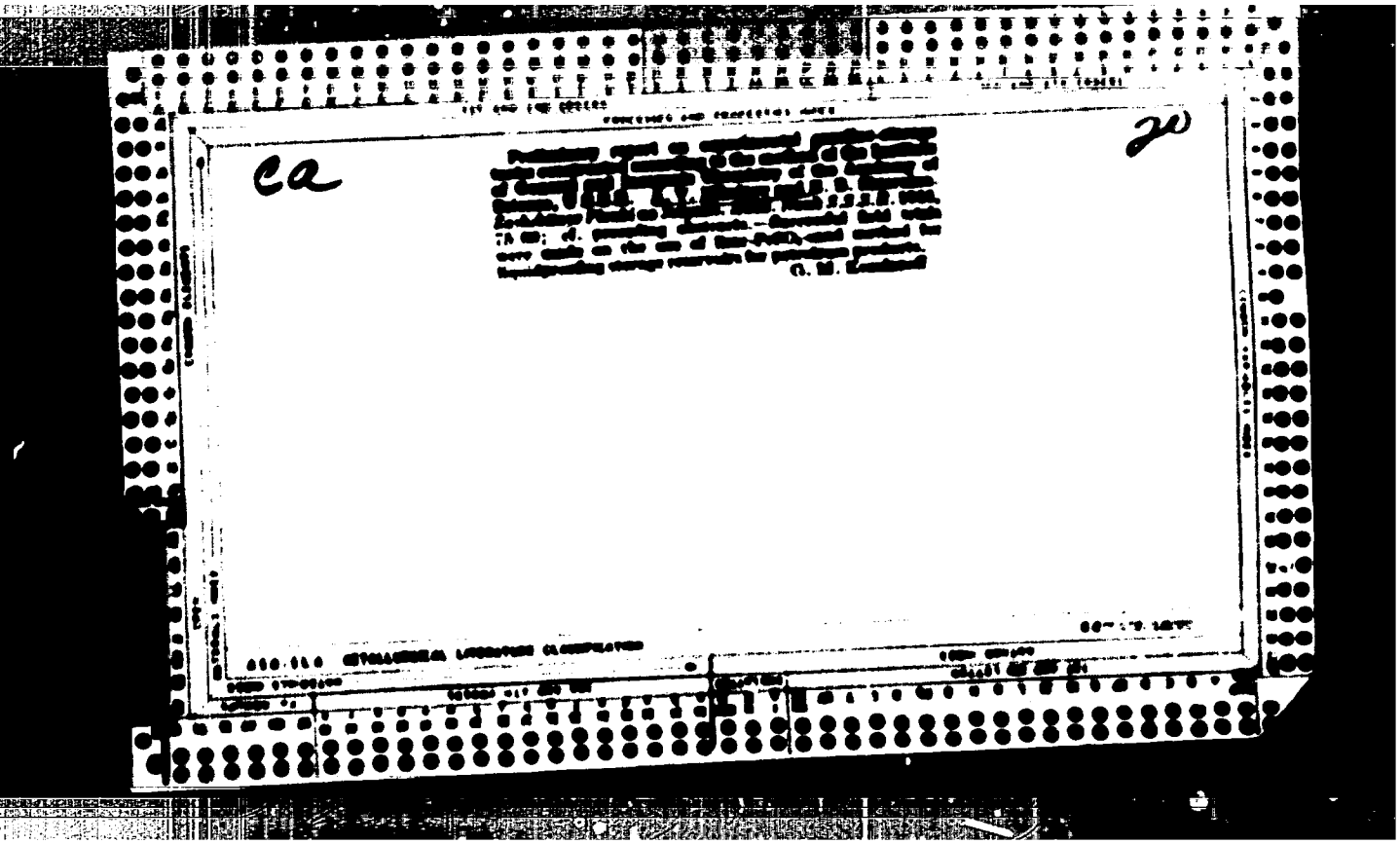

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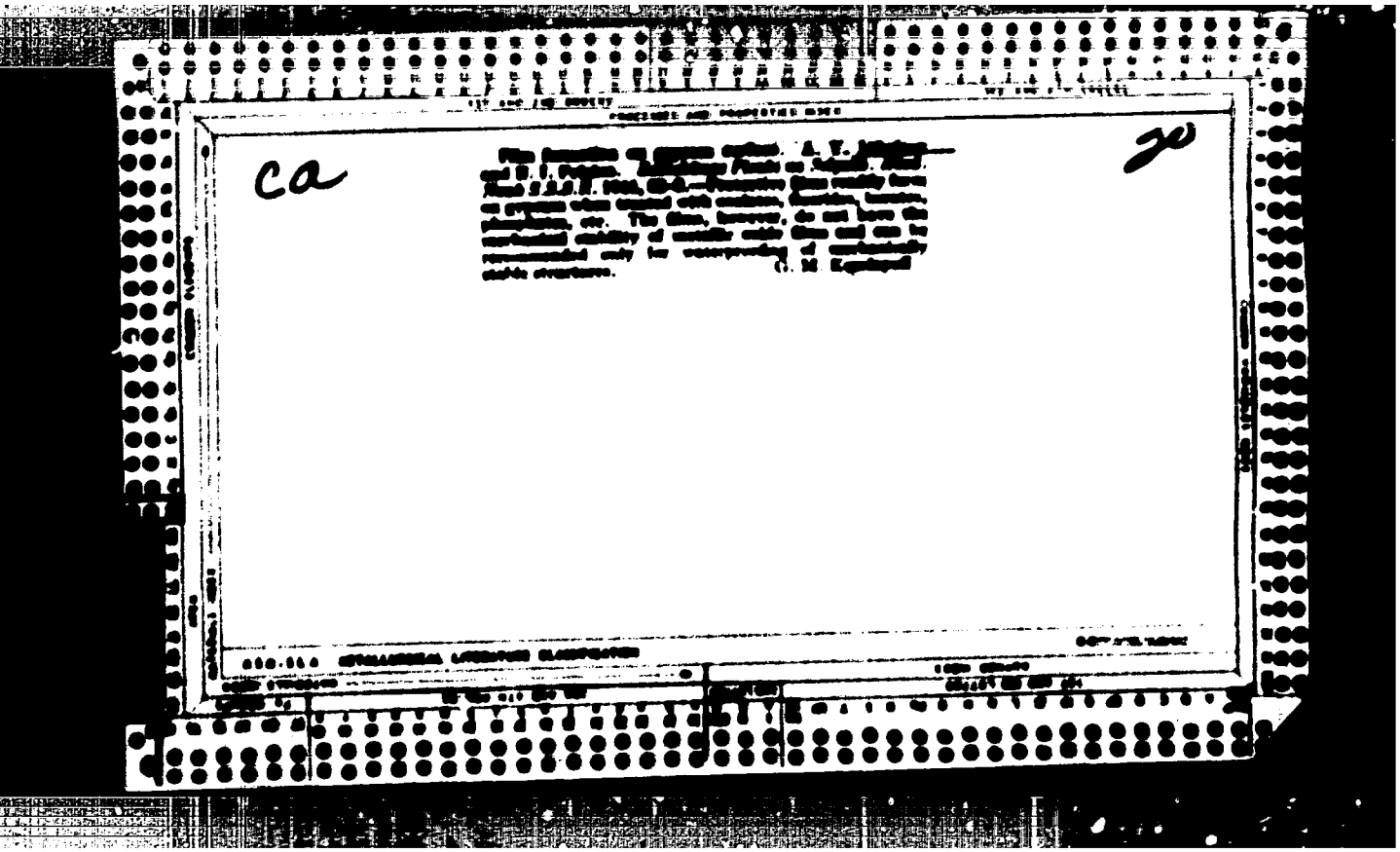

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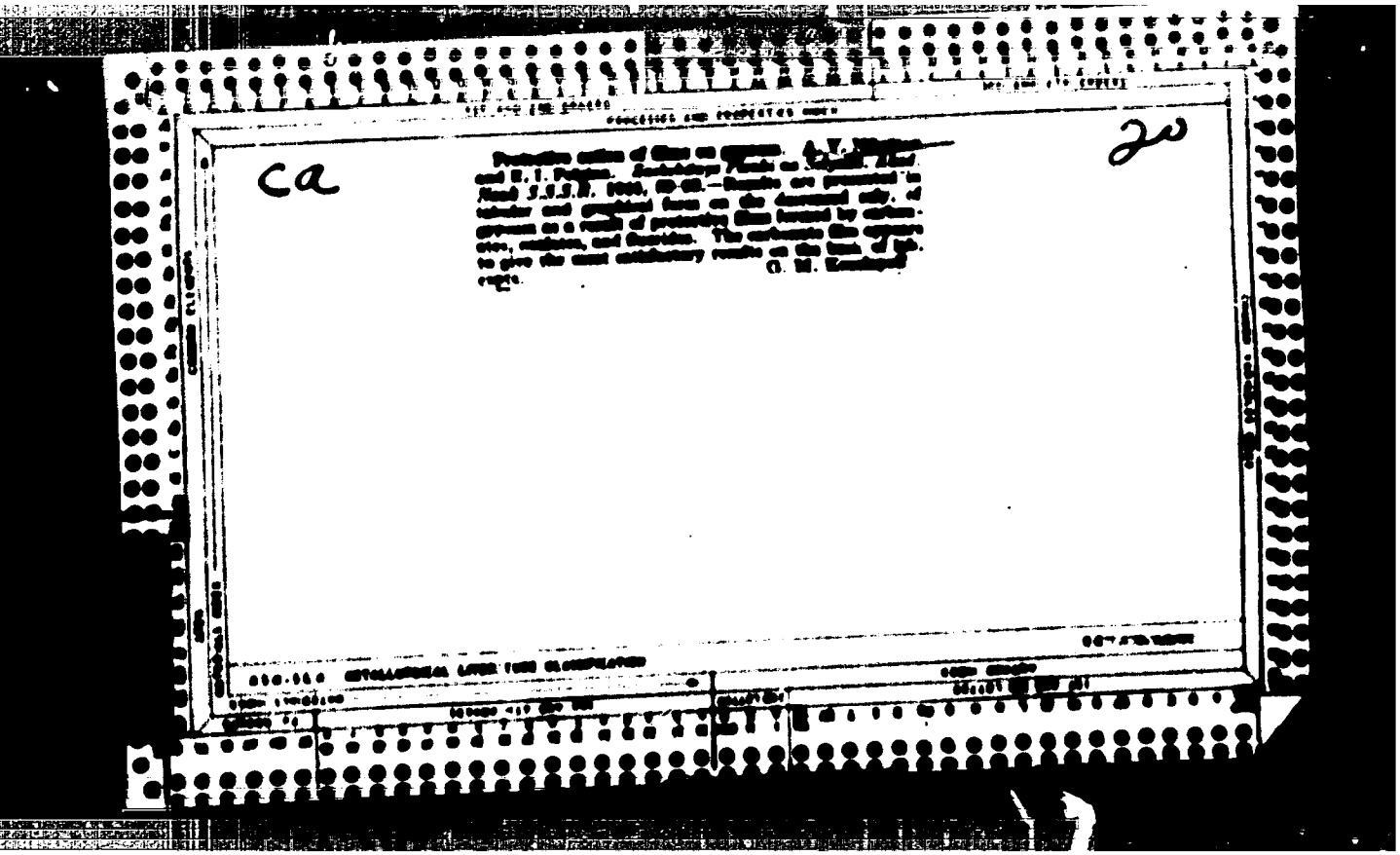

