FAYNBERG, S.

Lightweight shields of power shovels. Muk.-elev. prom. 29 no.4:29 Ap '63. (MIRA 16:7)

1. Glavnyy inzh. Chernovitskoy mel'nitsy No.3.
(No subject headings)

PRIDOROZHKO, V.; BRYUKHOVETSKAYA, N.; FAYNBERG, S.; MOSTOVAYA, A.

Workers of flour mills in the struggle for high work indices. Muk.-elev. prom. 29 no.6:17-18 Je '63. (MIRA 16:7)

1. Luganskoye upravleniye khleboproduktov (for Pridorozhko, Bryukhovetskaya). 2. Glavnyy inzh. Chernovitskoy mel'nitsy No.3 (for Faynberg). 3. Nachal'nik tsekha Chimkentskoy mel'nitsy No.1 (for Mostovaya).

(Flour mills--Labor productivity)

FAYNBERG, S.A., kand.

Remote control of the electrical substations of a shale processing combine. Prom. energ. 20 no.8:15-16 Ag '65.

(MIRA 18:8)

ACC NR: AT6027156 (A) SOURCE CODE: UR/3214/66/000/003/0103/0112

AUTHOR: Flaumenbaum, B. L. (Docent); Chervyakova, K. I. (Candidate of biological sciences); Nguyen Van N'yt (Aspirant); Valyavskaya, M. Ye. (Engineer); Kaushanskaya, L. Z. (Engineer); Storozhuk, V. M. (Engineer); Terletskaya, L. A. (Engineer); Faynberg, S. G. (Engineer)

ORG: none

TITLE: Search for new operating conditions in sterilization of canned goods for projected continuously operative equipment

SOURCE: Ukraine. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniya. Pishchevaya promyshlennost', no. 3, 1966, 103-112

TOPIC TAGS: food technology, food preservation, food sterilization, applied mathematics, food product machinery, processed plant product

ABSTRACT: New operative conditions for sterilizing tomato juice in an Odessa factory were worked out at the Odessa Technological Institute for the Food and Refrigeration Industry, based on a continuous operation (see Figure 1) with successive heating and cooling of 0.5 and 0.2 liter bottles filled with juice at 80-85 C and immersed in water of various temperatures. The sterilization temperatures tested were 100, 95, and 92 C. Temperatures in the bottle center were measured with a thermocouple. The

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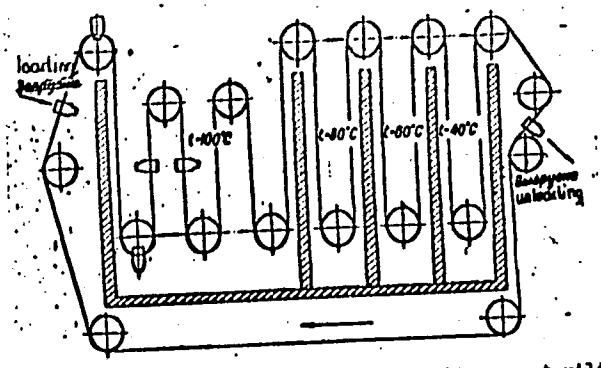

Figure 1. Schematic representation of continuous sterilization

data were mathematically processed according to Flaumenbaum, B. L. (Pishchevaya tekhnologiya, 3, 1959). Earlier studies on survival of microorganisms in tomato juice were also considered. The formulas arrived at were experimentally tested. The general formula applied was $A = \varphi(K_{A_1} + K_{A_2} + K_{A_3} + \cdots + K_{A_n})$.

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where A is the sterilizing effect, τ_p is the time interval during which temperature in the bottle center is recorded, K_A is the peroxidizing coefficient. The value of A was found a reliable indicator for sterilization, preferable to that of the "heat number". Earlier tests had determined 25 min for 90 C or 15-20 min for 95 C. New tests found that the same A effect could be obtained 16% faster at 100 C for the 0.5 liter bottle and 10% faster for the 0.2 bottle at the same temperature. For the other temperatures, sterilization time figures were comparable to or higher than the older ones. Microbiologic tests of the sterilization formulas with juice infected with Penicillium glaucum, Aspergillus niger, yeasts and Bac. mesentericus ruber, then sterilized according to formula and kept at room temperature for 3 months or at higher temperatures for 5-8 days, gave satisfactory results. The formulas worked out are given for 100, 95 and 92 C and for the 2 sizes of bottles. Thus for 0.2 liter bottles the formula is 0-30-5-5-5/100 C, where the first figure indicates that the sterilization process proper is starting, the second gives the sterilization period, and the third, fourth and fifth give stepwise cooling in water baths of 80, 60 and 40 C. It was concluded that the formulas found had been proved reliable in microbiological tests. Orig. art. has: 10 figures and 8 formulas.

SUB CODE: 06, 13/ SUBM DATE: none/ ORIG REF: 004/ OTH REF: 001

Card 3/3

ACC NR:

FAYNBERG, S.G., kand.med.nauk

"Difficult children." Pediatriia 39 no.1:34-39 '61.
(MIRA 14:1)

1. Iz Leningradskogo nevro-psikhiatricheskogo dispansera Leninsko-Kirovskogo rayonov Leningrada (glavnyy vrach T.I. Typitsyna).
(CHILD STUDY)

FAYNBERG, S.G., kandidat meditsinskikh nauk

"Methods of medical hypnosis" by P.I.Bul'. Reviewed by S.G. Fainberg. Sov.med.20 no.12:80-81 D '56. (MLRA 10:1)
(HYPNOTISM--THERAPEUTIC USE) (BUL', P.I.)

FAYNBERG, S.G.

Some methodological materials on the psychoprophylaxis of neuroses in children. Report no.1. Vop. psikh. i nevr. no.5:261-269 '59. (MIRA 14:5)

1. Iz Leningradskogo nevro-psikhiatricheskogo dispansera Leninskogo rayona (glavnyy vrach T.I.Tupitsina).

(NERVOUS SYSTEM—DISEASES) (CHILDREN—MANAGEMENT)

FAYNBERG, S.G.

Some methodological materials on the psychoprophylaxis of neuroses in children. Report No. 2. Sbor. trud. Len. nauchn. ob-va nevr. i psikh. no.6:305-312 '59. (MIRA 13:12)

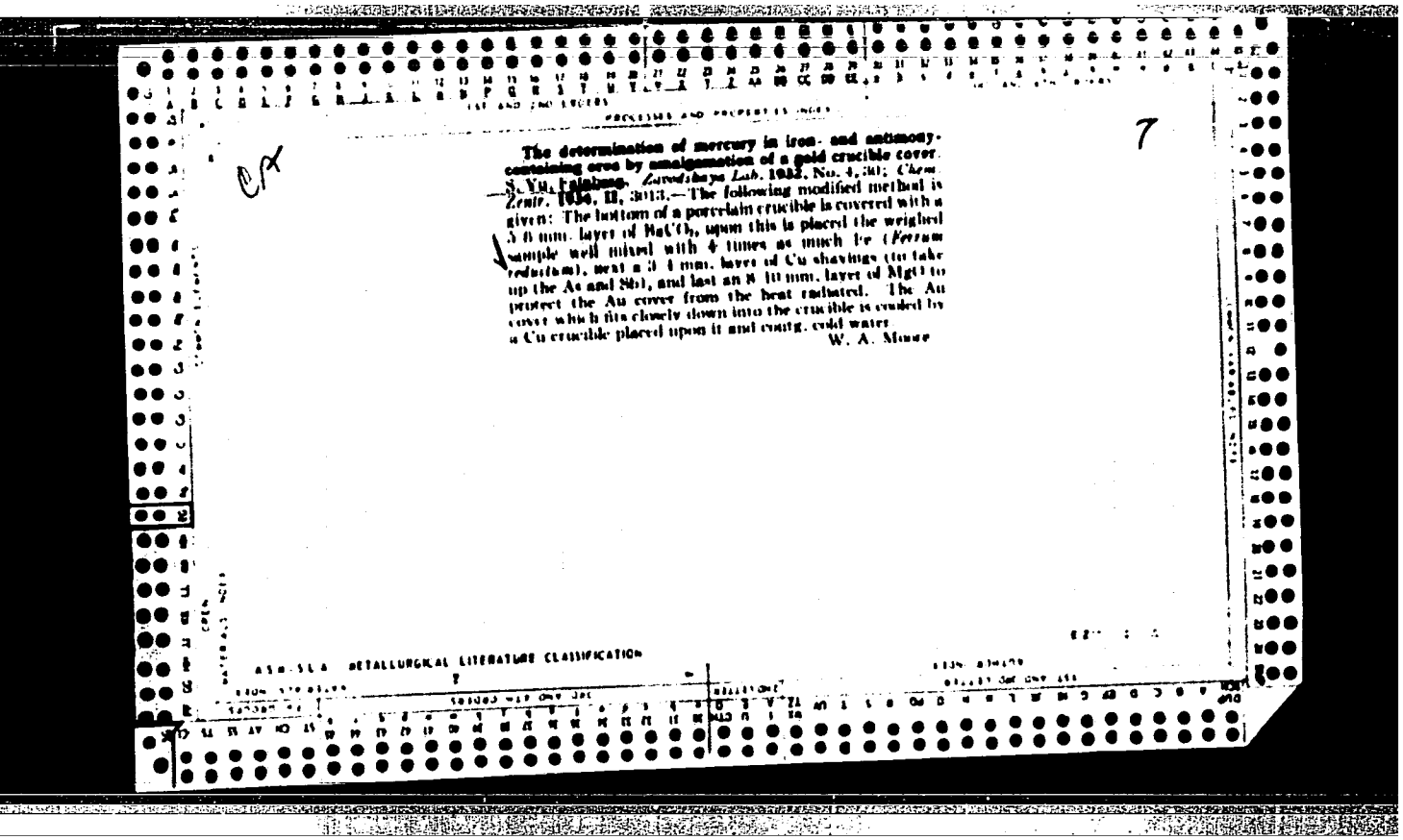
1. Iz psikhonevrologicheskogo dispansera Leningskogo rayona (glavnyy vrach T.I. Tupitsina).

(NEUROSES)

FAYNBERG, S.G.

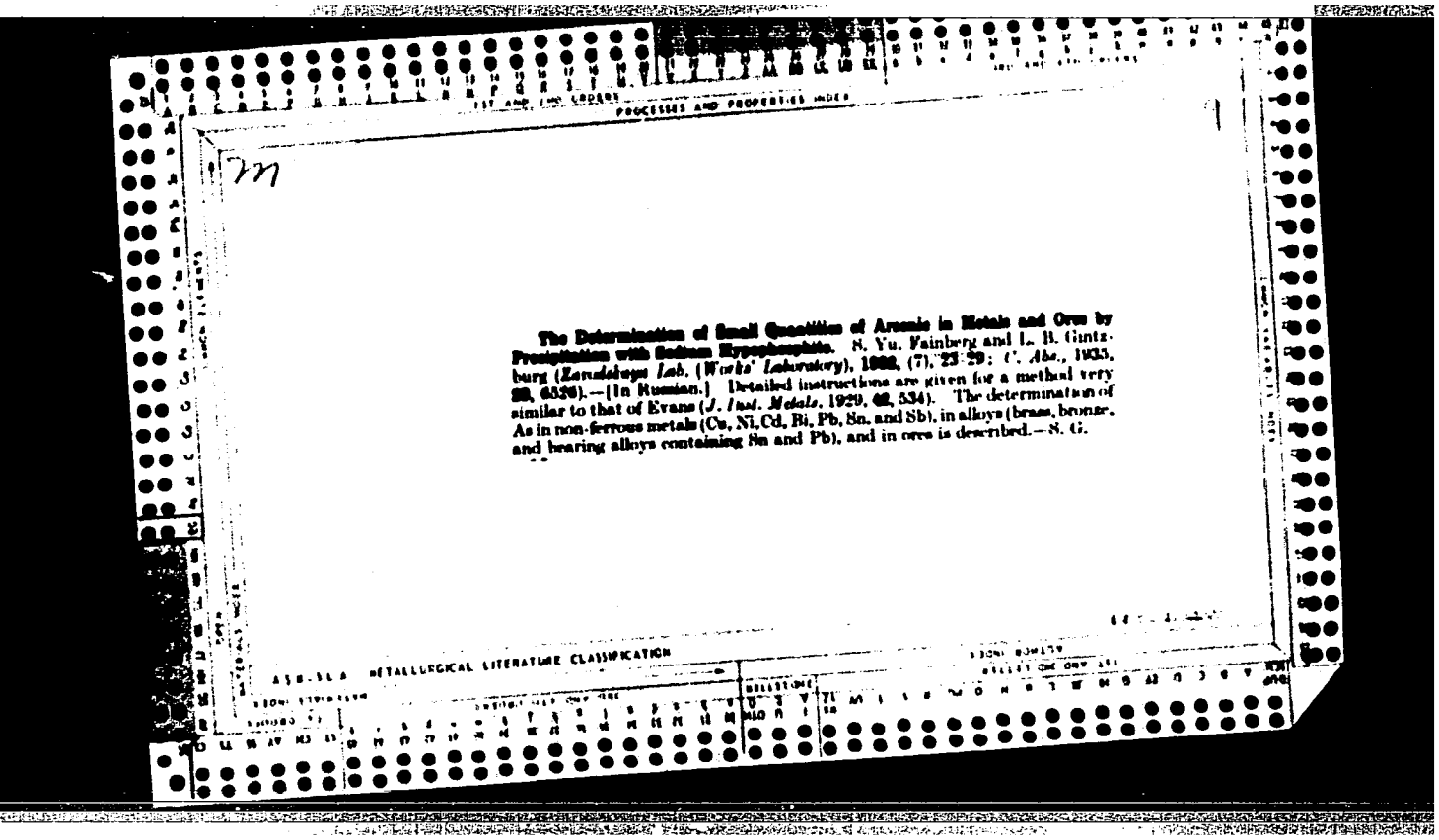
Role of consciousness in the prevention and treatment of neurasthenic disruptions. Vop. psikh. i nevr. no.9:400-405 '62. (MIRA 17:1)

1. Psikhonevrologicheskiy dispanser Leninskogo rayona Leningrada (glavnyy vrach - T.I. Tupitsina).



The determination of mercury in iron- and antimony-containing ores by amalgamation of a gold crucible cover. S. Ya. Fainberg. *Zavodskaya Lab.* 1932, No. 1, 31; *Chem. Zentr.* 1934, II, 3013.—The following modified method is given: The bottom of a porcelain crucible is covered with a 5.0 mm. layer of $BaCl_2$, upon this is placed the weighed sample well mixed with 4 times as much Fe (*Ferrum reductum*), next a 3.0 mm. layer of Cu shavings (to take up the As and Sb), and last an 8.0 mm. layer of MgO to protect the Au cover from the heat radiated. The Au cover which fits closely down into the crucible is cooled by a Cu crucible placed upon it and using cold water.

W. A. Mouse



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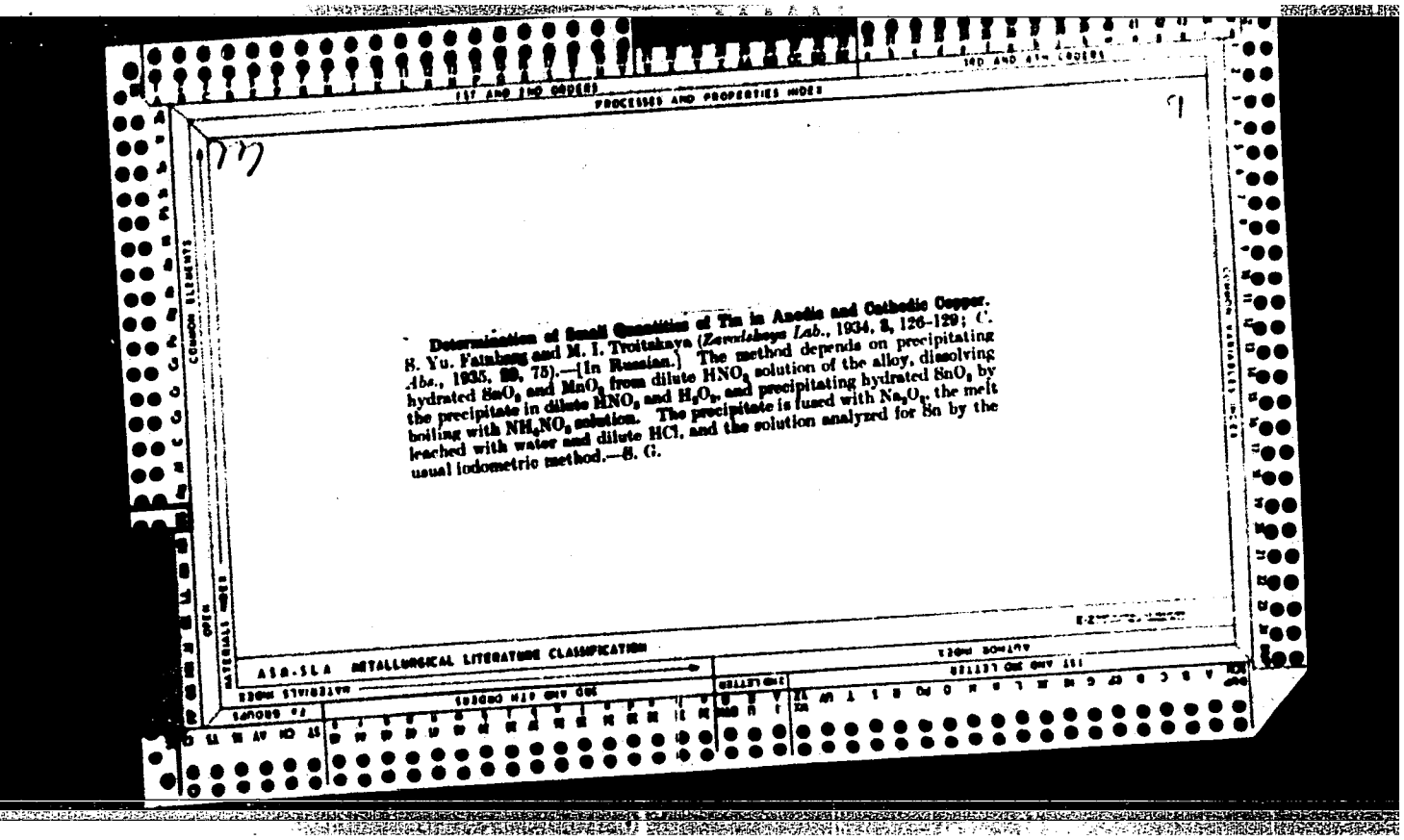
The Determination of Small Quantities of Arsenic in Metals and Ores by Precipitation with Sodium Hypophosphite. S. Yu. Fainberg and L. B. Gintzburg (*Zavodskaya Lab.* (*Works' Laboratory*), 1933, (7), 23–29; *C. Abs.*, 1933, 28, 6326).—[In Russian.] Detailed instructions are given for a method very similar to that of Evans (*J. Inst. Metals*, 1929, 42, 534). The determination of As in non-ferrous metals (Cu, Ni, Cd, Bi, Pb, Sn, and Sb), in alloys (brass, bronze, and bearing alloys containing Sn and Pb), and in ores is described.—S. G.

