MAYANSKAYA, V.G.

USSR/Medicine - Tissue Therapy Sep/Oct 51

"Treatment of Exudative Diathesis," V. G. Mayanskaya, (Preliminary Report) Chair of Children's Diseases of the Pediatric Faculty, Rostov State Medical Inst

"Vop Ped i Okhran Mater i Det" Vol XIX, No 5, pp 40, 41

Spleen and suprarenal tissue transplants improve cond in exudative diathesis. Suprarenal transplant alone gives best result. Tissue therapy reduces irritation and night restlessness in children. Aloe extract clears skin;

192T86

USSR/Medicine - Tissue Therapy (Contd) Sep/Oct 51

relapses are few. Finds 1/4% soln of $CaCl_2$ effective in severe cases. Children's eosinophilia and leucocytosis are improved. Normalization of metabolism is indicated by test for hydrophilia.

192T86

PA 192T86

BELETSKIY, V.N.; MAYANSKAYA, V.G.

Problem of multiple eosinophilic granulomas of the bone. Pediatriia no.1:68-70 Ja-F '55. (MLRA 8:5)

1. Iz kafedry i kliniki gospital'noy pediatrii (zav. prof. P.D. Davydov) i kafedry rentgenologii (zav. prof. A.I.Dombrovskiy) Rostovskogo-na-Donu meditsinskogo instituta.
(EOSINOPHILIC GRANULOMA, in infant and children, multiple)

MAYANSKIY, D.N.

Some changes in the functional state of the blood coagulation system in experimental isosensitization. Probl. gemat. i perel. krovi no.3:16-19 '65. (MIRA 18:10)

1. Kafedra patologicheskoy fiziologii (zav. - prof. M.A.Yerzin) Kazanskogo meditsinskogo instituta.

MAYANSKIY, D.N.

Changes in the dynamic equilibrium of the hemocoagulation system in autosensitization. Nauch. trudy Kaz. gos. med. in-t. [illegible]-232 '64. (MIRA 18:7)

1. Kafedra patologicheskoy fiziologii (zav. - prof. [illegible]) Kazanskogo meditsinskogo instituta.

MAYANSKIY, D.N.

Functional state of the blood coagulation system in autosensitization. Pat. fiziol. i eksp. terap. 9 no.2:65-66 Mr-Ap '65.
(MIRA 18:5)

1. Kafedra patofiziologii (zav. - prof. M.A.Yerzin) Kazanskogo meditsinskogo instituta.

MAYANSKIY, D.N.

Changes in the anticoagulating capacity of the blood in autosensitization. Vop. med. khim. 11 no.4:24-27 Jl-Ag '65. (MIRA 18:8)

1. Kafedra patologicheskoy fiziologii Kazanskogo gosudarstvennogo meditsinskogo instituta.

L 2145-66 EWT(1)/EWT(m)/FS(v)-3 DD

ACCESSION NR: AP5024153 UR/0216/65/000/005/0762/0765
615-092.259

33
32
B

AUTHOR: Brekhman, I. I.; Mayanskiy, G. M.

TITLE: Eleutherococcus — a drug for increasing the nonspecific resistance of an organism

SOURCE: AN SSSR. Izvestiya. Seriya biologicheskaya, no. 5, 1965, 762-765

TOPIC TAGS: pharmacognosy, experimental animal, animal experiment, nervous system drug, drug effect, bodily fatigue, temperature adaptation, antidote, antiradiation drug, cancer drug

ABSTRACT: Substances which increase nonspecific resistance of the organism, such as dibazol, are now called adaptogens, the name given by N. V. Lazarev in 1962. One of these, Eleutherococcus senticosus Maxim., has been widely investigated in recent years to determine the nature of its protective action against various physical, chemical, and biological factors. The article presents findings showing liquid root extracts of /Eleutherococcus to be effective in increasing the nonspecific resistance of animals to hypothermia, hyperthermia, centrifugation, and radiation. In chemical studies, Eleutherococcus was shown to act as an antinarcotic against ether, chloral

Card 1/2

L 2145-66
ACCESSION NR: AP5024153

hydrate, medinal, and ethyl alcohol. Eleutherococcus root extract also reduces the toxicity of antitumor drugs (thiophosphamide, sarcolysis, and 6-mercaptopurine). In biological studies of tumors in animals, the extract was found to reduce postoperative metastasis and prolong animal survival. The mechanism of action of the nonspecific resistance induced by Eleutherococcus is not yet understood and requires further investigation. Orig. art. has: 2 tables. [06]

ASSOCIATION: Biologo-pochvennyy institut Dal'nevostochnogo filiala Sibirskogo otdeleniya AN SSSR (Biology Soil Institute of the Far Eastern Filial of the Siberian Branch, AN SSSR)

SUBMITTED: 21Mar63 ENCL: 00 SUB CODE: LS

NO REF SOV: 016 OTHER: 000 ATD PRESS: 4113

Card 2/2

MATYUKHIN, V.A.; MAYANSKIY, G.M.

Therapeutic effect of ginseng in chronic radiation sickness in white rats. Mat. k izuch. zhen'. i drug. lek. rast. Dal'. Vost. no.5:137-141 '63. (MIRA 17:8)

1. Meditsinskaya sluzhba Tikhookeanskogo flota.

MAYANSKIY, G.M.

Therapeutic effect of ginseng and Eleutherococcus in chronic radiation sickness. Soob. DVFAN SSSR no.19:131-134 '63. (MIRA 17:9)

1. Biologo-pochvennyy institut dal'nevostochnogo filiala Sibirskogo otdeleniya AN SSSR.

PAYANSKIY, I. I., AND TIKHONOVA, Z.A.

"Microtechnology of manufacturing electrical instruments" (Section XI)

report submitted for Measurement and Automation, Scientific Society for [illegible], Intl Measurements Conference - Budapest, Hungary, 24-30 Nov 70

IVANOV, Boris Nikolayevich; TKALIN, Ivan Mikhaylovich; SOLNTSEV, Vyacheslav Aleksandrovich; SHTRUM, Viktor L'vovich; SHNEYDER, Roman Izrayelevich; MAYANSKIY, Iosif Isaakovich; BORISOVA, Volya Petrovna; ARUTYUNOV, V.O., retsenzent; BLEKHSHTEYN, L.I., red.; SOBOLEVA, Ye.M., tekhn.red.

[Technology of the manufacture of electric instruments] Tekhnologiia elektropriborostroeniia. Moskva, Gos.energ.izd-vo, 1959. 590 p. (MIRA 13:4)
(Electric apparatus and appliances)

06294

25 (2)

AUTHORS: Ivanov, B. N., Engineer, Mayanskiy, I.I., SOV/119-59-11-8/13
Engineer

TITLE: A Semiautomatic Device for the Winding of Flat Spiral Springs

PERIODICAL: Priborostroyeniye, 1959, Nr 11, pp 20-21 (USSR)

ABSTRACT: This semiautomatic device was produced at the Leningrad "Vibrator" Works according to a design by I. I. Mayanskiy. By means of this device it is possible to coil springs from an endless band, and all operations are mechanized. It is used for the production of springs for electric measuring devices producing the repelling moment. The semiautomatic device shown in figure 1 is discussed in detail with respect to all its parts and its mode of operation. Five to six bands are first united in a bunch, after which this bunch is arranged by means of a special appliance, and is then wound flat by means of a drum. By means of this semiautomatic device it is possible to coil springs of different cross sections and different numbers of turns. The quality of the springs manufactured in this manner is described as being considerably better than that of springs wound by hand. There is 1 figure.

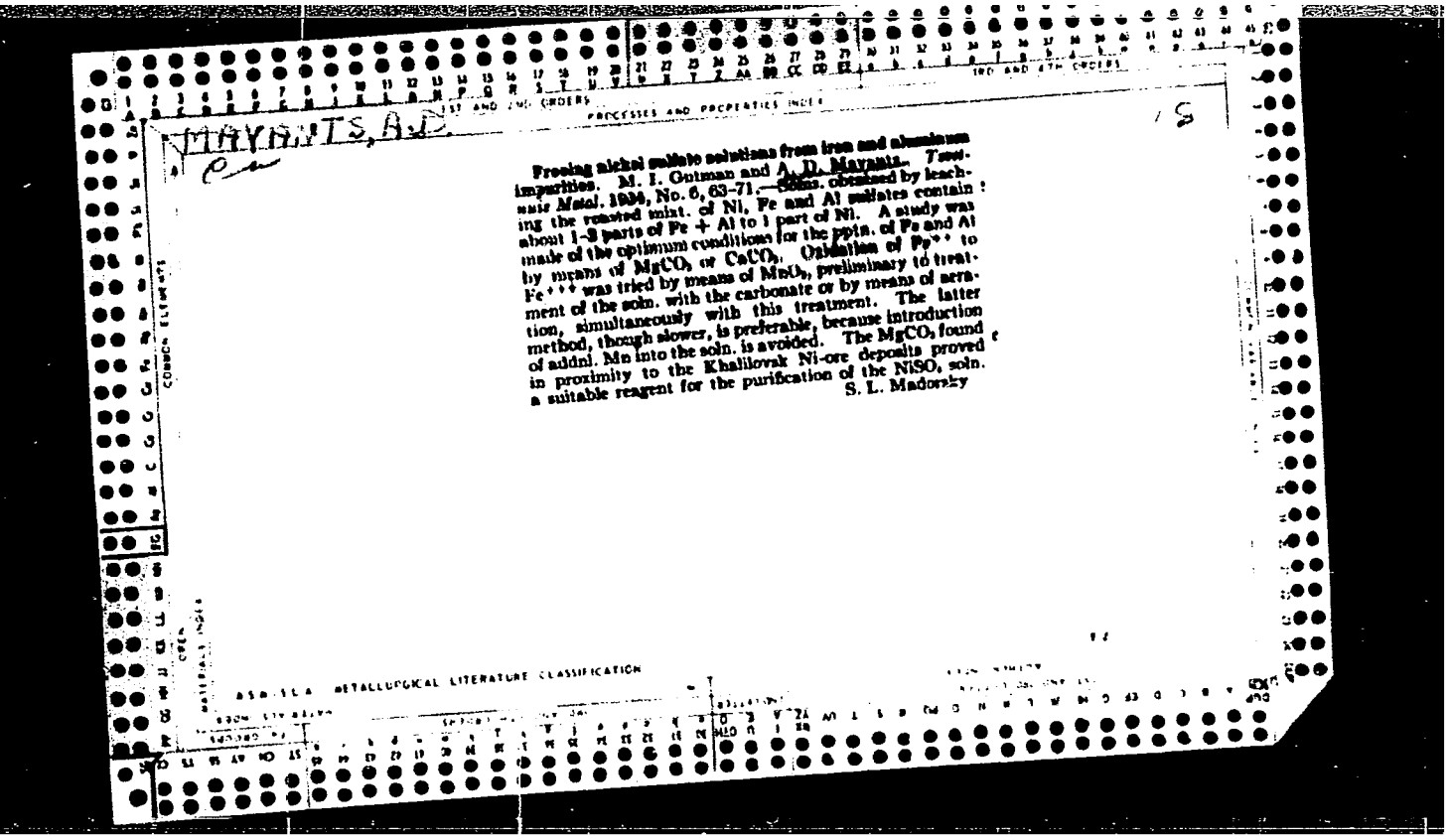
Card 1/1

MAYANTS, Yevgeniy Ivanovich.

[Homemade instruments for visual instruction in mathematics] Samodel'nye uchebno-nagliadnye posobiia po matematike. 2. izd. Moskva, Gos. uchebno-pedagog. izd-vo, 1958. 66 p. (MIRA 11:10)
(Mathematical instruments)

MAYANSKIY, Yevgeniy Ivanovich; BELOV, M., red.; TREBUKHOV, N., tekhn. red.

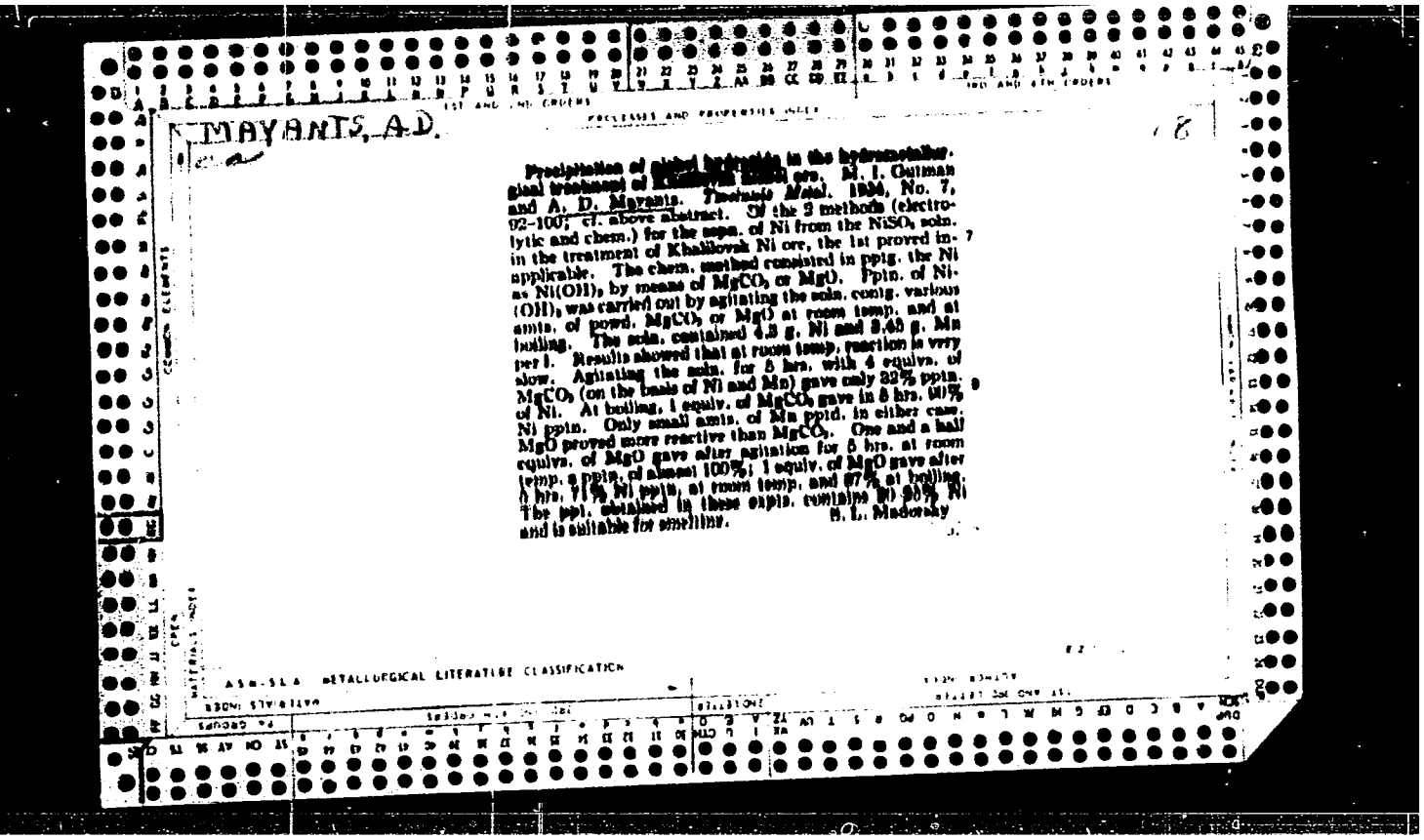
[Homemade visual aids in solid geometry] Samodel'nye nagliadnye posobiia po stereometrii. Kostroma, Kostromskoe knizhnoe izd-vo, 1959. 81 p. (MIRA 15:4)
(Geometry, Solid) (Visual aids)



MAYANTS, A.D.

Freeing nickel sulfate solutions from iron and aluminum impurities. M. I. Gutman and A. D. Mayants. *Tsvetnye Metal.* 1934, No. 6, 63–71.—Solns. obtained by leaching the roasted mixt. of Ni, Fe and Al sulfates contain about 1–3 parts of Fe + Al to 1 part of Ni. A study was made of the optimum conditions for the pptn. of Fe and Al by means of $MgCO_3$ or $CaCO_3$. Oxidation of Fe^{++} to Fe^{+++} was tried by means of MnO_2, preliminary to treatment of the soln. with the carbonate or by means of aeration, simultaneously with this treatment. The latter method, though slower, is preferable, because introduction of addnl. Mn into the soln. is avoided. The $MgCO_3$ found in proximity to the Khalilovsk Ni-ore deposits proved a suitable reagent for the purification of the $NiSO_4$ soln.

