S/126/62/014/003/008/022
E039/E420

AUTHOR: Men'shikov, A.Z.

TITLE: On the nature of short wavelength X-ray satellites

PERIODICAL: Fizika metallov i metallovedeniye, v.14, no.3, 1962, 396-399

TEXT: First, earlier observations on satellite lines are described and discussed; then, further experiments using metallic chromium are described, which relate the presence of satellite lines to the method of excitation. Details of a double X-ray tube are given which enables the specimen to be excited by fast electrons or X-rays or by a mixture of the two. It is shown that when using fast electron excitation of chromium there are two satellite lines $K_{\beta III}$ and $K_{\beta IV}$ on the short wavelength side of the $K\beta_5$ line and displaced from the $K\beta_5$ maximum by 16 and 27 eV respectively. These satellites are absent when using X-ray excitation. Similar results were obtained for iron by K.M.Kolobova. When using mixed radiation (X-rays for exciting the K level and slow electrons for the L and M levels) the chromium $K_{\beta III}$ satellite is observed, but

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at a much lower intensity than when using fast electrons. The experiments confirm that the presence of the short wavelength satellites is connected with the form of excitation and the interaction of electrons in the solid body. There are 3 figures.

ASSOCIATION: Institut fiziki metallov AN SSSR
(Institute of Physics of Metals AS USSR)

SUBMITTED: March 10, 1962

Card 2/2

S/126/62/014/004/008/017
E111/E160

AUTHORS: Nemnonov, S.A., Sorokina, M.F., Men'shikov, A.Z., Kolobova, K.M., and Finkel'shteyn, L.D.

TITLE: The character of the atomic interactions in the intermetallic compounds of the transition elements aluminium and silicon

PERIODICAL: Fizika metallov i metallovedeniye, v.14, no.4, 1962, 535-541

TEXT: A combination of the crystallochemical and X-ray spectroscopic characteristics of the compounds examined with their physicochemical properties, enables one to assert that the character of the interatomic bonding forces in these compounds (Fe_3Al, $NiAl_3$, FeSi, CrSi, $CrAl_7$, $MnAl_6$, $FeAl_3$, Co_2Al_9, $CuAl_2$, etc) is extremely complicated. The structural characteristics, the X-ray emission data and the magnetic properties show the presence, on a background of the predominantly metallic interaction, of certain localised bonds between different kinds of atoms, in which the 3d electrons of the transition metal actively participate.

In all phases studied, the K absorption spectra of the transition metal show strong hybridisation of the 3d and 4s wave functions of the transition element with the 3p functions of aluminium or silicon. Allowing for certain conventions in the separation of the interatomic forces into their components, it can be reckoned that the predominantly metallic interaction is supplemented in the cases examined by the interaction of the covalent and resonating covalent type of bonding with a certain polarity, understood as a drawing out of the connecting electron cloud to the side of the more electronegative component (the transition metal). In the system transition metal / Al, this polar component of the bonding forces is strongly expressed but in the system transition metal / Si, it is almost absent. There is 1 table.

ASSOCIATION: Institut fiziki metallov AN SSSR
(Institute of Physics of Metals, AS USSR)

SUBMITTED: April 4, 1962.

S/126/62/014/005/003/015
E111/E435

AUTHORS: Nemnonov, S.A., Sorokina, M.F., Kolobova, K.M., Men'shikov, A.Z.

TITLE: Investigation of the structure of absorption K-spectra of transition metals in intermetallic compounds with aluminium and silicon

PERIODICAL: Fizika metallov i metallovedeniye, v.14, no.5, 1962, 666-672

TEXT: The K-edge of absorption has been studied of Cr-Al, Mn-Al, Fe-Al, Ni-Al, Cr-Si, Mn-Si, Fe-Si and Ni-Si alloys for ranges of concentration which included almost all the intermetallic compounds in these systems. For all the compounds investigated the "initial" (i.e. long wave-length) absorption remained fairly large and of the same order as in the pure metal. With increasing concentration of the transition component the break between the initial and the next intermediate region was smoothed. The energy position of the point corresponding to the Fermi boundary, mostly remained unchanged in most cases. The maximum which is characteristic of the pure transition metal was smoothed at a certain concentration of the second component, a new maximum

appearing 6 to 14 eV further towards the short wave-lengths side and becoming more pointed. The changes described became apparent while still within the solid-solution boundaries. Conclusion: in compounds with a high content of the non-transition component there is strong hybridization of the 3d-, 4s-wave functions of the transition metal with the 3p-wave functions of aluminium and silicon. There are 5 figures and 1 table.

ASSOCIATION: Institut fiziki metallov AN SSSR
(Institute of Physics of Metals AS USSR)

SUBMITTED: April 4, 1962

L 17114-63 EPR/EWA(h)/EWT(1)/EWP(q)/EWT(m)/BDS AFFTC/ASD Ps-4 WW/JD

ACCESSION NR: AP3002841 S/0126/63/015/006/0833/0838

65
62

AUTHOR: Men'shikov, A. Z.

TITLE: Interpretation of X-ray emission and absorption spectra in transition metals

SOURCE: Fizika metallov i metallovedeniye, v. 15, no. 6, 1963, 833-838

TOPIC TAGS: transition metal , Cr, Cr compound , X-ray, emission, absorption

ABSTRACT: The emission of K-, L-, and M-spectra of chromium and its compounds was studied and compared. The results obtained are presented graphically and discussed. It was assumed that the $K_{\beta 5}$ -band and the initial absorption are present in the spectrum inasmuch as the p-symmetry states are present in the 3d-and 4s-band, i.e., the hybridization of outer atomic orbits exists. With the increase in the share of the p-states in the hybridized dsp-band the probability of the quanta transitions to the 1s-level will be greater and the intensity of the X-ray lines will be stronger. It was proved that the absolute intensity of the last emission band and the initial absorption magnitude are determined

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L 17114-63
ACCESSION NR: AP3002841

3

basically by the presence of p-states in the hybridized dsp-band. The form of the emission line reflected the form of the state density distribution in this band. As far as $N(E)_p \sim N(E)_{3d}$ and the statistical weight of d-states in the band are larger than that of s- and p-states, the form of the $K_{\beta 5}$ -band practically reflects that of the density distribution of the states similar to the 3d of the transition metal. "The author thanks Yu. P. Irkhin for a number of valuable remarks concerning the article and S. A. Nemnonov for the discussion of the investigation results." Orig. art. has: 3 figures.

ASSOCIATION: Institut fiziki metallov AN SSSR (Institute of Physical Metallurgy, Academy of Sciences, SSSR)

SUBMITTED: 31Oct62 DATE ACQ: 23Jul63 ENCL: 00

SUB CODE: ML, PH NO REF SOV: 009 OTHER: 010

Card 2/2

S/048/63/027/003/017/025
B106/B238

AUTHORS: Men'shikov, A. Z., and Nemnonov, S. A.

TITLE: The effect of chemical bonding on the valency states of chromium atoms in various compounds

PERIODICAL: Akademiya nauk SSSR. Izvestiya . Seriya fizicheskaya, v.27, no. 3, 1963, 394-402

TEXT: The hardest line in the K spectrum of chromium, the K_{β_5} line, was studied in the following substances: Cr, CrB, CrB_2, Cr_4C, Cr_7C_3, Cr_3C_2, Cr_2Al, $CrAl_4$, Cr_3Si, Cr_5Si_3, CrSi, $CrSi_2$, Cr_2N, CrN, Cr_2O_3, $CrCl_3$, $Cr_2(SO_4)_3$, CrS, CrSe, CrTe, CrSb and CrP. It may be assumed that the intensity distribution of the chromium K_{β_5} line is mainly determined in the various compounds by the density of the 3d levels in the hybridized dsp band. The line for the borides, nitrides, carbides and the oxide of chromium has two distinct humps. This can be explained in terms of the

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degeneracy of the d orbital. The short-wave branch of the K_{β_5} band in chromium is due to the conducting electrons of the d_{xy} orbital. These are most numerous in chromium and decrease in number as the compounds becomes more ionic in character. This tendency can easily be observed in the sequence metal, carbide, nitride, oxide, chloride (sulfate), and also in the various silicides of chromium. The shape of the band in the metallic compounds CrTe and CrP and the semiconductors CrS and CrSe bear out the interpretation given. The long-wave maximum of the K_{β_5} band in the compounds investigated probably corresponds to the density of quasiatomic levels occupied by 3d electrons available for covalent bonding. These results lend weight to the recently developed concept of two sorts of d electrons in transition metals (Goodenough, J. B., Phys. Rev., 120, no. 1, 67, (1960)). In all the compounds, the K_{β_5} band is accompanied by a $K_{\beta''_5}$ satellite, whose nature is dealt with in another paper (Men'shikov A. Z., Fizika metallov i metallovedeniye, 14, no. 3,

396 (1962)). A $K_{\beta''}$ satellite also occurs, which is only absent from the spectrum of metallic chromium. Its spectral position depends considerably on the nature of the second component, but not on the concentration of the latter in the compound.. For all the elements combining with chromium which were investigated, there is a connection between the electronegativity, the first ionization potential, and the energy difference between the maximum of the K_{β_5} line and the $K_{\beta''}$ satellite in the chromium spectrum. This can be explained if the $K_{\beta''}$ satellite appears as a result of cross transitions by metalloid valency electrons to the empty K level of the metal. The appearance of the $K_{\beta''}$ satellite clearly indicates that there is an additional valency band connected with the ionic character of the Me - X interaction. The importance of this interpretation to electron energy spectra in solid state physics is mentioned. There are 4 figures and 1 table.

The effect of chemical bonding on the ...

ASSOCIATION: Institut fiziki metallov Akademii nauk SSSR
(Institute of Physics of Metals of the Academy of Sciences USSR)

Card 4/4

L 39305-65 EWT(l)/EWP(e)/EWT(m)/EPF(n)-2/EWG(m)/EPR/EPA(w)-2/EEC(t)/EWP(t)/
EWP(b)/EWA(m)-2 Pz-6/Ps-4/Pi-4/Pu-4 IJP(c)
ACCESSION NR: AP5004266 JD/JG/AT S/0126/65/019/001/0057/0064

AUTHOR: Men'shikov, A. Z.; Nemnonov, S. A.

TITLE: Electron structure of refractory chromium compounds

SOURCE: Fizika metallov i metallovedeniye, v. 19, no. 1, 1965, 57-64

TOPIC TAGS: metalloid, refractory metal, chromium, chromium boride, chromium carbide, energy level, energy gap, spectrum determination

ABSTRACT: The electron-energy spectrum of refractory chromium compounds was determined by analyzing emission and absorption x-ray spectra. X-ray emission spectra give a theoretical picture of occupied outer electron energy states in a solid (valence band, conductance band), while absorption spectra (initial absorption zone) give a similar picture for states corresponding to empty levels. A combination of emission and absorption spectra can be used to derive information on the density distribution of electron states according to energies. The samples of chromium borides and carbides which were studied were obtained from the Institute of Powder Metallurgy and Special Alloys, Academy of Sciences UkrSSR. The results of the x-ray spectral studies are given in tabular form and in graphs. It is clearly evident that these refractory compounds have a multiband electron structure. The

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L 39305-65
ACCESSION NR: AP5004266

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width of the bands and the energy distance between them, as well as the spin moment of the 3d electrons may be evaluated from the x-ray spectra. As to the considerable hardness and the high conductivity of the refractory compounds, the authors believe that these are caused by electrons located in various sublevels. It follows from this that it is necessary to take both Me-Me and Me-X interactions into account. The distribution of valence electrons in the metalloid atom is rather complex. Part of the metalloid electrons take part in forming a covalent Me-X bond, the electrons apparently also entering partially into the conductance band. At the same time, there is no doubt that a part of the electron density of the metal atoms is diverted to the metalloid. An approximate evaluation of the ion component of the bonding forces in the refractory compounds may be made on the basis of the energy gap between the 2p band of the anion sublattice and the 3d band of the cation sublattice. "The authors are indebted to M. Dzhumaliyev and M. Chormonov for help in correcting the spectra."