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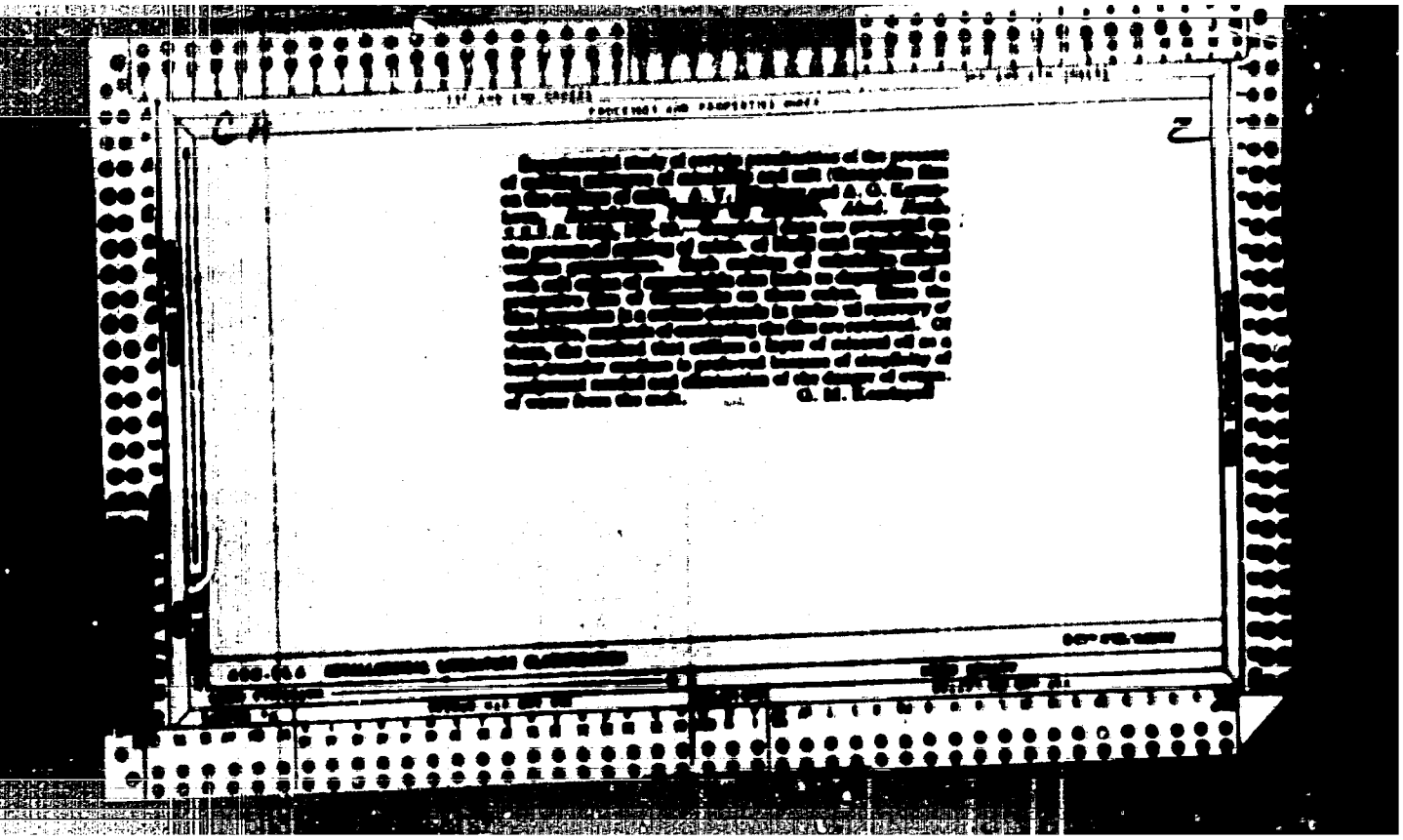

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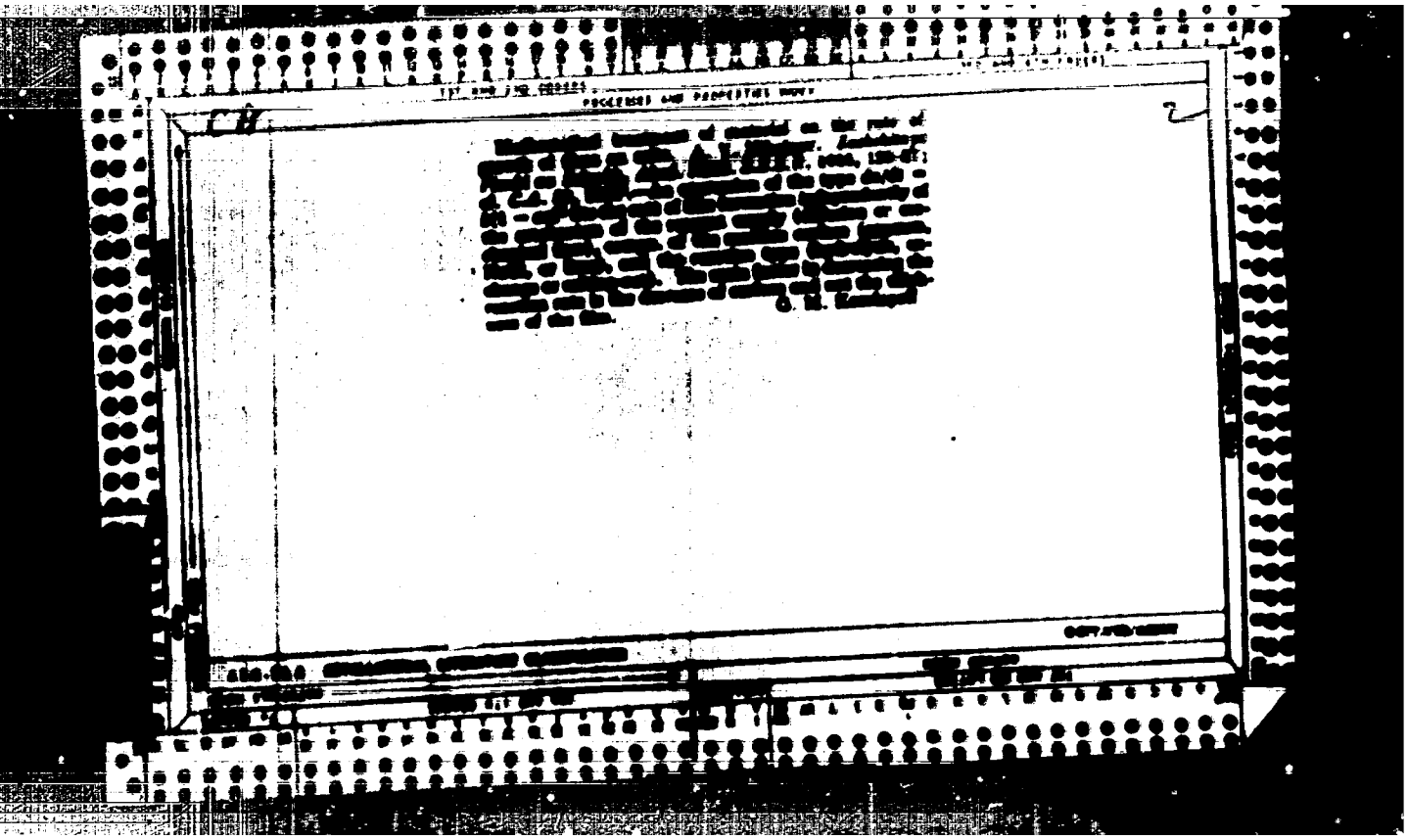

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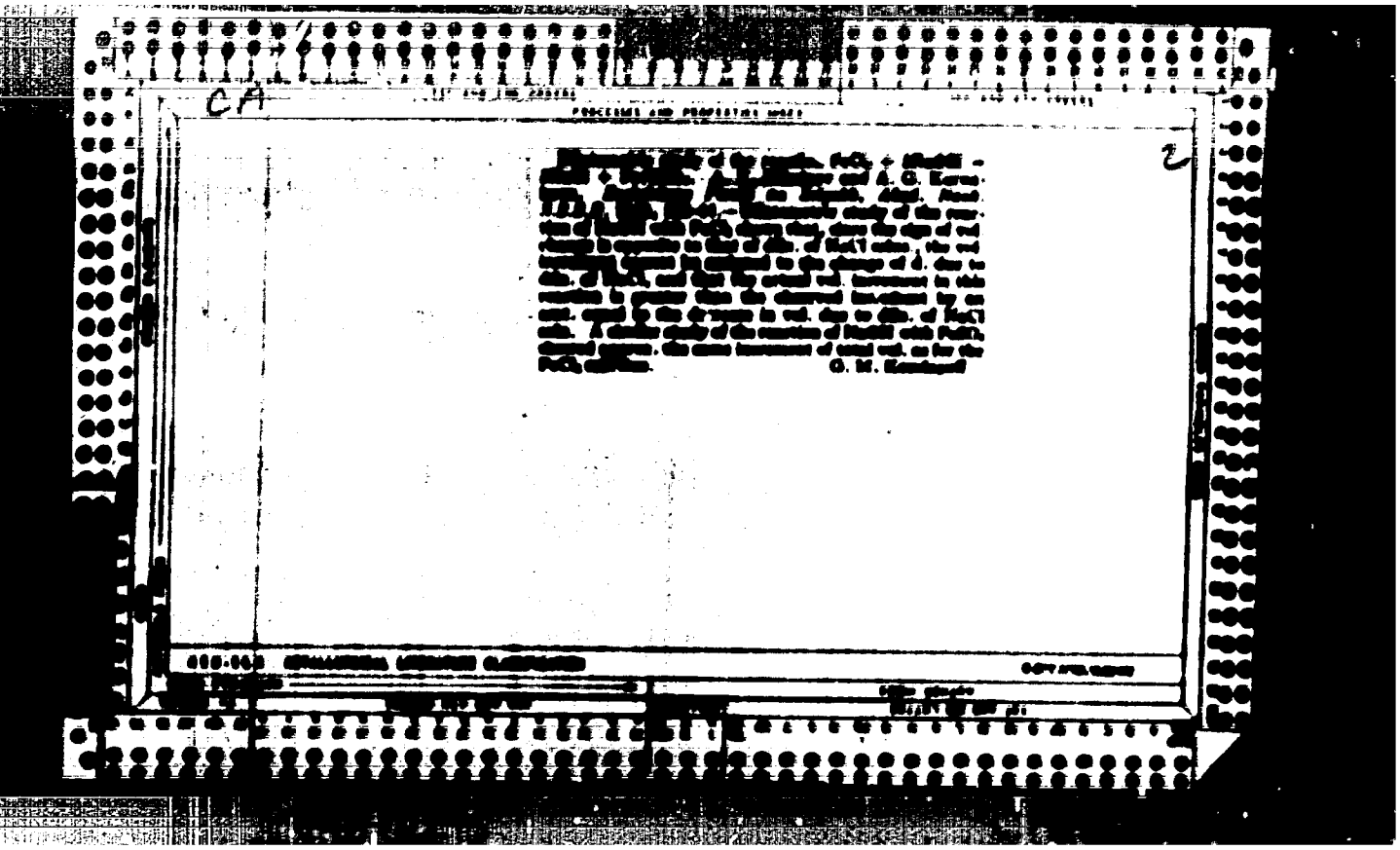