A58-51A METALLURGICAL LITERATURE CLASSIFICATION



Determination of Small Quantities of Tin in Anodic and Cathodic Copper. S. Yu. Fainberg and M. I. Troitskaya (*Zavodskaya Lab.*, 1934, **3**, 126–129; *C. Abs.*, 1935, **29**, 75).—[In Russian.] The method depends on precipitating hydrated SnO_2 and MnO_2 from dilute HNO_3 solution of the alloy, dissolving the precipitate in dilute HNO_3 and H_2O_2, and precipitating hydrated SnO_2 by boiling with NH_4NO_3 solution. The precipitate is fused with Na_2O_2, the melt leached with water and dilute HCl, and the solution analyzed for Sn by the usual iodometric method.—S. G.

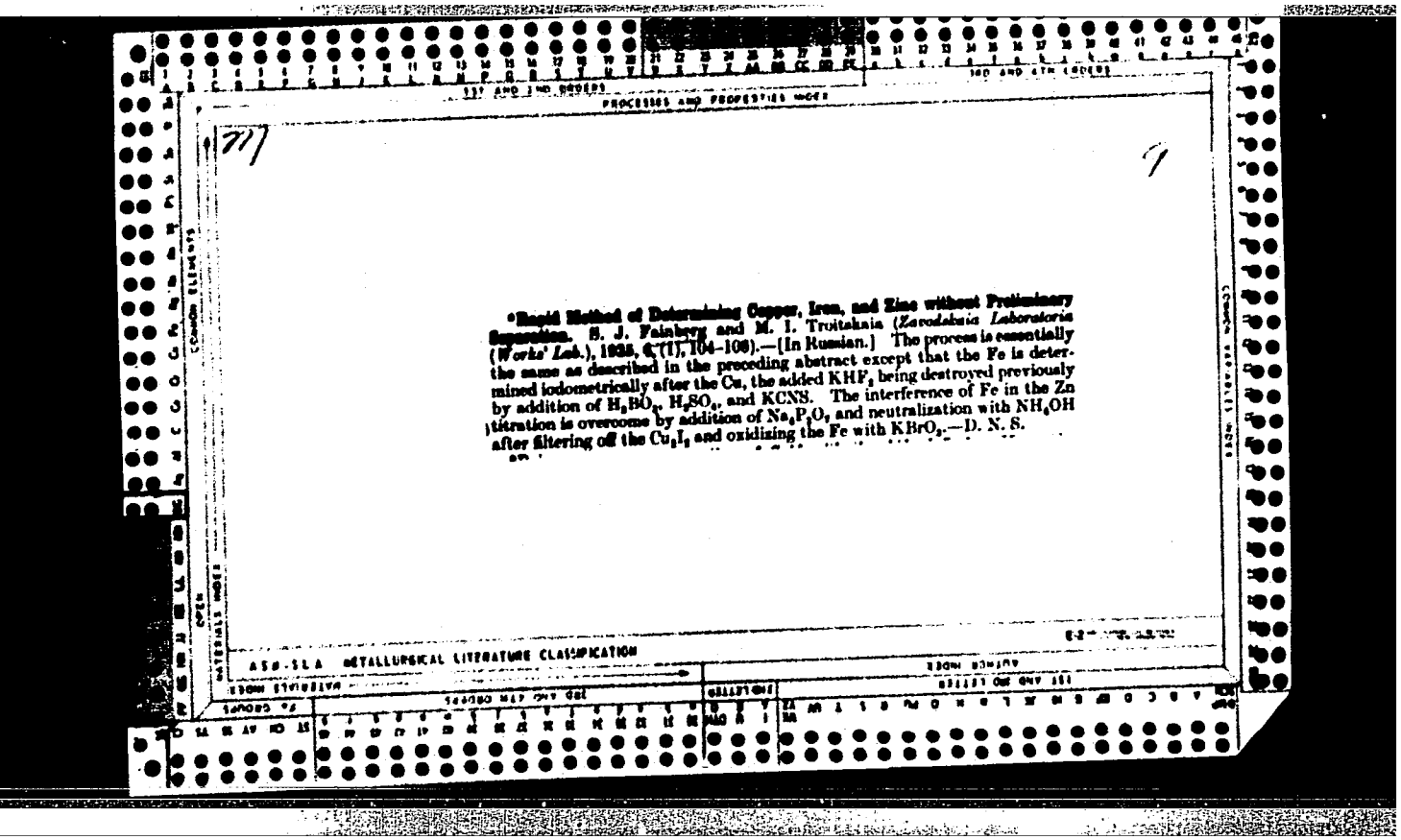
PROCESSES AND PROPERTIES INDEX

BC

B-I 6

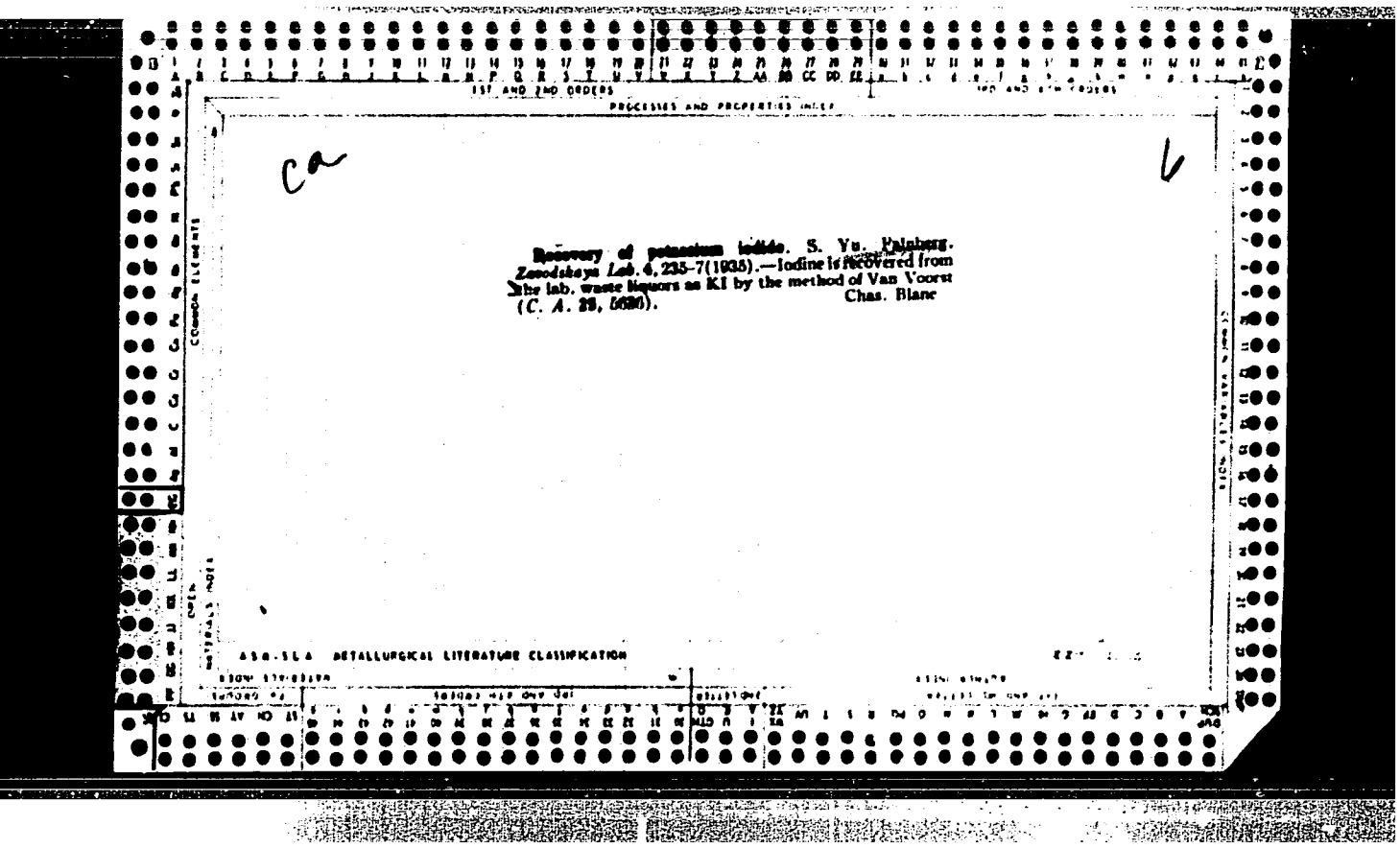
Rapid analysis of converter copper slag. S. J. [illegible] (Zavod. Lab., 1934, 3, 563—565).—The [illegible] slag is sieved (200-mesh); approx. 5·5% of the powder remains on the sieve, and consists of metallic Cu. The powder is heated with 40 c.c. of 80% H_2SO_4 and 5 g. of Na_2SO_4 to evolution of SO_3 fumes (I), 1 c.c. of conc. HCl is added, and the solution again heated to evolution of (I), cooled, diluted to 150 c.c., 1 c.c. of HCl added, and the solution boiled and filtered. The residue (II) (SiO_2 + $PbSO_4$) is boiled with 6% HCl to remove $PbSO_4$, and the residual SiO_2 collected, dried, and weighed. Cu, Al, Fe, Zn, and Sn are determined by the usual methods in the filtrate from (II). The complete analysis occupies > [illegible] R. T.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

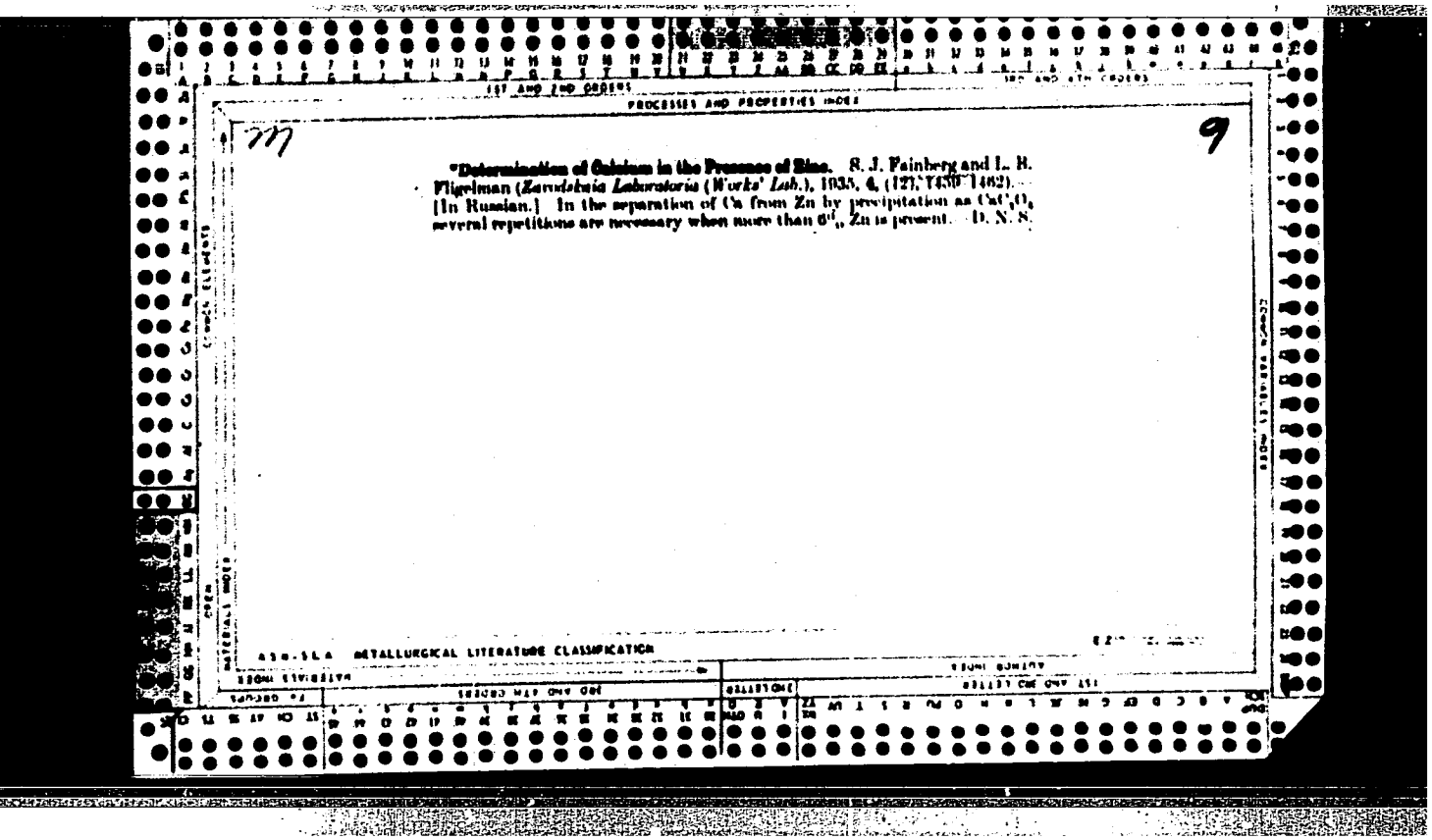


•Rapid Method of Determining Copper, Iron, and Zinc without Preliminary Separation. B. J. Fainberg and M. I. Troitskaia (*Zavodskaia Laboratoria* (*Works' Lab.*), 1935, 4, (1), 104–108).—[In Russian.] The process is essentially the same as described in the preceding abstract except that the Fe is determined iodometrically after the Cu, the added KHF_2 being destroyed previously by addition of H_3BO_3, H_2SO_4, and KCNS. The interference of Fe in the Zn titration is overcome by addition of $Na_4P_2O_7$ and neutralization with NH_4OH after filtering off the Cu_2I_2 and oxidizing the Fe with $KBrO_3$.—D. N. S.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Recovery of potassium iodide. S. Yu. Palshorg. *Zavodskaya Lab.* 4, 235–7(1935).—Iodine is recovered from the lab. waste liquors as KI by the method of Van Voorst (*C. A.* 29, 6626). Chas. Blanc



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"Determination of Calcium in the Presence of Zinc. S. J. Fainberg and L. B. Pligelman (*Zavodskaia Laboratoria* (*Works' Lab.*), 1935, 4, (12), 1459–1462). [In Russian.] In the separation of Ca from Zn by precipitation as CaC_2O_4, several repetitions are necessary when more than 6% Zn is present. D. N. S.

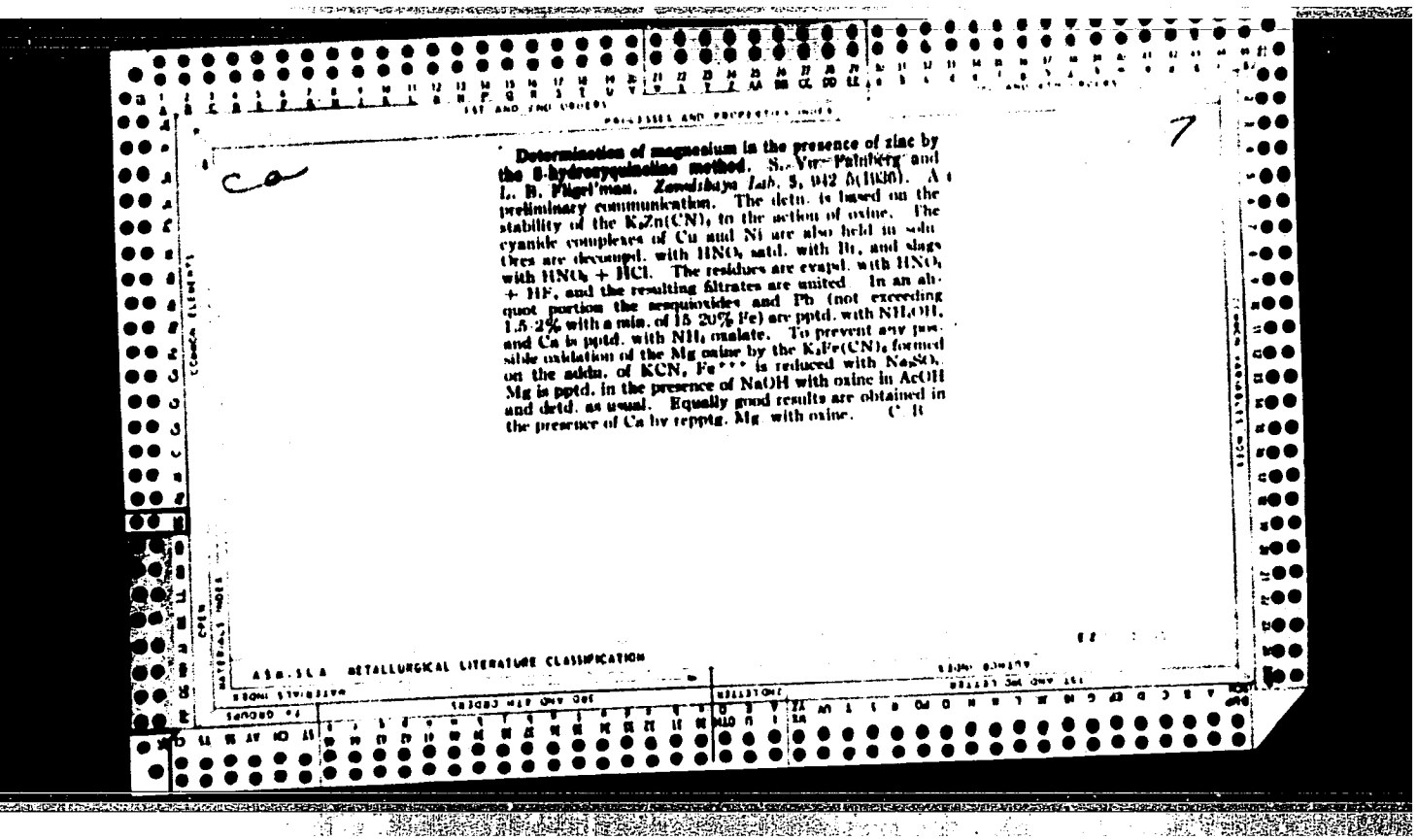
A38-51A METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