ASSOCIATION: Institut fiziki metallov AN SSSR (Institute of Physics of Metals, Academy of Sciences SSSR)

SUBMITTED: 23Apr64 ENCL: 00 SUB CODE: NP, MM

NO REF SOV: 012 OTHER: 006

Card 2/2 JG

L 13121-66 EWT(m)/T/EWP(t)/EWP(b)/EWA(c) JD

ACC NR: AP5018855 SOURCE CODE: UR/0126/65/020/001/0038/0043

AUTHOR: Kurmayev, E. Z.; Men'shikov, A. Z.; Anishchenko, R. I.; Nemnonov, S. A.

ORG: Institute of Physics of Metals AN SSSR (Institut fiziki metallov AN SSSR)

TITLE: The question of determining the number of 3d electrons in transition metals of the iron group on the basis of coherent and incoherent scattering of x ray beams

SOURCE: Fizika metallov i metallovedeniye, v. 20, no. 1, 1965, 38-43

TOPIC TAGS: transition element, coherent scattering, incoherent scattering, secondary emission

ABSTRACT: Experimental and theoretical work on the study of x ray structure factors of pure metals and alloys is surveyed. To check the reliability of the Kuriyma [Kuriyma H., Josoya S. a. Suzuki T. *Phys. Rev.*, 1963, 130, 898] method, the absolute intensity of incoherent scattering for aluminum was measured and plotted. However, the Compton scattering in the transition metals of the iron group could not be measured by this method because of secondary radiation in both sample and absorber. It

Card 1/2 UDC: 539.26

L 13121-66

ACC NR: AP5018855

is considered that it is not possible to obtain reliable information on the condition of 3d electrons in transition metals of the iron group with present methods. Orig. art. has: 4 figures.

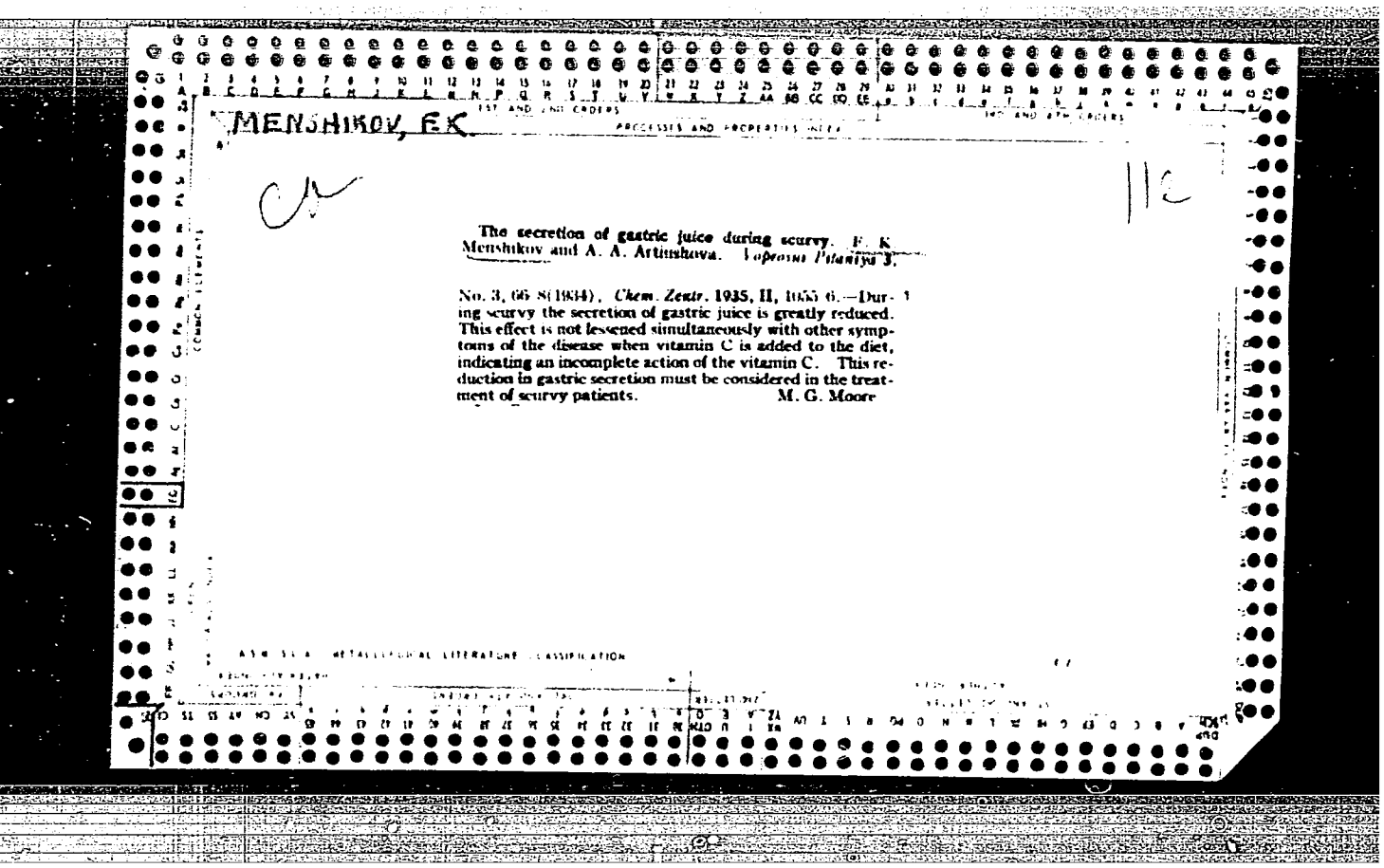
SUB CODE: 18,11/ SUBM DATE: 21Jul64/ ORIG REF: 011/ OTH REF: 027

Card 2/2 HW

LAZKUTNIKOV, V.A., gornyy inzh.; RUSYAYEV, L.F., gornyy inzh.; [illegible], F.A., gornyy inzh.

Mine tape measure for measuring the depth of down blastholes. Gor zhur. no.6 56-57 Je '65. (MIRA 18:7)

1. Nauchno-issledovatel'skiy i proyektno-konstruktorskiy institut gornogo i obogatitel'nogo mashinostroyeniya.

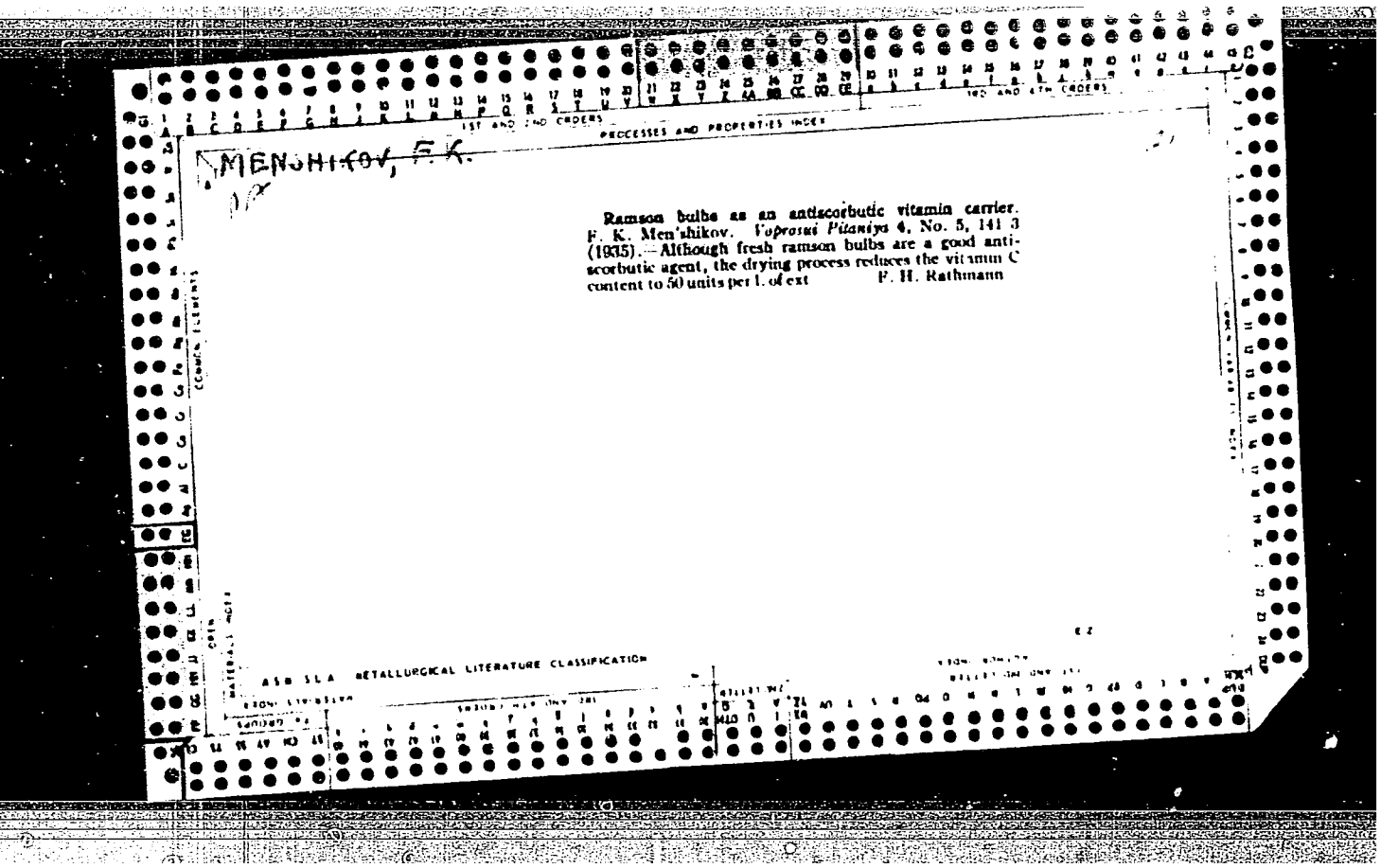


MENSHIKOV, E.K.