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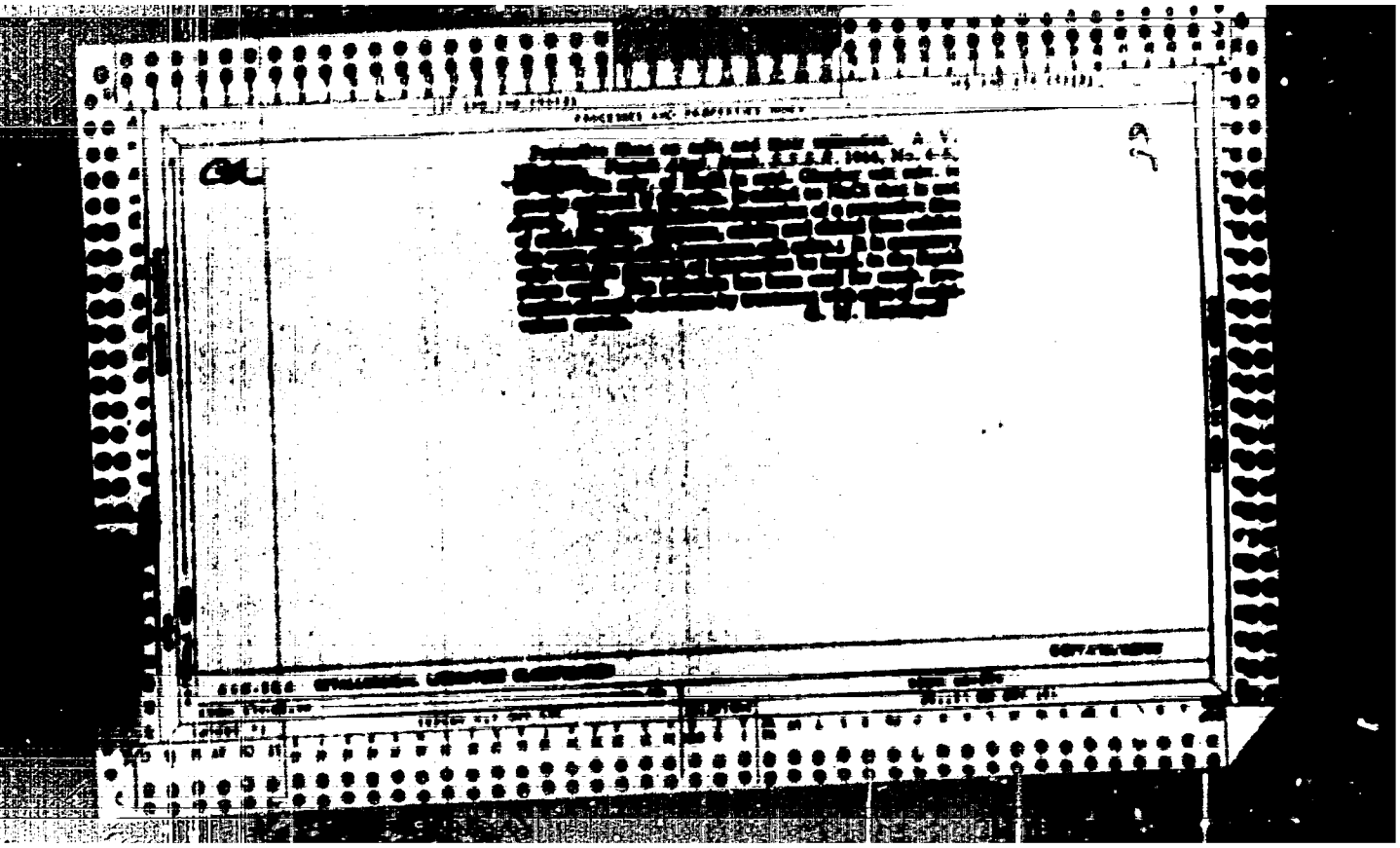

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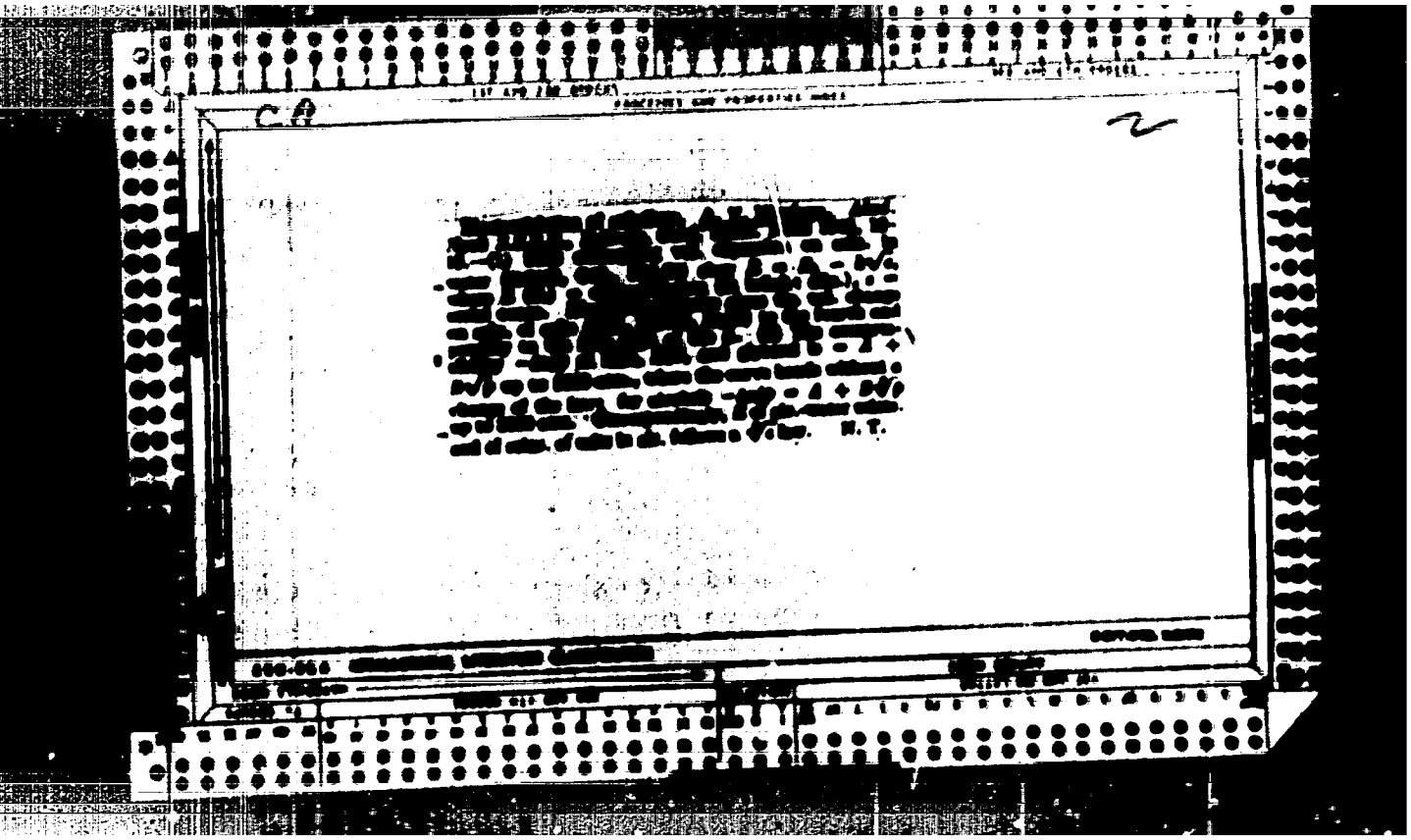

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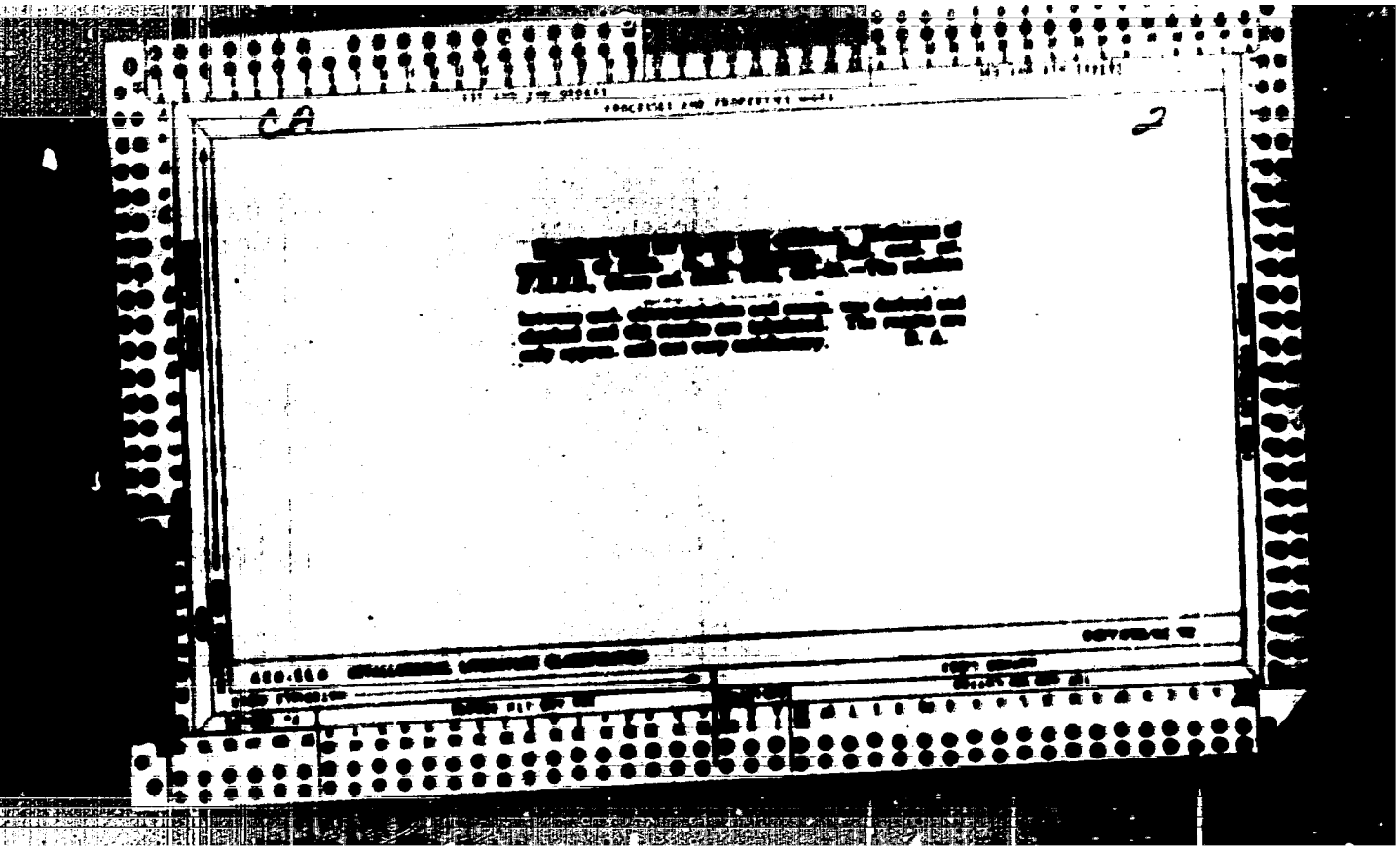