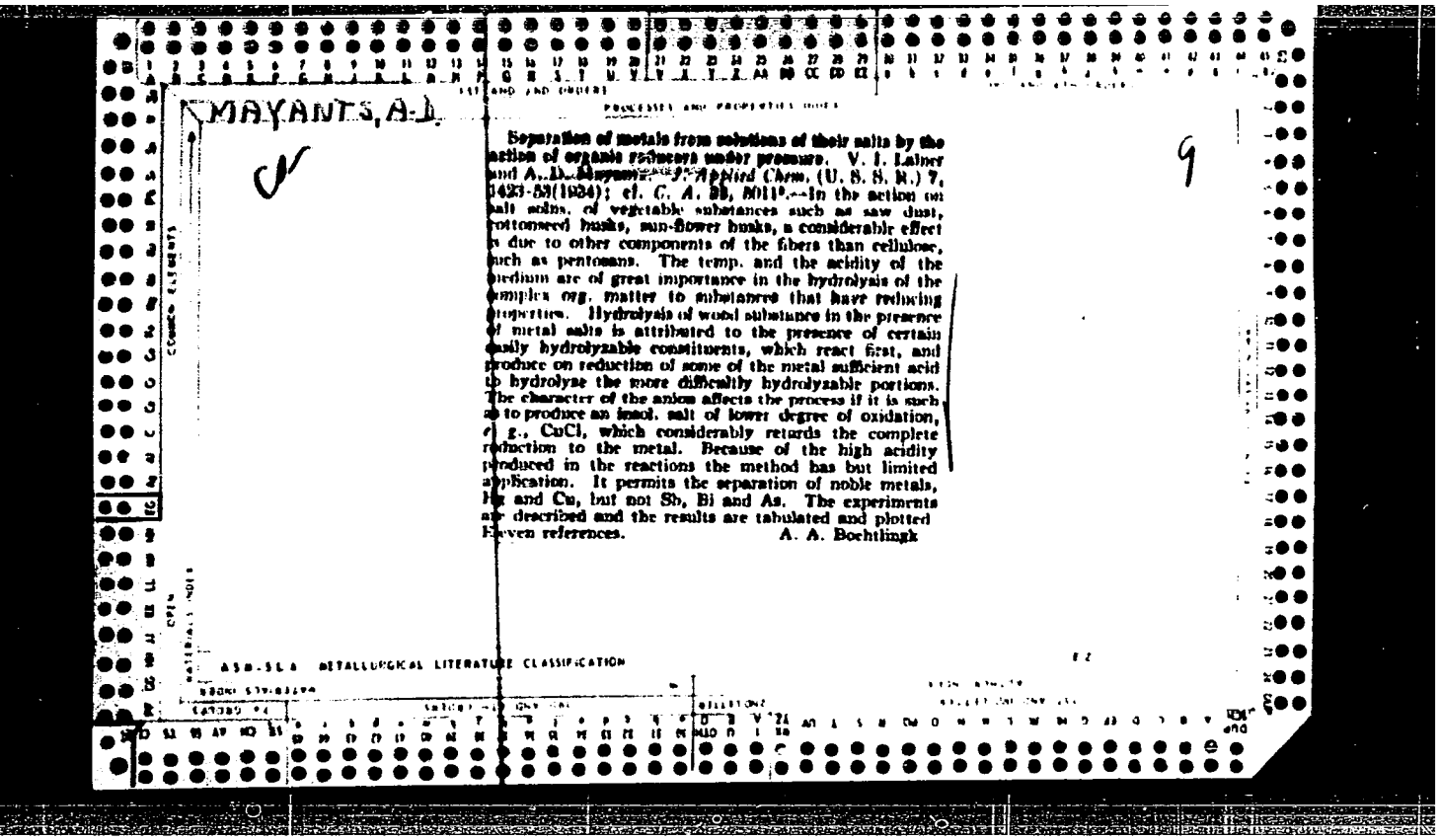
S. L. Madorsky



MAYANTS, A.D.

Precipitation of nickel hydroxide in the hydrometallur-
gical treatment of [illegible] ores. M. I. Gutman
and A. D. Mayants. Tsvetnye Metal. 1934, No. 7,
92-100; cf. above abstract. Of the 2 methods (electro-
lytic and chem.) for the sepn. of Ni from the $NiSO_4$ soln.
in the treatment of Khalilovsk Ni ore, the 1st proved in-
applicable. The chem. method consisted in pptg. the Ni
as Ni(OH)$_2$ by means of $MgCO_3$ or MgO. Pptn. of Ni-
(OH)$_2$ was carried out by agitating the soln. contg. various
amts. of powd. $MgCO_3$ or MgO at room temp. and at
boiling. The soln. contained 4.8 g. Ni and 3.45 g. Mn
per l. Results showed that at room temp. reaction is very
slow. Agitating the soln. for 5 hrs. with 4 equivs. of
$MgCO_3$ (on the basis of Ni and Mn) gave only 32% ppta.
of Ni. At boiling, 1 equiv. of $MgCO_3$ gave in 5 hrs. 80%
Ni ppta. Only small amts. of Mn ppta. in either case.
MgO proved more reactive than $MgCO_3$. One and a half
equivs. of MgO gave after agitation for 5 hrs. at room
temp. a ppta. of almost 100%; 1 equiv. of MgO gave after
5 hrs. 71% Ni ppta. at room temp. and 97% at boiling.
The ppt. obtained in these expts. contains 30-50% Ni
and is suitable for smelting. N. L. Mashovsky

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



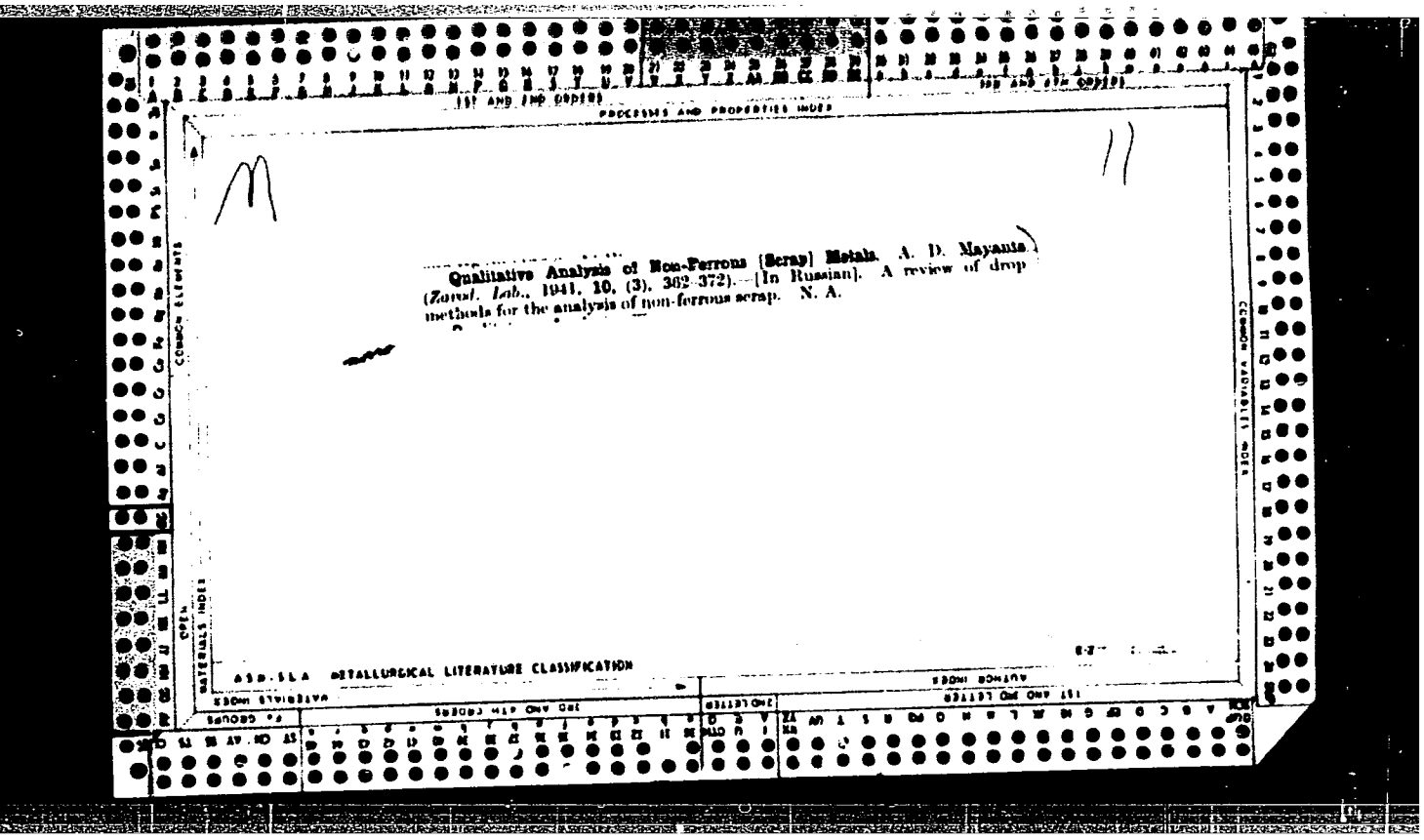
MAYANTS, A.I.

V

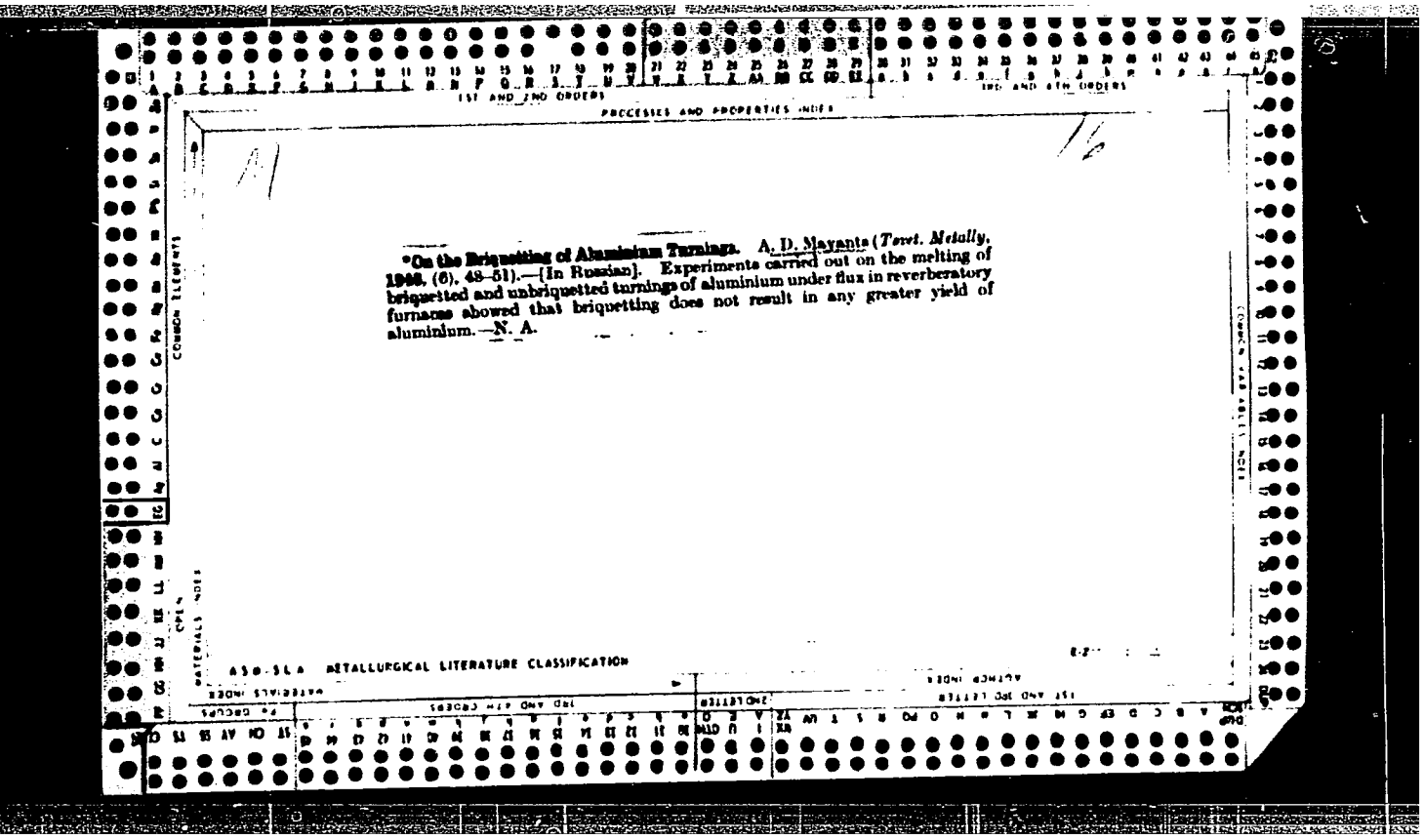
9

Separation of metals from solutions of their salts by the action of organic reducers under pressure. V. I. Lainer and A. I. Mayants. *J. Applied Chem.* (U. S. S. R.) 7, 1423-33(1934); cf. *C. A.* 28, 6011⁹.—In the action on salt solns. of vegetable substances such as saw dust, cottonseed husks, sun-flower husks, a considerable effect is due to other components of the fibers than cellulose, such as pentosans. The temp. and the acidity of the medium are of great importance in the hydrolysis of the complex org. matter to substances that have reducing properties. Hydrolysis of wood substance in the presence of metal salts is attributed to the presence of certain easily hydrolyzable constituents, which react first, and produce on reduction of some of the metal sufficient acid to hydrolyze the more difficultly hydrolyzable portions. The character of the anion affects the process if it is such as to produce an insol. salt of lower degree of oxidation, e. g., CuCl, which considerably retards the complete reduction to the metal. Because of the high acidity produced in the reactions the method has but limited application. It permits the separation of noble metals, Hg and Cu, but not Sb, Bi and As. The experiments are described and the results are tabulated and plotted. Seven references. A. A. Boehtlingk

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



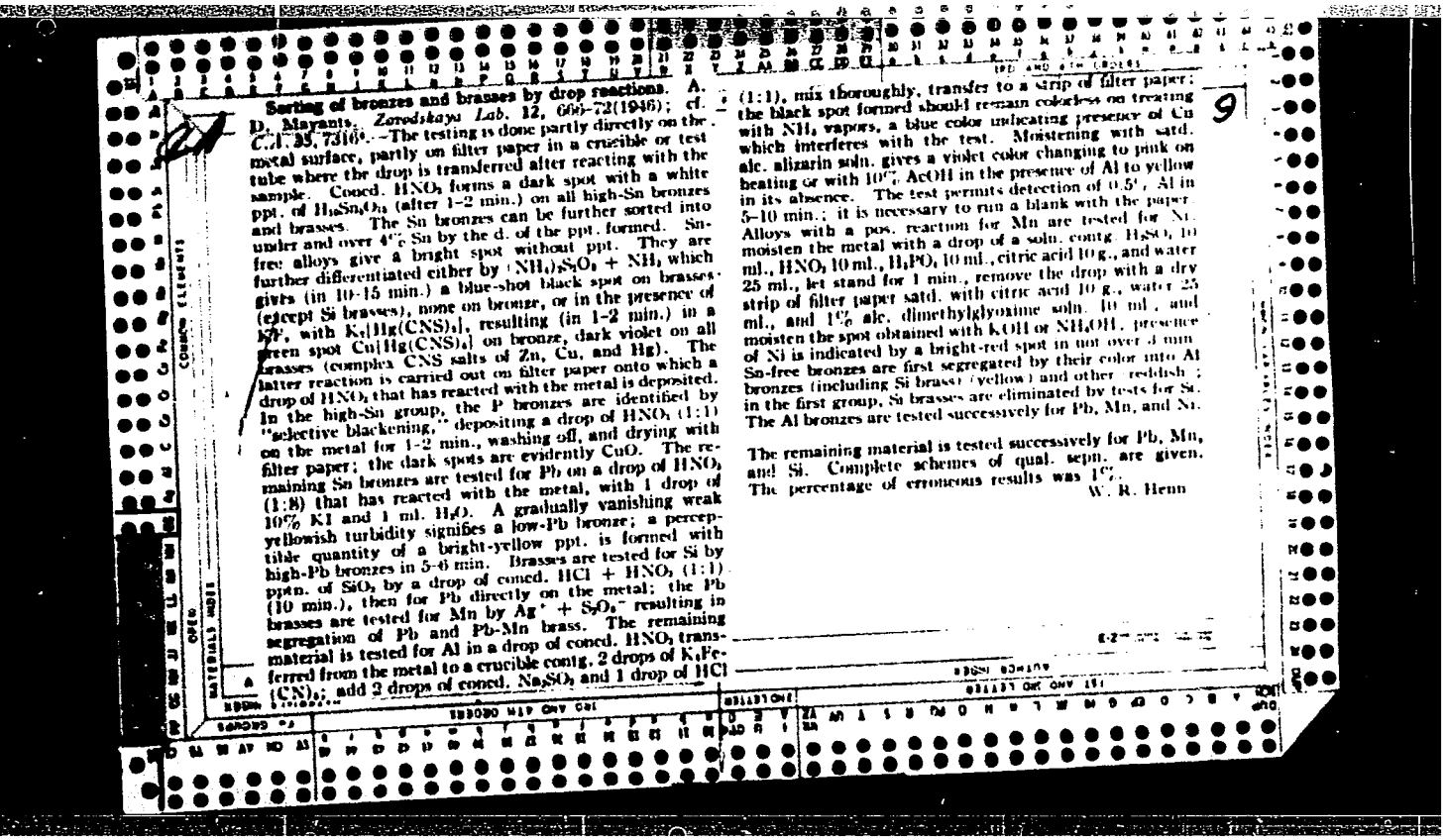
Qualitative Analysis of Non-Ferrous [Scrap] Metals. A. D. Mayants. (*Zavod. Lab.*, 1941, 10, (3), 362-372). [In Russian]. A review of drop methods for the analysis of non-ferrous scrap. N. A.