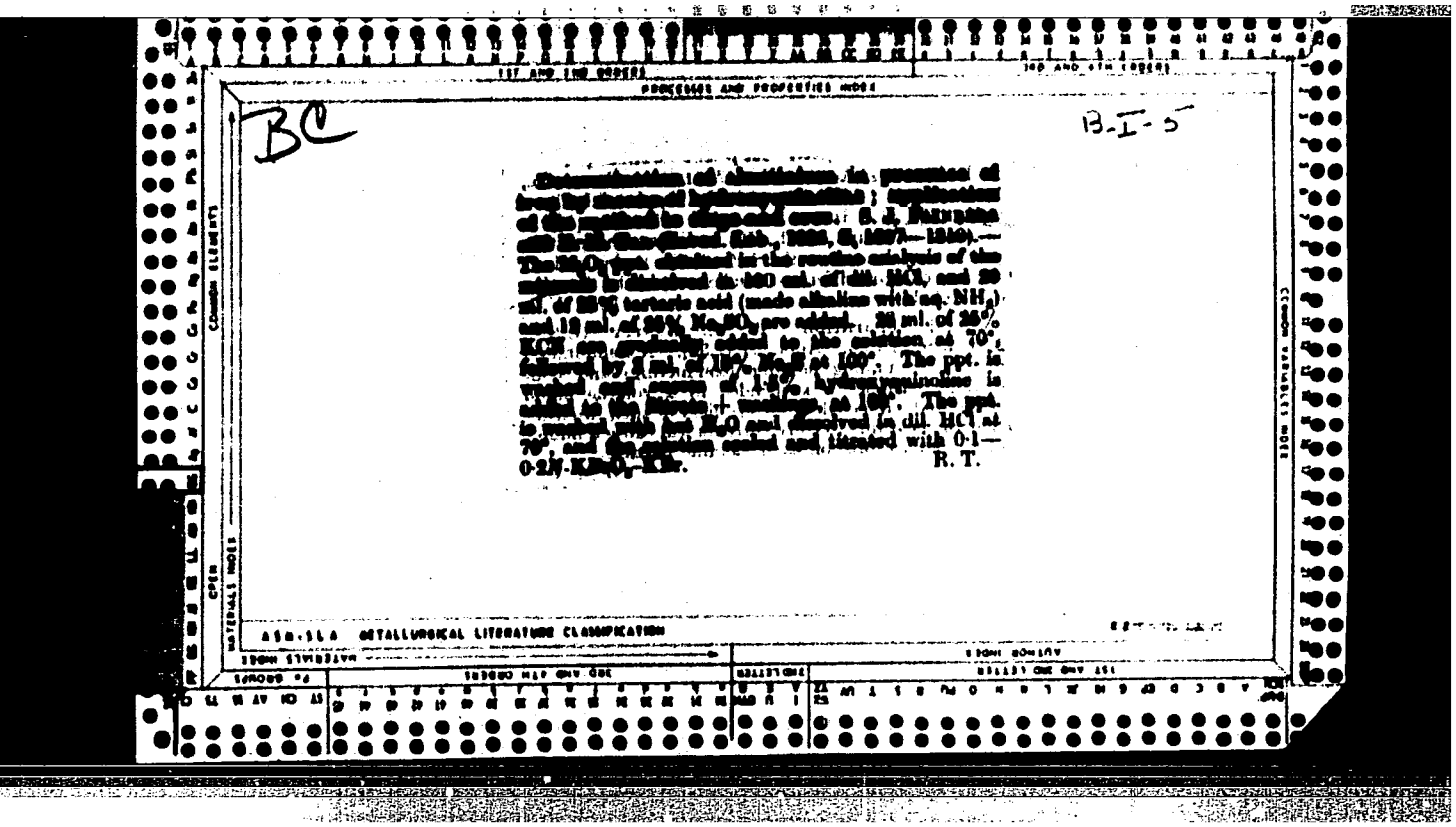
Rapid chemical control of plating baths. S. Yu. Fainberg and N. A. Rosenberg. *Livetaw Mital* 1935, No. 10, 61-8. A description of rapid methods of analysis by means of pptg. and centrifuging and then calcg. from the vol. of pptd. material. Detn. of the following compds. is described: $ZnSO_4$, ZnO, $CdSO_4$, $NiSO_4$, $CuSO_4$ and $SnSO_4$. Accuracy, ± 10%; time, 15 to 20 min.

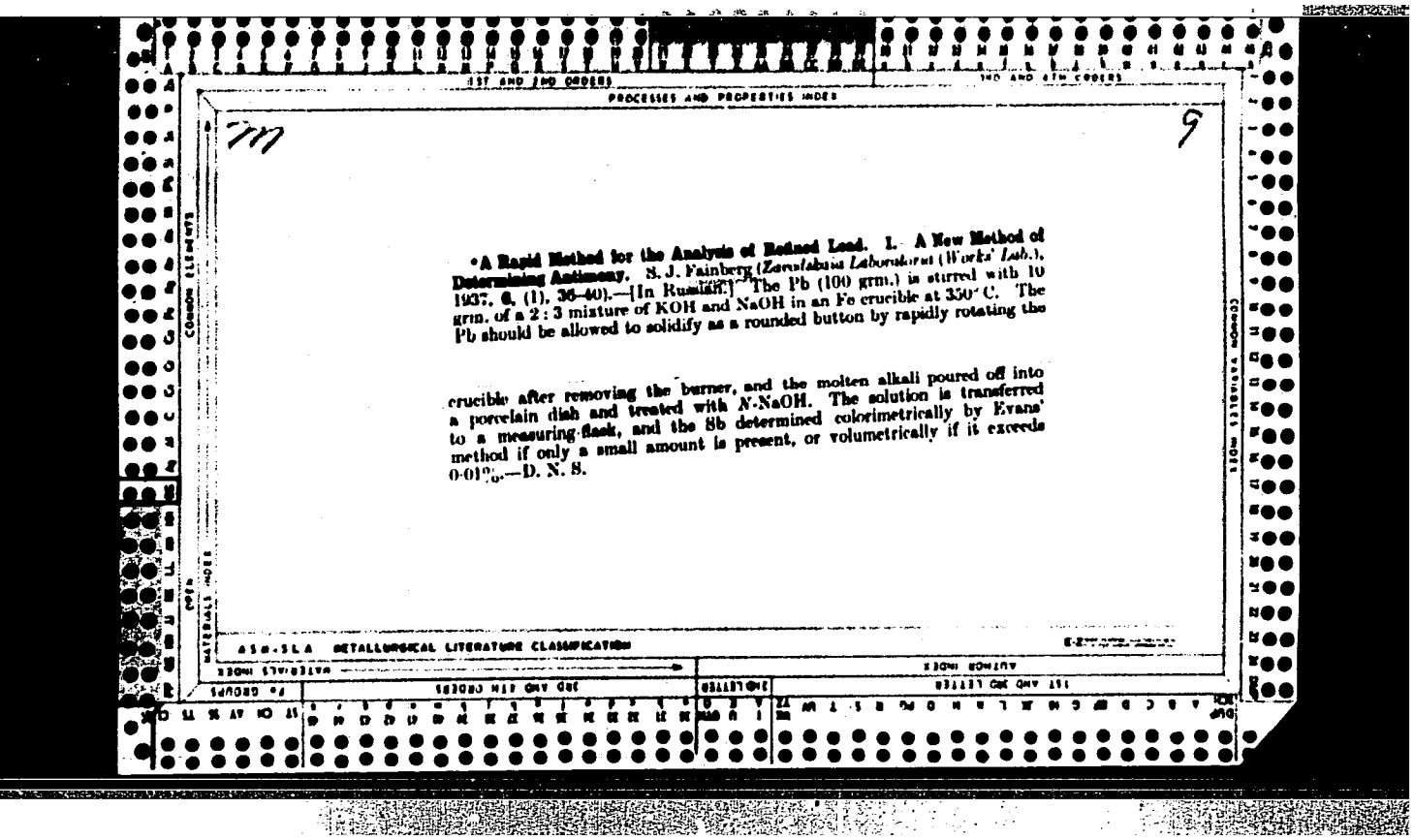
B. N. Daniloff

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Determination of magnesium in the presence of zinc by the 8-hydroxyquinoline method. S. Ye. Palnikov and L. B. Flgel'man. *Zavodskaya Lab.* 5, 942-5(1936). A preliminary communication. The detn. is based on the stability of the $K_2Zn(CN)_4$ to the action of oxine. The cyanide complexes of Cu and Ni are also held in soln. Ores are decompd. with HNO_3 satd. with Br, and slags with HNO_3 + HCl. The residues are evapd. with HNO_3 + HF, and the resulting filtrates are united. In an aliquot portion the sesquioxides and Pb (not exceeding 1.5-2% with a min. of 15-20% Fe) are pptd. with NH_4OH, and Ca is pptd. with NH_4 malate. To prevent any possible oxidation of the Mg oxine by the $K_3Fe(CN)_6$ formed on the addn. of KCN, Fe^{+++} is reduced with Na_2SO_3. Mg is pptd. in the presence of NaOH with oxine in AcOH and detd. as usual. Equally good results are obtained in the presence of Ca by reppig. Mg with oxine. C. R.





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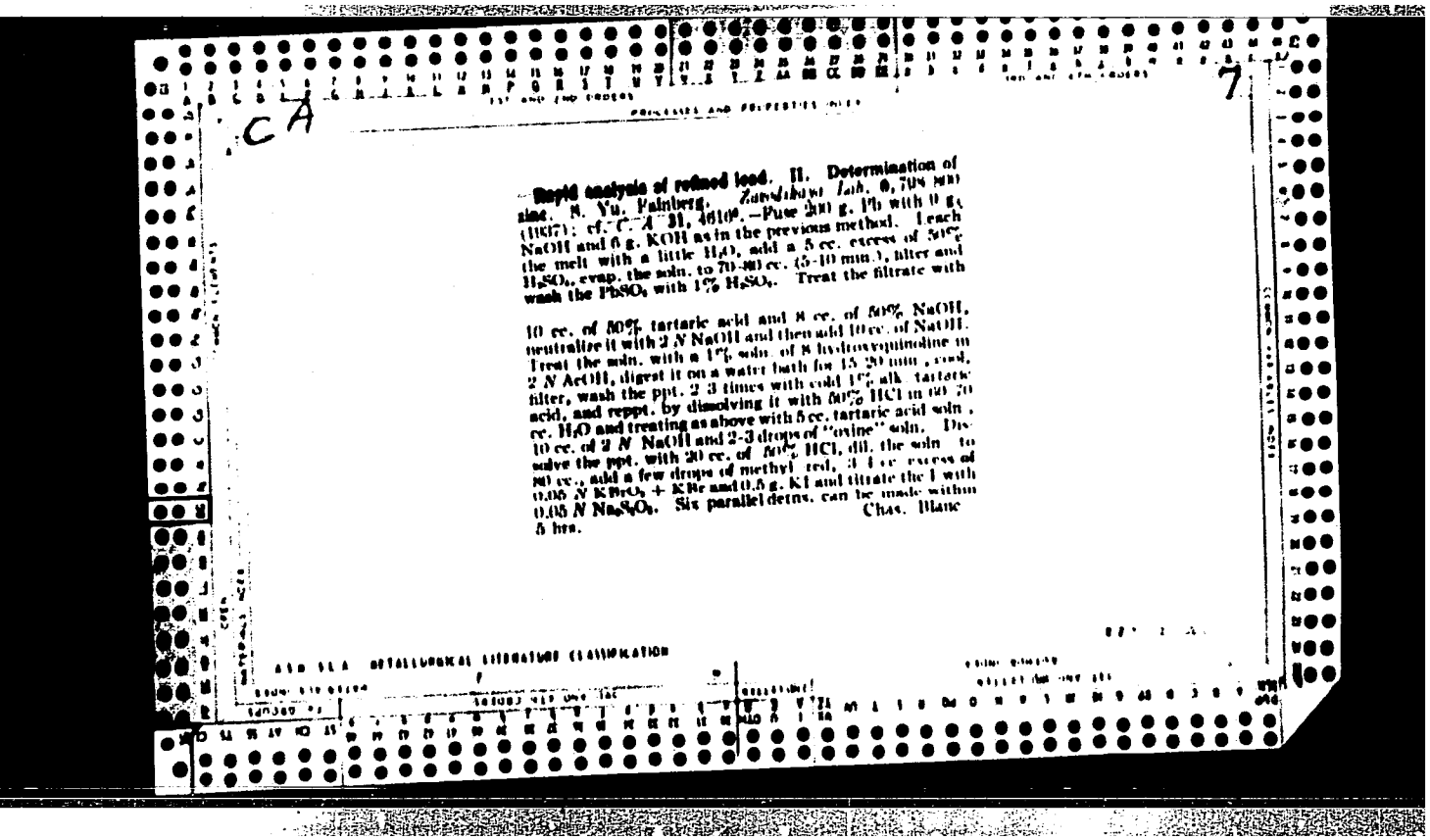
•**A Rapid Method for the Analysis of Refined Lead. I. A New Method of Determining Antimony.** S. J. Fainberg (*Zavodskaia Laboratoria* (*Works' Lab.*), 1937, **6**, (1), 36–40).—[In Russian.] The Pb (100 grm.) is stirred with 10 grm. of a 2 : 3 mixture of KOH and NaOH in an Fe crucible at 350° C. The Pb should be allowed to solidify as a rounded button by rapidly rotating the crucible after removing the burner, and the molten alkali poured off into a porcelain dish and treated with *N*-NaOH. The solution is transferred to a measuring-flask, and the Sb determined colorimetrically by Evans' method if only a small amount is present, or volumetrically if it exceeds 0·01%.—D. N. S.