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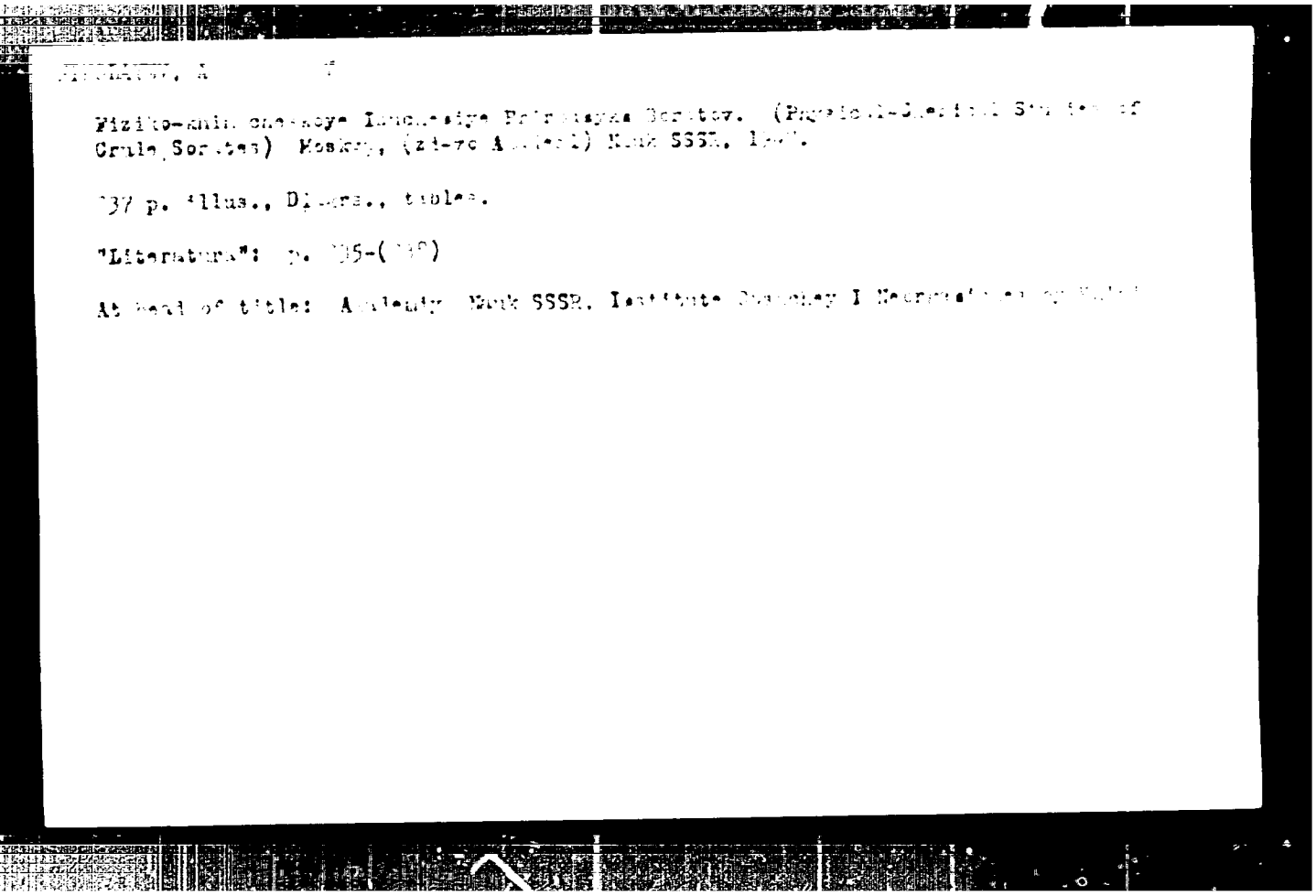

[illegible], A [illegible]

Fiziko-khimicheskoye Izucheniye Prirodnykh Borotov. (Physical-Chemical Studies of Crude Borates) Moskva, (zd-vo Akademii) Nauk SSSR, 19[illegible].

[illegible]37 p. illus., Diagrs., tables.

"Literatura": p. [illegible]35-([illegible])

At head of title: Akademiya Nauk SSSR, Institute Obshchey I Neorganicheskoy Khimii

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NIKOLAEV, A. V.

1947

USSR/Chemistry
Mineral Deposits - Borates

"On 'Physico-chemical Investigations of Inderskiy Borates," by A V Nikolaev, A V Vinogradov, 1 p

"Izv Akad Nauk USSR Ser Geol" No 2

The physical and chemical system of generation of Inder Borates and certain properties of boric acid compounds. Summary of a report.

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NIKOLAYEV, A. V.

1947

USSR/Chemistry
Mineral Deposits - Magnesium, Borates

"On 'Physico-chemical Investigations of Indersky Borates," by A V Nikolayev, D S Belyankin, 1 p

"Izv Akad Nauk USSR Ser Geol" No 2

Basis of the system of generation and certain properties of boric acid compounds. Concerns magnesium minerals located at Inder. Summary of a report

1947

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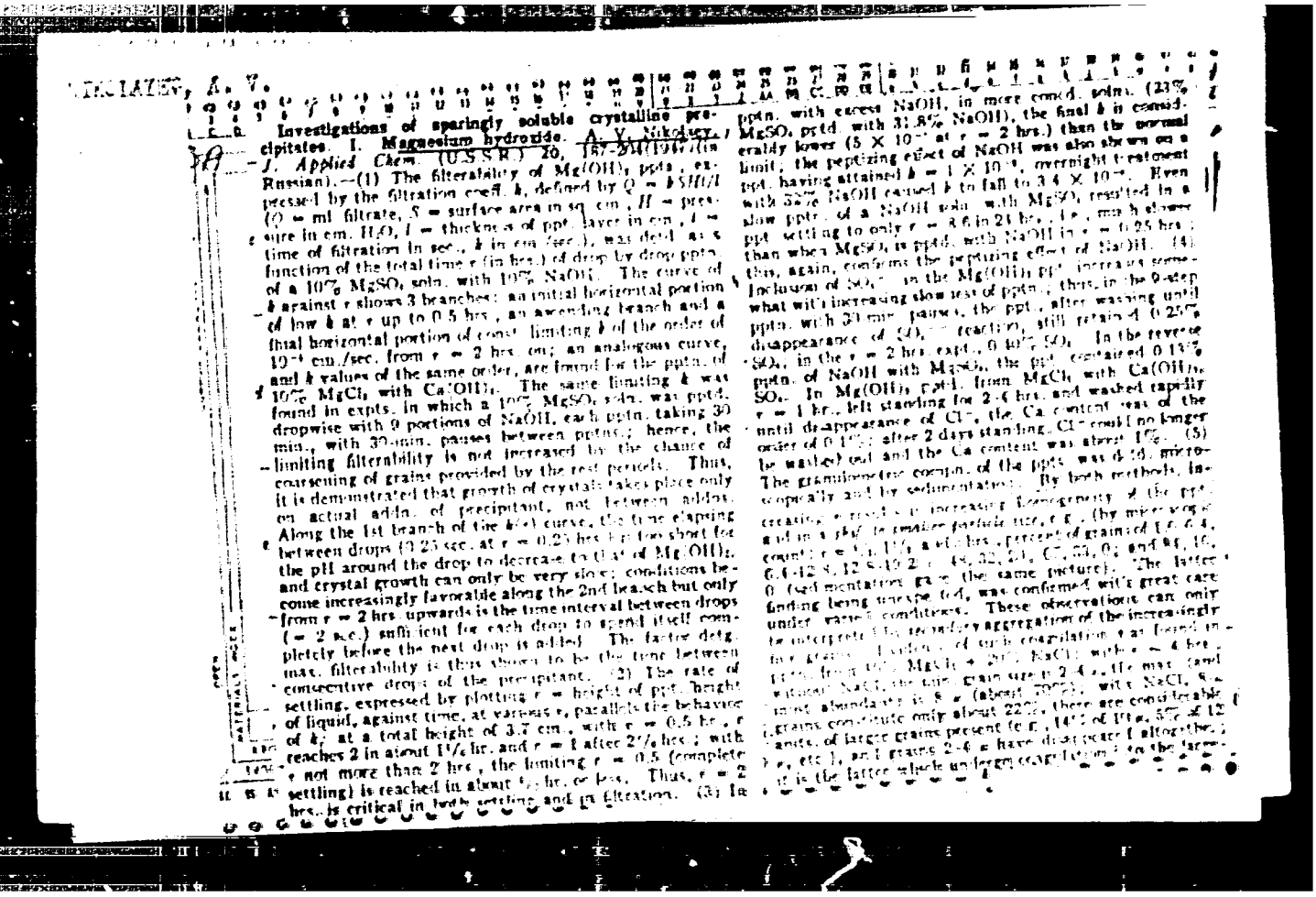
NIKOLAYEV, A. V.