112

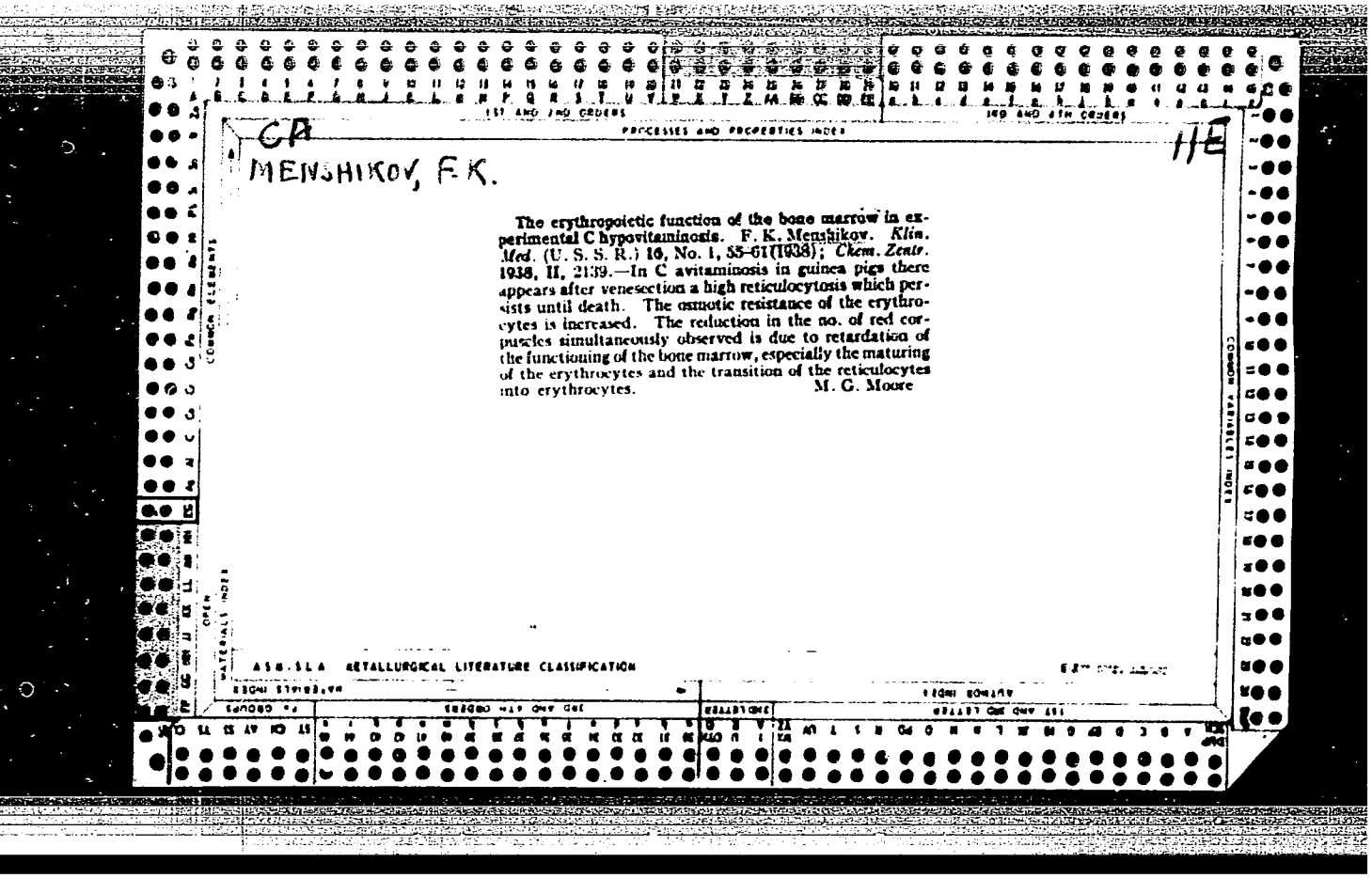
The secretion of gastric juice during scurvy. E. K. Menshikov and A. A. Artimkova. *Voprosi Pitaniya* 3,

No. 3, 66-8(1934). *Chem. Zentr.* 1935, II, 1055-6.—During scurvy the secretion of gastric juice is greatly reduced. This effect is not lessened simultaneously with other symptoms of the disease when vitamin C is added to the diet, indicating an incomplete action of the vitamin C. This reduction in gastric secretion must be considered in the treatment of scurvy patients. M. G. Moore



MENSHIKOV, F.K.

Ramson bulbs as an antiscorbutic vitamin carrier. F. K. Men'shikov. *Voprosui Pitaniya* 4, No. 5, 141-3 (1935).—Although fresh ramson bulbs are a good antiscorbutic agent, the drying process reduces the vitamin C content to 50 units per l. of ext F. H. Rathmann



CR

MENSHIKOV, F. K.

HE

The erythropoietic function of the bone marrow in experimental C hypovitaminosis. F. K. Menshikov. *Klin. Med.* (U. S. S. R.) 16, No. 1, 55-61(1938); *Chem. Zentr.* 1938, II, 2139.—In C avitaminosis in guinea pigs there appears after venesection a high reticulocytosis which persists until death. The osmotic resistance of the erythrocytes is increased. The reduction in the no. of red corpuscles simultaneously observed is due to retardation of the functioning of the bone marrow, especially the maturing of the erythrocytes and the transition of the reticulocytes into erythrocytes. M. G. Moore

MEN'SHIKOV, F.K.; VEREMKOVA, Ye.Ya.

Reaction of some medicinal substances with ascorbic acid. Vrachebnoe delo 27, 1081-4 (columns, not pp.) '47.
(CA 47 no.21:11537 '53)

1. Med. Biol. Inst., Kursk.

38306 MEN'SHIKOV, F. K. and FEL'DMAN, S. I.

O lechenii yazvennoy bolezni pchelinym medom. Sov. meditsina, 1949, No 12, s. 13-14

MEN'SHIKOV, F.K.

Secondary ariboflavinosis in rheumatism. Vop.pit. 12 no.6:47-50 N-D '53. (MLRA 6:12)

1. Iz terapevticheskoy kliniki Kurskogo meditsinskogo instituta.
(Deficiency diseases) (Riboflavin) (Rheumatism)

MEN'SHIKOV, F.K.; MALENKOVICH, A.B.

Considerations on application of hypnotherapy in internal diseases. Ter. arkh., Moskva 25 no.2:6-10 Mar-Apr 1953. (CLML 24:3)

1. Professor. 2. Of the Therapeutic Division (Head -- Prof. F. K. Men'shikov), Kursk Oblast Hospital.

MEN'SHIKOV, F.K., professor (Kursk)

Peptic ulcer according to 15 years of clinical data. Klin. med. 31 no.11:80-83 N '53. (MLRA 6:12)

1. Iz terapevticheskoy kliniki (zaveduyushchiy - professor F.K.Men'shikov) Kurskogo meditsinskogo instituta.

(Peptic ulcer)

MEN'SHIKOV, F.K., professor

Preventive significance of therapeutic nutrition. Sov. zdrav. 13 no.3:9-14 My-Je '54. (MLRA 7:8)

1. Zaveduyushchiy klinikoy lechebnogo pitaniya Instituta pitaniya Akademii meditsinskikh nauk SSSR (dir. chlen-korrespondent AMN SSSR prof. O.P.Molchanova)
(DIETS, in various diseases,
*prev. aspects of ther. diets)

MEN'SHIKOV, Fedor Kuz'mich, doktor meditsinskikh nauk, professor; TSIL'-SHTEYN, A.I., redaktor; ISLENT'YEVA, P.G., tekhnicheskiy redaktor

[Alcoholism is the enemy of health] Alkogolizm - vrag zdorov'ia. Moskva, Izd-vo "Znanie," 1955. 22 p. (MLRA 8:6)
(Alcoholism)

MEN'SHIKOV, F. K.

FD-1763

USSR/Medicine - Convalescent Diets

Card 1/1 Pub 141-10/15

Author : Men'shikov, F. K.

Title : Concerning a unified principle of constructing a therapeutic diet

Periodical : Vop. pit., 45-48, Jan/Feb 1955

Abstract : Presents fourteen therapeutic diets in a table giving their corresponding chemical composition, caloric content, method of preparation, and degree of pulverization. The outline was constructed on a unified principle and is offered for consideration. Various disorders of the alimentary tract are discussed with a recommendation for one of the suggested diets, i.e. a diet rich in calcium and phosphorus is suggested for a tuberculosis patient who does not require vigorous nutrition. One large table. No references.

Institution: Clinic of Therapeutic Nutrition, Acad Med Sci USSR, Moscow

Submitted : --

OLENEVA, Vera Anatol'yevna, MEN'SHIKOV, F.K., prof. red.; VAYNTSVAYG, G.Ye. [illegible]

[Diet in anemia] Kak pitat'sia pri malokrovii. Pod red. F.K. Men'shikova. Izd. 2. Moskva, Medgiz, 1956. 22 p. (MIRA 11:8)
(DIET IN DISEASE)
(ANEMIA)

BÉYUL, Ye.A.; MEN'SHIKOV, F.K., redaktor

[Diet for the tubercular patient] Kak pitat'sia bol'nomu tuberkulezom. Pod red. F.K.Men'shikova. Moskva, Medgiz, 1956. 34 p.
(TUBERCULOSIS) (DIET IN DISEASE) (MIRA 10:11)

MEN'SHIKOV, Fedor Kuz'mich, doktor meditsinskikh nauk, professor;
USPENSKAYA, N.V., redaktor; GUBIN, M.I., tekhnicheskiy redaktor.

[Diet in diseases of the cardiovascular system] Lechebnoe pitanie pri zabolevaniiakh serdechno-sosudistoi sistemy. Moskva, Izd-vo "Znanie," 1957. 31 p. (Vsesoiuznoe obshchestvo po rasprostraneniiu politicheskikh i nauchnykh znanii. Ser.8, no.26) (MIRA 10:11)
(DIET IN DISEASE) (CARDIOVASCULAR SYSTEM--DISEASES)

MEN'SHIKOV, F.K.

Twenty-five years of work by the Institute of Nutrition in the field of dietotherapy and prospects for further development. Vop.pit. 16 no.1:18-23 Ja-F '57. (MLRA 10:3)

1. Iz kliniki lechebnogo pitaniya (zaveduyushchiy - professor F.K. Men'shikov) Instituta pitaniya AMN SSSR, Moskva.
(DIETS
prev. & ther. use in Russia (Rus))

[redacted], professor; SOKOLOVSKIY, V.P.

The significance of diet in the treatment and prevention of atherosclerosis. Sov.med. 21 no.2:18-23 F '57. (MLRA 10:6)

1. Iz kliniki lechebnogo pitaniya (zav. - prof. F.K.Men'shikov)
(ARTERIOSCLEROSIS, prev. & control
rale of diet in)
(DIETS, in various dis.
arteriosclerosis, prev. & ther.)

BORINSKAYA, Yekaterina N.; MEN'SHIKOV, Fedor Kuz'mich, red.; MARSHAK, Maks Solomonovich, red.

[Diet in disease; a manual for dieticians and cooks in hospitals] Lechebnoe pitanie; posobie dlia dietsester and povarov bol'nichnykh uchrezhdenii, pod red. F.K.Men'shikova i M.S.Marshaka. Moskva, Medgiz, 1958. 395 p. (MIRA 12:6)
(DIET IN DISEASE) (COOKERY FOR THE SICK)

MEN'SHIKOV, F.K., prof.