PROCESSES AND PROPERTIES INDEX

On the Briquetting of Aluminium Turnings. A. D. Mayants (*Tsvet. Metally*, 1948, (6), 48–51).—[In Russian]. Experiments carried out on the melting of briquetted and unbriquetted turnings of aluminium under flux in reverberatory furnaces showed that briquetting does not result in any greater yield of aluminium.—N. A.

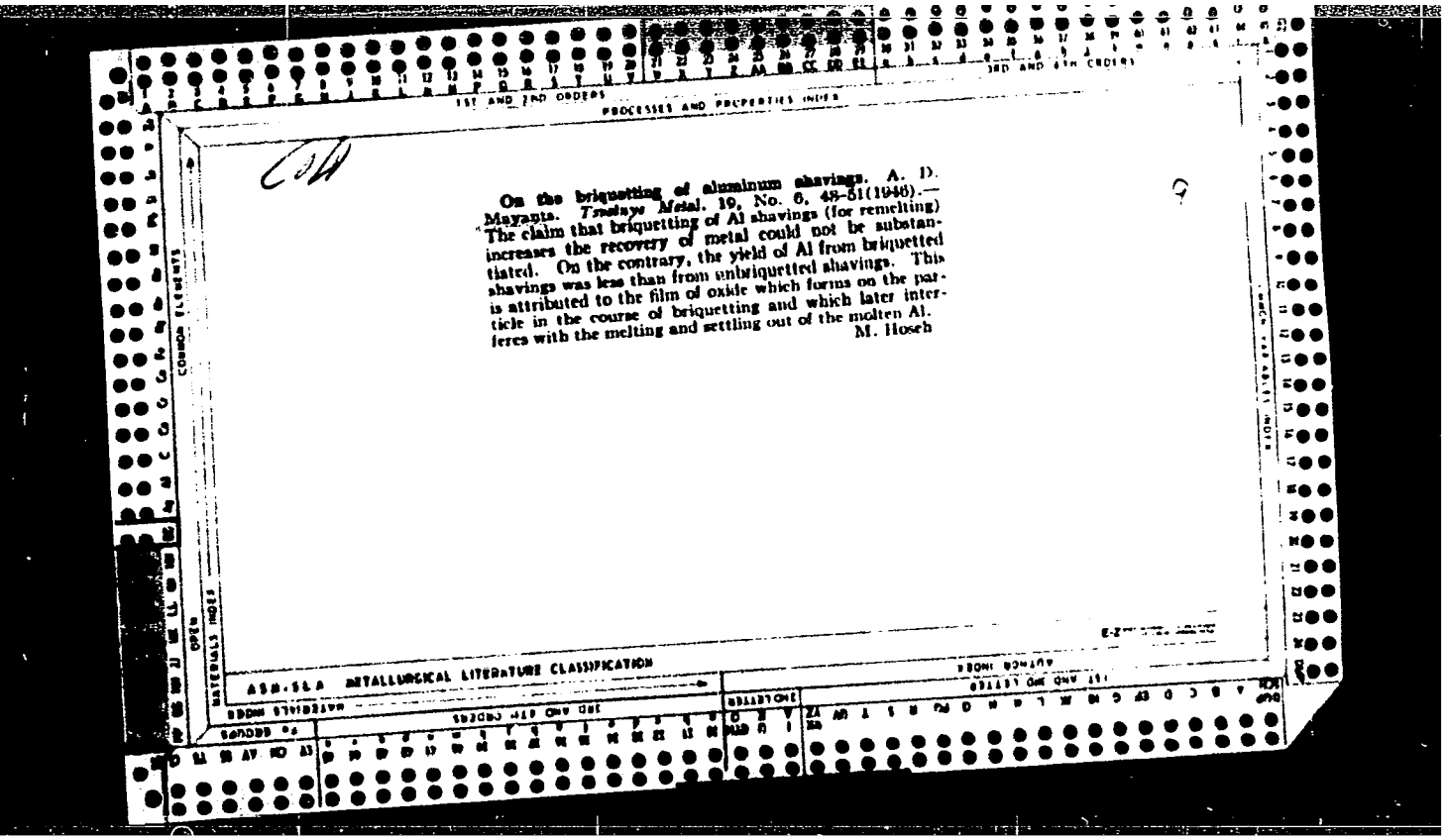
A58-5L A METALLURGICAL LITERATURE CLASSIFICATION



Sorting of bronzes and brasses by drop reactions. A. D. Mayants. *Zavodskaya Lab.* 12, 669–72(1946); cf. *C.A.* 35, 7316⁶.—The testing is done partly directly on the metal surface, partly on filter paper in a crucible or test tube where the drop is transferred after reacting with the sample. Concd. HNO_3 forms a dark spot with a white ppt. of $H_2Sn_3O_7$ (after 1–2 min.) on all high-Sn bronzes and brasses. The Sn bronzes can be further sorted into under and over 4% Sn by the d. of the ppt. formed. Sn-free alloys give a bright spot without ppt. They are further differentiated either by $(NH_4)_2S_2O_8 + NH_3$ which gives (in 10–15 min.) a blue-shot black spot on brasses (except Si brasses), none on bronze, or in the presence of KF, with $K_2[Hg(CNS)_4]$, resulting (in 1–2 min.) in a green spot $Cu[Hg(CNS)_4]$ on bronze, dark violet on all brasses (complex CNS salts of Zn, Cu, and Hg). The latter reaction is carried out on filter paper onto which a drop of HNO_3 that has reacted with the metal is deposited. In the high-Sn group, the P bronzes are identified by "selective blackening," depositing a drop of HNO_3 (1:1) on the metal for 1–2 min., washing off, and drying with filter paper; the dark spots are evidently CuO. The remaining Sn bronzes are tested for Pb on a drop of HNO_3 (1:8) that has reacted with the metal, with 1 drop of 10% KI and 1 ml. H_2O. A gradually vanishing weak yellowish turbidity signifies a low-Pb bronze; a perceptible quantity of a bright-yellow ppt. is formed with high-Pb bronzes in 5–6 min. Brasses are tested for Si by pptn. of SiO_2 by a drop of concd. HCl + HNO_3 (1:1) (10 min.), then for Pb directly on the metal; the Pb brasses are tested for Mn by $Ag^+ + S_2O_8^=$ resulting in segregation of Pb and Pb-Mn brass. The remaining material is tested for Al in a drop of concd. HNO_3 transferred from the metal to a crucible contg. 2 drops of $K_4Fe(CN)_6$; add 2 drops of concd. Na_2SO_3 and 1 drop of HCl (1:1), mix thoroughly, transfer to a strip of filter paper; the black spot formed should remain colorless on treating with NH_3 vapors, a blue color indicating presence of Cu which interferes with the test. Moistening with satd. alc. alizarin soln. gives a violet color changing to pink on heating or with 10% AcOH in the presence of Al to yellow in its absence. The test permits detection of 0.5% Al in 5–10 min.; it is necessary to run a blank with the paper. Alloys with a pos. reaction for Mn are tested for Ni. Moisten the metal with a drop of a soln. contg. H_2SO_4 10 ml., HNO_3 10 ml., H_3PO_4 10 ml., citric acid 10 g., and water 25 ml., let stand for 1 min., remove the drop with a dry strip of filter paper satd. with citric acid 10 g., water 25 ml., and 1% alc. dimethylglyoxime soln. 10 ml., and moisten the spot obtained with KOH or NH_4OH; presence of Ni is indicated by a bright-red spot in not over 3 min. Ni-free bronzes are first segregated by their color into Al Sn-free bronzes (including Si brass) (yellow) and other (reddish); in the first group, Si brasses are eliminated by tests for Si. The Al bronzes are tested successively for Pb, Mn, and Ni.

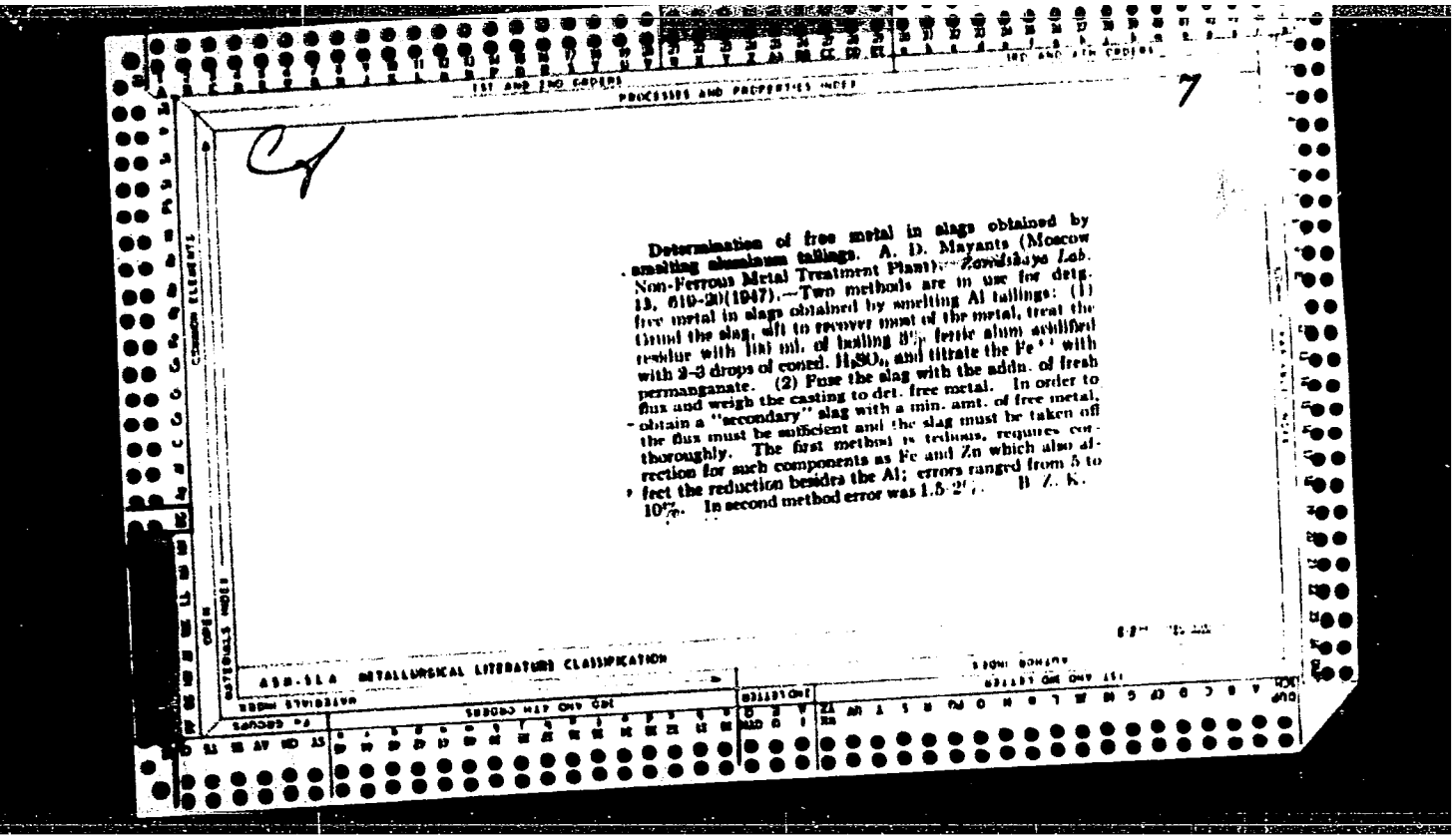
The remaining material is tested successively for Pb, Mn, and Si. Complete schemes of qual. sepn. are given. The percentage of erroneous results was 1%.

W. R. Henn

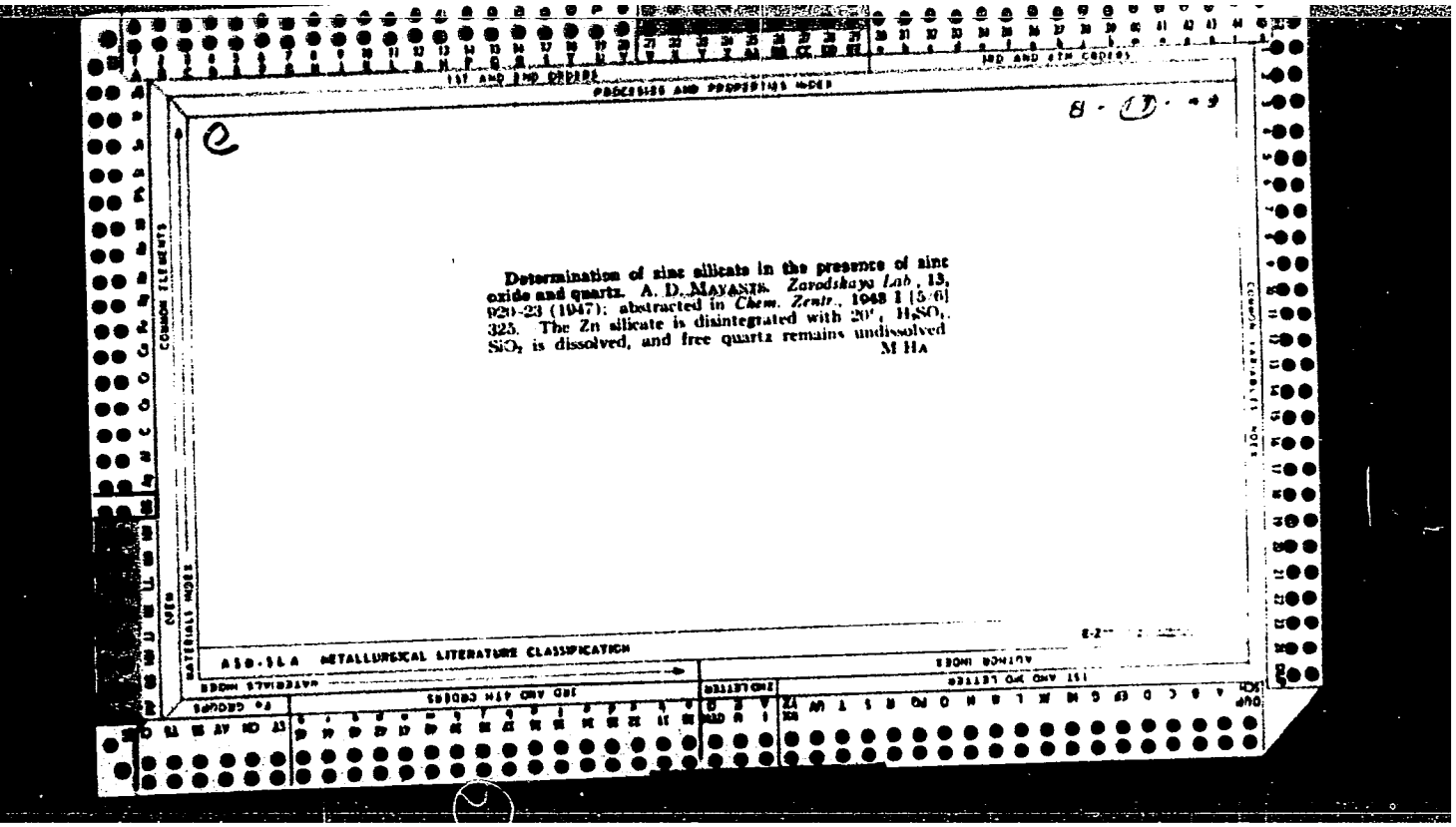


On the briquetting of aluminum shavings. A. D. Mayants. *Tsvetnye Metal.* 19, No. 6, 48–51(1946).—The claim that briquetting of Al shavings (for remelting) increases the recovery of metal could not be substantiated. On the contrary, the yield of Al from briquetted shavings was less than from unbriquetted shavings. This is attributed to the film of oxide which forms on the particle in the course of briquetting and which later interferes with the melting and settling out of the molten Al.