Investigations of sparingly soluble crystalline precipitates. I. Magnesium hydroxide. A. V. Nikolaev. *J. Applied Chem.* (U.S.S.R.) 20, 187-204(1947)(in Russian).—(1) The filterability of $Mg(OH)_2$ ppts., expressed by the filtration coeff. k, defined by $Q = kSHl/l$ (Q = ml. filtrate, S = surface area in sq. cm., H = pressure in cm. H_2O, l = thickness of ppt. layer in cm., t = time of filtration in sec., k in cm./sec.), was detd. as a function of the total time τ (in hrs.) of drop by drop pptn. of a 10% $MgSO_4$ soln. with 10% NaOH. The curve of k against τ shows 3 branches: an initial horizontal portion of low k at τ up to 0.5 hrs., an ascending branch and a final horizontal portion of const. limiting k of the order of 10^{-4} cm./sec. from τ = 2 hrs. on; an analogous curve, and k values of the same order, are found for the pptn. of 10% $MgCl_2$ with $Ca(OH)_2$. The same limiting k was found in expts. in which a 10% $MgSO_4$ soln. was pptd. dropwise with 9 portions of NaOH, each pptn. taking 30 min., with 30-min. pauses between pptns.; hence, the limiting filterability is not increased by the chance of coarsening of grains provided by the rest periods. Thus, it is demonstrated that growth of crystals takes place only on actual addn. of precipitant, not between addns. Along the 1st branch of the $k(\tau)$ curve, the time elapsing between drops (0.25 sec. at τ = 0.25 hrs.) is too short for the pH around the drop to decrease to that of $Mg(OH)_2$, and crystal growth can only be very slow; conditions become increasingly favorable along the 2nd branch but only from τ = 2 hrs. upwards is the time interval between drops (= 2 sec.) sufficient for each drop to spend itself completely before the next drop is added. The factor detg. max. filterability is thus shown to be the time between consecutive drops of the precipitant. (2) The rate of settling, expressed by plotting τ = height of ppt. height of liquid, against time, at various τ, parallels the behavior of k; at a total height of 3.7 cm., with τ = 0.5 hr., τ reaches 2 in about 1½ hr. and τ = 1 after 2½ hrs.; with τ not more than 2 hrs., the limiting τ = 0.5 (complete settling) is reached in about ½ hr. or less. Thus, τ = 2 hrs. is critical in both settling and in filtration. (3) In pptn. with excess NaOH, in more concd. solns. (23% $MgSO_4$ pptd. with 31.8% NaOH), the final k is considerably lower (5×10^{-4} at τ = 2 hrs.) than the normal limit; the peptizing effect of NaOH was also shown on a ppt. having attained $k = 1 \times 10^{-4}$, overnight treatment with 32% NaOH caused k to fall to 3.4×10^{-4}. Even slow pptn. of a NaOH soln. with $MgSO_4$ resulted in a ppt. settling to only τ = 8.6 in 24 hrs., i.e., much slower than when $MgSO_4$ is pptd. with NaOH in τ = 0.25 hrs.; this, again, confirms the peptizing effect of NaOH. (4) Inclusion of SO_4^{--} in the $Mg(OH)_2$ ppt. increases somewhat with increasing slowness of pptn.; thus, in the 9-step pptn. with 30-min. pauses, the ppt., after washing until disappearance of SO_4^{--} reaction, still retained 0.25% SO_4; in the τ = 2 hrs. expt., 0.40% SO_4. In the reverse pptn. of NaOH with $MgSO_4$, the ppt. contained 0.13% SO_4. In $Mg(OH)_2$ pptd. from $MgCl_2$ with $Ca(OH)_2$, τ = 1 hr., left standing for 2-4 hrs. and washed rapidly until disappearance of Cl^-, the Ca content was of the order of 0.1%; after 2 days standing, Cl^- could no longer be washed out and the Ca content was about 1%. (5) The granulometric compn. of the ppts. was detd. microscopically and by sedimentation. By both methods, increasing τ results in increasing homogeneity of the ppt. and in a shift to smaller particle size, e.g., (by microscopic count) τ = [illegible] hrs., percent of grains of 1.6-6.4, 6.4-12.8, 12.8-19.2 [illegible] 48, 32, 20, 67, 33, 0; and 84, 16, 0 (sedimentation gave the same picture). The latter finding being unexpected, was confirmed with great care under varied conditions. These observations can only be interpreted by secondary aggregation of the increasingly fine grains. Evidence of such coagulation was found in pptn. from 10% $MgCl_2$ + 20% NaCl; with τ = 4 hrs., without NaCl, the min. grain size is 2-4 μ, the max. (and most abundant) is 8 μ (about 70%); with NaCl, 8 μ grains constitute only about 22%, there are considerable amts. of larger grains present (e.g., 14% of 10 μ, 5% of 12 μ, etc.), and grains 2-4 μ have disappeared altogether; it is the latter which undergo coagulation into the larger

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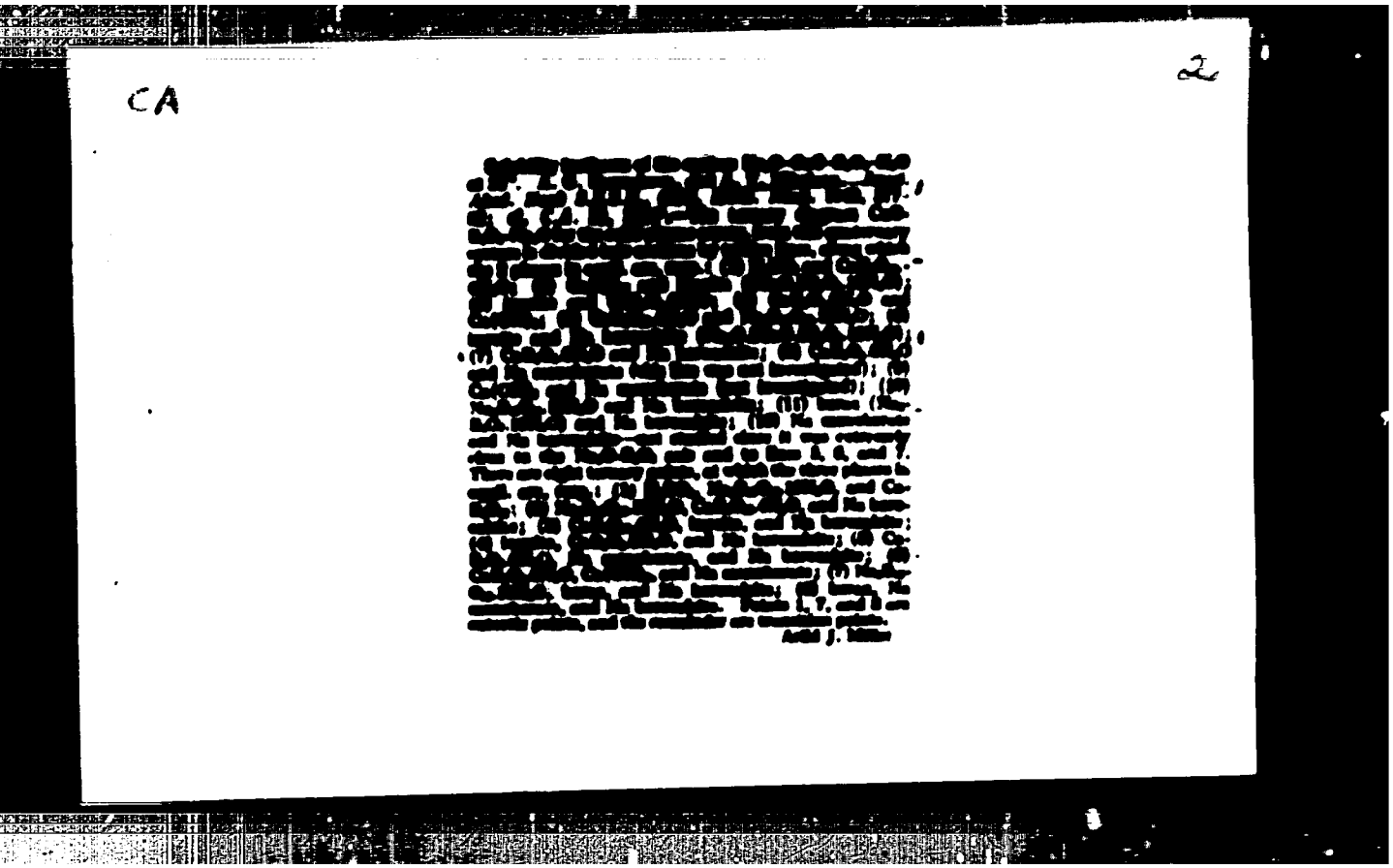

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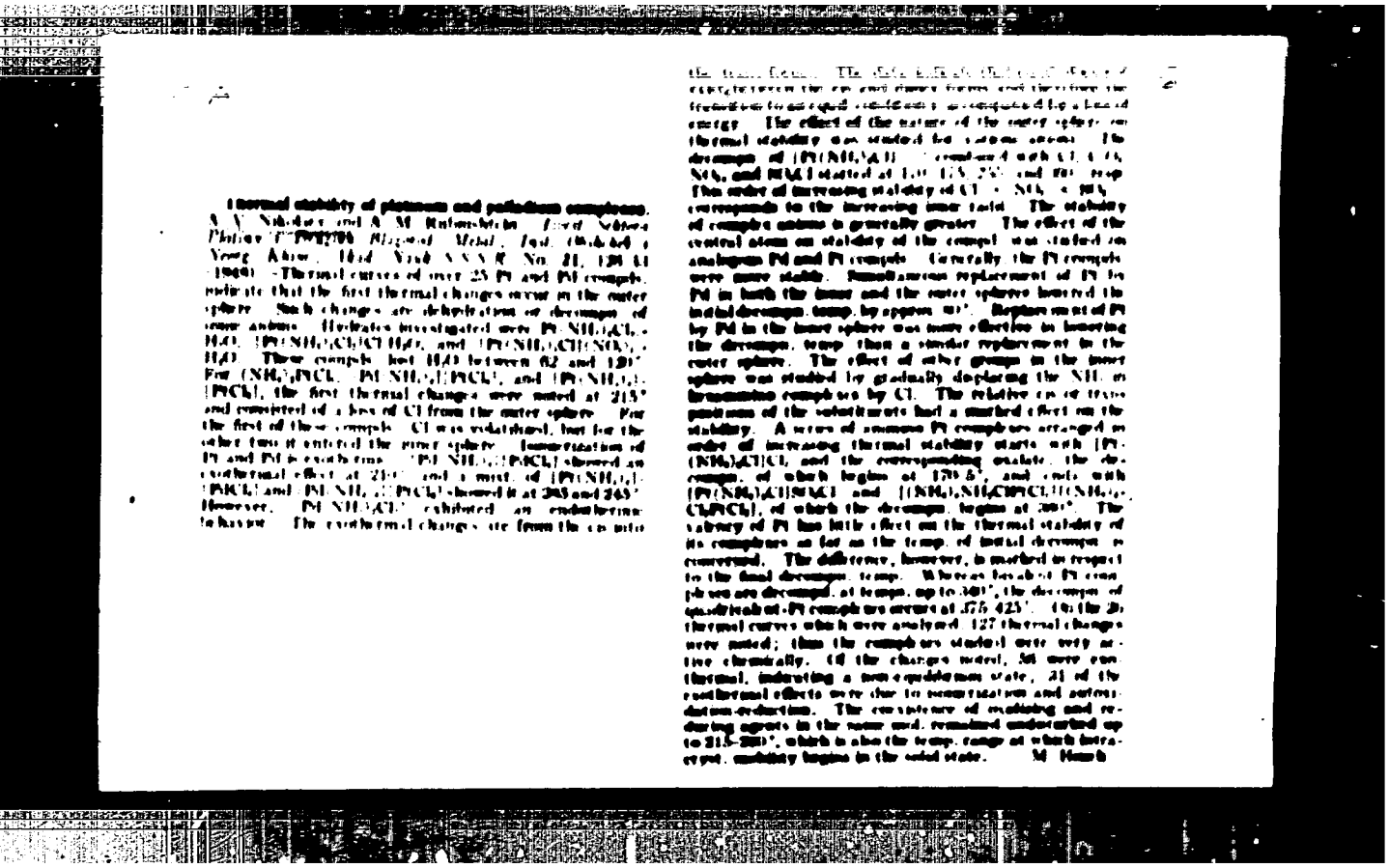