A 56-SLA METALLURGICAL LITERATURE CLASSIFICATION



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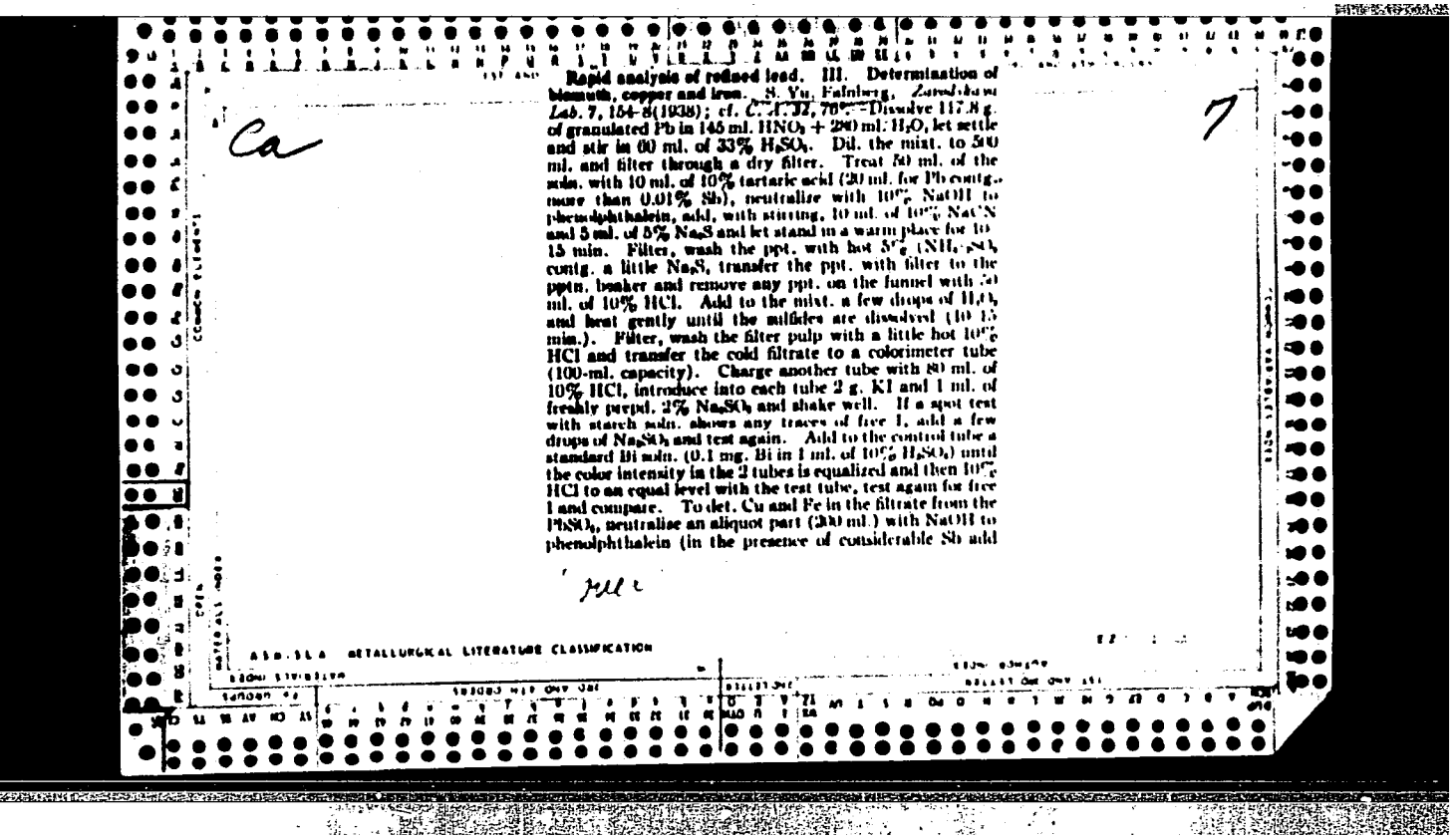
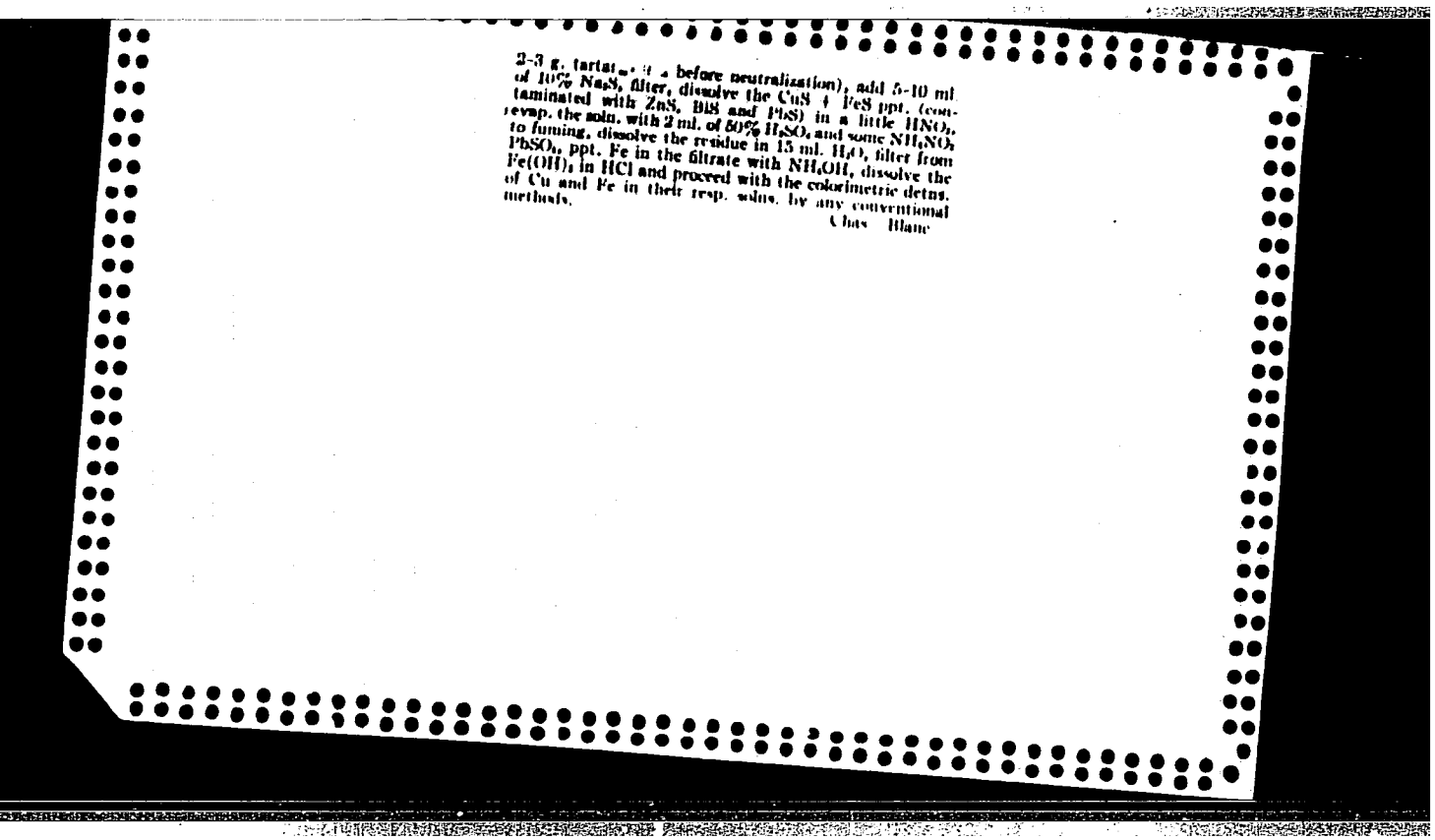
Rapid analysis of refined lead. II. Determination of zinc. N. Yu. Painberg. *Zavodskaya Lab.* 9, 708 (1940); cf. C. A. 31, 4610.—Fuse 200 g. Pb with 0 g. NaOH and 6 g. KOH as in the previous method. Leach the melt with a little H_2O, add a 5 cc. excess of 50% H_2SO_4, evap. the soln. to 70–80 cc. (5–10 min.), filter and wash the $PbSO_4$ with 1% H_2SO_4. Treat the filtrate with 10 cc. of 50% tartaric acid and 8 cc. of 50% NaOH, neutralize it with 2 *N* NaOH and then add 10 cc. of NaOH. Treat the soln. with a 1% soln. of 8-hydroxyquinoline in 2 *N* AcOH, digest it on a water bath for 15–20 min., cool, filter, wash the ppt. 2–3 times with cold 1% alk. tartaric acid, and reppt. by dissolving it with 50% HCl in 60–70 cc. H_2O and treating as above with 5 cc. tartaric acid soln., 10 cc. of 2 *N* NaOH and 2–3 drops of "urine" soln. Dissolve the ppt. with 20 cc. of 50% HCl, dil. the soln. to 80 cc., add a few drops of methyl red, 3–4 cc. excess of 0.05 *N* $KBrO_3$ + KBr and 0.5 g. KI and titrate the I with 0.05 *N* $Na_2S_2O_3$. Six parallel detns. can be made within 5 hrs.

Chas. Blanc



Rapid analysis of refined lead. III. Determination of bismuth, copper and iron. S. Yu. Falnberg. *Zavodskaya Lab.* 7, 154-8(1938); cf. *C. A.* 32, 7095.—Dissolve 117.8 g. of granulated Pb in 145 ml. HNO_3 + 280 ml. H_2O, let settle and stir in 60 ml. of 33% H_2SO_4. Dil. the mixt. to 500 ml. and filter through a dry filter. Treat 50 ml. of the soln. with 10 ml. of 10% tartaric acid (20 ml. for Pb contg. more than 0.01% Sb), neutralize with 10% NaOH to phenolphthalein, add, with stirring, 10 ml. of 10% NaCN and 5 ml. of 5% Na_2S and let stand in a warm place for 10-15 min. Filter, wash the ppt. with hot 5% $(NH_4)_2SO_4$ contg. a little Na_2S, transfer the ppt. with filter to the pptn. beaker and remove any ppt. on the funnel with 50 ml. of 10% HCl. Add to the mixt. a few drops of H_2O_2 and heat gently until the sulfides are dissolved (10-15 min.). Filter, wash the filter pulp with a little hot 10% HCl and transfer the cold filtrate to a colorimeter tube (100-ml. capacity). Charge another tube with 80 ml. of 10% HCl, introduce into each tube 2 g. KI and 1 ml. of freshly prepd. 2% Na_2SO_3 and shake well. If a spot test with starch soln. shows any traces of free I, add a few drops of Na_2SO_3 and test again. Add to the control tube a standard Bi soln. (0.1 mg. Bi in 1 ml. of 10% H_2SO_4) until the color intensity in the 2 tubes is equalized and then 10% HCl to an equal level with the test tube, test again for free I and compare. To det. Cu and Fe in the filtrate from the $PbSO_4$, neutralize an aliquot part (200 ml.) with NaOH to phenolphthalein (in the presence of considerable Sb add



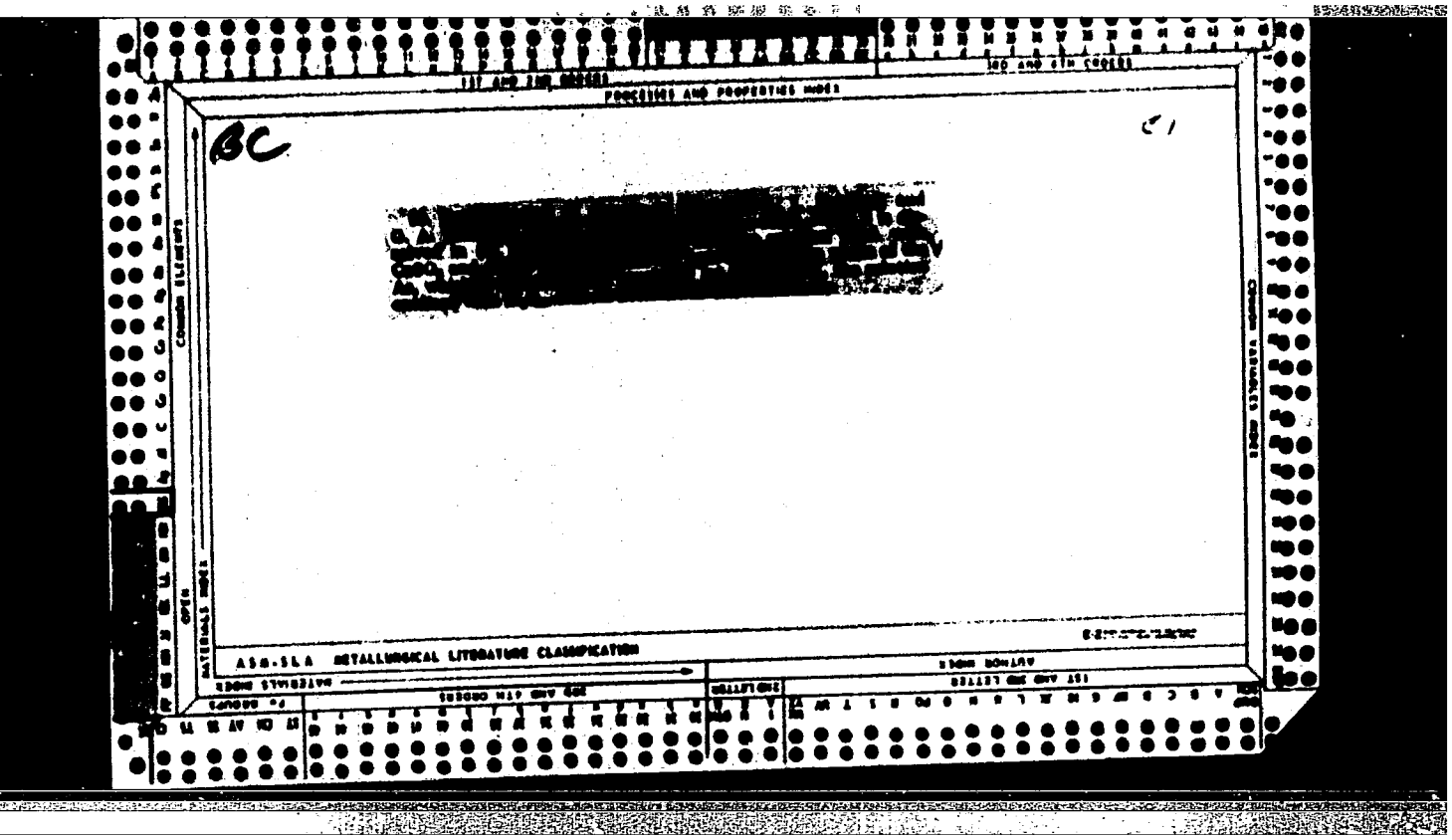
2-3 g. tartaric acid before neutralization), add 5-10 ml of 10% Na_2S, filter, dissolve the CuS + FeS ppt. (contaminated with ZnS, BiS and PbS) in a little HNO_3, evap. the soln. with 2 ml. of 50% H_2SO_4 and some NH_4NO_3 to fuming, dissolve the residue in 15 ml. H_2O, filter from $PbSO_4$, ppt. Fe in the filtrate with NH_4OH, dissolve the $Fe(OH)_3$ in HCl and proceed with the colorimetric detns. of Cu and Fe in their resp. solns. by any conventional methods.

Chas Blanc

PROCESSES AND PROPERTIES INDEX

Rapid analysis of refined lead. IV. Determination of antimony. S. Yu. Fainberg. *Zavodskaya Lab.* 7, 405-6 (1938); cf. *C. A.* 32, 4103[6]. A procedure, different from that previously described (*C. A.* 31, 8010[6]), is used for detg. more than 0.01% Sb in Pb. It is based on the method of Blumenthal (*C. A.* 22, 2903) for the detn. of Sb in Cu. Dissolve a 50-g. sample in 65 ml. HNO_3 + 120 ml. H_2O, dil. to 500-600 ml. and neutralize with 20% NaOH to bromophenol blue. Boil the soln. for 2-3 min., add 15 ml. of 5% $Mn(NO_3)_2$ and 8 ml. of 1 *N* $KMnO_4$ and boil again for 5 min. To complete the pptn. of Sb, add to the soln. 2.5 ml. of 2 *N* NaOH, 8 ml. $Mn(NO_3)_2$ and 4 ml. $KMnO_4$ soln. and boil for 5 min. To prevent any possible soln. of the Sb ppt. by the HNO_3 liberated in the reaction ($3Mn^{++} + 2MnO_4^- + 2H_2O = 5MnO_2 + 4H^+$), add 1.5 ml. of 2 *N* NaOH, boil for 1 min., let settle, filter and wash the ppt. with hot water. Transfer the ppt. into the original flask with a little dil. H_2SO_4 and H_2O, add 3 g. Na_2SO_4 and 20 g. of concd. H_2SO_4, evap. to fuming and continue the heating under a watch glass for 10 min. Treat the cold residue with 200 ml. H_2O, 25 ml. of concd. HCl and 20 ml. of 10% Na_2SO_3, boil for 20 min. to expel the excess SO_2 (add water at intervals to maintain the original vol.) and titrate Sb at 70-80° with $KBrO_3$ + KBr as usual. Chas. Blanc

METALLURGICAL LITERATURE CLASSIFICATION



PROCESSES AND PROPERTIES INDEX

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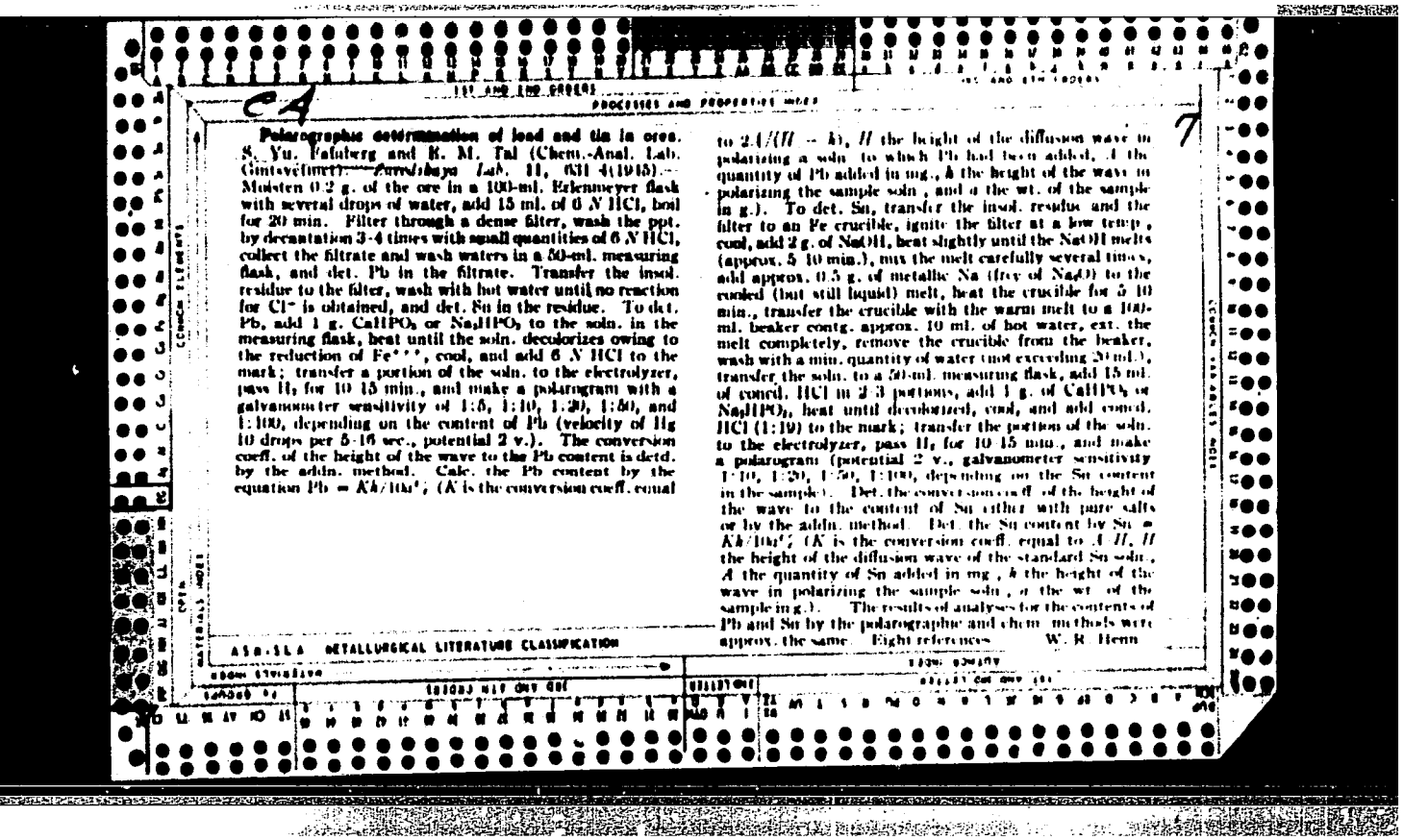
Determination of iron with bichromate without the use of $HgCl_2$ and phosphoric acid. S. Yu. Fainberg and T. V. Zagiulina (Rabota Provodilas v Khimiko-Analiticheskoi Lab. Glintsvetmeta) *Zavodskaya Lab.* 11, 381-5(1945). — Sep. the Fe with NH_4OH as $Fe(OH)_3$, filter, wash the ppt. off the filter with hot water back into the flask, add 20 ml. of HCl (d. 1.12), dil. the soln. with water to 80 ml., heat to boiling, reduce Fe^{+++} by adding $SnCl_2$ dropwise until the soln. is decolorized, add 1-2 drops excess $SnCl_2$, expel the air from the flask by adding a little $NaHCO_3$, add 1 drop of silico-molybdic acid (a blue color is formed), and titrate with $Cr_2O_7^{--}$ until the color becomes light green. Cool the soln. in running water, dil. with water to 100-200 ml., add 4 drops of phenylanthranilic acid, and titrate with $Cr_2O_7^{--}$. When a persistent red color appears at the contact point of the $Cr_2O_7^{--}$ droplets, add 4 more drops of the indicator, and continue the titration slowly with const. mixing until a persistent pinkish red color appears. The quantity of the $Cr_2O_7^{--}$ soln. used for the 1st titration (oxidation of excess $SnCl_2$) is not considered in the calcns. Six references.