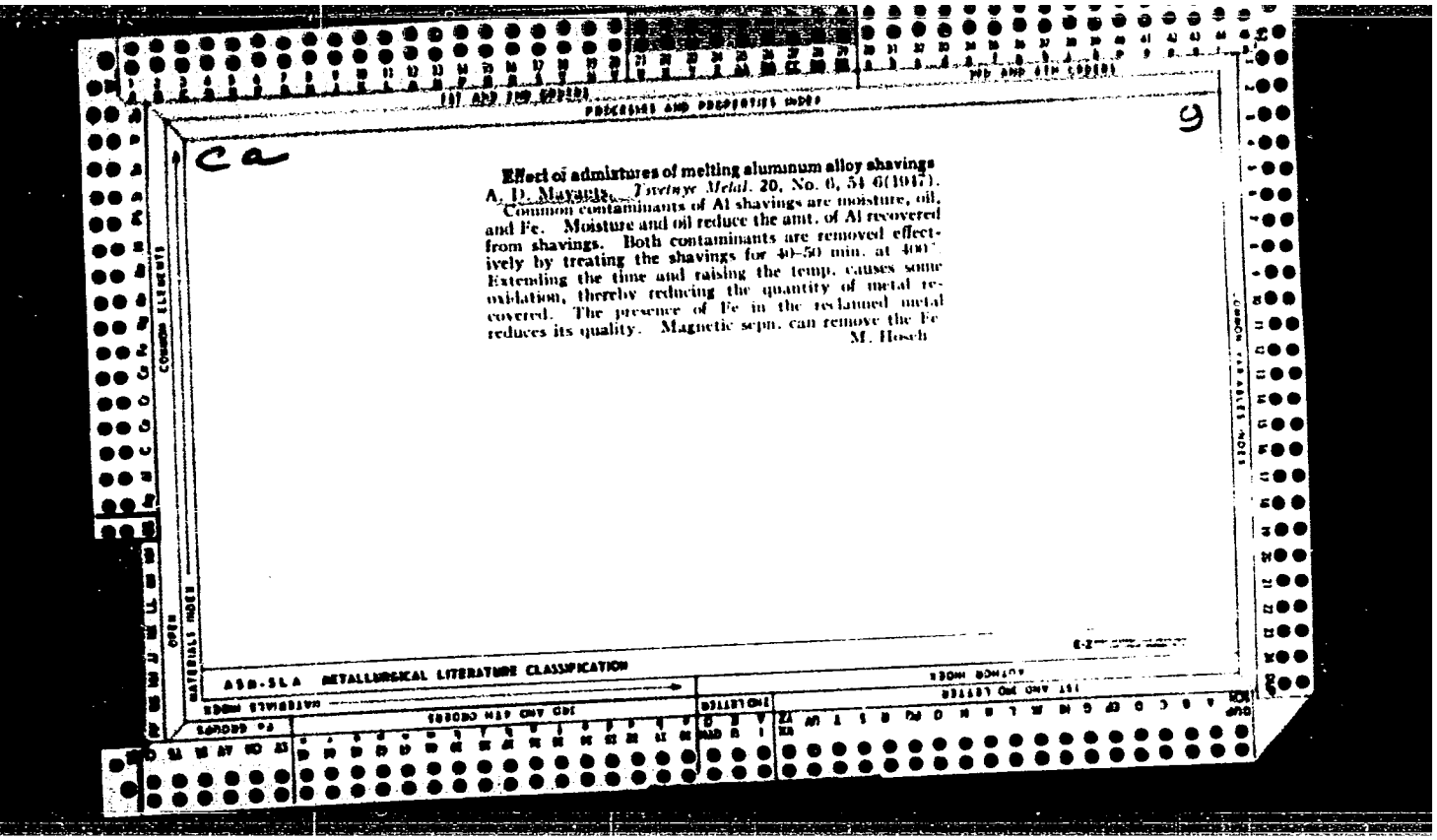
M. Hoseh



Determination of free metal in slags obtained by smelting aluminum tailings. A. D. Mayants (Moscow Non-Ferrous Metal Treatment Plant). *Zavodskaya Lab.* 13, 610-20(1947).—Two methods are in use for detg. free metal in slags obtained by smelting Al tailings: (1) Grind the slag, sift to recover most of the metal, treat the residue with 150 ml. of boiling 5% ferric alum acidified with 2–3 drops of concd. H_2SO_4, and titrate the Fe^{++} with permanganate. (2) Fuse the slag with the addn. of fresh flux and weigh the casting to det. free metal. In order to obtain a "secondary" slag with a min. amt. of free metal, the flux must be sufficient and the slag must be taken off thoroughly. The first method is tedious, requires correction for such components as Fe and Zn which also affect the reduction besides the Al; errors ranged from 5 to 10%. In second method error was 1.5–2%. B. Z. K.



Determination of zinc silicate in the presence of zinc oxide and quartz. A. D. Mayants. *Zavodskaya Lab.*, 13, 920-23 (1947); abstracted in *Chem. Zentr.*, 1948 I [5/6] 325. The Zn silicate is disintegrated with 20% H_2SO_4. SiO_2 is dissolved, and free quartz remains undissolved.
M Ha



Ca

9

Effect of admixtures of melting aluminum alloy shavings

A. D. Mayants. *Tsvetnye Metal.* 20, No. 6, 54-6(1947).

Common contaminants of Al shavings are moisture, oil, and Fe. Moisture and oil reduce the amt. of Al recovered from shavings. Both contaminants are removed effectively by treating the shavings for 40–50 min. at 400°. Extending the time and raising the temp. causes some oxidation, thereby reducing the quantity of metal recovered. The presence of Fe in the reclaimed metal reduces its quality. Magnetic sepn. can remove the Fe.

M. Hosch

MAYANTS, A. D.

MAYANTS, A.D., LAKHOZVYANSKAYA, R.G.

Recovery of metals from waste solutions by means of ion exchange.
TSvet.met. 27 no.2:33-37 Mr-Ap '54. (MIRA 10:10)

1. Gintsvetmet.
(Ion exchange) (Metals)

MAYANTS, A.D.

137-58-5-9352

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 5, p 79 (USSR)

AUTHOR: Mayants, A.D.

TITLE. Rational Systems for Leaching Various Types of Zinc Concentrates (O ratsional'nykh skhemakh vyshchelachivaniya tsinkovykh kontsentratov razlichnykh tipov)

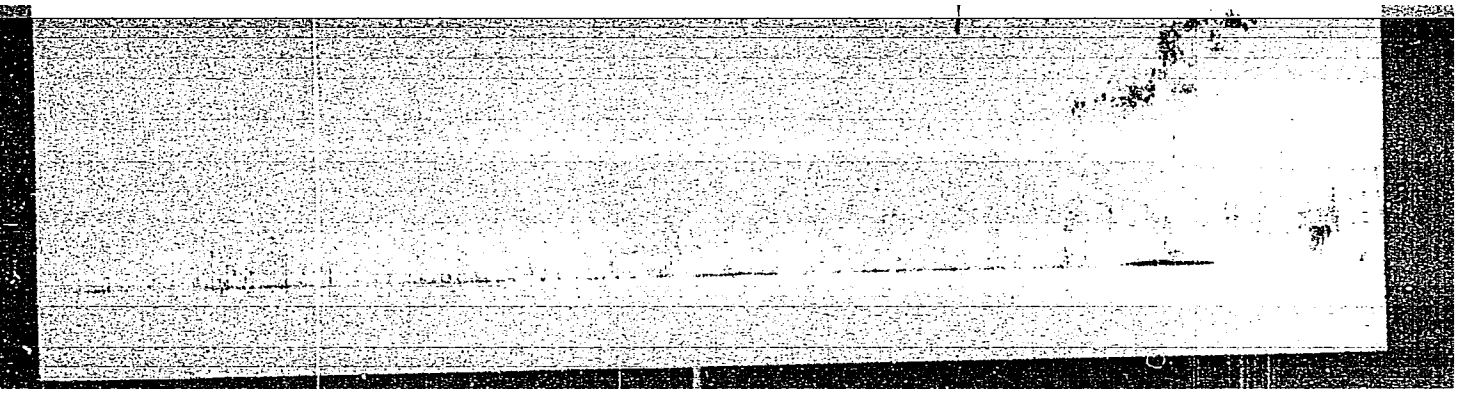
PERIODICAL. Tr. soveshchaniya po metallurgii tsinka, 1954. Moscow, Metallurgizdat. 1956, pp 93-112

ABSTRACT: In examining a number of systems for leaching various concentrates, the author makes use of data from operating plants, research work, and foreign literature. Single-stage batch leaching followed by additional leaching of the thickened pulp is recommended for roasted concentrates with high SiO_2, As, and Cu content. Continuous two-stage leaching is recommended for high-quality roasted concentrates. An intensified leaching regimen can be applied to such concentrates, the conversion being effected by increasing the current density and the acidity of the spent electrolyte. The system of "reverse" leaching of highly siliceous, roasted concentrates should be tested out on a pilot-plant scale.

L.P.

Card 1/1

1. Zinc ores--Processing 2. Electrolysis--Applications
3. Electrolytes--Properties



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MAYANTS, A.D.

137-58-5-9364

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 5, p 80 (USSR)

AUTHORS: Mayants, A.D., Orlova, S.I., Barotitskaya, F.I., Shvarts, Z.M.

TITLE: Employment of Various Oxidation Agents in the Production of Zinc Sulfate From Solutions Resulting From Leaching of Powders and Sublimates of Zinc Production (Polucheniye tsinkovogo kuporosa iz rastvorov ot vyshchelachivaniya pyley i vozgonov tsinkovogo proizvodstva s primeneniyem razlichnykh okisliteley)

PERIODICAL: Sb. nauchn. tr. Gos. n.-i. in-t tsvetnykh met., 1957, Nr 13, pp 134-146

ABSTRACT: Leaching of dusts and sublimates of zinc production was carried out under laboratory conditions. After being previously decontaminated of As, the solution underwent crystallization of $ZnSO_4$. Pyrolusite, atmospheric O_2, and gaseous Cl_2 served to oxidize the admixtures contained in the solution after leaching. It was found that standard $ZnSO_4$ can not be obtained by employing pyrolusite. Most rational method is the employment of atmospheric oxygen in which case practically all of the Zn is obtained in the form of standard technical [illegible]

Card 1/2

Employment of Various Oxidation (cont.)

application. If advanced purification of the solution is difficult, gaseous Cl_2 may be utilized as an additional oxidizing agent in place of the atmospheric O_2.

L. P.

1. Zinc sulfate--Production 2. Arsenic--Separation 3. Zinc solutions--Oxidation
4. Oxygen--Applications 5. Chlorine--Applications

Card 2/2

MAYANTS, A. D.

137-1958-3-4550

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 3, p 11 (USSR)

AUTHORS: Barotitskaya, F. I., Mayants, A. D.

TITLE: Use of Centrifuges for Pulp Separation in Zinc Hydrometallurgy (Opyt primeneniya tsentrifug dlya razdeleniya pul'p v gidrometallurgii tsinka)

PERIODICAL: Sb. nauch. tr. Gos. n.-i. in-t tsvetn. met., 1957, Nr 13, pp 171-176

ABSTRACT: A semi-industrial G-450 centrifuge (a model corresponding to the industrial centrifuges AOG-800 and AOG-1800) was tested as a periodic action unit. As a continuous-action centrifuge an experimental model of the NOGSh-T centrifuge was tested. An industrial VSB vibration separator was also investigated. Tests were performed to investigate the effectiveness of centrifuges employed, instead of thickener, frame and disc type filters and a separator, in order to decrease the content of solids in the upper sink of the thickener. As was shown by preliminary production-cost figures, the employment of AOG-1800 centrifuges may be advantageous in the dehydration of thickened slurries.

Card 1/2

137-1958-3-4550

Use of Centrifuges for Pulp Separation in Zinc Hydrometallurgy

Cakes obtained through centrifugation of thickened slurries contained 20-40 percent water and 4-8 percent of water-soluble Zn.

A. Sh.

Card 2/2

MAYANTS, A.D.

AUTHORS: Mayants, A.D. and Barotitskaya, F.I. 136-58-3-8/21

TITLE: Hydrometallurgical treatment of high-silica zinc concentrates (O gidrometallurgicheskoy pererabotke vysokokremnezemistykh tsinkovykh kontsentratov)

PERIODICAL: Tsvetnyye Metally, 1958. Nr.3. pp. 46 - 47 (USSR)

ABSTRACT: Experiments are briefly described which have shown that "return" leaching is applicable to materials containing acid-soluble natural zinc silicates. Formation of silicic-acid gel with a concentrate containing 41.50 and 14.36% H_2SO_4 soluble Zn and SiO_2, respectively was avoided by using the variant of the method in which the pulp is prepared in a neutral solution, spent electrolyte then being added to the the pulp at a rate which prevents the value of the pH falling below 3.0 during the process. A zinc recovery in the solution of 88-89% was obtained. There are 4 references of which 2 are Slavic.

ASSOCIATION: Gintsvetmet

AVAILABLE: Library of Congress.

1. Zinc--Purification 2. Minerals--Separation--Test results
3. Zinc silicates--Chemical reactions

Card 1/1

MAYANTS, A.D.; BAROTITSKAYA, F.I.

Hydrometallurgical processing of copper-zinc concentrates. Biul. TSIIN tsvet. met. no. 7:21-25 '58. (MIRA 11:7)
(Hydrometallurgy)
(Copper)
(Zinc)

MAYANTS, A. D

136-1-9/20

AUTHORS: Mayants, A.D. and Barotitskaya, F.I.

TITLE: Use of Flocculants in Pulp Settling in Zinc Production (Primeneniye flokulyantov pri otstaivanii pul'p v tsinkovom proizvodstve)

PERIODICAL: Tsvetnyye Metally, 1958, No.1, pp. 44 - 47 (USSR).

ABSTRACT: After briefly reviewing some applications of flocculants in pulp settling abroad and in the USSR and a series of tests by the Gintsvetmet organisation with zinc-manufacture pulps and a variety of flocculants, the authors discuss further laboratory tests by this organisation, carried out in 1956-57 in collaboration with works personnel. Promising results were obtained with Separan 2610 (Dow Chemical Co.) and these were confirmed on pulp samples 6-8 and 100 litres in volume, corboxymethyl cellulose also being used and the effect of stirring conditions being studied. The results of full-scale tests of Separan (10-25 mg/litre) with neutral pulps at the Chelyabinsk Zinc Works (Chelyabinskiy tsinkovoy zavod) are tabulated (Table 1) and discussed. A total of 150 g of the flocculant was added as solution 5 m upstream of the thickener. These confirmed the laboratory tests and were followed by further laboratory tests to determine the effect of the additions on the electrolytic deposition of zinc. It was arranged that Separan remnants or decomposition

Cardl/2

·Use of Flocculants in Pulp Settling in Zinc Production

products should be present both in the treated electrolyte with which the bath was filled and in the neutral solution for electrolysis; electrolysis continued for 3 days at 35 °C, current density being 400 A/m^2 and acidity 100 - 110 g/litre H_2SO_4; in a further series, 10, 50 and 200 mg/litre of Separan were added directly to both liquids and electrolysis was carried out for one day. Both series show that the flocculant has no deleterious influence on zinc electrolysis. The possibility of Separan accumulation is discussed and further research flocculants, their synthesis and use with zinc manufacture pulps is urged. There are 3 tables and 6 references, 2 of which are Russian, 3 English and 1 German.

ASSOCIATION: Gintsvetmet

AVAILABLE: Library of Congress

Card 2/2

MAYANTS, A.D.; BAROTITSKAYA, F.I.

Properties of pulps in zinc production determining their rate of settling. Sbor. nauch. trud. GINTSVETMET no.15:511-538 '59. (MIRA 14:4)

(Zinc--Metallurgy)
(Leaching)

SOV/112-58-2-2424

Translation from: Referativnyy zhurnal, Elektrotekhnika, 1958, Nr 2, p 102 (USSR)

AUTHOR: Mayants, B. A.