Thermal stability of platinum and palladium complexes. A. V. Nikolaev and A. M. Rubinshtein. *Izvest. Sektora Platiny i Drugikh Blagorod. Metal. Inst. Obshch. i Neorg. Khim., Akad. Nauk SSSR*, No. 21, 138–41 (1949).—Thermal curves of over 25 Pt and Pd complexes indicate that the first thermal changes occur in the outer sphere. Such changes are dehydration or decomposition of outer anions. Hydrates investigated were $[Pt(NH_3)_4Cl_2]\cdot H_2O$, $[Pt(NH_3)_4Cl]Cl\cdot H_2O$, and $[Pt(NH_3)_4Cl(NO_2)]\cdot H_2O$. These complexes lost H_2O between 82 and 120°. For $(NH_4)_2[PtCl_6]$, $[Pt(NH_3)_4][PtCl_4]$, and $[Pt(NH_3)_4][PtCl_6]$, the first thermal changes were noted at 215° and consisted of a loss of Cl from the outer sphere. For the first of these complexes Cl was substituted, but for the other two it entered the inner sphere. Investigation of Pt and Pd complexes $[Pd(NH_3)_4][PdCl_4]$ showed an exothermal effect at 210° and a mixt. of $[Pt(NH_3)_4][PtCl_4]$ and $[Pt(NH_3)_4][PtCl_6]$ showed it at 205 and 245°. However, $Pd(NH_3)_2Cl_2$ exhibited an endothermic behavior. The exothermal changes are from the ex ratio

the inner form. The [illegible] expulsion from the ex and inner forms and the release the formation of excited conditions accompanied by a loss of energy. The effect of the nature of the outer sphere on thermal stability was studied for various anions. The decomps. of $[Pt(NH_3)_4A]$ [illegible] with Cl, NO_2, and NO_3 started at 120, 175, and 180°, resp. Thus order of increasing stability of Cl < NO_2 < NO_3 corresponds to the increasing inner field. The stability of complex anions is generally greater. The effect of the central atom on stability of the complex was studied on analogous Pd and Pt complexes. Generally the Pt complexes were more stable. Simultaneous replacement of Pt by Pd in both the inner and the outer spheres lowered the initial decomps. temp. by approx. 80°. Replacement of Pt by Pd in the inner sphere was more effective in lowering the decomps. temp. than a similar replacement in the outer sphere. The effect of other groups in the inner sphere was studied by gradually displacing the NH_3 in hexammine complexes by Cl. The relative effect of these substituents had a marked effect on the stability. A series of ammono Pt complexes arranged in order of increasing thermal stability starts with $[Pt(NH_3)_4Cl]Cl$, and the corresponding oxalate, the decomps. of which begins at 170–5°, and ends with $[Pt(NH_3)_4Cl][SiCl]$ and $[(NH_4)_2NH_4ClPtCl_4(NH_4)_2PtCl_6]$, of which the decomps. begins at 280°. The valency of Pt has little effect on the thermal stability of its complexes as far as the temp. of initial decomps. is concerned. The difference, however, is marked in respect to the final decomps. temp. Whereas bivalent Pt complexes are decomposed at temps. up to 340°, the decomps. of quadrivalent Pt complexes occurs at 375–425°. Of the 28 thermal curves which were analyzed, 127 thermal changes were noted; thus the complexes studied were very active chemically. Of the changes noted, 56 were exothermal, indicating a more equilibrium state, 21 of the exothermal effects were due to isomerization and intramolecular oxidation-reduction. The temperature of oxidizing and reducing agents in the outer and remained undetected up to 215–280°, which is also the temp. range at which intramolecular oxidation begins in the solid state. M. Hirsch

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NIKOLAYEV, A.V.

Potassium in natural waters and the mechanism of diffusive dispersion of elements. Part 1. General data on geochemical mobility of potassium. Izv.Sekt.fiz.-khim.anal. 17:396-412 '49. (MLRA 7:6)

1. Institut obshchey i neorganicheskoy khimii [im. N.S.Kurnakova] Akademii nauk SSSR.
(Water--Composition) (Potassium)

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NIKOLAYEV, A.I.

Application of physicochemical analysis to the study and utilization salt formations of the USSR (1917-1947). Izv. Sekt. fiz. khim. anal. 18:259-273 '49. (MLRA 11:4)

1. Institut obshchey i neorganicheskoy khimii im. N.S. Kurnakova AN SSSR.

(Salt) (Chemicals--Manufacture and industry)

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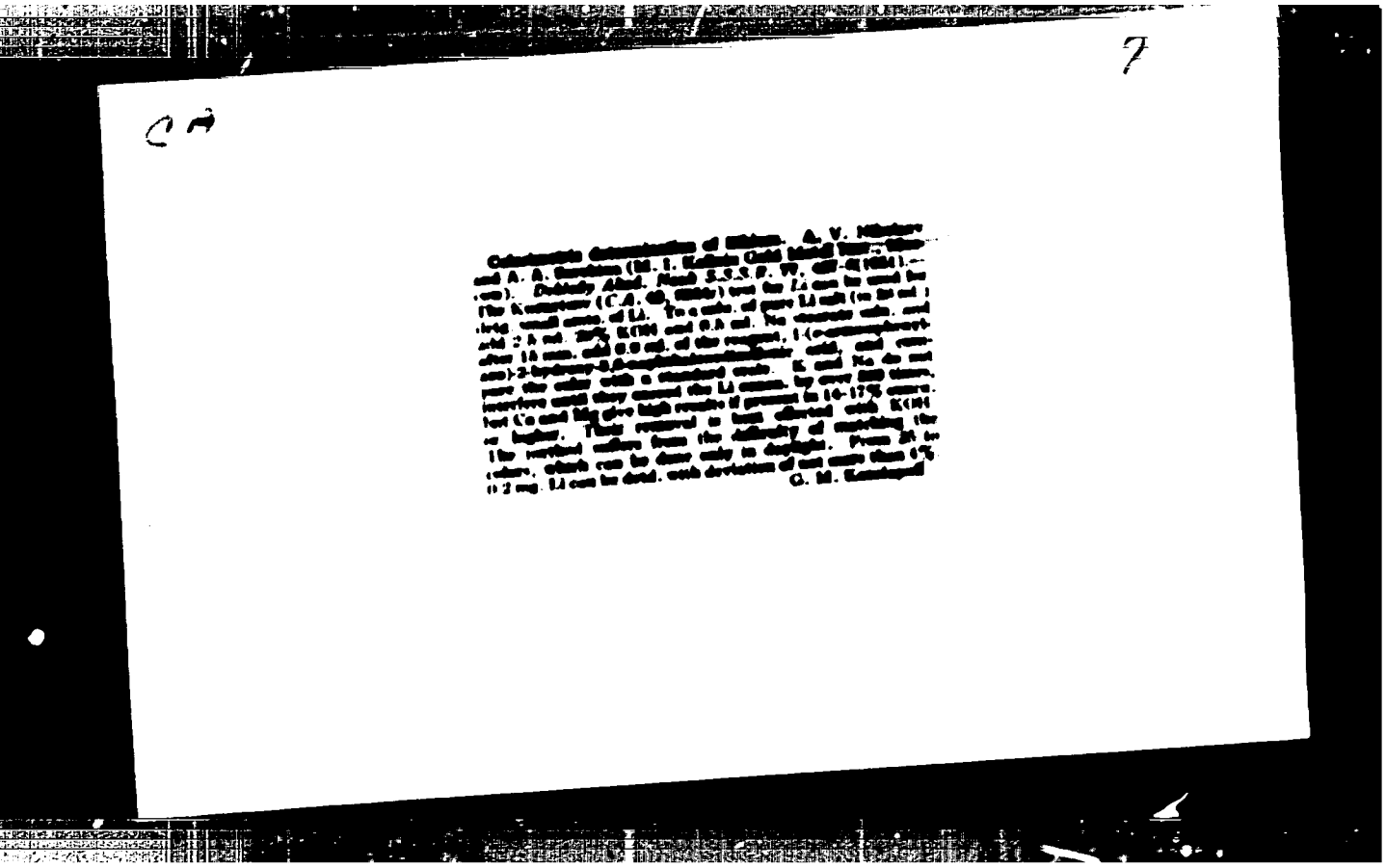

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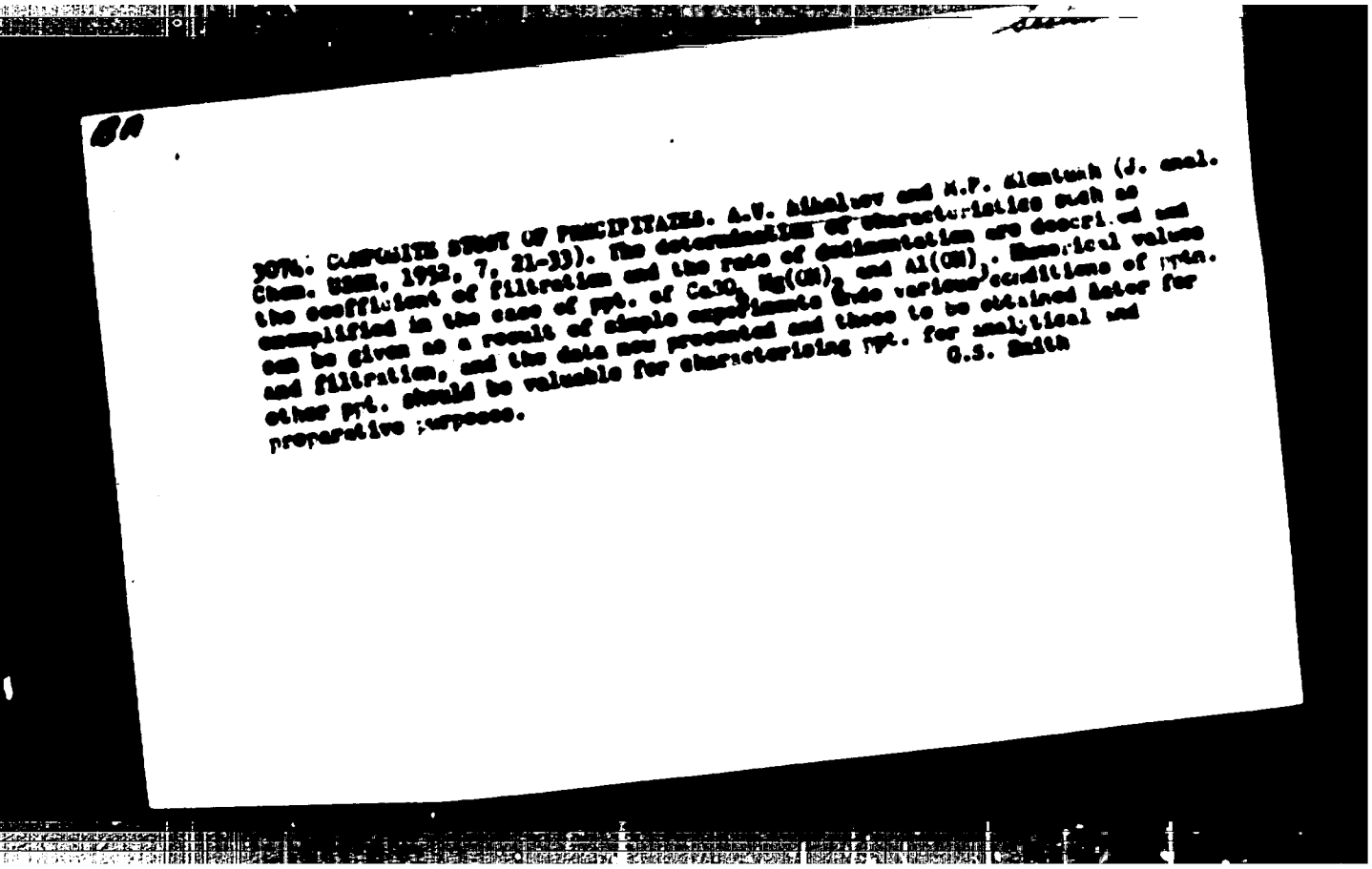

3078. COMPLETE STUDY OF PRECIPITATES. A.V. Nikolaev and M.P. Klentsuk (J. anal. Chem. USSR, 1952, 7, 21-33). The determination of characteristics such as the coefficient of filtration and the rate of sedimentation are described and exemplified in the case of ppt. of CaC_2O_4, $Mg(OH)_2$, and $Al(OH)_3$. Numerical values can be given as a result of simple experiments made under various conditions of prtn. and filtration, and the data now presented and those to be obtained later for other ppt. should be valuable for characterising ppt. for analytical and preparative purposes.