Pressed yeast. Zdorov'e 4 no.7:30 Jl '58. (MIRA 11:6)
(YEAST)

MEN'SHIKOV, Fedor Kuz'mich, prof., doktor med.nauk; KADER, Ya.M., red.; KRASAVINA, A.M., tekhn.red.

[Alcoholism is the foe of good health] Alkogolizm - vrag zdorov'ia. Moskva, Voen.izd-vo M-va obor.SSSR, 1959. 68 p. (MIRA 13:4)

(ALCOHOLISM)

MEN'SHIKOV, F.K.

Program issued by the Society lists the following authors and titles of papers:

USSR

DOROZENKO, I.M., Professor, Odessa, "How natural sulfate fluides behave in the upper respiratory tracts"

MEN'SHIKOV, Fedor K., Professor, Institute of Nutrition, Moscow, "Dietetic treatment of ulcerous disease"

PARFENOV, A. P., Professor, Leningrad Tuberculosis Institute, "Light hunger in man"

Papers to be submitted for--
PHYSIOTHERAPY, CZECHOSLOVAKIAN SOCIETY OF
19th International Post-Graduate Medical Course - Carlsbad, Czechoslovakia, 14-19 Sep 59

MEN'SHIKOV, F.K., prof.; PLOTNIKOVA, S.S.

Dietotherapy in certain types of anemia. Probl.gemat. i perel. krovi 4 no.7:38-41 Jl '59. (MIRA 12:10)

1. Iz kafedry lechebnogo pitaniya (zav. - prof.F.K.Men'shikov) TSentral'nogo instituta usovershenstvovaniya vrachey.
(ANEMIA, ther.
diets (Rus))
(DIETS, in var. dis.
anemia (Rus))

MEN'SHIKOV, F.K., prof.

Diet therapy in atherosclerosis. Sov.med. 25 no.8:30-9 Ag '60.
(MIRA 13:9)

1. Iz kafedry diyetoterapii (zav. - prof. F.K. Men'shikov) TSentral'nogo instituta usovershenstvovaniya vrachey (dir. M.D.Kovrigina).
(ARTERIOSCLEROSIS) (DIET IN DISEASE)

MEN'SHIKOV, Fedor Kuz'mich, prof., doktor med.nauk; STAROSTENKOVA, M.M., SAVCHENKO, Ye.V., tekhn.red.

[Therapeutic diet in diseases of the digestive organs; as revealed by materials of public lectures delivered in the lecturing bureaus of the Society] Lechebnoe pitanie pri zabolevaniikh organov pishchevareniia; po materialam publichnykh lektsii, chitannykh v lektoriiakh Obshchestva. Moskva, Izd-vo "Znanie," 1961. 30 p. (Vsesoiuznoe obshchestvo po rasprostraneniiu politicheskikh i nauchnykh znanii. Ser.8. Biologiia i meditsina, no.4) (MIRA 14:2)
(DIET IN DISEASE) (DIGESTIVE ORGANS--DISEASES)

MEN'SHIKOV, F.K.

Work of the International Congress of Gastroenterology. Vest.AMN SSSR 16 no.3:50-53 '61. (MIRA 14:7)
(ALIMENTARY CANAL--DISEASES)

MEN'SHIKOV, F.K., prof.

[Concise training manual for dietotherapy]Kratkoe uchebnoe posobie po dietoterapii. Moskva, TSentr.in-t usovershenstvovaniia vrachei. Pt.1. 1962. 202 p. (MIRA 16:3)

(DIET IN DISEASE)

MEN'SHIKOV, F.K., prof.

[Concise training manual on dietotherapy]Kratkoe uchebnoe posobie po dietoterapii. Moskva, TSentr. in-t usovershenstvo - vaniia vrachei. Pt.2. 1962. 211 p. (MIRA 16:3)
(DIET IN DISEASE)

MEN'SHIKOV, Fedor Kuz'mich; ARTEM'YEV, S.G., red.; LYUDKOVSKAYA, N.I., tekhn. red.

[Intestinal diseases]Bolezni kishchechnika. Moskva, Medgiz, 1962. 259 p. (MIRA 16:1)
(INTESTINES—DISEASES)

MEN'SHIKOV, F.K., prof. (Moskva)

Classification of intestinal diseases. Klin. med. 41 no.2: 102-109 F'63 (MIRA 17:3)

1. Iz kafedry lechebnogo pitaniya TSentral'nogo instituta usovershenstvovaniya vrachey.

MEN'SHIK[illegible], [illegible]

Diet therapy in hypertension. [illegible]

1. Kafedra gastroenterologii [illegible] usovershenstvovaniya vrachey.

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R00103

MEN'SHIKOV, F.K.; VOLKOVA, A.I.; BARMINA, L.V.

Nutrition of patients with neoplasms. Trudy TSIU 62:268-277 '63.
(MIRA 18:3)

1. Kafedra gastro-enterologii i diyetoterapii (zav. prof. F.K. Men'shikov) TSentral'nogo instituta usovershenstvovaniya vrachey.

MEN'SHIKOV, F.K., prof. (Moskva)

New data in diet therapy. Vrach. delo [illegible]
(MIRA 17:4)

1. Kafedra gastroenterologii i diyetoterapii Tsentral'nogo
instituta usovershenstvovaniya vrachey.

BURCHINSKIY, G.I., prof.; BEYUL, Ye.A., kand. med. nauk; VASILENKO, V.Kh., prof.; GUKASYAN, A.G., zasl. deyatel' nauki, prof.; KARNAUKHOV, V.K., kand. med. nauk; GUBERGRITS, A.Ya., prof.; LORIYE, I.F., prof.; MEN'SHIKOV, F.K., prof.; PLOTNIKOV, N.N., prof.; RABUKHINA, N.A., kand. med. nauk; RADBIL', O.S., prof.; RYSS, S.M., prof.; SAL'MAN, M.M., kand. med. nauk; SUKHININ, P.L., prof.; STEPANOV, P.N., prof.; FUNT, I.M., prof.; SHLAGUROV, A.A., prof.; TAREYEV, Ye.M., prof., otv. red.

[Multivolume manual on internal diseases] Mnogotomnoe rukovodstvo po vnutrennim bolezniam. Moskva, Meditsina. Vol.4. 1965. 667 p. (MIRA 18:1)

1. Deystvitel'nyy chlen AMN SSSR (for Tareyev, Vasilenko).
2. Chlen-korrespondent AMN SSSR (for Ryss).

MEN'SHIKOV, F.K., prof., zasl. deyatel' nauki

[Dietotherapy] Dietoterapiia. Moskva, TSentr. in-t usovershenstvovaniia vrachei. Pt.1. Izd.3. 1965. 273 p. (MIRA 18:8)

SOV/137-58-8-18008

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 8, p 257 (USSR)

AUTHOR: Men'shikov, F. S.

TITLE: The Method of Isoconcentrational Cross Sections in the Investigation of Four-component Alloys With Stratification (Metod izokontsentratsionnykh secheniy v issledovanii chetyrekhkomponentnykh sistem s rasslaivaniyem)

PERIODICAL: Tr. Sibirsk. metallurg in-ta 1957, Nr 4, pp 200-207

ABSTRACT: The method of the construction of isoconcentrational phase diagrams, permitting to make evident the main elements of phase equilibria in the region of stratification (S) without the construction of complicated polythermic diagrams of separate cross sections, and also to solve the problem of the character of the position of the limiting connodes (C), i.e., the isothermal lines of crystallization. The conclusions are illustrated by the investigation of the quaternary system phenol - benzoic acid - naphtalene - water, based on the hypothesis that in this case, too, the laws governing the position of C formulated earlier for ternary alloys are fundamentally verified. The difference lies only in the fact that the deviation of C from the zero

Card 1/2

The Method of Isoconcentrational Cross Sections (cont.)

direction is determined here by a relationship between the values of three critical temperatures of S, because of the six binary systems forming the given system, only three have a common region of S. It is demonstrated that in the system studied, which has a single region of S embracing three ternary systems, all the limiting C deviate from the zero direction towards the binary systems of naphtalene - water and benzoic acid - water having the highest critical temperatures of S. For the portrayal of the position of C in the region of S, the method of projections drawn on the surface of a four-phase monotectic is proposed. The theory and a detailed description of this method are adduced. The possibility of determining the character of the position of the limit C and of finding the fundamental parameters characterizing the phase equilibriums in the S volume by means of two constant-concentration sections is indicated. To construct the isoconcentrational curves, the concentration of phenol in the initial ternary mixture is plotted on the abscissa while the temperature of crystallization is determined according to the temperature curves at indicated concentrations of water. Isoconcentrational curves are obtained by means of joining the temperature points corresponding to equal concentrations of water by a smooth curve. It is assumed that the established law governing the location of C would be observed in other similar systems independently of the features of the components forming a given system. 1. Alloys—Analysis 2. Alloys—Phase studies L. G.

Card 2/2 3. Alloys—Theory 4. Mathematics

MEN'SHIKOV, F.S.; NAZAROV, P.G.

Ways of improving the dewatering processes of very small coal. Trudy VNIIGidrouglia no.2:96-103 '63. (MIRA 17:6)

1. Sibirskiy metallurgicheskiy institut i Vsesoyuznyy nauchno-issledovatel'skiy i proyektno-konstruktorskiy institut dobychi uglya gidravlicheskim sposobom.

83866
S/112/59/000/016/031/054
A052/A002

9,7200

Translation from: Referativnyy znurnal, Elektrotekhnika, 1959, No. 16, p. 158. # 34639

AUTHOR: Men'shikov, G. G.

TITLE: Table Device for Harmonic Synthesis

PERIODICAL: Uch. zap. LGU, 1958, No. 271, pp. 48-53

TEXT: Two variants of computers, solving problems of harmonic synthesis, developed at the radio laboratory of the Faculty of Mathematical and Mechanical Engineering of LGU are briefly described. The first variant is intended for computing the sums

$$a_0 + \sum_{k=1}^{n} (a_k \cos k x + b_k \sin k x)$$

in fixed points $x = 0, 2\pi/m, 4\pi/m \ldots 2(m-1)\pi/m$ and consists of a group of potentiometers for manual setting the a_k values. Resistors for setting the cos k x values are connected in series with the potentiometers while capacitors are connected in parallel. At a manual setting of a_k and x values, the capacitors

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83866
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A052/A002

Table Device for Harmonic Synthesis

are charged up to $a_k \cos k x$ values and at an in-series connection of the capacitors, they form the wanted sum of terms of the series. The second variant of the device is intended for determining the sum

$$a_{ooo} + \sum_{\substack{i,j,k=0\ldots n \\ i+j+k \neq 0}} \cdot a_{ijk} \cos (ix + jy + kz + \varphi_{ijk})$$

at small n, as for instance in crystallography, and differs from the first one by the presence of step switches for storage of the argument values. There are 4 illustrations.

I. M. V.

Translator's note: This is the full translation of the original Russian abstract.

Card 2/2

MEN'SHIKOV, G.G.

Adder of the relay-type calculating machine with amplitude selection.
Uch. zap. LGU no.271:54-69 '58. (MIRA 12:5)
(Electronic calculating machines)

22927
S/123/61/000/007/019/026
A004/A104

9,7100

AUTHORS: Men'shikov, G.G., Tuchin, V.N.