W. R. Henn

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



CA

Polarographic determination of lead and tin in ores. S. Yu. Tolubeg and R. M. Tal (Chem.-Anal. Lab. Gintsvetmet). *Zavodskaya Lab.* 11, 631-4(1945).—Moisten 0.2 g. of the ore in a 100-ml. Erlenmeyer flask with several drops of water, add 15 ml. of 6 *N* HCl, boil for 20 min. Filter through a dense filter, wash the ppt. by decantation 3-4 times with small quantities of 6 *N* HCl, collect the filtrate and wash waters in a 50-ml. measuring flask, and det. Pb in the filtrate. Transfer the insol. residue to the filter, wash with hot water until no reaction for Cl^- is obtained, and det. Sn in the residue. To det. Pb, add 1 g. $CaHPO_3$ or Na_2HPO_3 to the soln. in the measuring flask, heat until the soln. decolorizes owing to the reduction of Fe^{+++}, cool, and add 6 *N* HCl to the mark; transfer a portion of the soln. to the electrolyzer, pass H_2 for 10-15 min., and make a polarogram with a galvanometer sensitivity of 1:5, 1:10, 1:20, 1:50, and 1:100, depending on the content of Pb (velocity of Hg 10 drops per 5-16 sec., potential 2 v.). The conversion coeff. of the height of the wave to the Pb content is detd. by the addn. method. Calc. the Pb content by the equation $Pb = KA/10ah'$, (*K* is the conversion coeff. equal to $2.4/(H - h)$, *H* the height of the diffusion wave in polarizing a soln. to which Pb had been added, *A* the quantity of Pb added in mg., *h* the height of the wave in polarizing the sample soln., and *a* the wt. of the sample in g.). To det. Sn, transfer the insol. residue and the filter to an Fe crucible, ignite the filter at a low temp., cool, add 2 g. of NaOH, heat slightly until the NaOH melts (approx. 5-10 min.), mix the melt carefully several times, add approx. 0.5 g. of metallic Na (free of Na_2O) to the cooled (but still liquid) melt, heat the crucible for 5-10 min., transfer the crucible with the warm melt to a 100-ml. beaker contg. approx. 10 ml. of hot water, ext. the melt completely, remove the crucible from the beaker, wash with a min. quantity of water (not exceeding 20 ml.), transfer the soln. to a 50-ml. measuring flask, add 15 ml. of concd. HCl in 2-3 portions, add 1 g. of $CaHPO_3$ or Na_2HPO_3, heat until decolorized, cool, and add concd. HCl (1:19) to the mark; transfer the portion of the soln. to the electrolyzer, pass H_2 for 10-15 min., and make a polarogram (potential 2 v., galvanometer sensitivity 1:10, 1:20, 1:50, 1:100, depending on the Sn content in the sample). Det. the conversion coeff. of the height of the wave to the content of Sn either with pure salts or by the addn. method. Det. the Sn content by $Sn = KA/10ah'$, (*K* is the conversion coeff. equal to A/H, *H* the height of the diffusion wave of the standard Sn soln., *A* the quantity of Sn added in mg., *h* the height of the wave in polarizing the sample soln., *a* the wt. of the sample in g.). The results of analyses for the contents of Pb and Sn by the polarographic and chem. methods were approx. the same. Eight references. W. R. Henn

A58-51A METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

CA

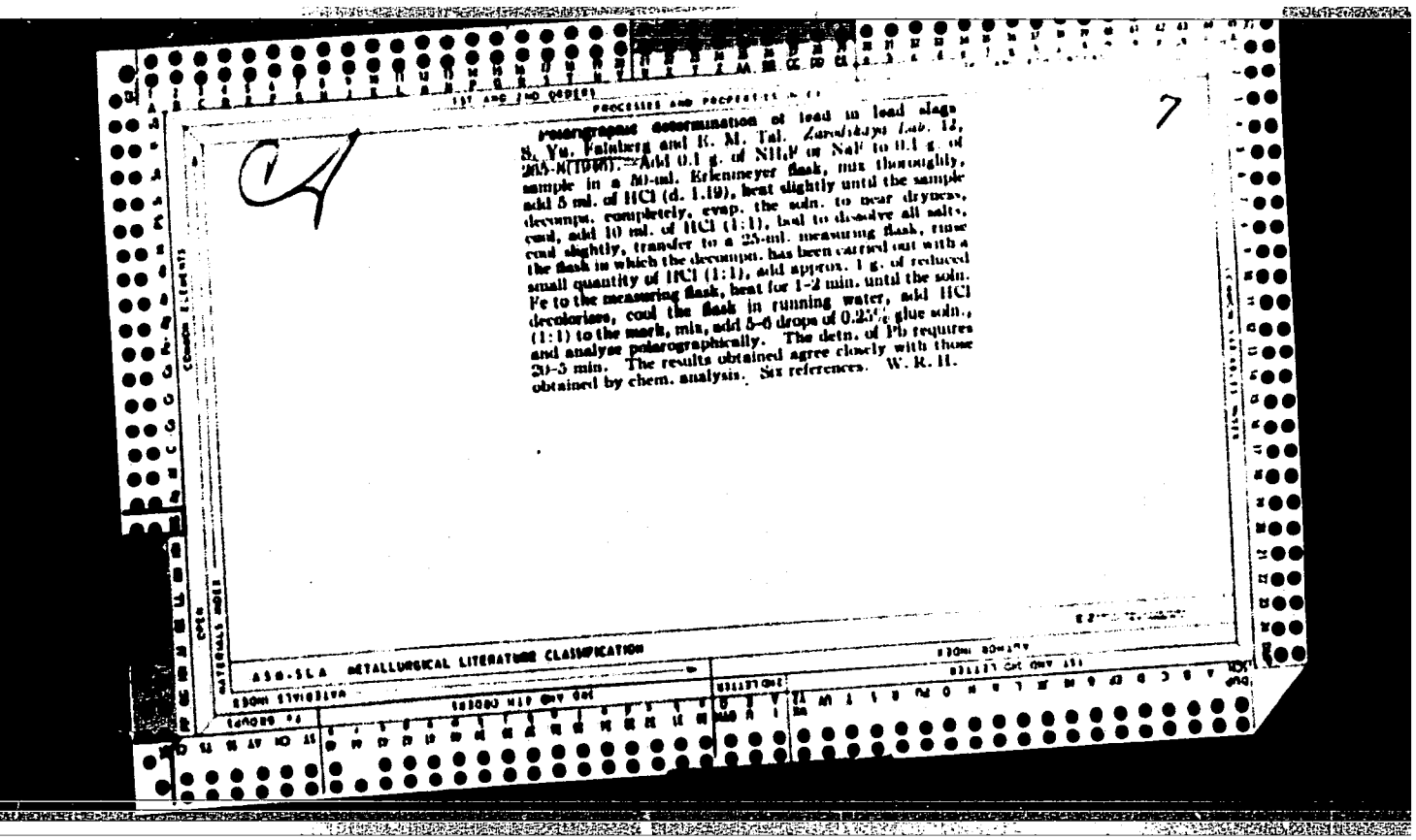
7

Colorimetric determination of zinc and aluminum in tin- and lead-tin solders. S. Yu. Fainberg and T. V. Zaglodina. *Zavodskaya Lab.* 11, 1110-12(1945). —*To det. Zn in Sn* dissolve 1 g. of Sn by heating in HCl (d. 1.19) 5 ml. + HNO_3 (d. 1.4) 1 ml. in a 100-ml. beaker covered with a watch glass, wash the watch glass with 5 ml. of HCl (d. 1.19), and evap. the soln. to near dryness, repeating the procedure 5 times. Cool the residue, add 0.6 ml. of HCl (1:1) and 10 ml. of water, heat to boiling, pass in H_2S for 5 min., filter, collect the filtrate in a 100-ml. Erlenmeyer flask, wash 3 times with HCl (1:100) contg. a little H_2S, evap. the filtrate until the H_2S odor disappears, add 2 drops of H_2O_2, evap. to 2-3 ml., dil. with hot water to 5 ml., add 1 drop of methyl red and 25% NH_4OH dropwise until the color changes, add 1 drop of excess NH_4OH, cover with a watch glass, heat for 20 min. without bringing the soln. to boiling, filter off $Fe(OH)_3$ and $Al(OH)_3$, wash 3 times with hot NH_4OH (1:100) (use the residue to det. Al), evap. the filtrate to 5 ml., place the beaker in another slightly larger beaker filled with hot water, add, with mixing, 0.5 ml. of 8-hydroxyquinoline soln. (2 g. of 8-hydroxyquinoline dissolved in 3 ml. of glacial AcOH and dild. with hot water to 200 ml.) and 0.5 ml. of satd. AcONa, heat for 20 min. at 80-90°, let stand in hot water for 15 min., cool, filter, wash the residue several times with hot water (approx. 2-3 ml. each time), dissolve the ppt. on the filter in 3 ml. of hot HCl (1:10), wash the filter 3-4 times with hot water, collect the filtrate in the beaker in which the pptn. had been carried out, add 0.5 ml. of sulfanilic acid, 0.5 ml. of HNO_3, and 10 ml. of 25% NH_4OH, transfer the soln. to an Egerts cylinder, wash the beaker with water, bring the vol. to 30 ml., mix, and compare the color with that of a color scale prepd. simultaneously with the analysis. *To det. Al in Sn* dissolve the $Fe(OH)_3$ and $Al(OH)_3$ ppts. on a filter in 1.5 ml. of hot HCl (1:10) added in 3 equal portions, collect the soln. in the flask in which the pptn. had been carried out, wash the filter 4 times with a min. quantity of hot dild. HCl (1:100), evap. the soln. to 3 ml., cool, add 2 ml. of 10% KCNS or NH_4CNS and 3 ml. of iso-AmOH, shake, and sep. the aq. layer from the iso-AmOH layer in a small sepg. funnel. After the sepn. of Fe, evap. the soln. to near dryness, cool the ppt., add 10 ml. of water, 1 ml. of 0.1% aluminon, and 0.5 ml. of 0.3% starch soln., transfer the soln. to an Egerts cylinder, bring the soln. to 30 ml. with a buffer soln., mix, place the cylinder in a beaker with hot water (90-5°) for 10 min., remove it from water, and compare the color after 30 min. with a color scale prepd. simultaneously with the analysis. *To det. Zn and Al in solders,* dissolve 1 g. of the alloy by heating slightly in 30 ml. of HCl (d. 1.19) in a 100-ml. beaker covered with a watch glass, add H_2O_2 until the color of the soln. changes, heat, evap. the soln. to near dryness, cool, add 5 ml. of HCl (d. 1.19), evap. to dryness (avoiding overheating), cool, add 10 ml. of HCl (d. 1.045), mix carefully, cool, filter the $PbCl_2$ formed, wash the ppt. 3 times with cold HCl (d. 1.045), using a total of no more than 7-8 ml., add 1 drop of H_2O_2 to the filtrate, repeat the evapn. to dryness once or twice after adding 5 ml. of HCl (d. 1.19) and 1 drop of H_2O_2, and complete the analysis as in detns. of Sn.

W. R. Henn

Five references.

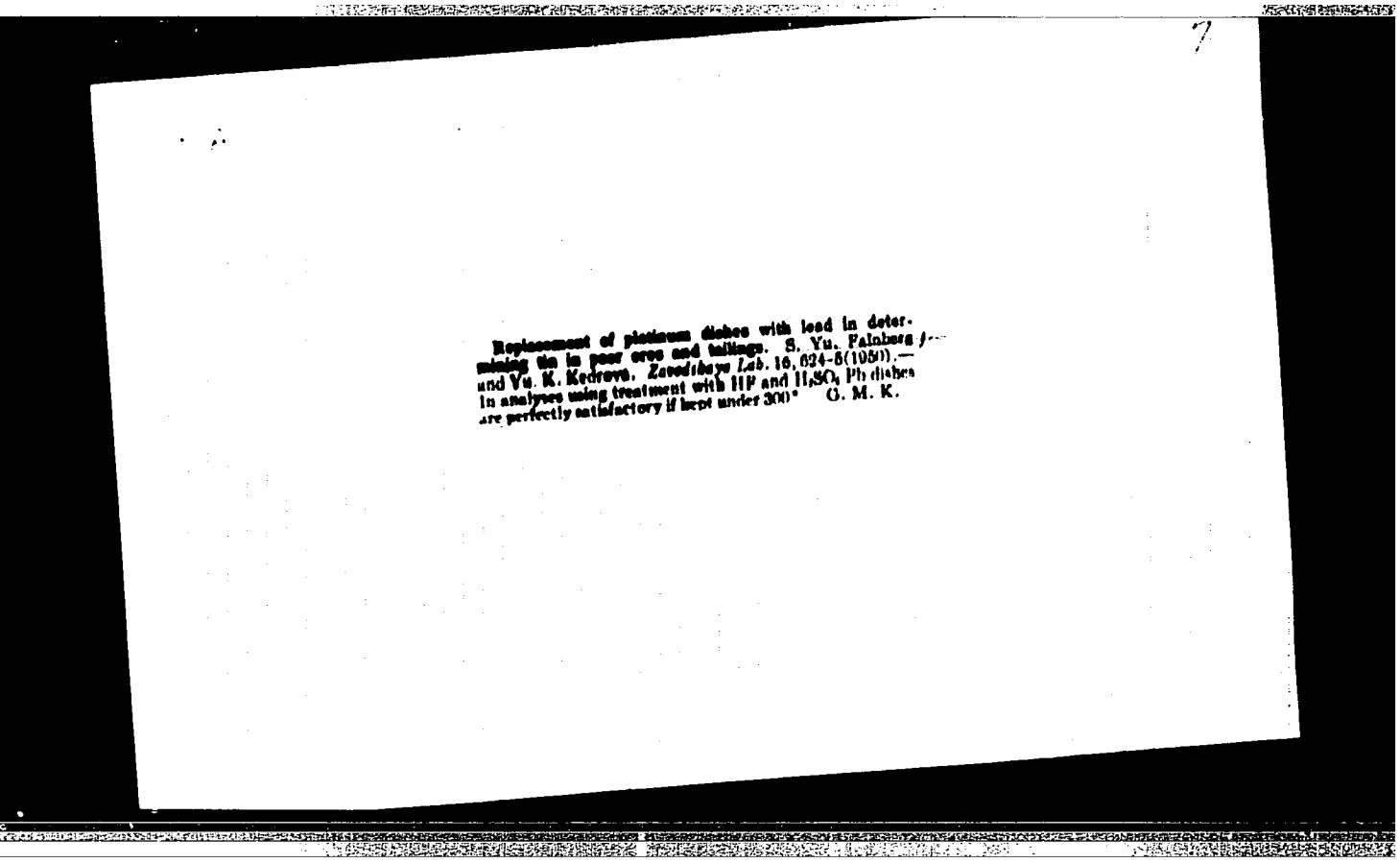
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



PROCESSES AND PROPERTIES

Polarographic determination of lead in lead slags. S. Yu. Falnberg and K. M. Tal. *Zavodskaya Lab.* 12, 205-8(1946). Add 0.1 g. of NH_4F or NaF to 0.1 g. of sample in a 50-ml. Erlenmeyer flask, mix thoroughly, add 5 ml. of HCl (d. 1.19), heat slightly until the sample decomps. completely, evap. the soln. to near dryness, cool, add 10 ml. of HCl (1:1), heat to dissolve all salts, cool slightly, transfer to a 25-ml. measuring flask, rinse the flask in which the decompn. has been carried out with a small quantity of HCl (1:1), add approx. 1 g. of reduced Fe to the measuring flask, heat for 1-2 min. until the soln. decolorizes, cool the flask in running water, add HCl (1:1) to the mark, mix, add 5-6 drops of 0.25% glue soln., and analyse polarographically. The detn. of Pb requires 20-3 min. The results obtained agree closely with those obtained by chem. analysis. Six references. W. R. H.

A50-51A METALLURGICAL LITERATURE CLASSIFICATION



7

Replacement of platinum dishes with lead in determining tin in poor ores and tailings. S. Yu. Falinova and Yu. K. Kedrova. *Zavodskaya Lab.* 16, 624-5(1950).—In analyses using treatment with HF and H_2SO_4 Pb dishes are perfectly satisfactory if kept under 300°. G. M. K.

C. A.

1

Determination of lead in ores containing barium and in their concentration products. S. Yu. Falnberg, L. B. Zalchikova, and S. M. Fraiberg. *Zavodskaya Lab.* 16, 771–4 (1950).—The titrimetric detn. of Pb as chromate from HNO_3 soln. is described. For small amts. the iolometric titration is advised; for large amts. titration with Mohr salt and $K_2Cr_2O_7$ with phenylanthranilic acid indicator is satisfactory. G. M. Kosolapoff

State Inst-Nonferrous Metals

FEYNBERG, S.Yu.; ALIMARIN, I.P., professor, doktor, retsenzent; SOCHEVANOV, V.G., kandidat khimicheskikh nauk, retsenzent; TITOV, V.I., kandidat khimicheskikh nauk, retsenzent.