O.S. Smith

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NIKOLAYEV, A. V. and SOKOLINA, A. A.

"Colorimetric Determination of Lithium," DAN SSSR, Vol. 77, No. 3 pp 427-428, 1952.

Moscow Inst. of Non-Ferrous Metals and Gold im. Kalinin.

U-2119, 7 July 1952

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NIKOLAYEV, A.V.

Differential thermal microanalysis. A. V. Nikolaev and S. M. Shubina. [illegible] Mineral., Akad. Nauk S.S.S.R. 2, 127-32(1955).—For samples of only a few mg. the usual thermocouples are too thick and cannot detect small thermal effects. A direct recording of the heating curves on photographic paper (Kurnakov differential galvanometer) is possible if the rotation of the recording drum is considerably accelerated, and the heating rate increased to 100°/min. Berg and Romanskaya (C.A. 43, 32a) described a very useful microapp. with a metal heating block (up to 1000°); heating and differential thermal analysis curves are shown for inyoite, $2CaO.3B_2O_3.13H_2O$, Peyron's salt, cis-$PtCl_2.2NH_3$, and $Na_2C_2O_4$. Inyoite shows 2 endothermic effects, and one exothermic effect, in excellent agreement with detns. by macro methods. Also the conversion of cis → trans compds., e.g. in Peyron salt, are observed by the micromethod, although somewhat displaced in temp. The entire course of the microcurves corresponds nearly to the complete equil. conditions. The decompn. of $Na_2C_2O_4$ to Na_2CO_3, and the transition of the metastable Na_2CO_3 to the stable modification are clearly observed in both types of curves. W. Eitel

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NIKOLAYEV, A. V.

AID P - 2256

Subject : USSR/Chemistry

Card 1/1 Pub. 152 - 1/19

Authors : Vol'fkovich, S. I., I. I. Chernyayev, and A. V. Nikolayev

Title : Orest Yevgen'yevich Zvyagintsev (On the occasion of his 60th birthday and the 35th anniversary of his scientific activities)

Periodical: Zhur. prikl. khim., 28, no.2, 121-122, 1955

Abstract : Biographic sketch with photograph.

Institution: None

Submitted : No date

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SVYAGINTSEV, O.Ye.; NIKOLAYEV, A.V.

Abram Mikhailovich Rubinshtein; obituary. Zhur.neorg.khim.1 no.4: 609-614 Ap '56. (MIRA 9:10)

1.Institut obshchey i neorganicheskoy khimii Akademii nauk SSSR. (Rubinshtein, Abram Mikhailovich, 1909-1955) (Bibliography--Compounds, Complex)

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NIKOLAYEV, A. V.

"Extraction of Inorganic Substances With Organic Solvents," by Prof A. V. Nikolayev, Khimicheskaya Nauka i Promyshlennost', Vol 1, No 5, Sep/Oct 56, pp 548-554.

After pointing out that the method of solvent extraction was introduced into inorganic chemistry and technology as a result of its successful application in nuclear energy work in connection with the necessity of producing highly purified substances and eliminating splinter elements, the author outlines the advantages of this method and suggests possible applications. He says that, contrary to the opinion held by many investigators, uranium is not the most easily extractable element, at least as far as extraction with ether is concerned. He suggests that extraction methods be investigated with the purpose of applying them in the concentration and purification of rare and dispersed elements and says that these methods are already being used with good results in the production of semiconductor materials.

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In the main section of the article, the author discusses the mechanisms of extraction, using a classification proposed by V. I. Kuznetsov, who postulates three principal mechanisms: extraction in the form of oxonium salts, extraction based on the loss of affinity to water, and extraction on the basis of "physical distribution." Nikolayev presents in this section a considerable amount of data on extraction processes, including separation of thorium from actinium by extraction with thenoyltrifluoracetone, separation of promethium from yttrium with tributylphosphate, extraction of uranyl nitrate with diethyl ether, interference produced by different ions in the extraction of uranium with diethyl ether, and separation of uranium from thorium by extraction with ether as affected by different salting-out procedures.

In conclusion the author says that extraction methods are being successfully used in the production of rare and radioactive elements; that detailed experimental investigation makes it possible to solve successfully from the technical and economic standpoint simpler problems such as the separation of Fe from Co and Ni, of Mo from W, of Sb from As, etc.; and that much can be expected from the development of extraction methods combined with the application of cheap extraction agents and complex-formers, extraction with boric and phosphoric acids being particularly promising. A bibliography which consists of 4 USSR references and 11 non-USSR references is appended to the article.

Sum 1239

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001137110004-3

NIKOLAYEV, A.V.

"Study and synthesis of borates in aqueous solutions."
A.D. Kes'Kale. Reviewed by A.V. Nikolaev. Zhur.neorg.khim.
1 no.5:1122 My '56. (MLRA 9:10)

(Borates) (Kes'Kale, A.D.)

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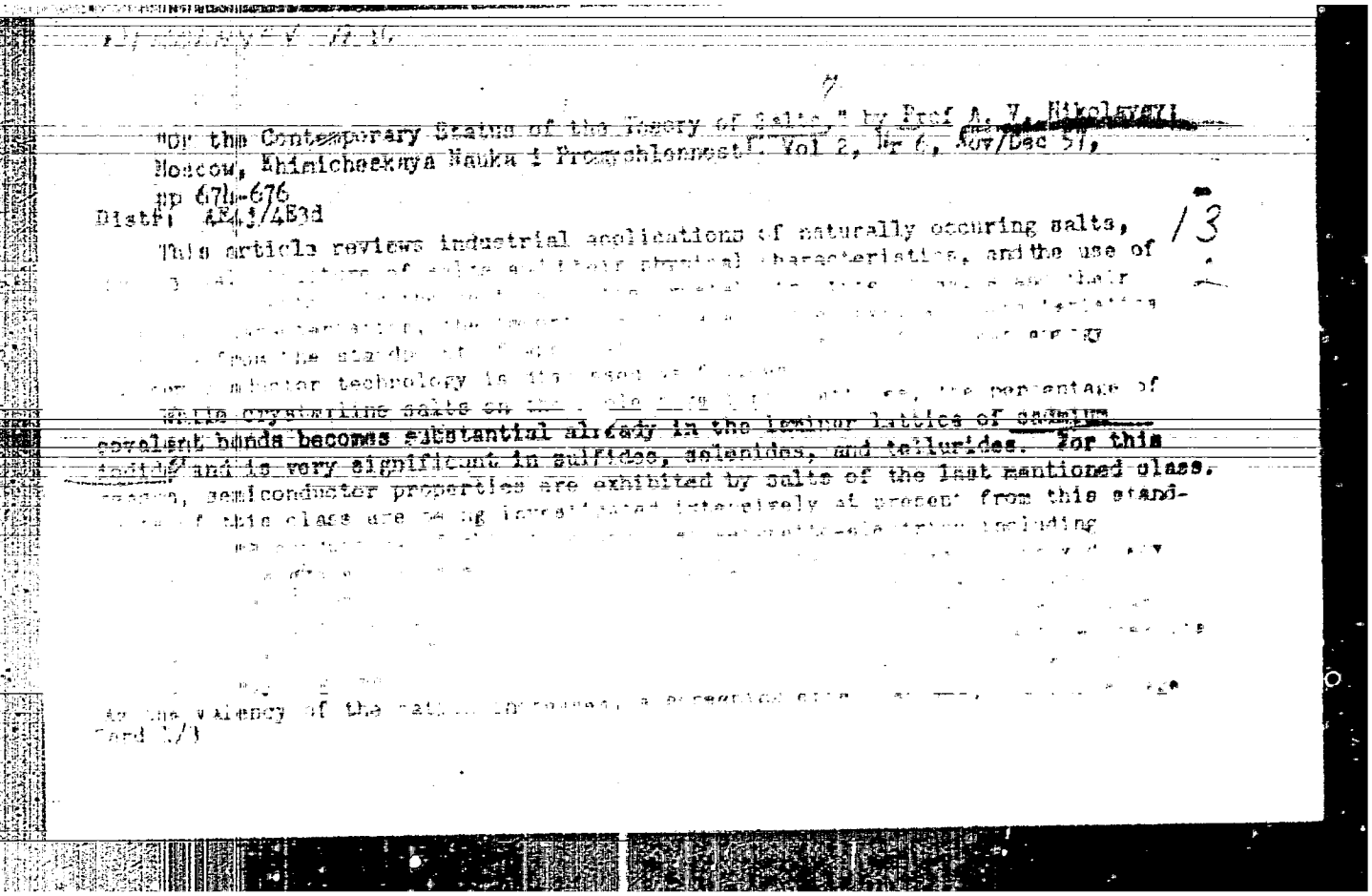

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"On the Contemporary Status of the Theory of Salts," by Prof A. V. Nikolayev; Moscow, Khimicheskaya Nauka i Promyshlennost', Vol 2, Nr 6, Nov/Dec 57, pp 674-676

Distr: 4E4j/4E3d

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This article reviews industrial applications of naturally occuring salts, [illegible] of salts and their physical characteristics, and the use of [illegible] their [illegible] characteristics, the [illegible] from the standpoint [illegible] energy [illegible] conductor technology is [illegible] the percentage of covalent bonds becomes substantial already in the laminar lattice of cadmium iodide and is very significant in sulfides, selenides, and tellurides. For this reason, semiconductor properties are exhibited by salts of the last mentioned class. [illegible] of this class are being investigated intensively at present from this stand- [illegible] including [illegible]

[illegible] the valency of the [illegible]