TITLE: Computer for the summation of functional series

PERIODICAL: Referativnyy zhurnal, Mashinostroyeniye, no. 7, 1961, 9, abstract 7D83 ("Tr. Leningr. elektrotekhn. in-ta svyazi", 1959, [1960], no. 7, 77 - 84)

TEXT: The authors describe a digital computer for the computation of functional "POLINOM" series developed at the Leningradskiy elektrotekhnicheskiy institut svyazi (Leningrad Electrotechnical Communication Institute). The computer calculates sums of the form

$$F(x) = \sum_{n-1}^{N} a_n f_n(x)$$

by the $\bar{\Delta}$-method with differences of the fourth order. Problems of this kind are met with in many calculations of radio engineering, electric communication and mathematical physics. The operation speed of the computer is limited by the recording device and, therefore, telephone relays controlled by vacuum tubes have

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22927
S/123/61/000/007/019/026
A004/A104

Computer for the summation of functional series

been chosen as basic element. 190 relays, 200 tubes and 1,000 semi-conductor diodes are used in the computer. Stepped selectors serve as program transmitters. The information input is effected with the aid of a magnetic tape and a patch bay of 10 contact switches. The computer is equipped with a capacitor-type storage device with relay commutation and a buffer storage device fitted with non-heating thyratrons. The counting cycle consists of 156 beats and lasts for 6.24 seconds. The maximum computation error is 0.001. It is planned to improve the computer and to extend the field of problems being solved. There are 2 references.

O. Bachin

[Abstracter's note: Complete translation]

Card 2/2

16,6800

2618
S/044/61/000/015/021/025
C111/C444

AUTHOR: Men'shikov, G. G.

TITLE: A computation method for the digital differential analyser, possessing higher exactness

PERIODICAL: Referativnyy zhurnal, Matematika, no. 5, 1961, 37, abstract 5V180. (Tr. Nauchn.-tekhn. Konferents. Leningr. elektrotekhn. in-ta svyazi. vyp. 2, L., 1960, 19 - 22)

TEXT: Proposed is a computing method which allows to project digital differential analysers (TsDA = russ. ЦДА) with a computing exactness proportional to the square of the computing time. If the given differential equation is reduced to the system:

$$d^2 y_k = \sum_{i,j=0}^{n} a_{i,j,k}\, y_i\, d^2 y_j \qquad (k = 2, 3, \ldots, n)$$

then the computer solves the system:

$$\Delta^2 y_k = \sum_{i,j=0}^{n} a_{i,j,k}\, y_i\, \Delta^2 y_j \qquad (k = 2, 3, \ldots, n)$$

Card 1/2

26138

A computation method...

S/044/61/000/005/021/025
C111/C444

e. g.: under the same computing speed the order of the computing exactness is twice as high as with the modern [illegible] (TsDA). A numerical example is given in order to illustrate the advantages of this method of the second differentials.

(Abstracter's note: Complete translation.)

Card 2/2

27976
S/194/61/000/004/008/052
D249/D302

16.6400

AUTHOR: Men'shikov, G.G.

TITLE: A computer based upon methods involving no multiplication and intended for calculating linear combinations of functions

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 4, 1961, 20, abstract 4 B155 (V sb. Teoriya i primeneniye diskretn. avtomat. sistem, M., AN SSSR, 1960, 360-364)

TEXT: Theoretical considerations are presented leading to the construction of a special purpose computer for calculating linear combinations of single variable functions with arbitrary coefficients. The operation of the machine is based on a principle that is readily applicable to digital computers without the ability to multiply. In the computation process the given functions are approximated by a special kind of polynomials. This fact permits the reduction of

Card 1/2

A computer based upon methods...

the number of different operations to two only, viz. the shift and summation. An estimate is made of the effectiveness of the method and recommendations are given regarding the choice of the scale of notation and spacing computations. The main constructional features of this special purpose computer are described. It is recommended further that the computer should be based on the electromechanical relay and the following essential devices: The coincidence-type adder as the operating unit, one-way delay unit, and a control system. With the relay operating time equal to 10 μ sec, the computer is capable of calculating 1200 values for a function represented by a sum of 50 terms. [Abstracter's note: Complete translation]

Card 2/2

MEN'SHIKOV, G. G., Cand Tech Sci -- "Computation of functional polynomials on ~~number patterns~~." Len, 1961. (Leningrad Inst of ~~Ref~~ Mech and Optics) (KL, 8-61, 246)

S/194/61/000/011/025/070
D209/D302

9.7100

AUTHOR: M[illegible]'shikov, G.G.

TITLE: On feeding the functions into digital simulators

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 11, 1961, 15-16, abstract 11 B118 (Tr. Nauchno-tekhn. Konferentsii Leningr. elektro-tekhn. in-ta svyazi, no. 3, L., 1961, 55-58)

TEXT: Application of delta-modulation of a high order on feeding the functions into contemporary digital simulators is described. This method of feeding the functions into digital computers is utilized in the "Polinom" machine. The recording and feeding technique used in this machine is applicable to digital computers. 7 references. [Abstracter's note: Complete translation]

Card 1/1

14.7200
16.6800

S/043/61/000/003/006/008
D201/D305

AUTHORS: Stroganov, Ye. V., Solov'yev, V. N. and Len'shikov, G. G

TITLE: Computer for calculating a trigonometric series in X-ray structure analysis

PERIODICAL: Leningrad Universitet Vestnik. Seriya matematiki, mekhaniki i astronomii, no. 3 1961 169-171

TEXT: In designing the computer, the following goals were set: to considerably facilitate and speed up computations and to make it so simple that it could be constructed in the laboratory. The machine has the function of adding one dimensional series of type

$$\sum_{h=1}^{M} F(h)\cos\frac{360}{N}hx \quad \text{or} \quad \sum_{h=1}^{M} F(h)\sin\frac{360}{N}hx$$

for $x = 0, 1, 2, \ldots, N/4$. It is easy to provide for the separate addition of even ($h=2n$) and odd ($h=2n+1$) harmonics. A model of the machine was constructed for calculating a cosine-series with $N = 8$

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S/043/61/000/003/008/008
D201/D305

Computer for calculating...

and N = 60. The operating principle is as follows. The sought-for sums are found by measuring the voltage of a system of series-connected capacitors. The voltage of each capacitor should correspond to the value of $F(h)\cos(6hx)^{0}$. For stabilization of the capacitors, 2 voltage stabilizers were series-connected in such a way that the 3 output terminals of the instrument corresponded to voltage values of 100, 0 and -100 v. The capacitors were charged by potentiometers, consisting each of two series-connected resistors r_{xh} and R. A stabilized voltage of $|v| = 100$ v was applied to the terminals of the potentiometers, as a result of which the voltage-drop on R was found to be $|v| \cos(6hx)^{0}$. Negative series-coefficients were accounted for by a change of poles. For computing series with harmonics not higher than the eighth, 8 capacitors (capacity = 10 μ farad) were used. The coefficients F(h) were given by 8 resistors R. The potentiometers and capacitors were connected and disconnected by relays. The values and signs of the series-coefficients are applied to the machine by means of movable contacts on R, and by tumblers at the output of the main unit (for the signs). The rate of computing the sum of a series for 15 positions is of the order of 2 mins.

Card 2/3

Computer for calculat...

This rate does not depend on the number of harmonics involved, as the adding operation takes place instantly. The computation error does not exceed 2%. The model machine was successfully used for Fourier-syntheses by students at the Leningradskiy Gosudarstvennyy universitet (Leningrad State University) in their laboratory practice. There is 1 figure

Card 3/3

cc734

S/146/61/004/002/007/011
B124/B206

9,7140

AUTHORS: Men'shikov, G. G., Rakhovich, L. M.

TITLE: Procedure for designing a device for storage and selection of sine- and cosine values

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Priborostroyeniye, v. 4, no. 2, 1961, 67-71

TEXT: In harmonic analyzers and synthetizers polynomials $\sum_{n=1}^{N}(A_n \cos nx + B_n \sin nx)$ are calculated for the nodes x: x_o, $x_o + \Delta x$.... For the determination of the sine- and cosine values for variable values of x and n harmonics, the devise must therefore indicate the values of sin nx and cos nx. A special scheme for the reduction of nx to an acute angle is used in the "Sintez" machine, which is provided for the case that the distance of the nodes from each other is Δx = 1 degree (1 degree = 0.99) and the number of harmonics equals 100. For this scheme it is adequate to use 101 sin x values in the first quadrant. These values are stored in

Card 1/5

Procedure for ...

the apparatus in the form of a diode matrix. In the selection scheme the values for the argument nx, reduced to an acute angle, are produced; the code for the reduced argument is determined; the sign of the products $A_n \cos nx$, $B_n \sin nx$ (1) is determined. Previously, an arbitrary angle is assumed and the following designations are introduced: k(z) denotes a whole hundredth of z, and z' the value z - k(z). In this case k(z)+ 1 is the number of the quadrant in which the value z exists, and $z = z' + 100k(z)$ (2). A decimal stepwise adder (SA) of second class in the feeding device is used to elaborate the argument x. At the transition to a new node, SA sums $x + \Delta x$. When $x = x' + 100k(x)$ (3) is written down, then x' is stored in the SA, and k(x) in the SQA. An arc adder (AA) is also provided, which works out the values nx'. In a transition to a new n, this adder obtains from SA the value x' and performs the operation nx' + x'. $nx' = (nx')' + 100k(nx')$ (4) holds, (nx')' being stored in the (AA) and k(nx') in the quadrant arc adder (QAA). From (3) and (4) results: $nx = (nx')' + 100[k(nx') + nk(x)]$ (5). Thus, (nx')' is the value of nx reduced to an acute angle, which is fed into the table as address. The contacts QAA and SQA are part of the scheme which determines the code of the address (nx')' (Fig. 1) and the sign of the products. From Eq. (5),

Procedure for...

$\left.\begin{matrix}\sin nx \\ \cos nx\end{matrix}\right\} = \sin\left[(nx')' + 100\, m_1\right]$ (6) is derived, where $m_1 = nk(x) + k(nx') + r$ and $r = \begin{cases}0 \text{ for producing } \sin nx \\ 1 \text{ for producing } \cos nx\end{cases}$. Fig. 1 shows the contact relay diagram used in the "Sintez" machine. The position of the contacts corresponds to the pairs of values, k(x), k(nx') and r. The formation of the sign of the products is also dealt with; under consideration of Eq. (6), $\left.\begin{matrix}\operatorname{sign}(B_n \sin nx) \\ \operatorname{sign}(A_n \cos nx)\end{matrix}\right\} = \left\{\begin{matrix}\operatorname{sign} B_n \\ \operatorname{sign} A_n\end{matrix}\right\} \operatorname{sign}\left\{(nx')' + 100\left[nk(x') + k(nx') + r\right]\right\}$, where sign z is the value of the variable z. For the introduction of s = 0, when the coefficient is positive, and s = 1, when the coefficient is negative, $\left.\begin{matrix}\operatorname{sign}(B_n \sin nx) \\ \operatorname{sign}(A_n \cos nx)\end{matrix}\right\} = \operatorname{sign}\sin\left\{(nx')' + 100\left[nk(x) + k(n'x) + r + s\right]\right\}$ is obtained, from which it results that the required sign is determined by the value $m_2 = nk(x) + k(nx') + r + s$. This study was recommended by the Department of Theoretical Radio Engineering. There are 1 figure and 4 Soviet-bloc references.