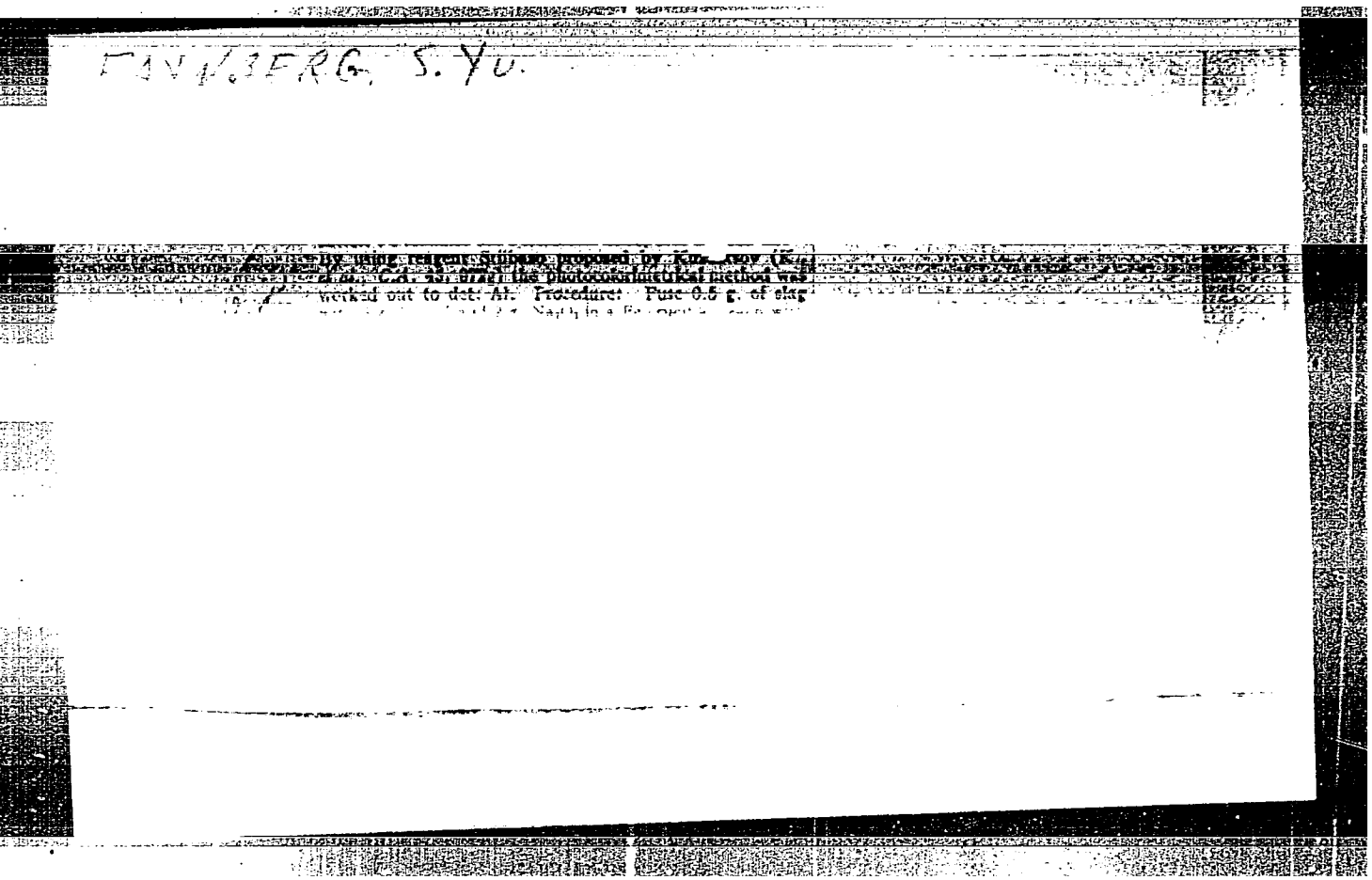
[Analysis of ores of non-ferrous metals] Analiz rud tsvetnykh metallov. 2. ispr.i dop. izd. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1953. 832 p. (MLRA 7:4)
(Assaying)

FAYNBERG, S. YU.

Determination of silicon dioxide in dusts of mines of nonferrous metals. S. Yu. Faĭnberg and A. A. Blyakhman. *Analiz Rud Tsvetnykh Metal. i Produktov ikh Pererabotki* 1956, No. 12, 111–18.—Improved procedures are given for the routine pyrophosphate method to det. the free SiO_2 in mine dusts. Treat a portion of the sample, 1st with pyrophosphoric acid and then with HNO_3 (HNO_3 dissolves all formed phosphates and pyrophosphates of metals). The method gives satisfactory results for dusts contg. SiO_2 from 9 to 60%. The variation of errors are between 0.5 and 2%. Dusts contg. high amts. of Pb, or other metals forming alloys with Pb, should be treated with HNO_3. N. C.

2

Chem



FAYNBERG, S. Yu.

USSR/Analytical Chemistry. General Topics. G-1

Abs Jour : Referat. Zhurnal Khimiya, No 6, 1957, 19460.

Author : S.Yu. Faynberg, L.B. Ginzburg.
Inst :
Title : Experiment of Application of Mathematical Statistical Method to Establish Norms of Permissible Discrepancies of Assay Results.

Orig Pub : Zavod. Laboratoriya, 1956, 22, No 10, 1157-1166.

Abstract : The method of mathematical statistics was used to develop the norms of permissible discrepancies at the assaying of products of the Pb, Zn, and Cu industries. 5,820 assays were made for the Pb and Zn industries and 9,140 assays were made for the Cu industry. The following formulae were used for the mathematical treatment of the results: $(a = x_1 + x_2 + x_3 \dots x_n)/n$; $S = \sqrt{(x_1 - a) + (x_2 - a) + \dots + (x_n - a)}/n$; σ % (relative = $100\sigma/a$. It was established that the reproduction of results depended little on the assayed

Card 1/2 -1-

Abs Jour : Referat. Zhurnal Khimiya, No 6, 1957, 19460.

product and varies depending on the contents of the determined component. The degree of error distribution followed the law of the normal distribution; 70% of the results differ $\leq \sigma$ from a (arithmetical mean) of the series. The value 2 was proposed as the norm of the permissible discrepancy. It was proved statistically that the ferrocyanide method with the use of an exterior indicator is not applicable at < 1% of Zn; the polarographic method gives better results. The method of the determination of Al_2O_3 by difference gives badly reproducible and often wrong results; it is recommended to use direct methods (weight determination in the form of oxide of phosphate.

State Sci. Res. inst. of non-ferrous metals

FAYNBERG, S. Yu.

AUTHOR: FAYNBERG,S.Yu., ELYUSHAN,A.A., STAVKOVA,S.K. 32-4-9/54

TITLE: Analysis of the Slags of Copper- and Lead Meltings. (Analiz shlakov mednoy i svintsovoy plavok, Russian)

PERIODICAL: Zavodskaya Laboratoriya, 1957, Vol 23, Nr 6, pp 647-652 (U.S.S.R.)

ABSTRACT: In this paper an accelerated form of analysis is recommended which makes it possible to obtain results of undiminished accuracy by employing photocolorimetrical methods. For this purpose it is recommended to melt a slag binding in an iron vat with an addition of alkali and, in the solution obtained, to carry out photocalorimetric investigations to determine the content of aluminum oxide, silicon dioxide, magnium oxide, and the volume ratio of calcium oxide. It is thus possible, by the addition of metal alkali fluorides, in individual slag amounts decomposed by the action of acid, to determine the content of iron, copper, lead, and zinc according to known methods. For the colorimetric determination of aluminum a reagent recommended by V.I.KUZNYEZOV in 1950 is suggested, which results in pinkish-red color in the case of pH = 5,2 - 5,6. For the determination of magnium oxide colorimetric treatment with titanium iron is recommended, in which case it is, however, necessary first to eliminate disturbing elements from the solution.
For the determination of calcium oxide a method developed by A.M.DYMOV and Mme. E.T. ROZHKOVA is recommended, which is based upon the

Card 1/2

Analysis of the Slags of Copper- and Lead Meltings.

precipitation of potassium oxalate in the presence of iron and other metal components with pH = 3,7. As an indicator bromine phenol or methyl orange should be used.
The analysis of Al_2O_3, MgO, SiO_2 and CaO is described on the basis of 3 drawings and 4 tables.

ASSOCIATION: Not given
PRESENTED BY:
SUBMITTED:
AVAILABLE: Library of Congress

Card 2/2

State Sci Res. inst. of non-ferrous metal

SOV/137-58-8-18158

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 8, p 279 (USSR)

AUTHORS: Faynberg, S. Yu., Blyakhman, A. A., Stankova, S. M.

TITLE: Analysis of the Dusts of the Lead, Copper, and Zinc Industries (Analiz pyley svintsovogo, mednogo i tsinkovogo proizvodstva)

PERIODICAL: Sb. nauchn. tr. Gos. n.-i. in-t tsvetn. met., 1958, Nr 14, pp 29-50

ABSTRACT: The analysis of dusts is begun with the determination of As and Sb, after which Sn, Se, Te, and Mo are determined. At an Sb contents of < 0.5% the colorimetric method is used with the violet crystalline [filter (?); Transl. Ed. Note], or the iodide method after precipitation of Sb on copper foil. When the Sb contents is > 0.5%, the volumetric bromatometric method is used. In determining Sn, the As is first distilled off in the form of the trichloride, Sb is precipitated with H_2S, then Sn is precipitated together with Fe hydroxide by ammonium. The residue is fused in an iron crucible with a mixture of Na_2O_2 and NaOH, and the determination of Sn is completed by the iodometric method. Se is separated from Te, Au, and other elements by distillation in the form of tetrabromide which is

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SOV/137-58-8-18158

Analysis of the Dusts of the Lead, Copper, and Zinc Industries

collected in water where it is decomposed with the formation of selenious and hydrobromic acids. The amount of Se in the distillate is determined iodometrically. Te is reduced with $SnCl_2$ in the solution remaining in the distillation flask after the distillation of Se. The determination of Te is completed iodimetrically. The determination of Mo is carried out colorimetrically with NH_4SCN and thiourea in the presence of $\geq$ 10 mg of Cu, if there is up to 1 mg of Se and up to 0.25 mg of Te. Otherwise Mo is separated from Se and Te by sulfur dioxide or by sintering with a mixture of Na_2CO_3 and ZnO. Ni is determined colorimetrically upon preliminary concentration by precipitation with solid dimethylglyoxime (I). The test sample is decomposed by acids with the addition of an alkaline-metal fluoride, the solution is evaporated with H_2SO_4 and after dilution the insoluble residue and the Pb sulfate are filtered off. The mineral acid is neutralized and Ni is precipitated from the acetic-acid medium with solid I. After prolonged settling the precipitate is filtered off, the I is decomposed with HCl and H_2SO_4, and in the resulting solution the Ni is determined photocolorimetrically. C is determined by burning in a current of O_2.

1. Particles (Airborne)—Colorimetric analysis
2. Metals—Determination

K. K.

Card 2/2

AUTHORS: Faynberg, S.Yu., Blyakhman, A.A., Filatova, L.N. 32-1-5/55

TITLE: A Rapid Method of Determining Copper, Lead, and Zinc in Polymetallic Ores and Their Concentrates (Skoryy metod opredeleniya medi, svintsa i tsinka v polimetallicheskikh rudakh i produktakh ikh obogashcheniya).

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol. 24, Nr 1, pp. 18-20 (USSR)

ABSTRACT: The method recommended here consists in determining copper by means of iodine fluoride and following complexometric titration, first with respect to lead, and later with respect to zinc. Before the lead titration iron, copper, zinc, and cadmium must be converted into the complex cyanides. By means of formalin it is possible, in the first line, to destroy the complex cyanides of zinc and cadmium. This property makes it possible to titrate lead in the presence of cyanide zinc with trilon, and, after the addition of formalin from the same solution , to titrate zinc with the same trilon. For the purpose of masking calcium, magnesium, and aluminum, ammonium fluoride is used. The authors further express their regret that the indicators for the complexometric determination of the aluminum content, which are mentioned in publications,

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A Rapid Method of Determining Copper, Lead, and Zinc in Polymetallic Ores and Their Concentrates 32-1-5/55

"are nowhere to be found". If they were available, it would be possible to find out whether they are suited also for zinc-titration. With respect to the content of manganese it is said that it cannot be masked either with fluoride or with calcium cyanide; it can be titrated solely together with lead, and therefore a separate determination of the manganese content by this method is impossible. The paper gives tables of results and the process of analysis is described. There are 2 tables and 6 references, 1 of which is Slavic.

ASSOCIATION: State Scientific Research Institute for Nonferrous Metals (Gosudarstvennyy nauchno-issledovatel'skiy institut tsvetnykh metallov).

AVAILABLE: Library of Congress

Card 2/2 1. Copper-Determination 2. Lead-Determination 3. Zinc-Determination

FAYNBERG, S.Yu.; FILATOVA, L.N.

Complexometric determination of copper in raw and dressed ores.
Zav. lab. 24 no.5:534-535 '58. (MIRA 11:6)

1. Gosudarstvennyy nauchno-issledovatel'skiy institut tsvetnykh metallov.
(Copper—Analysis) (Titration)

FAYNBERG, Solomon Yul'yevich; FILIPPOVA, Nina Aleksandrovna; KLIMENKO, Yu.V., kand. tekhn.nauk, retsenzent [deceased]; PAKHOMOVA, K.S., kand. tekhn.nauk, retsenzent; TITOV, V.I., red.; ARKHANGEL'SKAYA, M.S., red.izd-va; DOBUZHINSKAYA, L.V., tekhn. red.

[Analysis of nonferrous metal ores] Analiz rud tsvetnykh metallov. 3., ispr. i dop. izd. Moskva, Metallurgizdat, 1963. 871 p. (MIRA 16:10)

(Nonferrous metals--Analysis)

FAYNBERG, V.B., doktor meditsinskikh nauk (Yaroslavl')

Methods of auscultating the fetal heart beat. Fel'd. i akush. no.9:10-14 S '54. (MLRA 7:11)

(FETUS
heart, ausculation methods)
(HEART
fetal, ausculation, methods)

FAYNBERG, V. B.

USSR/ Biology - Embryology

Card 1/1 : Pub. 22 - 45/46

Authors : Gutner, I. I, and Faynberg, V. B.

Title : Evolution in the structure of the yolk pocket in 3 - 10 weeks old human embryos

Periodical : Dok. AN SSSR 97/4, 745-748, Aug 1, 1954

Abstract : Medical report on the evolution of the yolk pocket structure in 3 - 10 weeks old human embryos. Twelve references: 4-German; 2-USA; 4-USSR; 1-French and 1-Italian (1896-1950). Illustrations.

Institution : State Medical Institute, Yaroslav

Presented by : Academician K. I. Skryabin, May 3, 1954

FAYNBERG, V.B.

USSR/Morphology of Man and Animals. Embryology and Developmental Anomalies. S-5

Abs Jour: Referat Zh.-Biol., No 1, 10 January, 1958, 2919.

Author : Gutner LL, Fainberg V.B.
Inst :
Title : Evolutional Development of the Yolk Sac from the 10 Week Embryo to the End of Uterine Life.

Orig Pub: Dokl. AN SSSR, 1955, 103, No 5, 933-936.

Abstract: Toward 10 weeks of gestation the internal endodermal yolk sac epithelium is destroyed and is sloughed off. Detritus which includes epithelium and disintegrating phagocytes is found in the yolk sac cavity. Large numbers of phagocytes are found in mesenchyma bordering the cavity. The mesenchyma becomes loose toward the periphery and contains unattached cellular elements. On the periphery of the yolk sac, the mesenchyma becomes denser and is vascular. After 12-13 weeks the vessels

Card : 1/2 -7-

Yaroslavl' State Med. Inst.

FAYNBERG, V.B., doktor meditsinskikh nauk

Use of a suction apparatus in the surgical practice of an obstetrician-gynecologist. Sov.med. 21 no.2:96-97 F '57. (MLRA 10:6)

1. Iz Yaroslavskogo gorodskogo rodil'nogo doma No.2 (glavnyy vrach N.N.Zelenova)

(GYNECOLOGY, surg.
use of suction appar. for removal of blood)
(APPARATUS AND INSTRUMENTS
suction appar., use for removal of blood in gyn.surg.)

FAYNBERG, V.V., doktor meditsinskikh nauk

"Abscesses of the pelvis minor in women" by D.N.Atabekov. Reviewed by V.V.Fainberg. Sov.med.21 no.2:146-148 F '57. (MLRA 10:7)
(PELVIS--ABSCESS) (ATABEKOV, D.N.)

FAYNBERG, V.B., doktor med.nauk (Pskov)

Work of the chief provincial gynecologist and obstetrician. Vop.okh. mat. i det. 4 no.5:70-74 S-O '59. (MIRA 13:1)
(GYNECOLOGY)

FAYNBERG, V.B. (Tartu, Estonskaya SSR, ul.21 iyunya,1,kv.13)

Development of the structure of the vitelline sac in man from the fourth week of growth of embryonic life until birth (Macroscopic data). Arkh. anat. gist. i embr. 42 no.1:38-45 Ja '62. (MIRA 15:4)

1. Kafedra akusherstva i ginekologii (zav. - doktor med. nauk B.V. Faynberg) Tartuskogo gosudarstvennogo universiteta.
(EMBRYOLOGY, HUMAN)

FAYNBERG, V.B., prof.

Resistance of the cervix of prolapsed uterus to cancer. Sov. med. 28 no.6:47-49 Je '65. (MIRA 18:8)

1. Kafedra akusherstva i ginekologii (zav.- prof. V.B. Faynberg) Tartuskogo gosudarstvennogo universiteta.

FAYNBERG, V.B., doktor med. nauk

Partogram, a method of graphic representation of the course of labor. Akush. i gin. 39 no.5:126-128 S-O '63. (MIRA 17:8)

1. Iz kafedry akusherstva i ginekologii (zav. - doktor med. nauk V.B. Faynberg) Tartuskogo universiteta i Tartuskogo klinicheskogo rodil'nogo doma (glavnyy vrach A.N. Vishnitskaya).

FAYNBERG, V.N.

82112
S/184/60/000/02/05/006

18.3400

AUTHOR: Faynberg, V.N., Engineer

TITLE: The Practice of Using a Gamma Flaw Detector With a Scintillation Counter

PERIODICAL: Khimicheskoye mashinostroyeniye, 1960, No 2, pp 41 - 43

TEXT: A gamma flaw detector with a scintillation counter is used at the Uralkhimmash Plant for the x-ray inspection of parts equivalent in thickness to 200 mm steel or more. The author describes this device briefly and discusses in more detail the procedure of locating flaws. Equipment of this type was designed for the first time by the Soviet scientists I.G. Fakhidov and A.A. Samokhvalov (Refs 1 and 2). The device is based on the principle of amplifying the electron current produced by a phosphor exposed to gamma radiation. A Co^{60}-isotope from the "ГУП -Co-0,5-1" (GUP-Co-0,5-1) industrial gamma set in a protective casing is used as the radiation source. It may be replaced by a stronger gamma source if required. The window of the casing is shielded by a thick lead hood with two openings of 10 - 15 mm diameter. One opening is located exactly in the center and serves as the working channel for

Card 1/3

The Practice of Using a Gamma Flaw Detector With a Scintillation Counter

the gamma rays. The second opening is located at an angle of 25° in respect to the axial opening and is used for determining the depth of the flaw. Two holders with adjusting bolts are mounted on a bar opposite of the gamma source, thus they are located on the other side of the part to be inspected. One lead hood is fastened to each of the holders. Each lead hood has one opening of 15 mm diameter and contains a phosphor and a "ФЭУ-19" (FEU-19) photoelectronic multiplier; the latter is operated at voltages ranging from 1 - 1.25 kv. One holder is fixed; the axis of its hood coincides with the axis of the gamma source. The second holder can move along the bar to which it is fastened and can be turned to any given angle. Source and receiver are connected by a П -shaped bracket, whose upper part is fastened to a bar. An electric device moves the П -shaped bracket along the bar for a given distance. The bar itself is moved up and down by a pulse device. After having completed one pass in one direction, the bracket is moved in the opposite direction, while the bar itself is lowered by the required distance. After having performed the required number of passes, the system is stopped automatically. The recording equipment (current amplifier, high-voltage rectifier, ferroresonance stabilizer

The Practice of Using a Gamma Flaw Detector With a Scintillation Counter

and the "ЭПП -09М" (EPP-09M) selfrecording potentiometer) is installed in one cabinet which is located in a separate room. The flaw detector used at the Uralkhimmash Plant is operated by one person who watches the recorder and marks the location of the flaws on the product to be inspected. An electric pistol for marking the flaws may be connected either to the source or to the receiver. The detector is operated at speeds of 5, 10, 20 and 35 cm/min. A zero drift of the amplifier was not observed even during 24-hour operation. Regardless of shop conditions, the instruments meet all requirements. The gamma flaw detector can be used for determining the density of materials over large sections. A typical defectogram is shown in Figure 5. A flaw was detected at a depth of 80 mm in a plate of 255 mm thickness. A Co^{60} gamma source of 0.4 Cu was used. The voltage at the FEU-19 photoelectronic multiplier was 1.2 kv. The evaluation of defectograms is explained.
There are: 6 graphs and 4 Soviet references.