TITLE: Electric-Arc Insert Pipe Welding (Elektrodugovaya svarka trub pri pomoshchi vstavki), USA (SShA)

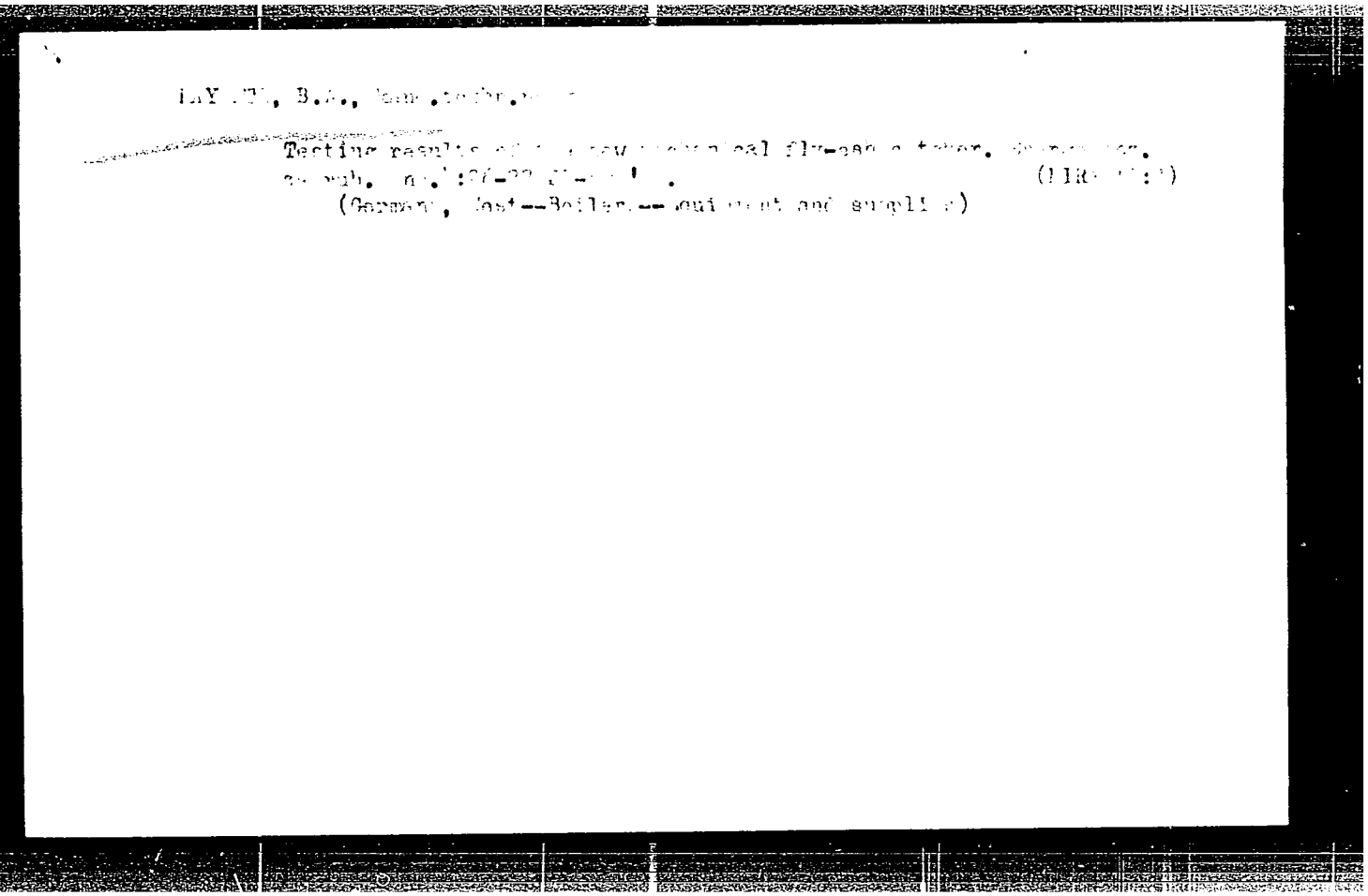
PERIODICAL: Energokh-vo za rubezhom, 1956, Nr 5, p 39

ABSTRACT: Bibliographic entry.

Card 1/1

[redacted], B.A., kand.tekhn.

Piping used [redacted]
rub. no.1:[redacted]
(United [redacted])



MAYANTS, B.A., kand.tekhn.nauk

Testing results of a new mechanical fly-ash collector. Elek. sta. no.4 Supplement:26-27 Jl-Ag '58. (MIRA 11:10)
(Germany, West--Fly ash)

MAYANTS, B.A., kand.tekhn.nauk

Pneumatic ash removal in large electric power plants (from "Combustion," no. 12, 1957). Energokhoz.za rub. no.1:15-17 Ja-F '59. (MIRA 12:4)
(United States--Ash disposal)

MAYANTS, B.A., kand.tekhn.nauk

Insulation for high temperature steam. Energokhoz. za rub. no.2:41-42 Mr-Ap '60. (MIRA 13:6)
(Insulation (Heat)) (Steampipes)

MANTSVETOVA, I.V.; MAYANTS, D.Yu.; SHINKEVICH, N.I., dotsent, kand. tekhn.nauk, obshchiy red.

[Collected problems on projective drawing] Sbornik zadach po proektsionnomu chercheniiu. Obshchaia red. N.I.Shinkevicha. Minsk, Red.-izd.otdel BPI im. I.V.Stalina, 1959. 219 p. (MIRA 12:7)
(Mechanical drawing) (Geometrical drawing)

MAYANTS, D.Yu.; MANTSVETOVA, I.V.; SHINKEVICH, N.I., kand.tekhn.nauk, red.; CHERNYAK, I., red.; STEPANOVA, N., tekhn.red.

[Mechanical drawing] Mashinostroitel'noe cherchenie. Pod red. N.I.Shinkevicha. Minsk, Gos.izd-vo BSSR, 1959. 222 p. (MIRA 12:8)

(Mechanical drawing)

SHINKEVICH, N.I., kand. tekhn. nauk, dotsent; MAYANTS, D.Yu.; MANTSVETOVA, I.V.; KONTSEVAYA, T., red.; KUZ'MENOK, P., tekhn. red.

[Collection of problems concerning threaded, welded, and riveted joints] Sbornik zadach po rez'bovym soedineniiam. Obshchaia red. N.I.Shinkevicha. Minsk, Redaktsionno-izdatel'skii otdel BPI im. I.V.Stalina, 1961, 93 p. (MIRA 14:7)
(Screw threads) (Welding) (Rivers and riveting)

SHINKEVICH, Nikolay Iosifovich, kand. tekhn. nauk, dotsent; MAYANTS, Dora Yul'yevna; MANTSVETOVA, Irina Vsevolodovna; KONTSEVAYA, T.V., red.; IZAKOV, Sh.I., tekhn. red.

[Manual on welded, threaded and riveted joints] Spravochnoe posobie po svarnym, rez'bovym i zaklepochnym soedineniiam. Minsk, Izd-vo M-va vysshego, srednego spetsial'nogo i professional'nogo obrazovaniia BSSR, 1961. 298 p. (MIRA 15:2)
(Screw threads) (Electric welding)
(Rivets and riveting)

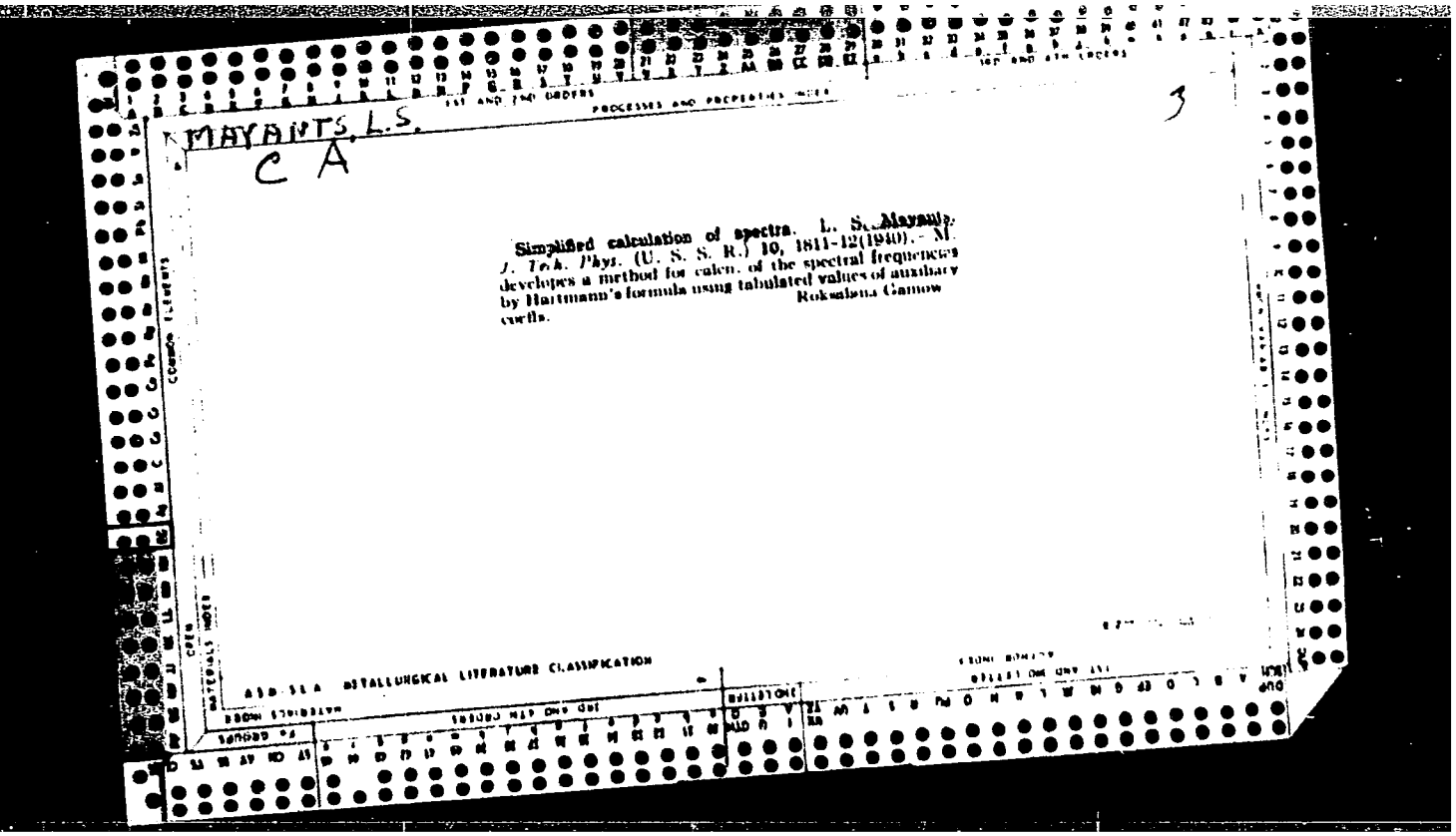
MANTSVETOVA, Irina Vsevolodovna; MAYANTS, Dora Yul'yevna;
AKALOVICH, N., red.; KISLYAKOVA, M., tekhn. red.

[Projection drawing, with a collection of problems]
Proektsionnoe cherchenie so sbornikom zadach. Izd.2., perer. i dop. Minsk, Izd-vo M-va vysshego, srednego spetsial'nogo i professional'nogo obrazovaniia BSSR, 1963. 369 p.
(MIRA 16:12)

(Mechanical drawing--Instruction) (Projection)

MAYANTS, Dora Yul'yevna; MANTSVETOVA, Irina Vsevolodovna; SHINKEVICH, Nikolay Iosifovich, kand. tekhn. nauk, dots.; TETERINA, L.N., red.

[Collection of problems on mechanical drawing; threaded, welded and riveted joints] Sbornik zadach po chercheniiu; rez'bovye, svarnye i zaklepochnye soedineniia. 2. izd., perer. i dop. Minsk, Vysshaia shkola, 1964. 257 p. (MIRA 18:2)



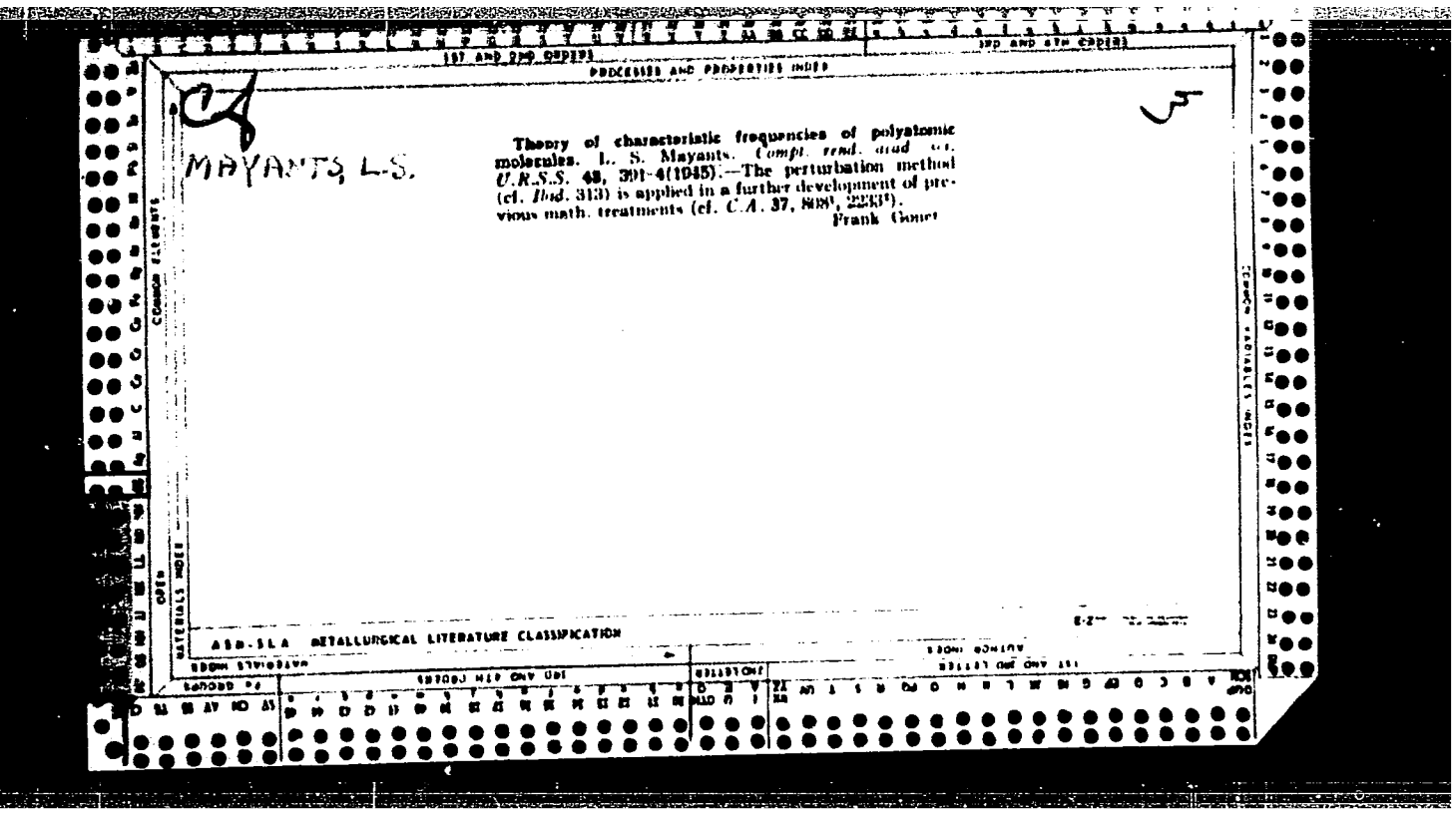
MAYANTS, L.S.
C A

3

Simplified calculation of spectra. L. S. Maysels. *J. Tech. Phys.* (U. S. S. R.) 10, 1811-12(1940).—M. develops a method for calcn. of the spectral frequencies by Hartmann's formula using tabulated values of auxiliary curves.
Roksalena Gamow

MAYANTS, L.S.

Characteristic frequencies. L. S. Mayants (*Bull. Acad. Sci. U.R.S.S., Sér. Phys.*, 1941, **5**, 158–161). Conditions are discussed for a definite frequency of the Raman spectrum to be a function of one linking only. The difference between the force consts. of similar mols., *e.g.*, $(CCl_3)_2$ and $(CBr_3)_2$, cannot be immediately deduced from the shift of the characteristic frequency. J. J. H.