Card 3/5

22554
S/146/61/004/002/007/011
B124/B206

Procedure for...

ASSOCIATION: Leningradskiy elektrotekhnicheskiy institut svyazi im. M. A. Bonch-Bruyevicha (Leningrad Electrotechnical Institute of Communications imeni M. A. Bonch-Bruyevich)

SUBMITTED: November 2, 1960

Legend to Fig. 1: Contact relay variant of the code-forming scheme a) degree of determination of the parity of nk(x), b) degree of determination of the parity of nk(x) + k(nx'), c) degree of determination of the parity of nk(x) + k(nx') + r, d) input, e) information on the parity of n, f) information on the parity of nk(x), g) information on the parity of nk(x) + k(nx'), h) output, i) contacts SQA (information on the parity of k(x)), k) contacts QAA (information on the parity of k(nx')), l) contacts of the programming counter (information on r), m) information on the parity nk(x) + k(nx') + r.

Card 4/5

MEN'SHIKOV, G.G.

Circuit and static design of an electron tube-transistor trigger. Radiotekhnika 16 no.5:60-63 My '61. (MIRA 14:6)

1. Deystvitel'nyy chlen Nauchno-tekhnicheskogo obshchestva radiotekhniki i elektrosvyazi.
(Pulse circuits)

27593
S/108/61/016/010/006/006
D209/D306

9,7000 also 1329, 1327

AUTHORS: Men'shikov, G.G., and Tuchin, V.N.

TITLE: The electronic and relay specialized digital analogue computer "Polinom"

PERIODICAL: Radiotekhnika, v. 16, no. 10, 1961, 65 - 74

TEXT: The universal digital-analogue computers - digital differential analyzers ЦДА(TsDA) are becoming lately widely used, mainly because of the simplicity of design and ease of operation. The digital analogue computer is not particularly suitable to evaluate the value of polynomials of the very general kind

$$F(x) = \sum_{n=1}^{N} a_n f_n(x). \qquad (1)$$

To evaluate trigonometrical polynomials of the type

$$\sum_{n=1}^{N} (A_n \cos nx + B_n \sin nx) \qquad (2)$$

Card 1/8

The electronic and relay ...

a special computer has been designed at the Leningrad Electro-Technical Institute of Communications (LEIS), the programming of which does not require the use of digital analogue computer techniques, [Abstractor's note: The design was produced in the Department of Theoretical Radio Technology of NIO LEIS under the scientific supervision of Docent A.M. Zayezduy. Responsible for the design were G.G. Menshikov and V.N. Tuchin], since in evaluating the more general polynomials of the form of Eq. (1), the methods of digital analogue computations result in basic and considerable simplifications (in case of a small number of terms). Work at the Leningrad Electrotechnical Institute of Communications resulted in 1959 in the design and construction of a digital analogue computer using the new method of computations as applied to the polynomials of the type of Eq. (1), where $f_n(x)$ - functions of various types, given within a certain interval (a, b) and having a finite fourth derivative. The computer was named the "Polinom" and its experimental use began at the beginning of 1960. In the present article, the authors give basic information about the construction and use of the above compu-

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The electronic and relay ...

ter. The method of computation, as adopted for the machine, may be called that of delta modulation of the fourth order, in which a function $\overline{F}(x)$ near the function F(x) is evaluated and which is restored from the values of its samples of the fourth level (order)

$$\Delta^4 \overline{F}(x) = \sum_{n=1}^{N} a_n \Delta^4 \overline{f}_n(x) \qquad (4)$$

The increment in the given level (order) is determined recurrently. The increment of the m-th order of function f(x) is the increase of the increment of the (m-)-th level (order)

$$\Delta^m f(x_{x+1}) = \Delta^{m-1} f(x_{x+1}) - \Delta^{m-1} f(x_x) \qquad (5)$$

It can be shown that to exceed the sampling of the 4-th level while complicating the programming, does not increase the accuracy. The process of function evaluation from its fourth increment is equivalent ot numerical integration within the limits (a, b) of

Card 3/8

The electronic and relay ...

$$y^{(4)} = \sum_{n=1}^{N} a_n \varphi_n(x),$$

where $\varphi_n(x) = f_n^{(4)}(x)$ with initial conditions $y^{(m)}(a) = f^{(m)}(a)$, m = 0, 1, 2, 3. The starting data are the coefficients of the polynomial a_n and of a number $\Delta^{(4)}-f_n(x)$ which characterizes the given system of functions $[f_n(x)]$. Unlike the simple delta-modulation the numbers $\Delta^{(4)}-f_n$ have the form

$$\Delta^4 f_n(x) = \sigma_n(x)\, 10^{-p_n}, \qquad (6)$$

where $\sigma_n(x) = 0, \pm 1, \pm 2$. The values of $\sigma_n(n)$ and the whole positive numbers p_n are so chosen that if one takes number $\sigma_n(x) \cdot 10^{-pn}$

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The electronic and relay ...

as the fourth increment of a function $\bar{f}_n(x)$ and restores this function, then the values of $\bar{f}_n(x)$ will be near to the values of $f_n(x)$. The choice of $\delta_n(x)$ for a given class of $[f_n(x)]$ is part of programming for the evaluation of functions of this class. The bloc-diagram of evaluating a polynomial from the fourth increment is shown in Fig. 3. Each increment $\bar{F}(x)$ is recovered from the increment next higher in order and hence, according to (3) and (6) the cycle of operations on the "Polinom" is performed according to the formulae

$$\Delta^4 \bar{F}(x_{\kappa+1}) = \sum_{n=1}^{N} b_n \delta_n(x_{\kappa+1}), \tag{7}$$

where

$$b_n = a_1 10^{-p_n}; \tag{8}$$

$$\Delta^3 \bar{F}(x_{\kappa+1}) = \Delta^3 \bar{F}(x_\kappa) + \Delta^4 \bar{F}(x_{\kappa+1}); \tag{9}$$

$$\Delta^2 \bar{F}(x_{\kappa+1}) = \Delta^2 \bar{F}(x_\kappa) + \Delta^3 \bar{F}(x_{\kappa+1});$$

Card 5/8

The electronic and relay ...

$$\Delta \bar{F}(x_{\kappa-1}) = \Delta \bar{F}(x_{\kappa}) - \Delta^2 \bar{F}(x_{\kappa-1}); \quad (10)$$

$$\bar{F}(x_{\kappa+1}) = \bar{F}(x_{\kappa}) + \Delta \bar{F}(x_{\kappa-1}). \quad (11)$$

The bloc diagram of the computer is also given. The small number of operations together with the parallel transfer and processing of information as used in the "Polinom" made the speed of the machine limited by the speed of the read-out. The computer has 170 tubes operating mostly as power amplifiers for the relay switching. The adder and output have as memory elements thyratrons MTX-90 (MTKh-90). There are about 1000 semi-conductor diodes. The storage uses capacitors type КБГИ(KBGI) 0.1 μ. The machine thus evaluates the polynomials of Eq. (1) with N = 89 (depending on the programming), $/a_n/ \leq 1$, $/f_n(x)/ \leq 1$. Three significant figures of the argument x and five of $\bar{F}(x)$, two before and three after the decimal point have to be printed. The accuracy of these determines the accuracy of $\bar{F}(x) = F(x)$. The average speed of calculations is 9 sec per bloc.

Card 6/8

The electronic and relay ...

It is stated in conclusion that it is advisable to have several programs for the same class of functions $[f_n(x)]$, that programs with large increments should be used in evaluating low order polynomials and while programs with small increments should be used for polynomials of higher order. Several classes of polynomials are to be programmed on a "Ural" electronic digital computer. There are 9 figures, and 12 references: 10 Soviet-bloc and 2 non-Soviet-bloc. The reference to the English-language publication reads as follows: F. de Jager, Philips research reports, v. 7, no. 6, Dec. 1952.

SUBMITTED: December 24, 1960

4

Card 7/8

S/146/62/005/001/008/011
D201/D301

AUTHOR: Men'shikov, G.G.

TITLE: Increasing the accuracy of a digital differential analyzer

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Priborostroyeniye, v. 5, no. 1, 1962, 74-78

TEXT: The author proposes a simple method of increasing by a factor of two the accuracy of a digital differential analyzer (having a binary counting system). The associated logic circuit is based on one previously suggested by the author (Ref. 4. Nekotoryye logicheskiye skhema, osnovanyye na sovmestnom primenenii elektronnykh lamp i transistorov (Some Logic Circuits Based on Simultaneously used Vacuum Tubes and Transistors). Trudy nauchno-tekhnicheskoy konferentsii LEIS, 1961, no.3). The circuit has no carry trigger required for normal coding and increasing the speed of operation twice requires only a slight modification of the logic structure of the register for the more significant digits. There are 1 figure and 1 table, and 5 references: 3 Soviet-bloc and 2 non-Soviet-bloc.

Card 1/2

ASSOCIATION: Leningradskiy elektrotekhnicheskiy institut svyazi im. Prof. M.A. Bonch - Bruyevicha (Leningrad Electrotechnical Institute of Communications im. Prof. Bonch-Bruyevich)

SUBMITTED: May 22, 1961

MEN'SHIKOV, G.G.

Calculation of the relizbility of radio systems with separate reservation. Radiotekhnika 18 no.12:68-71 D '63. (MIRA 17:1)

1. Deystvitel'nyy chlen Nauchno-tekhnicheskogo obshchestva radiotekhniki i elektrosvyazi imeni Popova.

MEN'SHIKOV, G.G.

Structure of digital differential analyzers. Vych. tekh. i vop. prog. no.3:91-96 '64. (MIRA 18:3)

GOL'DENBERG, L.M.; MEN'SHIKOV, G.G.; GORINSHTEYN, A.M., otv. red.

[Introduction to the technique of programming; a training manual] Vvedenie v tekhniku programmirovaniia; uchebnoe posobie. Leningrad, Leningr. elektrotekhn. in-t sviazi, 1964. 46 p. (MIRA 18:7)

L 39967-65 EED-2/EWT(d)/EWP(1) Pg-4/Pk-4/Pq-4 IJP(c) GG/BB/GS

ACCESSION NR: AT5003908 S/0000/64/000/000/0109/0116

AUTHOR: Men'shikov, G. G. 24 BH

TITLE: Some methods of constructing digital interpolating devices 25

SOURCE: Vsesoyuznaya konferentsiya-seminar po teorii i metodam matematicheskogo modelirovaniya. 3d, 1962. Vychislitel'naya tekhnika v upravlenii (Computer technology in control engineering); sbornik trudov konferentsii. Moscow, Izd-vo Nauka, 1964, 109-116

TOPIC TAGS: digital interpolator, interpolation, digital model construction

ABSTRACT: The paper is devoted to the application of tabular specification functions on the basis of high-order delta modulation, first proposed by F. de Jager (Philips Research Report, v. 7, No. 6, 1952), which leads to a proportional connection between the duration of the calculation and the specified accuracy in the case of first-order

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ACCESSION NR: AT5003908

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delta modulation, and in which the number of operations in a given interval is decreased with increasing order of delta modulation. The method is illustrated by analyzing linear interpolation, quadratic interpolation with separate determination of the quadratic term, quadratic interpolation based on multiple summation, and interpolation with multiplication by a constant. A system of coding the sine function is shown by way of an example. The entire information concerning this function is given by 20 numbers, and the average error does not exceed 0.7×10^{-4}. Orig. art. has: 5 figures, 19 formulas, and 1 table.