Card 3/3

20390

S/184/61/000/001/008/014
A104/A029

21.7100

AUTHOR: Faynberg, V.N., Engineer

TITLE: Radioscopy of Thick Cast Iron Slabs by Gamma-Rays

PERIODICAL: Khimicheskoye Mashinostroyeniye, 1961, No. 1, pp. 40-42

TEXT: Experiments on establishing the thickness limits of X-rayed iron applicable to the cobalt-60 - iron system and defects not exceeding 10% of the examined slabs carried out by Uralkhimmash are described. At the interaction of gamma-quanta of cobalt-60 with iron atoms compton scattering must be taken into consideration. This scattering results in the expansion of the narrow pencil of rays proportionally to the increasing thickness of the metal, thereby reaching the Gaussian distribution limit. Assuming the defect dimensions to be moderate compared to the medium length of the free trace of the scattered quantum, it appears that a certain amount of gamma quanta fall on the spot of defect reproduction on the film without passing through the defect itself. They cause blackening of the reproduction, which grows stronger with an increase in the distance of the defect from the film and with a decrease of its dimensions.

Card 1/5

Radioscopy of Thick Cast Iron Slabs by Gamma-Rays

Fig. 1 shows the dependence of blackening density on the distance l of the defect from the film with respect to cast iron slabs of 180 mm, 225 mm, 260 mm, 280 mm, 300 mm, and 320 mm strength and ΔS variations of negative blackening of sections with and without defect reproduction. Generally, the distance at which the defect begins developing relative to the thickness of the slab tends to decrease. Extrapolation of these curves permits the strength limits to be determined with regard to the system source - X-rayed object, beyond which radioscopy with view to obtaining photographs with minimum permissible contrast is impossible. For the cobalt-60 - iron system this limit is reached at 340 mm (if the slab is X-rayed from both sides) and 260 mm (for one-side radioscopy). In view of the sharper contrast of reproduction of defects close to the film, particular attention was paid to absolute purity of the slab surface as impurities might lead to distortion of the photographic data. The best results were obtained with highly sensitive "Agfa" roentgen films and P-X (R-Kh) films, though the latter loose their properties after longer storage. Irrespective of the type of film used, the cassette was placed between two lead foils and two fluorescent screens. These do not affect the quality of thick slab

photographs. Use of scattered radiation is important in the X-raying of strong slabs. The greater the number of gamma-quanta passing through the film and returning to it, the shorter the time of exposure. There is a general positive blackening of the film, but this does not affect the readability of the photograph. Satisfactory results were obtained with a 5-mm lead plate placed closely behind the cassette. One defectometer was placed in front of the slab, a second one between the slab and the film. Two defectometers simplify the reading of the photographs. The focusing distance was kept as close as possible in order to reduce the time of exposure, thereby bearing in mind that the diameter of the gamma-quanta pencil falling onto the film must not be greater than the film itself. A distance of 700 mm yielded the best results, less than 600 mm proved detrimental to the quality of the photographs. The use of a supplementary lens with 36° opening improved the contrast of 300-400 mm^2 films at 700 mm focusing distance. Practice showed that exposure curves obtained by calculation were unreliable, therefore, the duration of exposure was determined by experimental data obtained from a constant activity source. As the result of scattering a "dead zone" becomes apparent above a certain thickness. In slabs of up to a maximum of 260 mm this "dead zone" could be

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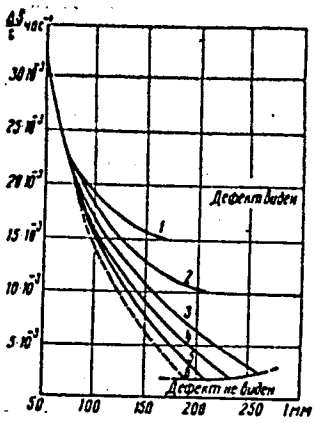
Radioscopy of Thick Cast Iron Slabs by Gamma-Rays S/184/61/000/001/008/014
A104/A029

avoided, stronger slabs had to be X-rayed from both sides. Defects close to the film were easily detected; at greater distance the sharpness of reproduction decreases until blending completely with the blackening from extraneous radiation. The readability of photographs decreases proportionally to increasing thickness of the slabs, which emphasizes the importance of careful reading. Certain impurities, e.g., black spots, etc., appeared in consequence of the long storage of films; as these could be erroneously taken for defects careful study of negatives is indicated. The high activity of the gamma-ray source ГУП-Co-501 (GUP-Co-50-1) required careful handling and additional precautions. There are 2 figures and 3 Soviet references.

Card 4/5

Radioscopy of Thick Cast Iron Slabs by Gamma-Rays S/184/61/000/001/008/014
A104/A029

Fig. 1



Card 5/5

21151

S/032/61/027/004/004/028
B110/B215

21.7100

AUTHOR: Faynberg, V. N.

TITLE: Control of thick-walled products by a gamma defectoscope with scintillation counter

PERIODICAL: Zavodskaya laboratoriya, v. 27, no. 4, 1961, 411-413

TEXT: The gamma defectoscope with scintillation counter developed at the Institut fiziki metallov AN SSSR (Institute of Physics of Metals of the AS USSR) gives reliable results at a dose of 0.3 microroentgen/sec. Cylindrical bars of different diameters are put on the specimen so that the signals recorded on an endless band can be read during the X-raying. Fig. 1 shows control diagrams for a plane-parallel casting 150 mm thick. The peak of the first curve corresponds to a cavity under the surface, 10 mm deep, those of curves 2 and 3 correspond to cavities 3 and 3.5 mm deep. The superficial bulging recorded in curve no. 4 is 1.5 mm deep. The optimum values of amplitudes of signal and noise I_s/I_n as dependent on the time constant RC were determined to ascertain the sensitiveness of

Card 1/7

the instrument. In calculating the natural fluctuation in the counting rate, the following ratio holds: $I_s/I_n \sim \sqrt{RC}$. In practice, however, deciphering is considered to be very simple for ratios of I_s/I_n which at a given velocity of the transmitting and receiving part of the defectoscope correspond to a certain RC interval. With increasing RC, deciphering is complicated more and more by a longer time of adjustment of the indicators. Fig. 2 shows optimum I_s/I_n values as a function of RC. They are shown as points, and were obtained during the examination of an iron casting by a radiation source of 0.28 g-equ. Ra, at a velocity of 35 cm/min. The ratio I_s/I_n decreases with increasing RC, and becomes constant when $RC \geq 0.5$. By applying the instrument to various places of the test specimen it was found that the place of its application had no effect upon the measurement if the layers were thin. With increasing thicknesses, however, well focused beams of rays in the metal are widened. When studying the dependence of the peak height on the dimensions of the defect, the former was found to be almost linear for thin layers, whereas slight increases in amplitude occurred with thicker

Control of thick-walled...

layers and larger defects. Fig. 5 shows the effect of material thickness on the ratio I_s/I_n for optimum values of the photomultiplier voltage U and time constant RC. For curve 1, the activity of radiation sources was 0.28, for 2, 0.35, and for 3, 0.6 g-equ. Ra. The following maximum layer thicknesses were obtained by comparing the commercial apparatus type ГУП-Со-0.5-1 (GUP-Co-0.5-1) and ГУП-Со-50-1 (GUP-Co-50-1) with the gamma defectoscope (Table): for GUP-Co-50-1 with irradiation on one side: 260 mm, on two sides: 340 mm. In two-side X-raying with the gamma defectoscope, the maximum was ~350 mm; the sensitiveness can still be increased by reducing the distance of the radiation source. This instrument, therefore, is well suited for thicker specimens. A. S. Kolchin is mentioned for his collaboration. There are 5 figures, 1 table, and 1 Soviet-bloc reference.

ASSOCIATION: Zavod Uralkhimmash (Uralkhimmash Plant)

Card 3/7

Control of thick-walled...

FIG. 1

Legend to Fig. 1: Working scheme.

Card 4/7

Control of thick-walled...

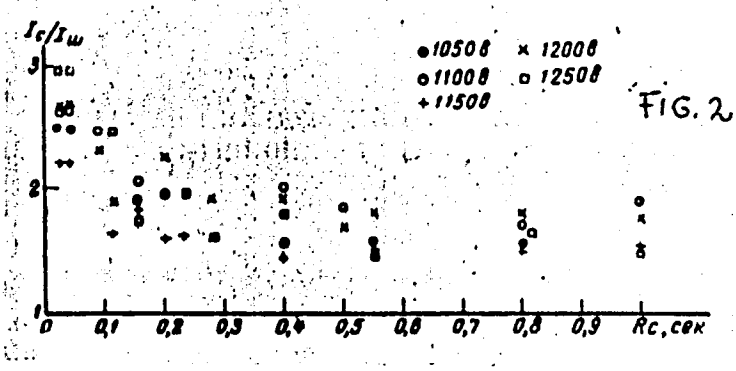


FIG. 2

Legend to Fig. 2: Dependence of sensitiveness on time constant.

Card 5/7

Control of thick-walled...

Legend to Fig. 5: Effect of activity of radiation source on the effectiveness of the control. Circles: defect of 5%, crosses: 10%.

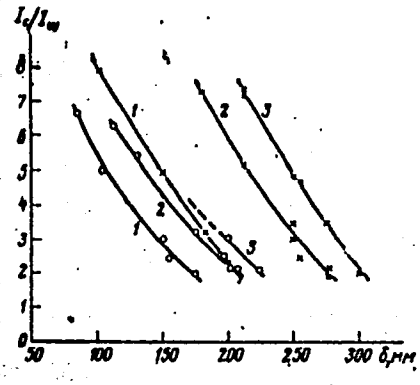


FIG. 5

Card 6/7

Control of thick-walled...

Legend to the table: Time of X-raying per m^2(hr) by various apparatus. (1) Thickness of produot; (2) time of X-raying by apparatus; (3) gamma defectoscope with scintillation counter; (4) 2 to 4 hr; (5) GUP-Co-0.5-1; (6) GUP-Co-50-1.

Время просвечивания на 1 м² (час) на различных установках

(1) Толщина изделия мм	(2) Время просвечивания на установках		
	(5) ГУП-Co-0,5-1	(6) ГУП-Co-50-1	(3) гамма-дефектоскоп со сцинтилляционным счетчиком
100	20	3	(4) От 2 до 4 час.
150	110	25	
200	—	70	
260	—	240	
300	—	320	

Card 7/7

ZELENIN, N.I.; FAYNBERG, V.S.

Developing methods for the cold fractionation of shale tar. Part 4: Effect of the nature of solvents on the yield of fractionation products. Khim. i tekh.gor.slan. i prod. ikh perer. no.12:264-277 '63. (MIRA 17:2)

ZELENIN, N.I.; SHALTYKO, G.Ye.; CHERNYSHEVA, K.B.; TATARKINA, G.V.; FAYNBERG, V. S.; YANKOVSKAYA, T.A.; Prinimali uchastiye: SOKOLOVA, Z.N.; KULESHOVA, A.A.; KRESTENKO, M.N.; BOBROV, V.V.; PIMENOVA, F.G.

Developing methods for the cold fractionation of shale tar. Part 5. Using light tar as wood impreganting oil. Khim. i tekh.gor.slan. i prod. ikh perer. no.12:278-284 '63. (MIRA 17:2)

1. Leningradskiy inzhenerno-ekonomicheskiy institut i Leningradskiy institut inzhenerov zheleznodorozhnogo transporta.

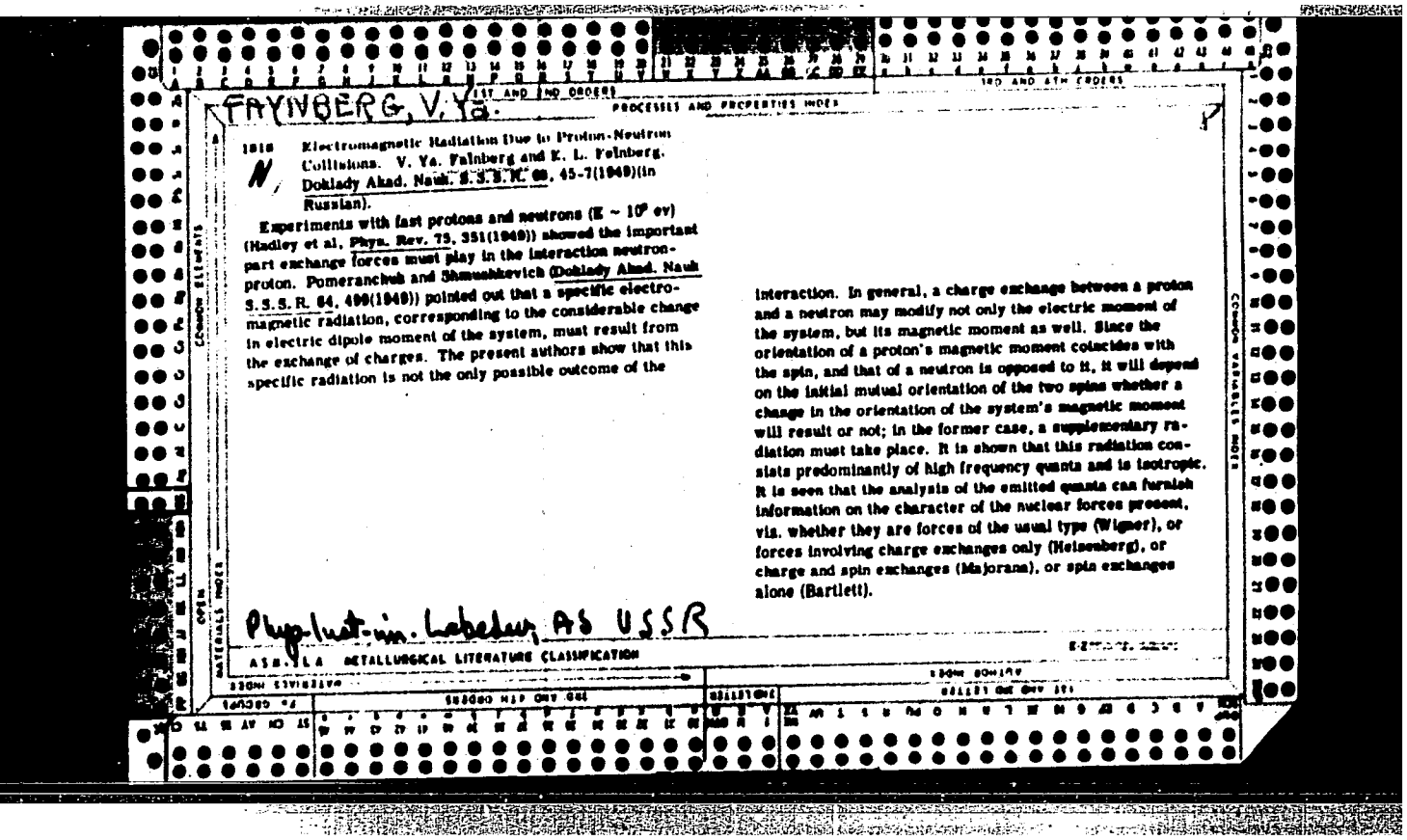
ZELENIN, N.I.; CHERNYSHEVA, K.B.; TATARKINA, G.V.; FAYNBERG, V.S.; YANKOVSKAYA, T.A.

Developing the method of cold fractionation of shale tar. Report No.4: Cold fractionation as a method for tar preparation. Khim. i tekh. gor. slan. i prod. ikh perer no.10:312-318 '64. (MIRA 18:9)

[redacted], V.Ya. and [redacted], M.S.

Electromagnetic radiation under impacts of protons-neutrons. (Presented by academician S.I. Vavilov* 6 July 1949. *Work conducted at Physical Institute* imeni Lebedev of Academy of Sciences USSR).

Reports of the Academy of Sciences USSR. Vol. 67, No. 2, Sept 1949.



FAYINBERG, V. Ya.

1818 Electromagnetic Radiation Due to Proton-Neutron Collisions. V. Ya. Fainberg and K. L. Folnberg. Doklady Akad. Nauk. S.S.S.R. 68, 45-7(1949)(in Russian).

Experiments with fast protons and neutrons (E ~ 10^8 ev) (Hadley et al, Phys. Rev. 75, 351(1949)) showed the important part exchange forces must play in the interaction neutron-proton. Pomeranchuk and Shmushkevich (Doklady Akad. Nauk S.S.S.R. 64, 499(1949)) pointed out that a specific electromagnetic radiation, corresponding to the considerable change in electric dipole moment of the system, must result from the exchange of charges. The present authors show that this specific radiation is not the only possible outcome of the interaction. In general, a charge exchange between a proton and a neutron may modify not only the electric moment of the system, but its magnetic moment as well. Since the orientation of a proton's magnetic moment coincides with the spin, and that of a neutron is opposed to it, it will depend on the initial mutual orientation of the two spins whether a change in the orientation of the system's magnetic moment will result or not; in the former case, a supplementary radiation must take place. It is shown that this radiation consists predominantly of high frequency quants and is isotropic. It is seen that the analysis of the emitted quants can furnish information on the character of the nuclear forces present, viz. whether they are forces of the usual type (Wigner), or forces involving charge exchanges only (Heisenberg), or charge and spin exchanges (Majorana), or spin exchanges alone (Bartlett).