MAYANTS, L.S.

Theory of characteristic frequencies of polyatomic molecules. L. S. Mayants. *Compt. rend. acad. sci. U.R.S.S.* **48**, 391-4(1945).—The perturbation method (cf. *Ibid.* 313) is applied in a further development of previous math. treatments (cf. *C.A.* **37**, 808[8], 2233[1]).
Frank Gonser

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

MAYANTS, L. S.

Mathematical Reviews
Vol. 14 No. 11
Dec. 1953
Numerical and Graphical Methods

Mayants, L. S. A method for making more precise the roots of secular equations of high degrees and for numerical analysis of their dependence upon parameters of the corresponding matrices. Doklady Akad. Nauk SSSR (N.S.) 50, 121–124 (1945). (Russian)

Let W be a matrix of order n. The problem is to design a rapidly convergent iterative scheme for computing an eigenvalue λ and corresponding eigenvector r of W, given some initial approximations λ_0, r_0. The approach considered here is the iterative solution of the non-linear system of equations (*) $(W-\lambda E)r=0$ (E=unit matrix), subject to the restriction $e_1^T r=1$, $e_1^T=(1, 0, \cdots, 0)$. Earlier algorithms by the author and by Hopf-Stein did not always converge [they were of the cyclic single-step category], but one is now proposed which is claimed to work always, at the cost of one matrix inversion per step.

In the reviewer's notation the author assumes $w_{11}=0$ without loss of generality, by subtracting $w_{11}E$ from W. He then partitions W into submatrices of orders $1, n-1$:

$$W=\begin{bmatrix} 0 & w_1 \\ w_2 & B \end{bmatrix}.$$

6/11/54

(OTHER)

and writes $\nu = [1, x]^T$. Then, given λ_k, x_k, he gets λ_{k+1}, x_{k+1} by the formulas

$$\begin{cases} \lambda_{k+1} = \delta^{-1}[w_*(B-\lambda_k E)^{-1}x_k\lambda_k - w_*(B-\lambda_k E)^{-1}w_0], \\ \quad \text{where} \quad \delta = w_*(B-\lambda_k E)^{-1}x_k - 1, \\ x_{k+1} = (B-\lambda_{k+1}E)^{-1}w_0. \end{cases}$$

If the first approximation is good enough, some saving of effort results from the alternate formula

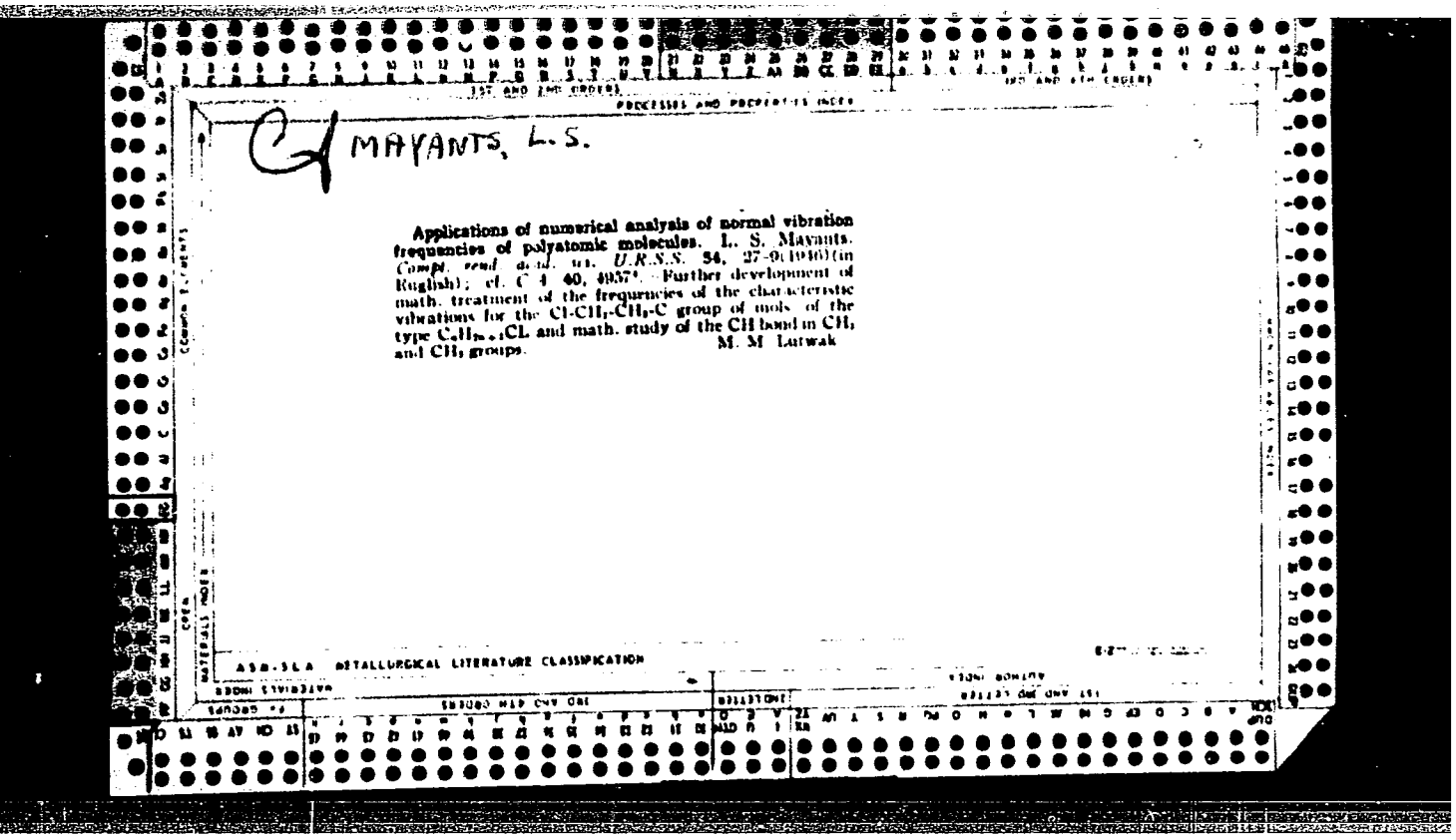
$$\lambda_{k+1} = \delta_0^{-1}[w_*(B-\lambda_k E)^{-1}x_k\lambda_k - w_*(B-\lambda_k E)^{-1}w_0],$$

where

$$\delta_0 = w_*(B-\lambda_k E)^{-1}x_0 - 1.$$

There are related formulas for computing the derivatives of λ with respect to a parameter on which W depends. There are no theorems or proofs in the paper.

Rayleigh's note: the first formula for λ_{k+1} corresponds to one step of Newton's process for solving the system (*) in the n-dimensional space of λ and the last $n-1$ components of γ. *G. E. Forsythe* (Los Angeles, Calif.).



MAYANTS, L. S.

Applications of numerical analysis of normal vibration frequencies of polyatomic molecules. L. S. Mayants. *Compt. rend. acad. sci. U.R.S.S.* 54, 27-9(1946)(in English); cf. C 4 40, 4957. Further development of math. treatment of the frequencies of the characteristic vibrations for the Cl-CH_2-CH_2-C group of mols. of the type $C_nH_{2n+1}CL$ and math. study of the CH band in CH_3 and CH_2 groups.

M. M. Lurwak

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

MAYANTS, L. S.

"Theory of Characteristic Frequencies and Certain of Its Applications." Sub 24 Nov 47, Physics Inst imeni P. N. Lebedev, Acad Sci USSR

Dissertations presented for degrees in science and engineering in Moscow in 1947

SO: Sum No. 457, 18 Apr 55

MAYANTS, L. S.

USSR/Physics Jul/Aug 1947
Spectroscopy
Spectra, Band

"Theory of Characteristic Frequencies," L. S. Mayants, 3 pp

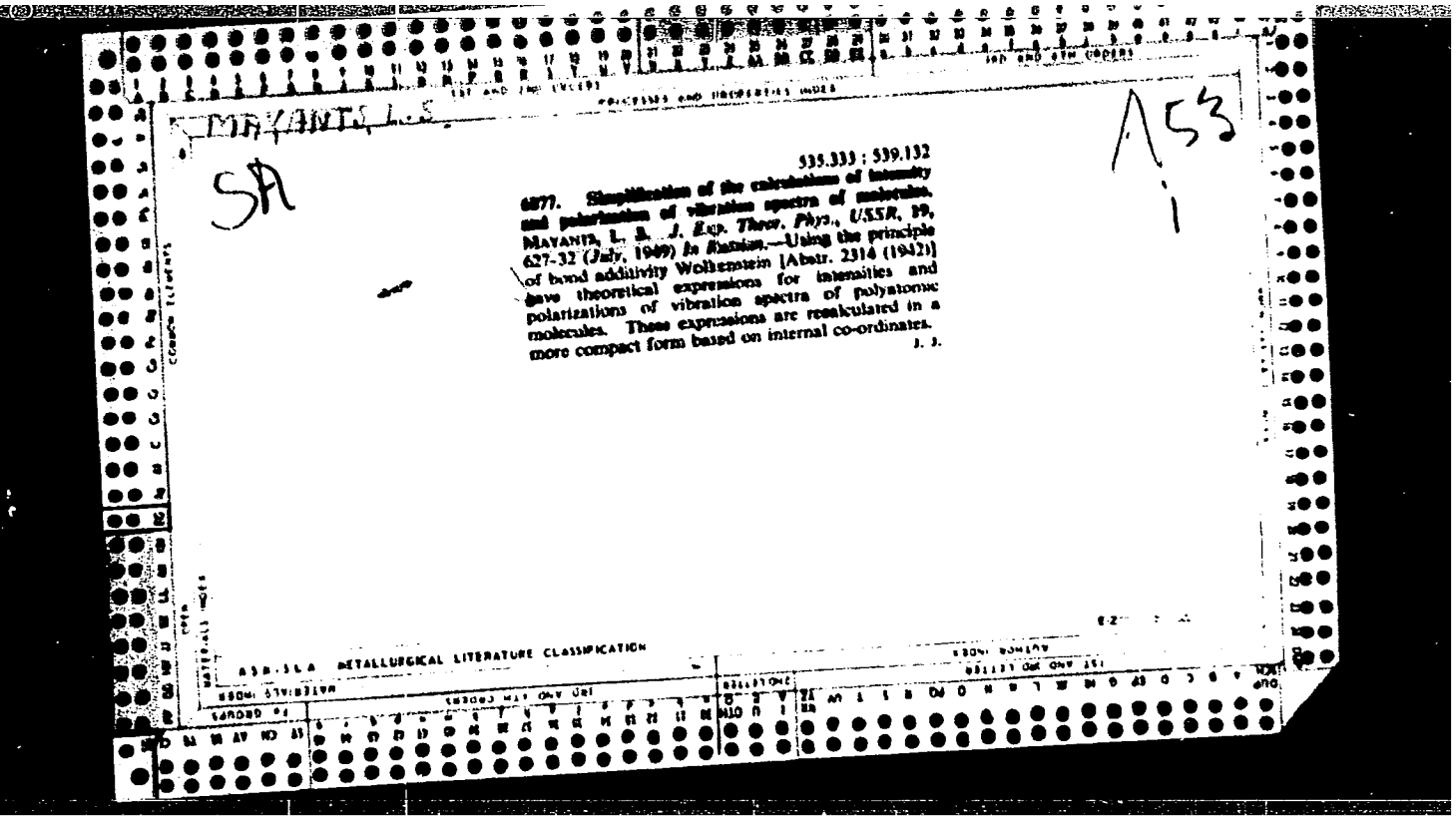
"Zh Ak Nauk, Ser Fiz" Vol XI, No 4

A study of the fluctuating spectra of polyatomic molecules has shown that the molecular spectra possess the same characteristics as chemical groups and frequently have the same or very slightly different frequencies. These frequencies were termed "characteristic." Discusses some of the work which was done before the formulation of this theory. Several comments by other Russian scientists. Submitted at the Institute of [redacted]

[redacted]/Physics (Contd) Jul/Aug 1947

Physics imeni P. N. Lebedev, Academy of Sciences of the USSR.

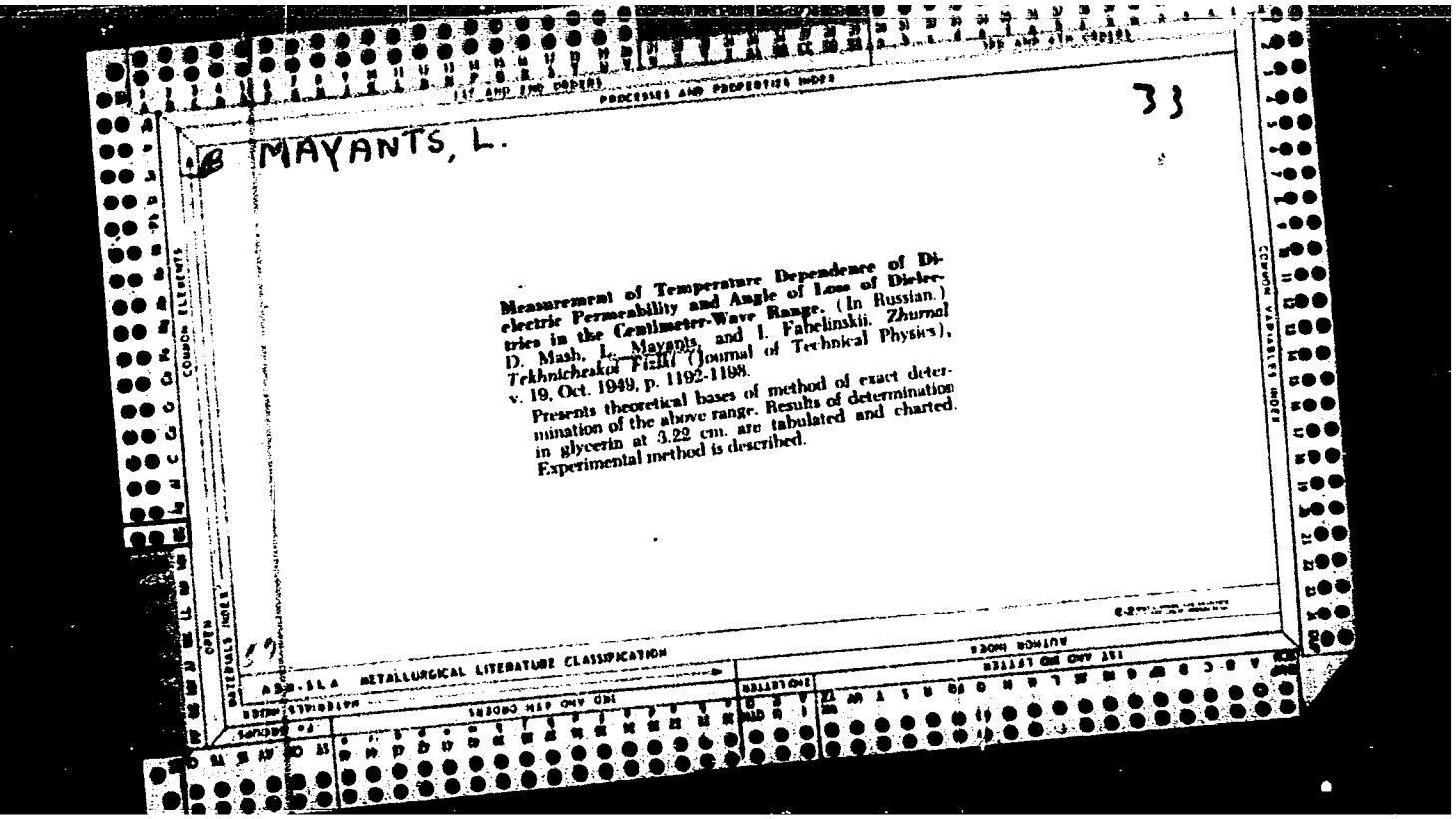
[redacted]



535.333 : 539.132

6877. **Simplification of the calculations of intensity and polarization of vibration spectra of molecules.** MAYANTS, L. S. *J. Exp. Theor. Phys., USSR*, 19, 627-32 (*July*, 1949) *In Russian.*—Using the principle of bond additivity Wolkenstein [Abstr. 2314 (1942)] gave theoretical expressions for intensities and polarizations of vibration spectra of polyatomic molecules. These expressions are recalculated in a more compact form based on internal co-ordinates.

J. J.



33

MAYANTS, L.

Measurement of Temperature Dependence of Dielectric Permeability and Angle of Loss of Dielectrics in the Centimeter-Wave Range. (In Russian.) D. Mash, L. Mayants, and I. Fabelinskii. *Zhurnal Tekhnicheskoi Fiziki* (Journal of Technical Physics), v. 19, Oct. 1949, p. 1192-1198.