ASSOCIATION: None

SUBMITTED: 17Aug64 ENCL: 00 SUB CODE: DP

NR REF SOV: 013 OTHER: 003

Card 2/2 mb

L 63194-65 EEC-4/EED-2/EED-2/EWT(d)

ACCESSION NR: AP5015910 UR/0103/65/026/006/1079/1085
62-504.4

AUTHOR: Men'shikov, G. G. (Leningrad) 55

17
B

TITLE: Quantization in delta-modulation 55 digital systems

9

SOURCE: Avtomatika i telemekhanika, v. 26, no. 6, 1965, 1079-1085

TOPIC TAGS: quantization, digital system, delta modulation

ABSTRACT: A new algorithm is suggested for quantization in the Δ^m-modulation digital systems. The algorithm generalizes the conventional quantization methods and represents a modification of the method of linear signal prediction on the basis of its few preceding values. A quantization equation is set up, and formulas for the quantization error are derived. These results are extended over the case of two-step quantization. The quantization function ensures the lowest maximum of the error introduced at each quantization interval. It is proven that, in the case of only a few quantization-function values and $m > 2$, multistep prediction

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ACCESSION NR: AP5015910

becomes expedient. The new algorithm has this important feature: construction of the quantization function $\bar{f}$ is made in a step-by-step manner, only one value of f(t) being used for each step; thus, the calculations involved are simple. Orig. art. has: 2 figures and 45 formulas.

ASSOCIATION: none

SUBMITTED: 04Jan64 ENCL: 00 SUB CODE: DP

NO REF SOV: 005 OTHER: 002

Card 2/2

ZHIDKOVA, Z.V.; MEN'SHOVA, I.I. (Leningrad)

Spectral study of the ion exchange sorption of dyes on resins. Part 1.
545-550 Mr '65. (MIRA 18:7)

L 33969-66 EWT(d)

ACC NR: AP6017926 SOURCE CODE: UR/0378/66/000/002/0018/0025

AUTHOR: Men'shikov, G. G.

ORG: none

TITLE: Study of the inherent error of two-fold delta-modulation

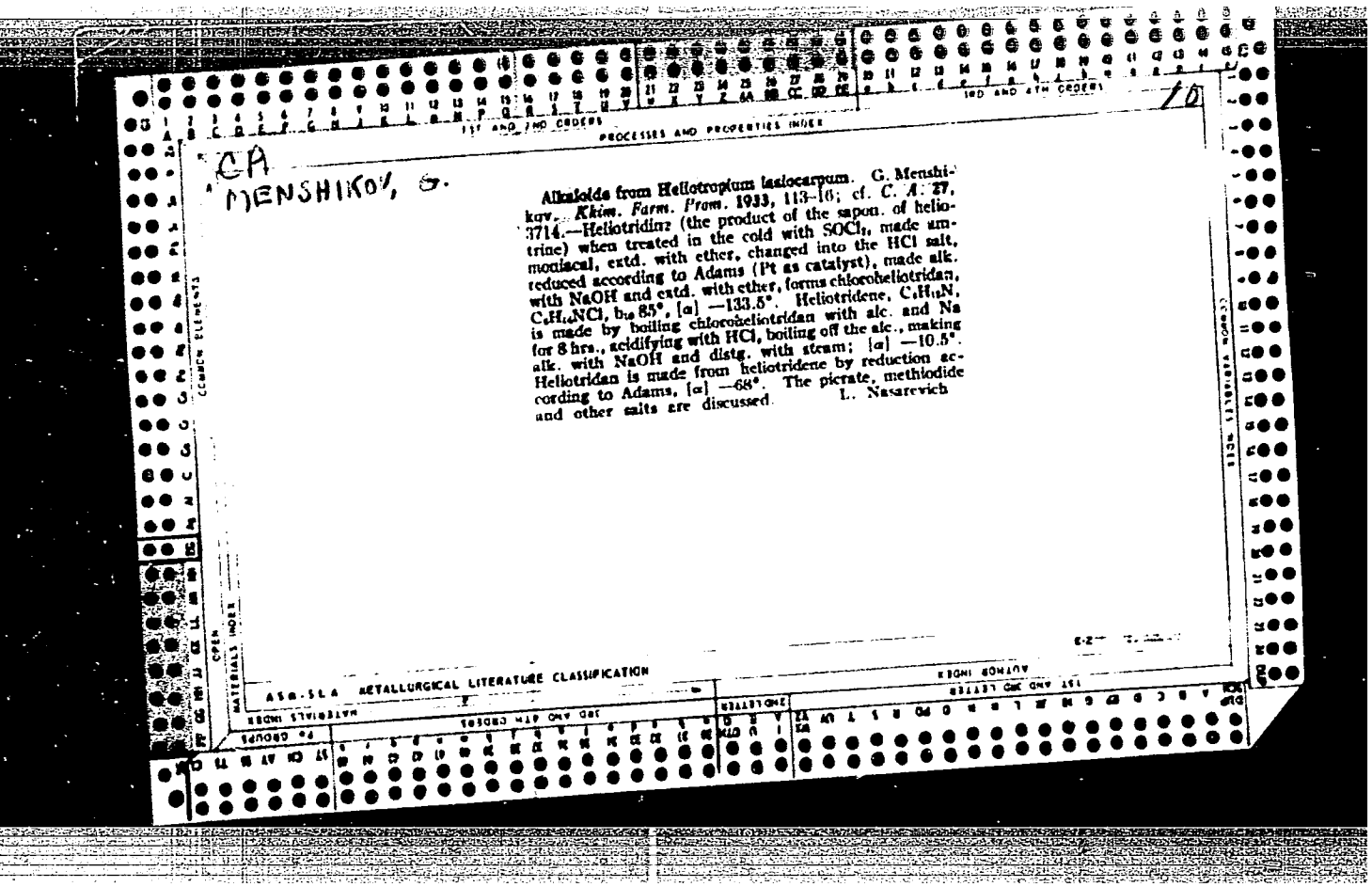
SOURCE: Kibernetika, no. 2, 1966, 18-25

TOPIC TAGS: error function, delta modulation, pulse modulation

ABSTRACT: Since the error factor of higher-order delta-modulation has been analyzed only for a few very simple cases, the present article represents an attempt to fill this gap. The delta-modulation problem is mathematically formulated as follows: function f is prescribed at points $t_n (n = 0.1, \ldots, N)$. At these points a function $\bar{f}$ having the following properties: 1) the difference $\Delta^k \bar{f}_n$ assumes one of several fixed values for the given whole $k > 0$, 2) the coding error $\delta_n = f_n - \bar{f}_n$ is sufficiently small, is juxtaposed to function f. The problem is solved and the estimates obtained are applicable in the study of the possibilities of systems with two-fold delta-modulation, including digital systems. Orig. art. has: 53 formulas.

SUB CODE: 09/ SUBM DATE: 21 Jan65/ ORIG REF: 008/ OTH REF: 003

Card 1/1 UDC: 51:621.391



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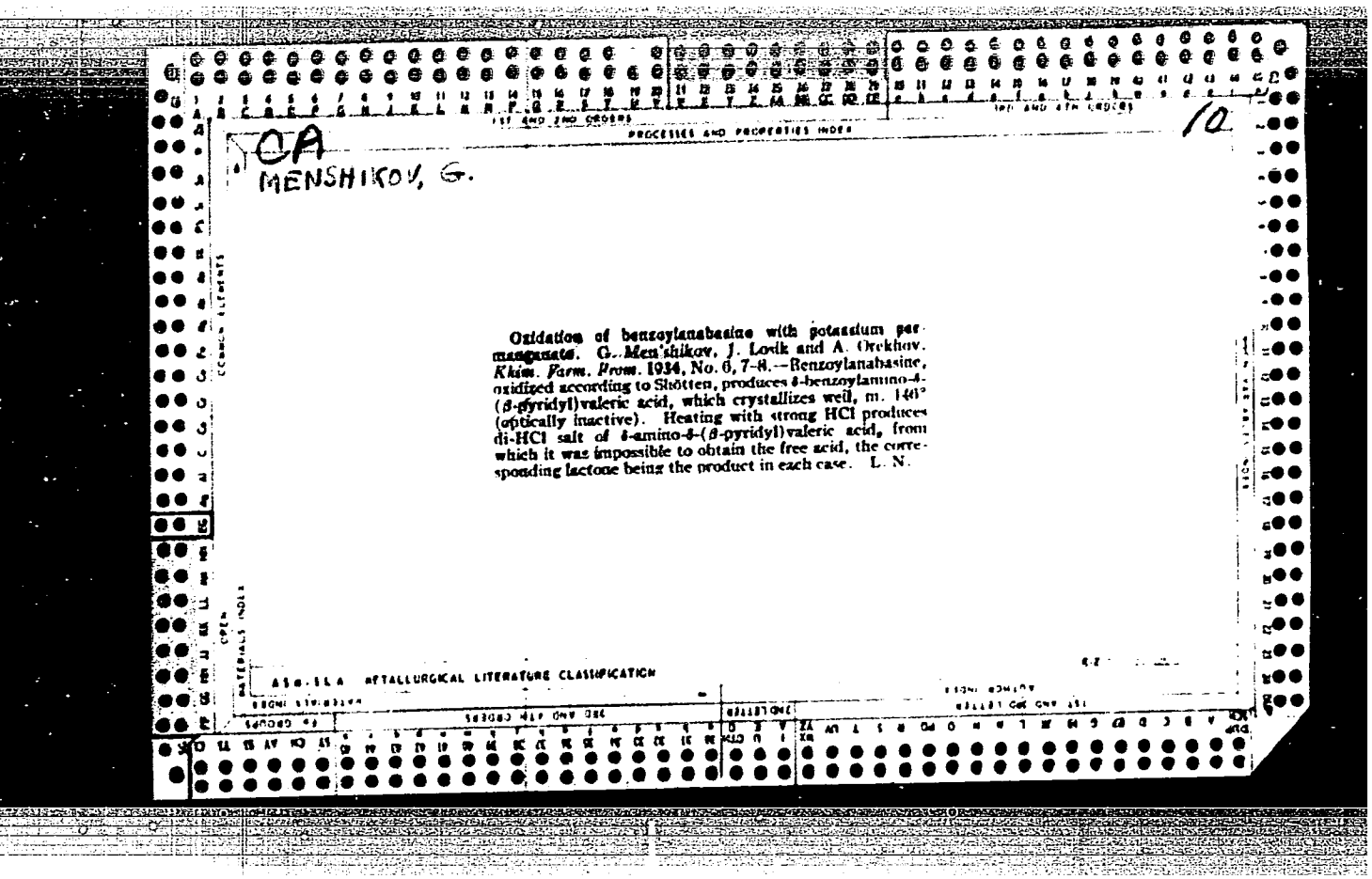
MENSHIKOV, G.