Physicist-in. Laboratory AS USSR

FAYNBERG, V. Ya.

USSR/Nuclear Physics - Cascade Showers Jan 52

"Cascade Curve in Heavy Elements," V. Ya. Faynberg, Phys Inst imeni Lebedev, Acad Sci USSR

"Zhur Eksper i Teoret Fiz" Vol XXII, No 1, pp 112-119

Shows that the formulas for detg the nth moment of the distribution function of delta-form incident spectrum, obtained by Belen'kiy, are easily generalized to the case of arbitrary initial spectrum of particles. With the formulas obtained, calculates the 1st 2 moments in zinc taking into consideration the dependence of sigma upon energy, 204T86

USSR/Nuclear Physics - Cosmic Rays (Contd) Jan 52

on the assumption that the initial distribution of photons possesses the form 1/E. Submitted 22 Mar 51.

204T86

FAYNBERG, V. Ya.

Faynberg, V. Ya. -- "The Theory of the Interaction of Particles of Higher Spin With Electromagnetic and Meson Fields." Cand Phys-Math Sci, Physics Inst, Acad Sci USSR, Moscow 1953. (Referativnyy Zhurnal--Khimiya, No 1, Jan 54)

SO: SUM 168, 22 July 1954.

USSR.

530.145

9941. On a relativistic theory of the interaction of nucleons. I. E. TAMM, V. P. SILIN AND V. YA. FAINBERG. *Zh. eksper teor. Fiz.*, 24, *No.* 1, 3-13 (1953) In Russian.

It is shown that a relativistic treatment of two nucleons interacting through a pseudoscalar meson field with pseudovector coupling does not alter a previous conclution [I. Tamm, *Journal of Physics, USSR*, 9, 449 (1945)] about the instability of the system because of the pole at $r = 0$. The potential obtained from second-order perturbation theory is considered. In another section, the work of Levy [Abstr. 80 (1952)] concerning pseudoscalar mesons with pseudoscalar coupling is considered. It is shown that his conclusions of no binding and infinite energy for the two-nucleon system, are incorrect.

G. I. Gatovy

FAYNBERG, V.Ya.

USSR

530.145

2408. On the theory of excited states of nucleons. I. V. YA. FAINBERG. *Zh. éksper. teor. Fiz.*, 25, *No.* 6(12) 636–43 (1953) In Russian. 62

The uniqueness of the equations for a particle with 2 spins ($\frac{1}{2}$ and $\frac{3}{2}$) is discussed. It is shown that the equations for such particles studied by H. Bhabha [Abstr. 1445 (1952)] and V. L. Ginzburg. [*Zh. éksper. teor. Fiz.*, 13, 93 (1943)], are in fact equivalent. This is studied in more detail by writing the equations in a spin-tensor formalism analogous to that of Ginzburg [*Ibid.*, 12, 425 (1942)]. W. J. SWIATECKI

FAYNBERG, V.Ya.

USSR

530.145

On the theory of excited states of nucleons. II. V. Ya. FAINBERG. *Zh. eksper. teor. Fiz.*, 25, No. 6(12) 642-52 (1953) In Russian.

The aim of this work is the development of a perturbation treatment for the solution of equations with higher spins in the presence of interactions. The nature of the difficulties associated with the introduction of interactions in such equations is discussed; at the root is the fact that in the case of higher spins the number of components of ψ exceeds the number of linearly independent solutions, necessitating the introduction of auxiliary conditions. The method of Feynman [Abstr. 243, 2187 (1950)] is extended to particles with higher spin. [See also A. D. Galanin, Abstr. 9269 (1951), 7959-60 (1952)]. A method for the construction of the *S*-matrix for such particles is deduced in the case when the interaction Hamiltonian is not given. The expression for the inverse operator of the equations for a particle whose spin can be $\frac{1}{2}$ or $\frac{3}{2}$ is deduced in the spin-tensor formalism (see Pt I). The relation is given between the interaction constants of such a particle interacting with ps. scalar mesons in the case of ps. vector coupling. Out of the 6 interaction invariants, only 4 are independent. W. J. SWIATECKI

FAYNBERG, V. Ya.

262T72

USSR/Nuclear Physics - Pi-Mesons Jul 53

"Scattering of Pi-Mesons on Nucleons," V. P. Silin and V. Ya. Faynberg

Usp Fiz Nauk, Vol 50, No 3, pp 325-364

A survey analyzing exptl works, mostly non-Soviet, on a scattering of pi-mesons on nucleons (hydrogen and deuterium). Attempts to explain theoretically the laws observed in the expts.

262T72

USSR/Nuclear Physics - Pion-Nucleon Interaction

Card 1/1 : Pub 146-1/18 FD-713

Author : Tamm, I. Ye.; Golfand, Yu. A.; and Faynberg, V. Ya.

Title : Semiphenomenological theory of interaction of pions with nucleons. I

Periodical : Zhur. eksp. i teor. fiz., 26, 649-667, Jun 1954

Abstract : Analyze the scattering of pions by nucleons under damping. If adequate four free parameters are chosen, a satisfactory agreement with experimental data, with the angular distribution of scattered pions, and with the dependence of cross sections on energy within the tested energy range can be attained. 14 references, including 10 foreign.

Institution : Physics Institute imeni Lebedev, Acad Sci USSR

Submitted : January 6, 1954

FAYNBERG, V.Ya.

Theory of the interaction of higher spin particles and electromagnetic and mesonic fields. Trudy Fiz.inst. 6:269-332 '55. (MLRA 9:5)

(Particles, Elementary) (Field theory)

FAYNBERG, V.Ya.

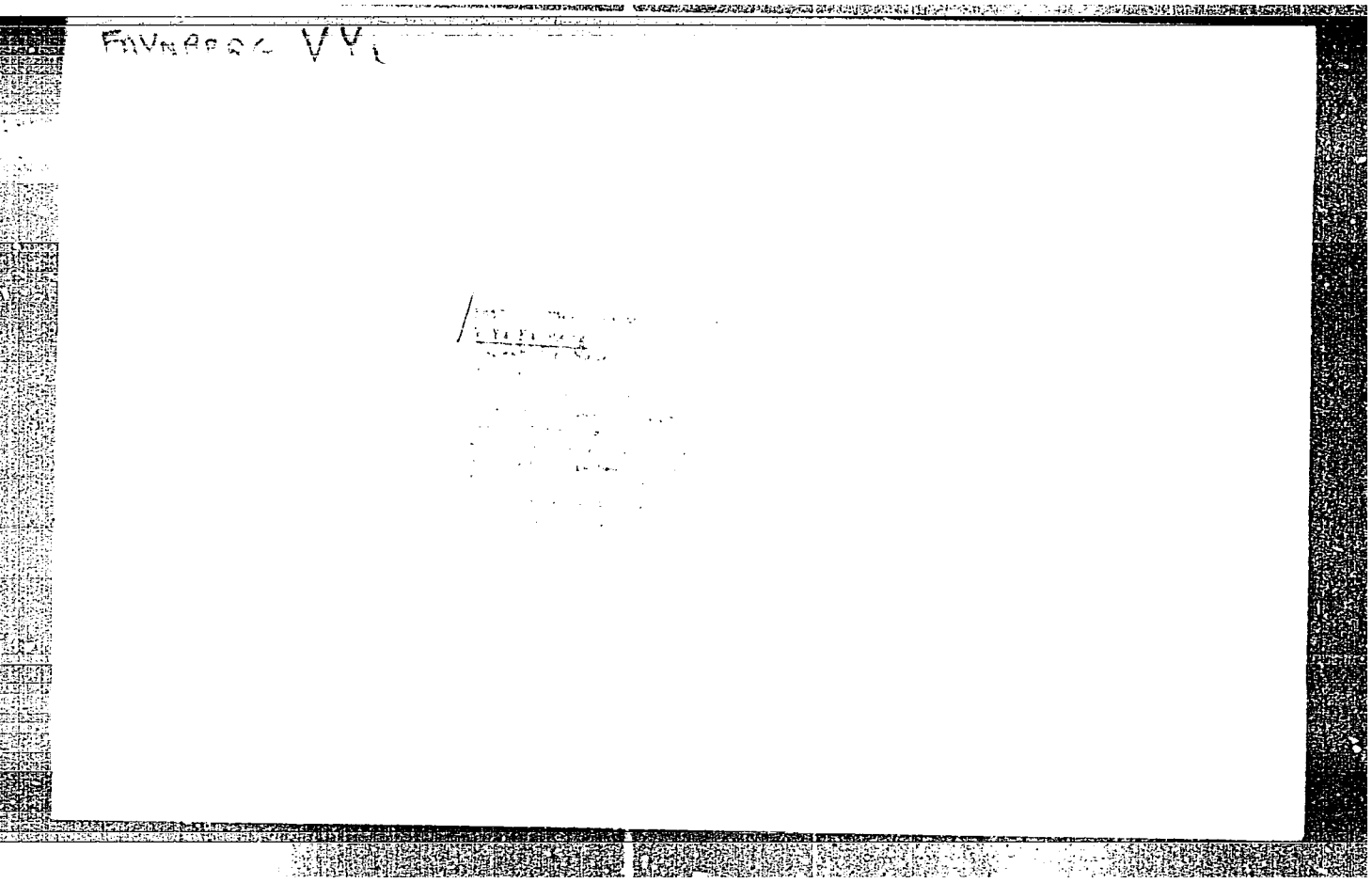
530.145

12 ✓ 8502. Method of truncated field equations and its application to the scattering of mesons by nucleons. V. P. SILIN, I. E. TAMM AND V. YA. FAINBERG. *Zh. éksper. teor. Fiz.*, 29, *No.* 1(7), 6–19 (1955) In Russian.

The so-called Tamm–Dancoff method is reformulated, beginning from covariant equations. From these, equations in three-dimensional momentum space are obtained. Boundary conditions are considered. Dyson's formulation in the physical vacuum [Abstr. 5854 (1953) 66, 97 (1954)] is applied and the relation to the old formulation in the bare vacuum discussed. The system of meson + nucleon is considered, taking into account coupling with amplitudes describing three or fewer virtual particles. Results obtained numerically by restriction to *S*- and *P*-waves are not included here, but will be reported separately. Renormalization is briefly considered. G. E. BROWN

(2)

Lebedev Phys Inst., AS USSR



FAYNBERG V.Ya.

Method of truncated field equations and its application to the scattering of mesons by nucleons. V. P. Silin, I. E. Tamm, and V. Ya. Fainberg. *Soviet Phys., JETP* 2, 3-13(1958)(Engl. translation).--See C.A. 49, 15512i.

B.M.B.

3

Category : USSR/Theoretical Physics - Quantum Field Theory B-6

Abs Jour : Ref Zhur - Fizika, No 1, 1957, No 211

Author : Faynberg, V. Ya.
Inst : Phys. Inst., USSR Acad. of Sciences
Title : On Non-Linear Equations in Quantum Field Theory

Orig Pub : Zh.eksperim. i teor. fiziki; 1956, 30, No 3, 608-609

Abstract : It is shown that the non-linear equations obtained by Low (Referat. Zhurnal Fizika, 1956, 15767) follow from the general relationships for the Green's function obtained by Leman, Symanzik and Tsimmerman (Referat. Zhurnal Fizika, 1956, 12556) if one starts from the general requirements of the relativistic invariance, causality, and boundary conditions. The proof is based on the covariant connection between the scattering matrix element and the corresponding Green's function. It is emphasized that the attempt at relativistic analysis of the equations derived by Low involves two kinds of difficulties: (1) the unknown exact form of the single-particle renormalization of the Green's functions contained in the inhomogeneous term of the equation, (2) the renormalized Green's functions have non-physical poles.

Card : 1/1

FAYNBERG, V. Ya.

DISPERSION RELATION OF FERMI PARTICLES V. Fainberg and E. Fradkin (Lebedev Inst. of Phys.) Doklady Akad. Nauk S.S.S.R. [illegible] (in Russian)

The quantum field theory [illegible] based [illegible] of relativistic invariance [illegible] with [illegible] However, the attempts to solve the equations of the theory by concrete expression of the interaction [illegible] intrinsic mathematical incompleteness [illegible] was equal to zero). A derivation based on the requirements of the theory which does not depend on the concrete expression of the interaction but is capable of yielding to experimental verification should coordinate the theory and the fact. One of such derivations was found in the dispersion equation connecting the factual and imaginary parts of the forward dispersing amplitude. Derivation for the dispersion relation of Fermi particles was sought in the presented calculations. (R.V.J.)

24(5)

AUTHOR: Faynberg, V. Ya. SOV/56-36-5-31/76

TITLE: On the Analytical Properties of Causality Commutators (Ob analiticheskikh svoystvakh prichinnykh kommutatorov)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36, Nr 5, pp 1503-1508 (USSR)

ABSTRACT: Jost and Lehmann (Ref 1) found the integral representation for the matrix element of the causality commutator of two Heisenberg operators A and B: $f(x) = \langle p,r|[A(x/2), B(-x/2)]|p',r'\rangle$ (1); $|p,r\rangle$ is the state vector with the total four-momentum p_μ, r- the other quantum numbers. Dyson (Ref 2) generalizes this result for the nonsymmetric case in invariant form by introducing a six-dimensional momentum space. The author of the present paper shows that a simple derivation of the integral representation of the causality commutators is possible without operating in the six-dimensional. More detailed spectral formulas can be derived for the most simple cases (vertex part - if the one state in (1) corresponds to the vacuum and the other to the single-particle state; two-particle matrix element - if both

Card 1/2

states in (1) are single-particle-like). The three-parametric representation used for the two-particle matrix element permits a considerably greater extension of the region of regularity of the amplitude of the distance of the two particles with respect to the given momentum Δ^2, compared with Lehmann's region (Ref 3). The author shows that the scattering amplitude of the two particles for real energy values in the center of mass system may be represented as analytical function of the transferred momentum Δ^2, which is regular in the entire complex plane, with the exception of the poles and cuts on the real axis. There are 4 references.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR (Physics Institute imeni P. N. Lebedev of the Academy of Sciences, USSR)

SUBMITTED: November 21, 1958 (initially) and January 29, 1959 (after revision)

S/056/60/038/006/029/049/XX
B006/B070

24.4500

AUTHORS: Malakhov, V. V., Rashevskaya, Ye. P., Faynberg V. Ya.

TITLE: Application of the Dispersion Technique for Studying the Simplest Green Functions in Mesodynamics 19

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 38, No. 6, pp. 1803-1813

TEXT: A study is made of an approximate set of dispersion equations for meson and nucleon Green functions, and the vertex function in pseudoscalar charge-symmetrical mesodynamics. Analogous problems in electrodynamics were studied in Refs. 1-5. The object of such a study is to clarify the asymptotic behavior of the single-particle Green functions from which conclusions can be drawn on the character of renormalization in theory, and on the relationship between the dispersion relations and the Lagrangian in quantum-field theory. An analysis of the simplest approximation of the dispersion equations shows, however, that in the asymptotic region it is not possible to have an effective expansion

Card 1/3

parameter, even in the case of weak coupling, which would allow the contribution of the many-particle Green function to be estimated. In contrast to the approximate dispersion relations in the scattering problem where the matrix element on the energy surface with free ends ($p_i^2=m_i^2$) is considered, for the study of the contribution of higher approximations in the asymptotic region of the single-particle Green functions and the vertex function it is necessary to know the analytical properties of the matrix elements with virtual ends ($p_i^2 \neq m_i^2$). Section 2 of the paper gives a derivation of approximate equations for the Green functions of the meson $\Delta(q^2)$, the nucleon $G(p)$, and the vertex function $F_i(p,p')$. The derivation is based on the analytical properties of this function and the unitarity conditions. The dispersion relations for $F_i(p,p')$ with respect to p^2 in the physical region ($p'^2=m^2$, $q^2=(p-p')^2=\mu^2$) are verified. Section 3 gives a study of the system of approximate equations which lead to the solution of Gilbert's problem. The unique solution is obtained by means of the boundary condition

Application of the Dispersion Technique for Studying the Simplest Green Functions in Mesodynamics

S/056/60/038/006/029/049/XX
B006/B070

$F(\mu^2) = F_1(m^2,\mu^2) + mF_2(m^2,\mu^2) = g$ (g - renormalized coupling constant) and the requirement that, if the solution is expanded in a power series of the interaction constant (weak coupling), the expansion must coincide with the series obtained by perturbation theory. The asymptotic behavior of $F_i(p,p')$ with respect to p^2 and q^2 is determined for the case of weak coupling. The results obtained are briefly discussed in Section 4. Some mathematical supplements are given in Section 5. N. N. Bogolyubov, A. A. Logunov, and D. V. Shirkov are mentioned. There are 16 references: 8 Soviet, 5 US, and 3 Italian.

SUBMITTED: January 3, 1960

Card 3/3

FAYNBERG, V. Ya., Dr. Phys-Math. Sci (diss)"Questions of the Dispersion Method in the Quantum Theory of a Field," Moscow, 1961, 9 pp. (Acad of Sci USSR, Institute of Theoretical and Experimental Physics) 150 copies (KL Supp, 12-61, 249).

FAYNBERG, V.Ya.

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AUTHOR: Faynberg, V. Ya.

TITLE: On the equations of quantum field theory

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ABSTRACT: In an attempt to show that the axiomatic method can successfully compete with the S-matrix method in the theory of elementary particles, the author formulates the fundamental axioms of quantum field theory in a manner that differs somewhat from the usual one. The condition that the equal time commutator of the current and the field operators have minimum singularity is taken as one of the axioms. Microcausality and the existence of a unitary S matrix are consequences of the basic axioms of the theory. A closed set of equations can be derived from these axioms for the S matrix elements which are off the mass shell in only one of the external 4-momenta. To exclude undetermined subtraction terms, the

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equations are written in integro-differential form (in momentum space). This makes it possible, in particular, to formulate the boundary conditions and to show that the number of independent constants ("charges") entering the equation, apart from the particle masses, is exactly equal to the number of matrix elements that do not vanish for any form of limit at infinity in the invariant variables. The iteration solution of the set of equations is identical with the renormalization expansion in perturbation theory. "The author is deeply grateful to Academician I. Ye. Tamm for his continuous interest in the work and stimulating discussions on general problems in the theory of elementary particles. The author also thanks D. A. Kirzhnits and Ye. S. Fradkin for fruitful comments."
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