Presents theoretical bases of method of exact determination of the above range. Results of determination in glycerin at 3.22 cm. are tabulated and charted. Experimental method is described.

MAYANTS, L.S.

USSR

On P. G. Maslov's article "Method for solving a system of homogeneous linear equations in calculating the vibrations on monoatomic molecules." L. S. Mayants (Pedagog. Inst., Saratov), *Zhur. Eksptl. i Teoret. Fiz.* 24, 126–7 (1953); cf. *Zhur. Eksptl. i Teoret. Fiz.* 22, 276(1952).—

Mayants shows that the simplification of his method given by Maslov is only useful in a few specific cases. He also answers other criticisms by Maslov. J. Royter Leach

Mayants, L.

4

USSR

415. The influence of symmetry in the theory of oscillations of polyatomic molecules. L. S. MAYANTS. *Zh. eksper. teor. Fiz.*, 25, *No.* 4 (10) 493–500 1953? In Russian.

A revised version of the method given in Abstr. 5220 (1952) for the exploitation of simplifications resulting from the presence of symmetries when determining the normal oscillations of dynamical systems (especially molecules). Algebraically the problem can be stated as the diagonalization of an n-dimensional matrix (n = number of degrees of freedom). The presence of symmetries leads to the reduction to a step matrix consisting of square matrices along the diagonal, the reduction being defined by the type of symmetry present and independent of the actual values of the matrix elements. The carrying through of this reduction is given explicitly, without the use of group theory, first when there is one element of symmetry and then for the general case. The method is illustrated for the tetrahedral (CH_4), and the pentagonal C_5H_5 molecules.

W. J. SWIATYCKI

MAVANTS, L.S.

(1) 2 pages

5618 The Elimination of Dependent Coordinates in the Theory of Vibration of Polyatomic Molecules. L. S. Mavants. *National Science Foundation Translation, no.* 37, July 1953, 4 p. (Original in *Doklady Akademii Nauk SSSR*, v. 89, 1953, p. 423.)

Dependent coordinates were introduced in addition to independent ones in order to take advantage of symmetry of the molecules.

11/14/57

MAYANTS, L. S.

USSR/Physics - Molecular Oscillations. 21 Mar 53

"Elimination of Dependent Coordinates in the Theory of Oscillations of Multiatomic Molecules," L. S. Mayants, Saratov Pedagogic Inst

DAN SSSR, Vol 89, No 3, pp 423-426

Computations of additional relations between systems of coordinates were obtained in matrix form by M. A. Yel'yashev (cf. "Oscillations of Molecules" 1949). Author considers this problem to be purely mathematical and derives solutions by means of linear algebra. Presented by Acad G. S. Landsberg 8 Jan 53.

272T77

MAYANTS, L. S.

SUBJECT USSR/MATHEMATICS/Theory of functions CARD 1/2 PG - 333
AUTHOR KOVALEV I.F., MAJANZ L.S.
TITLE A new method for the computation of partial derivatives of the roots of the characteristic equation with respect to parameters.
PERIODICAL Doklady Akad. Nauk 108, 175-178 (1956)
reviewed 10/1956

Let be given the matrix W the elements w_{kl} of which depend on the parameters t_j ($j = 1,2,\ldots m$). Let the eigenvalues of the characteristic equation

$$|W - \lambda E| = 0$$

be $\lambda_1,\ldots, \lambda_n$. The author gives the following formula for the computation of partial derivatives of the eigenvalues:

$$\frac{\partial \lambda_i}{\partial t_j} = \frac{Sp\left(\frac{\partial W}{\partial t_j} \tilde{A}^{(i)}\right)}{Sp\, \tilde{A}^{(i)}} ,$$

where $A^{(i)}$ denotes the matrix adjoint to $W - \lambda_i E$ and $\tilde{A}^{(i)}$ is its transpose. The computation of $\frac{\partial W}{\partial t_j}$ is not difficult, while for the computation of $\tilde{A}^{(i)}$ an artifice must be applied since $W - \lambda_i E = 0$. Denoting $B = W - \lambda_i E$ and

writing B in the form

$$B = \left\| \begin{array}{c|c} B_o & u \\ \hline v & b \end{array} \right\|,$$

where B_o is the submatrix of (n-1)-th order, u is a column, v is a row and b means an element, then for $\tilde{A}^{(i)}$ one obtains the formula:

$$c\tilde{A}^{(i)} = \left\| \begin{array}{c|c} B_o^{-1}uvB_o^{-1} & -B_o^{-1}u \\ \hline -vB_o^{-1} & 1 \end{array} \right\| .$$

INSTITUTION: Educational Institute, Smolensk.

MAYANTS, L.S.

Calculations of isotopic vibration displacement of zero energy of multiatomic molecules, by the spectroscopic data. Probl. kin. i kat. 9:345-353 '57. (MIRA 11:3)
(Spectrum, Molecular) (Liquids, Kinetic theory of)

SOV/51-5-4-4/21

AUTHOR: Mayants, L.S.

TITLE: On the Possibility of Identification of Cis- and Trans-Isomers (With Respect to the Double Bond C=C) in Di-Substituted Derivatives of Ethylene From Their Vibrational Spectra. (O vozmozhnosti identifikatsii tsis- i trans-izomerov (otnositel'no dvoynoy svyazi C=C) dvuzameshchennykh proizvodnykh etilena po kolebatel'nym spektram). I. Statement of the Problem. β-Vibrations. (Postanovka voprosa. β-kolebaniya)

PERIODICAL: Optika i Spektroskopiya, 1958, Vol 5, Nr 4, pp 369-377 (USSR)

ABSTRACT: The author discusses the possibility of identification of cis- and trans-isomers of ethylene derivatives from their Raman and infrared spectra. Calculations were made for cis- and trans-configurations of C_2H_2XY and $C_2H_2(CH_2X)(CH_2Y)$ molecules, where X and Y may be atoms or groups of atoms. Figs 1 and 2 show schematically the two types of molecules. A model calculation is carried out for H--C=C plane vibrations (β-vibrations) of C_2H_2XY and $C_2H_2(CH_2X)(CH_2Y)$ molecules. After analysing the dependence of β-vibrations on various parameters the author shows the limits of applicability of the principle of analogy in identification of cis- and trans-isomers of such compounds using

Card 1/2

On the Possibility of Identification of Cis- and Trans-Isomers (With Respect to the Double Bond C=C) in Di-Substituted Derivatives of Ethylene From Their Vibrational Spectra

β-vibrations. For $C_2H_2(CH_2X)(CH_2Y)$ molecules identification of trans- and cis-isomers, using β vibrations, should be made with great caution and only if force fields in such molecules and in those used as standards are known with sufficient accuracy. The author thanks I.V. Obreimov for his interest. There are 2 figures, 1 table and 9 Soviet references.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy, AN SSSR, Opticheskaya laboratoriya (Institute for Elemental-organic Compounds, Academy of Sciences of the U.S.S.R., Optical Laboratory).

SUBMITTED: November 1, 1957

Card 2/2 1. Ethylene derivatives--Spectra 2. Raman spectra 3. Infrared spectra

SOV/51-5-4-5/21

AUTHOR: Mayants, L.S.

TITLE: An Improved Method of Calculation of Partial Derivatives of Normal Vibrational Frequencies of Polyatomic Molecules with Respect to Various Parameters (Usovershenstvovannaya metodika vychisleniya chastnykh proizvodnykh ot chastot normal'nykh kolebaniy mnogoatomnykh molekul po razlichnym parametram)

PERIODICAL: Optika i Spektroskopiya, 1958, Vol 5, Nr 4, pp 378-383 (USSR)

ABSTRACT: The frequency ($\omega_i = \sqrt{\lambda_i}$) and form ($\vec{r}_i$) of the i-th normal vibration of a molecule may be obtained by solving the equation $W\vec{r} = \lambda\vec{r}$, where $W = T^{-1}.U$, T^{-1} is the kinematic coefficient matrix, and U is the force constant matrix. To calculate the partial derivatives of ω_i with respect to force constants m_u we use the equation

$$\frac{\partial \omega_i}{\partial m_u} = \alpha_i \left(\vec{L}_i, \frac{\partial U}{\partial m_u} \vec{r}_i \right)$$

where $\alpha = \frac{1}{2\omega_i (\vec{p}_i, \vec{r}_i)}$, $\vec{L}_i = \tilde{T}^{-1}\vec{p}_i$ and $\vec{p}_i$ satisfies $\tilde{W}\vec{p}_i = \lambda_i \vec{p}_i$. To calculate the partial derivatives of ω_i

Card 1/2

An Improved Method of Calculation of Partial Derivatives of Normal Vibrational Frequencies of Polyatomic Molecules with Respect to Various Parameters

with respect to parameters m_T (kinematic coefficients depend only on these parameters) the following equation is used

$$\frac{\partial \omega_i}{\partial m_T} = \alpha\left(\vec{p}_i \frac{\partial T^{-1}}{\partial m_T} \vec{u}_i\right)$$

where $\vec{u}_i = U\vec{r}_i$. Calculation of $(\partial U/\partial m_u)$ and $(\partial T^{-1}/\partial m_T)$ presents no difficulties. The value of $\vec{r}_i$ is obtained together with λ_i using the method described in Refs 3,4. The author shows how to calculate $\vec{p}_i$ using the same method. The paper is entirely theoretical. There are 5 Soviet references.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy, AN SSSR (Institute for Elemental Organic Compounds, Academy of Sciences of the U.S.S.R.)

SUBMITTED: November 10, 1957

Card 2/2 1. Molecules--Vibration 2. Vibration--Mathematical analysis

SOV/51-5-5-4/23

AUTHOR: Mayants, L.S.

TITLE: On the Possibility of Identification of Cis- and Trans-Isomers (With Respect to the Double Bond C=C) in Di-Substituted Derivatives of Ethylene from their Vibrational Spectra. (O vozmozhnosti identifikatsii tsis- i trans-izomerov (otnositel'no dvoynoy svyazi C=C) dvuzameshchennykh proizvodnykh etilena po kolebatel'nym spektram. II. C=C Vibrations. C-Hal Vibrations. $\chi\rho$ Vibrations. (II. C=C-kolebaniya. C-Hal-kolebaniya. χ,ρ-kolebaniya).

PERIODICAL: Optika i Spektroskopiya, 1958, Vol 5, Nr 5, pp 511-519 (USSR)

ABSTRACT: In the preceding paper (Part I, Ref 1) the author showed that it is possible to identify cis- and trans-isomers of ethylene derivatives from their vibrational spectra and discussed the use of β vibrations (planar deformational C-H vibrations) for this purpose. The present paper is a continuation of Part I and it considers identification of cis- and trans-isomers using C=C vibrations, C-Hal vibrations and $\chi\rho$ vibrations, (non-planar vibrations related to rotation of $\begin{matrix}X\\H\end{matrix}\!\!>\!C{=}C$ and $C{=}C\!<\!\!\begin{matrix}Y\\H\end{matrix}$ groups about the double bond C=C and to motion of C=C bond out of the $\begin{matrix}X\\H\end{matrix}\!\!>\!C$ and $C\!<\!\!\begin{matrix}Y\\H\end{matrix}$ planes). The methods of calculation

Card 1/3

On the Possibility of Identification of Cis- and Trans-Isomers (With Respect to the Double Bond C=C) in Di-Substituted Derivatives of Ethylene from their Vibrational Spectra. II. C=C Vibrations. C-Hal Vibrations. γ,ρ Vibrations

and the nomenclature are the same as in Part I. Again C_2H_2Y and $C_2H_2(CH_2H)(CH_2Y$, models are considered. It is found that from the relative position of the C--Cl frequency cis- and trans-isomers of $C_2H_2(CH_2Y)Cl$ molecules may be reliably identified, since the C--Cl frequency of the trans-configuration should be higher than the C--Cl frequency of the cis-configuration, if all the valence angles at the carbon atoms which are bound by the double bond (i.e. angles $\alpha_{1,2}$ and $\beta_{1,2}$) are equal to about $2\pi/3$. The cis- and trans-isomers of $C_2H_2(CH_2X)(CH_2Y)$ molecules may be identified from the position of the C=C frequency, provided that the force field of the $C_2H_2C_2$ group and the angles $\alpha_{1,2}$ and $\beta_{1,2}$ are the same in the studied molecule and in a molecule used as a standard. The identification of the cis- and

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On the Possibility of Identification of Cis- and Trans-Isomers (With Respect to the Double Bond C=C) in Di-Substituted Derivatives of Ethylene from their Vibrational Spectra. II. C=C Vibrations C--Hal Vibrations. χ,ρ Vibrations.

trans-isomers of $C_2H_2(CH_2X)(CH_2Y)$ molecules from χ,ρ frequencies is not reliable, if there is no certainty that the force field of the molecule and the angles $\alpha_{1,2}$ and $\rho_{1,2}$ are the same in the molecules studied and that used as a standard. The author thanks I.V. Obreimov for his interest. There are 3 tables and 1 Soviet reference.

SUBMITTED: November 1, 1957

Card 3/3 1. Ethylene derivatives 2. Nuclear isomers--Spectra

24(7) SOV/51-6-5-5/34

AUTHORS: Mayants, L.S., Popov, Ye.M. and Kabachnik, M.I.

TITLE: Calculation of Characteristic Vibrations in Compounds of Phosphorus (Raschet kharakteristicheykh kolebaniy soyedineniy fosfora). Characteristic Vibrations of the Molecules $POCl_3$, $POBr_3$, $PSCl_3$ and $PSBr_3$ (Kharakteristichnyye kolebaniya molekul $POCl_3$, $POBr_3$, $PSCl_3$ and $PSBr_3$)

PERIODICAL: Optika i Spektroskopiya, 1959, Vol 6, Nr 5, pp 589-593 (USSR)

ABSTRACT: The paper reports the results of calculation of vibrations of simple molecules with P=O and P=S bonds: $POCl_3$, $POBr_3$, $PSCl_3$ and $PSBr_3$. Following Allen and Sutton (Ref 2) it is assumed that the equilibrium configurations of all these molecules belong to the C_{3v} group (see figure on p 592) and that their general formula can be written ZPY_3, where Z = O or S and Y = Cl or Br. It follows that six fundamental frequencies should be observed in the vibrational spectra of the ZPY_3 molecules: three of these frequencies should be fully symmetric and three doubly degenerate. The authors used in their calculations the published interpretations of the Raman spectra (Refs 3-5) and the following generalised coordinates: The variations of the bond lengths P--Z and P--Y_i (i = 1, 2, 3) and of the angles Y_i--P--Y_j (i, j = 1, 2, 3) and Z--P--Y_i (i = 1, 2, 3). These coordinates were denoted by letters

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Calculation of Characteristic Vibrations in Compounds of Phosphorus. Characteristic Vibrations of the Molecules $POCl_3$, $POBr_3$, $PSCl_3$ and $PSBr_3$.

Q, q_i, γ_k ($k \neq i, j$) and δ_i respectively. The equilibrium bond lengths were taken to be P=O = 1.58 Å, P--Cl = 2.02 Å, P=S = 1.94 Å, P--Br = 2.18 Å. Angles Y_i--P--Y_j and Z--P--Y_i were assumed to be tetranedral. The force constants were chosen to obtain the best possible agreement between the calculated and observed Raman and infrared absorption frequencies. Designations of the force constants are in Table 1 and their values (in $10^6 cm^{-2}$) in Table 2. The calculations yielded frequencies and forms of the normal vibrations of the four molecules and the sensitivities of these frequencies to changes in the force constants, atomic masses, bond lengths and angles. The results are given in Tables 3-5. The form of fully symmetric vibrations ν_1 (P=O frequencies in $POCl_3$ and $POBr_3$ and P=S frequencies in $PSCl_3$ and $PSBr_3$) should, strictly, be determined by the coordinate Q but Table 5 shows that it is affected also by the coordinates q, γ and δ. There are 1 figure, 5 tables and [illegible] references, 5 of which are Soviet, 2 English, 2 German and 1 French.

SUBMITTED: June 11, 1958

Card 2/2

SOV/51-7-2-5/34

AUTHORS: Mayants, L.S., Popov, Ye.M. and Kabachnik, M.I.

TITLE: Calculation of the Characteristic Vibrations of Phosphorus Compounds (Raschet kharakteristichnykh kolebaniy soyedineniy fosfora). II. Characteristic Vibrations of the $(CH_3O)_3PO$ and $(CH_3O)_3PS$ Molecules (II. Kharakteristichnyye kolebaniya molekul $(CH_3O)_3PO$ i $(CH_3O)_3PS$).