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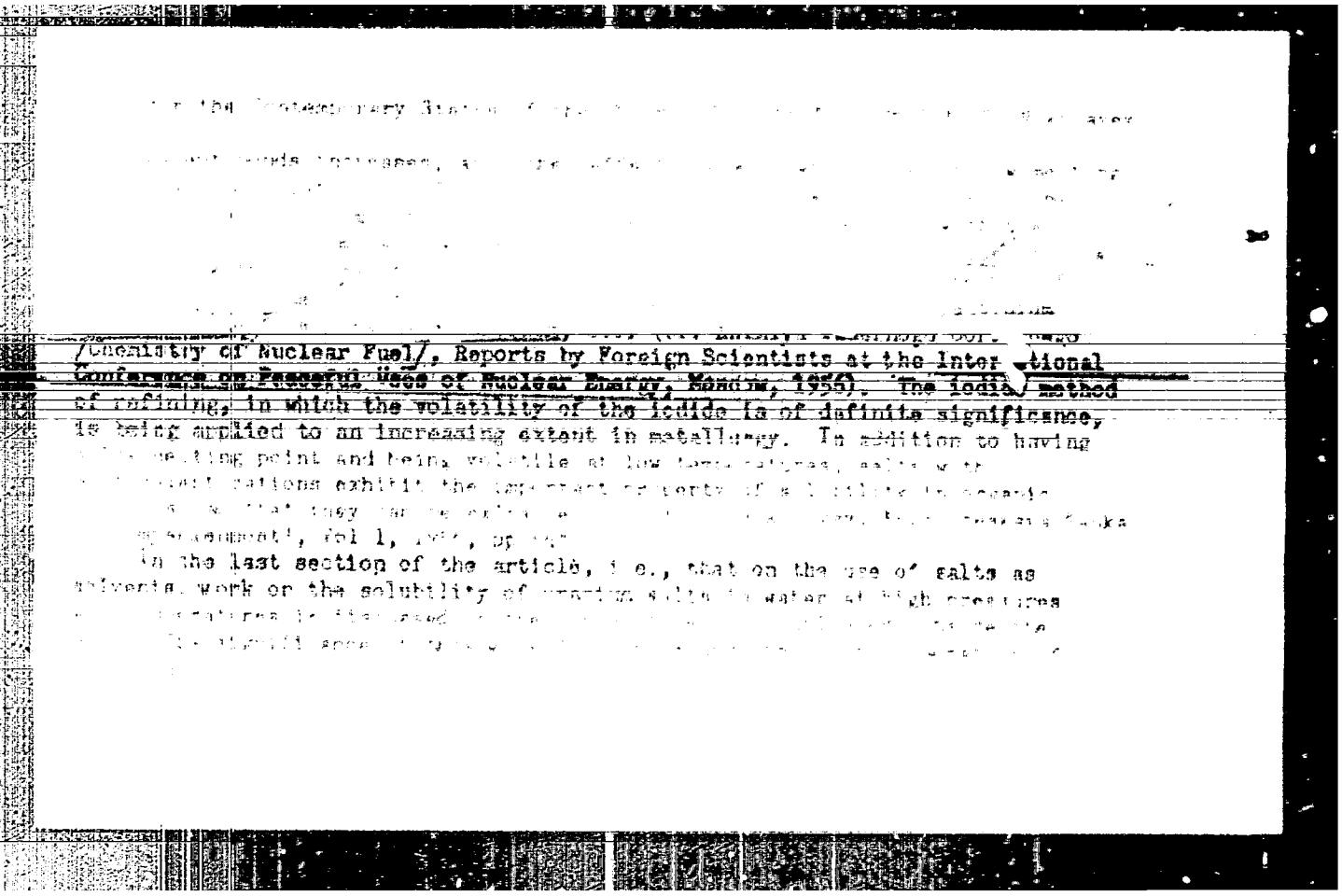
[illegible] the Contemporary [illegible]

[illegible] increases, [illegible]

[illegible]



/Chemistry of Nuclear Fuel/, Reports by Foreign Scientists at the International Conference on Peaceful Uses of Nuclear Energy, Moscow, 1955). The iodide method of refining, in which the volatility of the iodide is of definite significance, is being applied to an increasing extent in metallurgy. In addition to having [illegible] melting point and being volatile at low temperatures, salts with [illegible] cations exhibit the important property of solubility in organic [illegible] that they can be [illegible] Fauka [illegible] Development', Vol 1, [illegible], pp [illegible]

In the last section of the article, i.e., that on the use of salts as solvents, work on the solubility of uranium salts in water at high pressures [illegible] temperatures is discussed [illegible]

[illegible]

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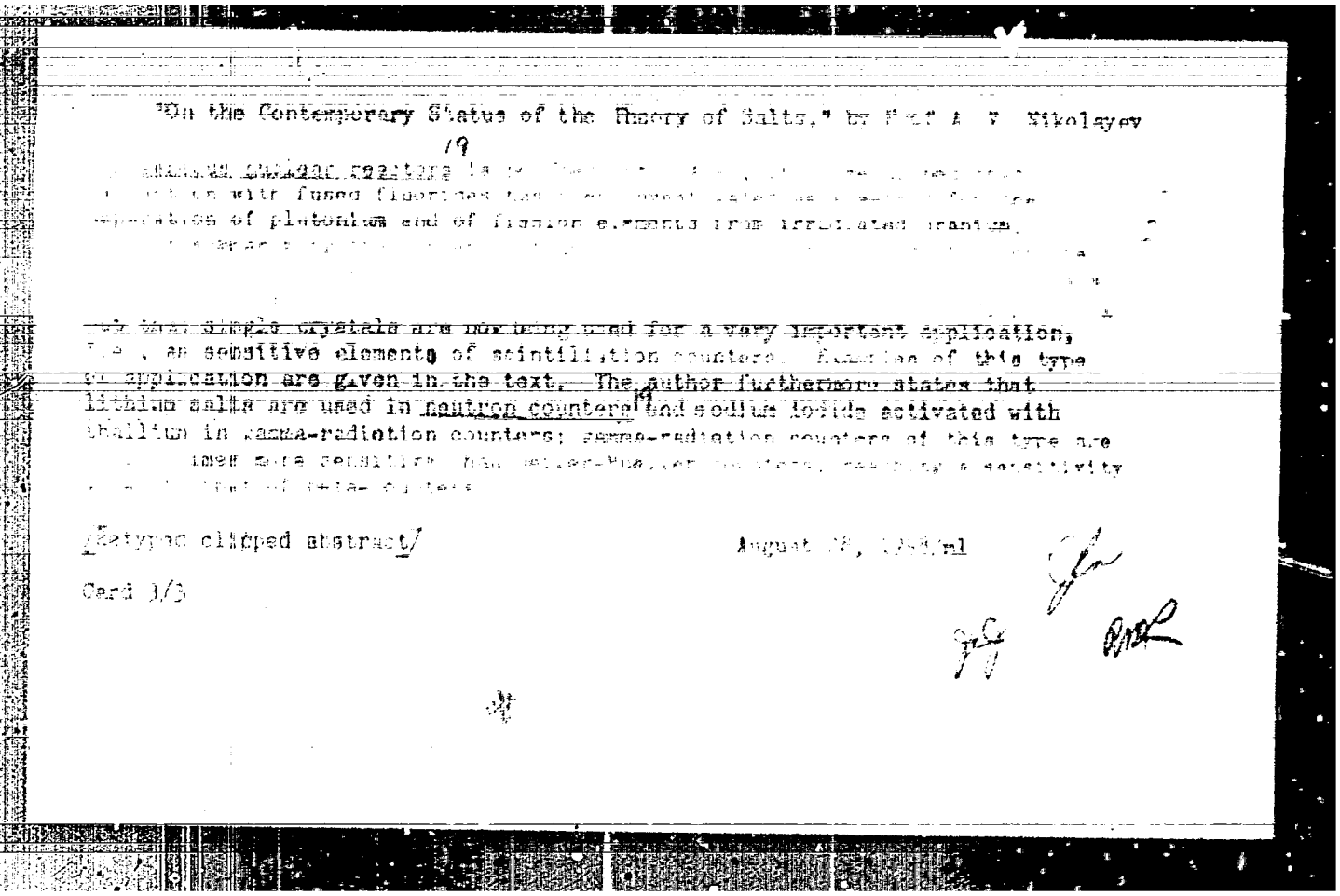

"On the Contemporary Status of the Theory of Salts," by Prof A. V. Nikolayev

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[illegible] with fused fluorides [illegible] separation of plutonium and of fission elements from irradiated uranium.

[illegible] single crystals are now being used for a very important application, i.e., as sensitive elements of scintillation counters. Examples of this type of application are given in the text. The author furthermore states that lithium salts are used in neutron counters and sodium iodide activated with thallium in gamma-radiation counters; gamma-radiation counters of this type are [illegible] sensitivity [illegible].

/Retyped clipped abstract/ August [illegible]/ml

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001137110004-3

NIKOLAYEV, A.V.; NEYMAN, R.E.; NEYMAN, O.V.

Characteristics of the state of high polymer gels. Koll. zhur. 19 no.1:121-124 Ja-F '57. (MLRA 10:4)

1. Institut obshchey i neorganicheskoy khimii AN SSSR, Moskva i Voronezhskiy inzhenerno-stroitel'nyy institut.
(Colloids) (High molecular weight compounds)

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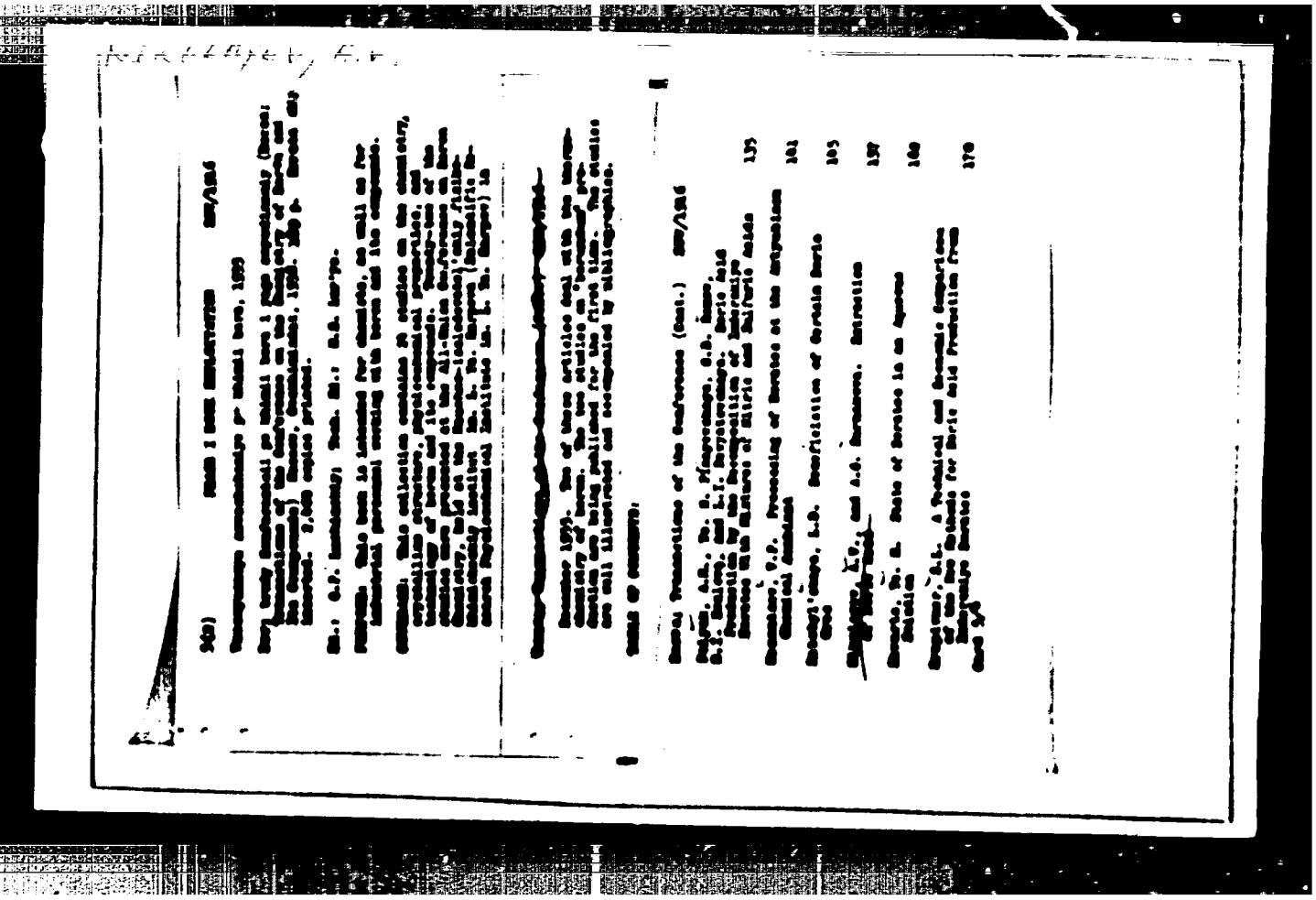

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