PERIODICAL: Optika i spektroskopiya, 1959, Vol 7, Nr 2, pp 170-177 (USSR)

ABSTRACT: In Part I (Ref 1) the authors reported the results of calculation of the normal vibrations of the $POCl_3$, $POBr_3$, $PSCl_3$ and $PSBr_3$ molecules and discussed vibrations of these molecules corresponding to the P = O and P = S frequencies. It was shown that the symmetrical vibration ν_1 of the four molecules mentioned above has not quite the form characteristic of the Q coordinate, which refers to the change of the P = O or P = S bond length. In order to determine the effect of coordinates which are further from Q on the vibration ν_1, the authors calculated the fully symmetric vibrations of the $(CH_3O)_3PO$ and $(CH_3O)_3PS$ molecules for certain estimated values of the force constants and they determined the sensitivity of frequencies to changes of these constants. Of the possible rotational isomers of the $(CH_3O)_3PO$ and $(CH_3O)_3PS$ molecules four models were selected (figure on p 171). The models I and II have

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Calculation of the Characteristic Vibrations of Phosphorus Compounds. II. Characteristic Vibrations of the $(CH_3O)_3PO$ and $(CH_3O)_3PS$ Molecules

the symmetry C_{3v}, the model III has C_3 symmetry (the C--O bonds lie in the plane normal to the third-order axis) and the model IV has C_S symmetry. The results obtained (Tables 2-6) and those of Part I (Ref 1) lead to the conclusion that the vibration ν_1 is very characteristic in form and frequency of the coordinate Q and related coordinates. The P = O and P--O frequencies are used to show that the models I and III are most likely isomers in solutions of $(CH_3O)_3PO$. There are 1 figure, 6 tables and 20 references, 11 of which are Soviet, 5 English, 3 German and 1 from an international journal.

SUBMITTED: November 24, 1958

S/051/60/008/02/010/036
E201/E391

AUTHOR: Mayants, L.S.

TITLE: Calculation of Derivatives of the Frequencies and Forms of Normal Vibrations of Molecules in the Case of Symmetry

PERIODICAL: Optika i spektroskopiya, 1960, Vol 8, Nr 2, pp 199 - 205 (USSR)

ABSTRACT: The frequencies and forms of normal vibrations of molecules are calculated separately for each type of symmetry from the appropriate equation. The present paper deals with methods of calculation of derivatives of the frequencies and the forms of normal vibrations using separate equations for each type of symmetry. It is shown that one can calculate derivatives also in the case of degenerate vibrations, even when the change in the parameter considered disturbs the molecular symmetry. The paper is entirely theoretical. There are 4 Soviet references.

SUBMITTED: May 21, 1959

Card 1/1

AUTHOR: Mayants, L. S.

S/020/60/131/01/013/060
B013/B007

TITLE: A Method for Numerical Solution and Numerically Analyzing Solutions of Homogeneous Systems of Linear Algebraic Equations of General Form

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol 131, Nr 1, pp 51 - 54 (USSR)

ABSTRACT: The numerical solution of homogeneous systems of linear algebraic equations of the form $(A - \lambda B)X = 0$ (in matrix-notation, where A and B are matrices of n-th order; X = a column-matrix with n elements; λ - a number) is particularly difficult because both matrices are singular. The method described in the present paper is suited both for non-singular matrices A and B and for cases in which one of them or both are singular simultaneously. This method consists in proper application of the following operations: 1) Numerical solution of the above equation (1) at one arbitrary value of the root of the secular equation $|A - \lambda B| = 0$. 2) Transition to equation (3): $(A^{(1)} - \lambda B^{(1)})X' = 0$ with the matrices $A^{(1)}$ and $B^{(1)}$ of (n-1)-st order. Equation (3) has solutions with the same λ-values as also equation (1). 3) Transition

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from the numerical solution of equation (3) (which corresponds to the root of the secular equation (4): $|A^{(1)} - \lambda B^{(1)}| = 0$) to the corresponding solution of (1). In (1) the order of the matrices is reduced so long until it equals 2. (1) may be solved according to an iteration method developed by the author. The considerations for the above-mentioned reduction of the order of the matrices are described. If $|A| = 0$ and $|B| = 0$ hold, three cases are possible: Though the matrix $X^{(o)}$ satisfies the equation $AX = 0$, it does not satisfy equation $BX = 0$. 2) The matrix $X^{(o)}$ satisfies these two equations, but though matrix $Y^{(o)}$ satisfies the equation with the transposed matrix $\tilde{A}Y = 0$, it does not satisfy the equation $\tilde{B}Y = 0$. 3) The matrix $X^{(o)}$ satisfies the equations $AX=0$ and $BX=0$, and matrix $Y^{(o)}$ satisfies the equations $\tilde{A}Y = 0$ and $\tilde{B}Y = 0$. In case 1) $X^{(o)}$ satisfies equation (1) when $\lambda = 0$, and because of $BX^{(o)} \neq 0$ the

A Method for Numerical Solution and Numerically Analysing Solutions of Homogeneous Systems of Linear Algebraic Equations of General Form

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B013/B007

order of matrices A and B may be reduced in the above described manner. In case 2) $Y^{(0)}$ satisfies the equation $(\tilde{A} - \lambda\tilde{B})Y = 0$ when $\lambda = 0$. Also in this case the order of the matrices $\tilde{A}$ and $\tilde{B}$ may be reduced in the above described manner. In order to reduce the order of the matrices $\hat{A}$ and $\hat{B}$ in case 3), it is necessary, e.g., to omit the first line and the first column of these matrices. The further course of the calculation is shown step by step. All formulas and calculations written down here can be simplified if matrices A and B are symmetric or if B = E holds. There are 3 Soviet references.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR (Institute of Elemental-organic Compounds of the Academy of Sciences of the USSR)

PRESENTED: November 14, 1959, by I. V. Obreimov, Academician

SUBMITTED: October 27, 1959

Card 3/3

MAYANTS, L. S.

Calculating the derivatives of the frequencies and forms of normal vibrations of molecules in the presece of symmetry. Opt. i spektr. 8 no.2:199-205 F '60. (MIRA 13:10)
(Molecules--Vibration)

MAYANTS, Lazar' Solomonovich; KITAYGORODSKIY, A.I., doktor fiziko-matem. nauk, otv.red.; GUROV, K.P., red.izd-va; SHEVCHENKO, G.N., tekhn.red.

[Theory and calculation of vibrations of molecules] Teoriia i raschet kolebanii molekul. Moskva, Izd-vo Akad.nauk SSSR, 1960. 526 p. (MIRA 13:11)

(Molecular theory)

LANDSBERG, G.S., akad. [deceased]; MAYANTS, L.S., doktor fiziko-matem. nauk; BATUYEV, M.I., doktor khim. nauk; BARYSHANSKAYA, F.S., kand. fiziko-matem. nauk; STERIN, Kh.Ye., kand. fiziko-matem. nauk; ARANOVICH, P.M., kand. khim. nauk; BYALOVA, V.V., mlad. nauchnyy sotr.; ROTKOVA, S.V., mlad. nauchnyy sotr.; RABINOVICH, N.Ya., mlad. nauchnyy sotr.; BERKGAUT, V.G., red. izd-va; GOLUB', S.P., tekhn. red.

[Scattering of light and infrared spectroscopy; bibliographic index for 1928-1940] Rasseianie sveta i infrakrasnaia spektroskopiia; bibliograficheskii ukazatel' 1928-1940. Moskva, Izd-vo Akad. nauk SSSR, 1961. 451 p. (MIRA 14:11)

1. Akademiya nauk SSSR. Komissiya po spektroskopii. Sektor seti spetsial'nykh bibliotek.
(Light—Scattering—Bibliography) (Spectrum, Infrared—Bibliography)

POPOV, Ye.M.; KABACHNIK, M.I.; MAYANTS, L.S.

Vibration spectra of organophosphorus compounds. Usp.khim. 30 no.7:846-876 Jl '61. (MIRA 14:8)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Phosphorus organic compounds—Spectra)

AUTHOR: Mayants, L. S.

TITLE: On the use of influence coefficients in the theory of molecular vibrations

CITED SOURCE: Tr. Komis. po spektroskopii. AN SSSR, vyp. 1, 1964, 92-98

TOPIC TAGS: influence coefficient, molecular vibration theory, chemical bond

TRANSLATION: The transformation properties of the matrix U do not

L 16306-65

ACCESSION NR: AR5012229

for the matrix T and its inverse. The invariance properties of the influence coefficient do not mean that the chemical bond is characterized by a corresponding influence coefficient and does not determine the possibility of transferring these coefficients from one molecule to another in unaltered form.

SUB CODE: GP, OP ENCL: 00

MAYANTS, L.S.; GAL'PERN, Ye.G.

Characteristic nature of deformation CH-vibrations in aromatic hydrocarbons. Opt. i spektr. 16 no.5:744-752 [illegible].

MAYANTS, L.S.

Allowing for the dependence of coordinate [illegible] molecular vibrations and related problems. [illegible] no.5:753-762 My '64.

ACCESSION NR: AP4033400 S/0076/64/038/003/0623/0631

AUTHOR: Mayants, L. S. (Moscow)

TITLE: Intramolecular rearrangements and molecular vibrations

SOURCE: Zhurnal fizicheskoy khimii, v. 38, no. 3, 1964, 623-631

TOPIC TAGS: molecular vibration, molecular rearrangement, isomerism, inversion, intramolecular regrouping

ABSTRACT: Intramolecular regrouping is every act of molecular conversion into one or several other molecules, specifically into another isomer or configuration. In this broad sense intramolecular regrouping plays an important role, since one of the stages of many chemical reactions is the decomposition of some molecules into parts. Intramolecular regrouping is possible only with an appropriate change of the inner coordinates. Such changes, however, may occur only due to intramolecular oscillations. Therefore, the possibility of any rearrangement inside a molecule is associated with the possibility of the necessary changes of the inner coordinates, due to intramolecular oscillations. In every specific case the establishment of the possibility of a sufficient closeness of approach of the nuclei

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ACCESSION NR: AP4033400

during the rotation of the individual parts of the molecule around some bonds is of no consequence if the molecular structure is known. An equation has been derived for the rate constant, using the harmonic oscillator approximation and taking into account the effect of anharmonicity. This treatment shows that the activition energy concept is not applicable to intramolecular rearrangement. In principle these processes can take place at absolute zero. The article treats cis-trans isomerism as one of the examples of intramolecular rearrangement and the inversion of ammonia as the second example. Orig. art. has: 2 tables and 24 equations.

ASSOCIATION: Institut elementoorganicheskikh soyedinenly, Akademii nauk SSSR (Institute of Elemental Organic Compounds, Academy of Sciences, SSSR)

SUBMITTED: 07Mar63 ENCL: 00

SUB CODE: NP NR REF SOV: 009 OTHER: 006

Card 2/2

GAI PERN, Yo.G., MAZANTS, L.S.

Calculation of the vibrational spectra of $C_4H_4Ge_2Cl_4$.
Zhur.strukt.khim. 6 no.5:785-787 S-O '65.
(MIRA 18:12)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
Submitted March 4, 1965.

MAYANTS, L.S.; GAL'PERN, Ye.G.; AVERBUKH, B.S.

Some simplifications in calculating molecular vibrations. Opt. i spektr. 18 no.5:933-937 My '65. (MIRA 18:10)

MAYANTS, L.S.

Distribution of probabilities for the internal coordinate of a polyatomic molecule in a vibrational stationary state. Dokl. AN SSSR 164 no.4:852-855 O '65. (MIRA 18:10)

1. Institut elementoorganicheskikh soyedineniy AN SSSR. Submitted March 17, 1965.

MAYANTS, L.S.; AVERBUKH, B.S.

New approach to the calculation of intensities in vibrational spectra of molecules. Dokl. AN SSSR 165 no.5:1119-1121 D '65. (MIRA 19:1)

1. Institut elementoorganicheskikh soyedineniy AN SSSR. Submitted April 29, 1965.

MAYANTS, M. L.

Khimicheskaya Tekhnologiya voloknistykh materialov (Chemical technology of fibrous materials, by S. V. Shmelev, M. L. Mayants, I. V. Rogova. Moskva, Gizlegprom, 1949
323 p. Illus., Diagrs., Tables.
"Literatura" P. 322

SO: N/5
668.663
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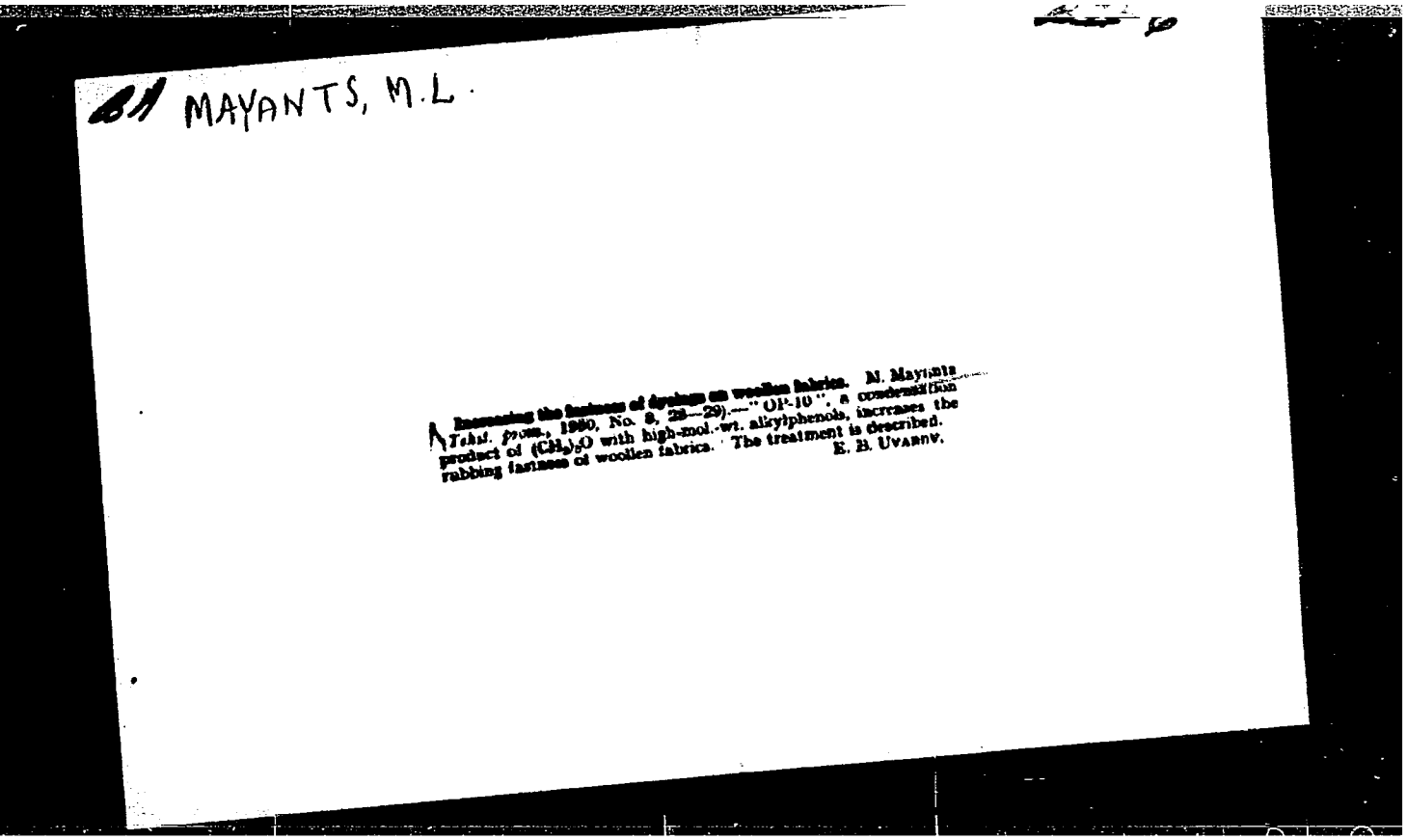
MAYaNTS, M. L.

23353 krasiteli dlya sherstya noy promyshlennosti. tekstil. prom-st', 1949, No. 7, c. 30-31

SO: LETOPIS NO. 31, 1949



MAYANTS, M.L.

Increasing the fastness of dyeings on woollen fabrics. M. Mayants. *Tekst. prom.*, 1950, No. 8, 28—29).—"OP-10", a condensation product of $(CH_2)_2O$ with high-mol.-wt. alkylphenols, increases the rubbing fastness of woollen fabrics. The treatment is described.
E. B. Uvarov.