Alkaloids from Heliotropium lasiocarpum. G. Menshikov. *Khim. Farm. Prom.* 1933, 113–16; cf. *C. A.* **27**, 3714.—Heliotridine (the product of the sapon. of heliotrine) when treated in the cold with $SOCl_2$, made ammoniacal, extd. with ether, changed into the HCl salt, reduced according to Adams (Pt as catalyst), made alk. with NaOH and extd. with ether, forms chloroheliotridan, $C_8H_{14}NCl$, b$_{18}$ 85°, $[\alpha]$ −133.5°. Heliotridene, $C_8H_{13}N$, is made by boiling chloroheliotridan with alc. and Na for 8 hrs., acidifying with HCl, boiling off the alc., making alk. with NaOH and distg. with steam; $[\alpha]$ −10.5°. Heliotridan is made from heliotridene by reduction according to Adams, $[\alpha]$ −68°. The picrate, methiodide and other salts are discussed. L. Nasarevich



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MENSHIKOV, G.

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Oxidation of benzoylanabasine with potassium permanganate. G. Men'shikov, J. Lodik and A. Orekhov. *Khim. Farm. Prom.* 1934, No. 6, 7–8.—Benzoylanabasine, oxidized according to Stötten, produces δ-benzoylamino-δ-(β-pyridyl)valeric acid, which crystallizes well, m. 146° (optically inactive). Heating with strong HCl produces di-HCl salt of δ-amino-δ-(β-pyridyl)valeric acid, from which it was impossible to obtain the free acid, the corresponding lactone being the product in each case. L. N.

A58-61A METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

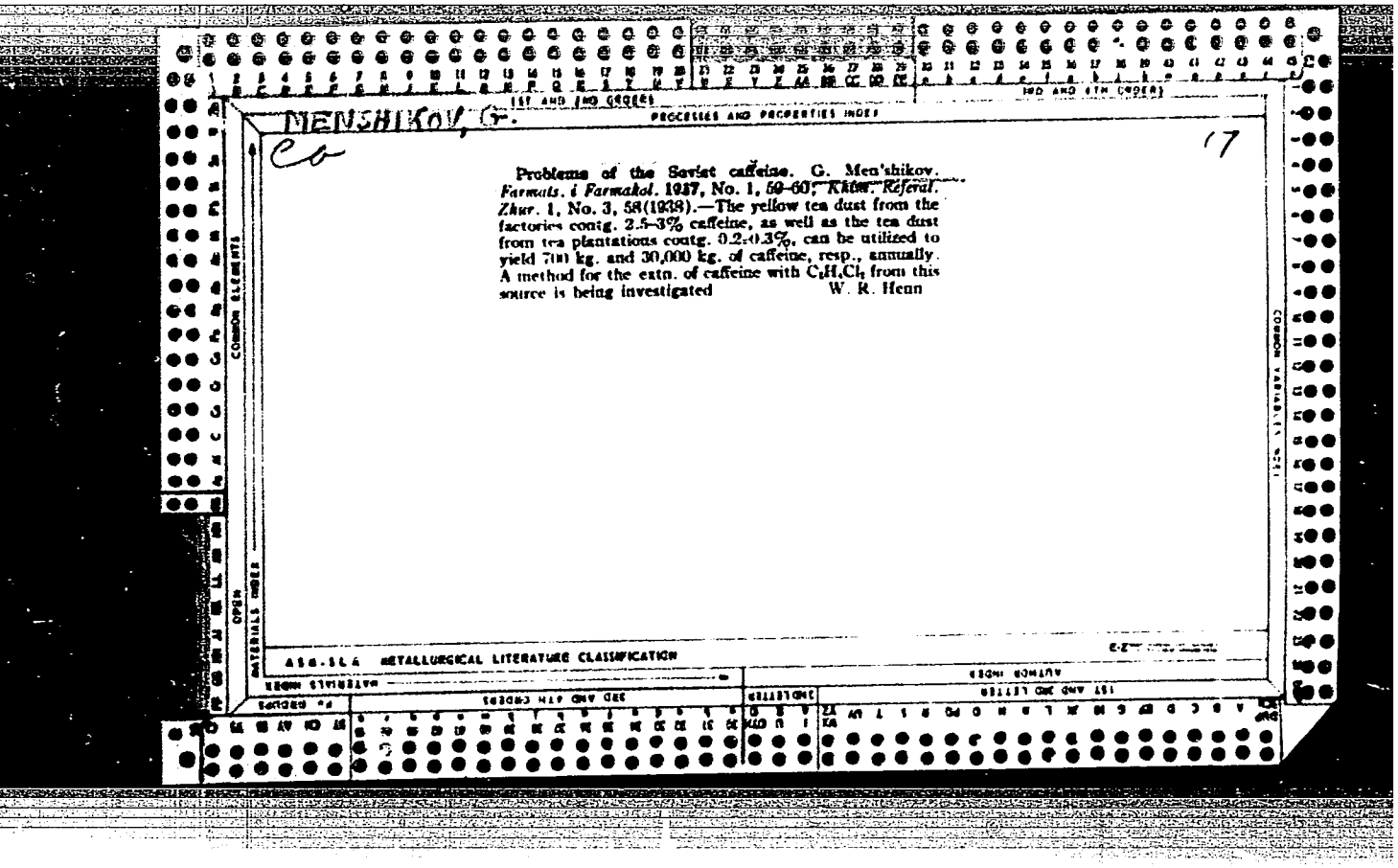
PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

MENSHIKOV, G.

Alkaloids of Heliotropium lasiocarpum and Trichodesma incanum (fam. Boraginaceae). G. Men'shikov. *Bull. acad. sci. U. R. S. S., Classe sci. math. nat., Ser. chim.* 1936, 969-79(in French 979-81). The alkaloids heliotrine (I), $C_{16}H_{27}NO_5$, and lasiocarpine (II), $C_{21}H_{33}NO_7$, from *Heliotropium lasiocarpum*, and trichodesmine (III), $C_{18}H_{27}NO_6$, from *Trichodesma incanum* are tertiary bases and esters. Hydrolysis of I gives the amino alc., heliotridine (IV), and a fatty acid, heliotric acid, [illegible]. Similarly II is decompd. to IV, angelic acid and [illegible], and III yields an isomer of IV, [illegible] acid, [illegible], and [illegible] trichodesmidine (V), *dl*-lactic acid and [illegible] formed by the ketonic decompn. of either α-isopropylacetylacetic or isovalerylacetic acid. Catalytic reduction of IV and V gives the satd. amino alcs., hydroxyheliotridane, $C_8H_{15}NO$, and hydroxytrichodesmidane, which lose a mol. of H_2O on heating with concd. H_2SO_4 to form unsatd. bases, $C_8H_{13}N$, reduced catalytically to the same satd. base, heliotridane (VI), $C_8H_{15}N$. The dehydrogenation of VI does not yield pyridine bases and it is presumed that VI has a pyrrolizidine nucleus with a Me group in the 1-position which may be confirmed by the synthesis of 1,3-dimethyl-2-propylpyrrolidine. C. H. Adinall

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



MENSHIKOV, G.

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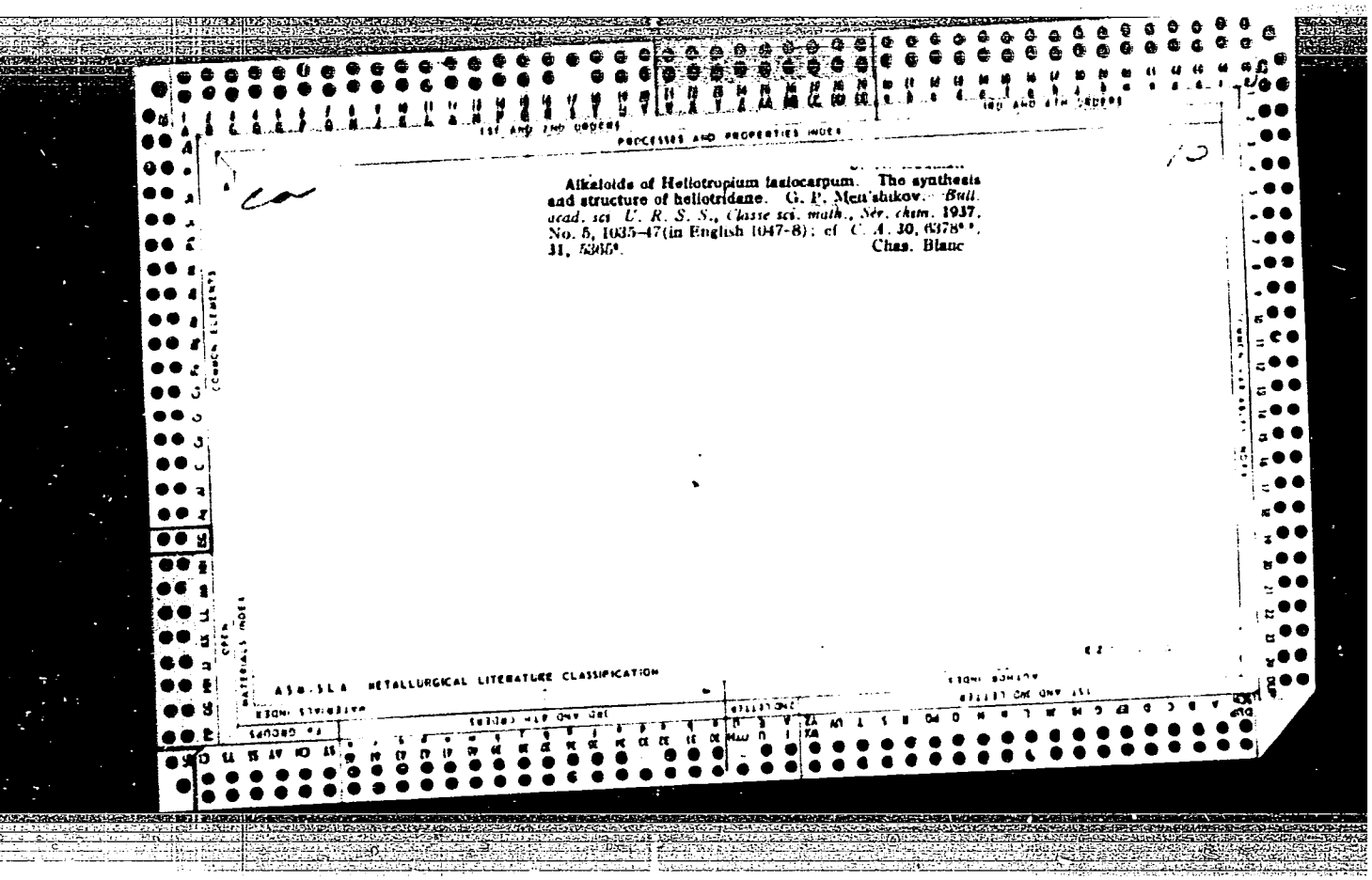
17

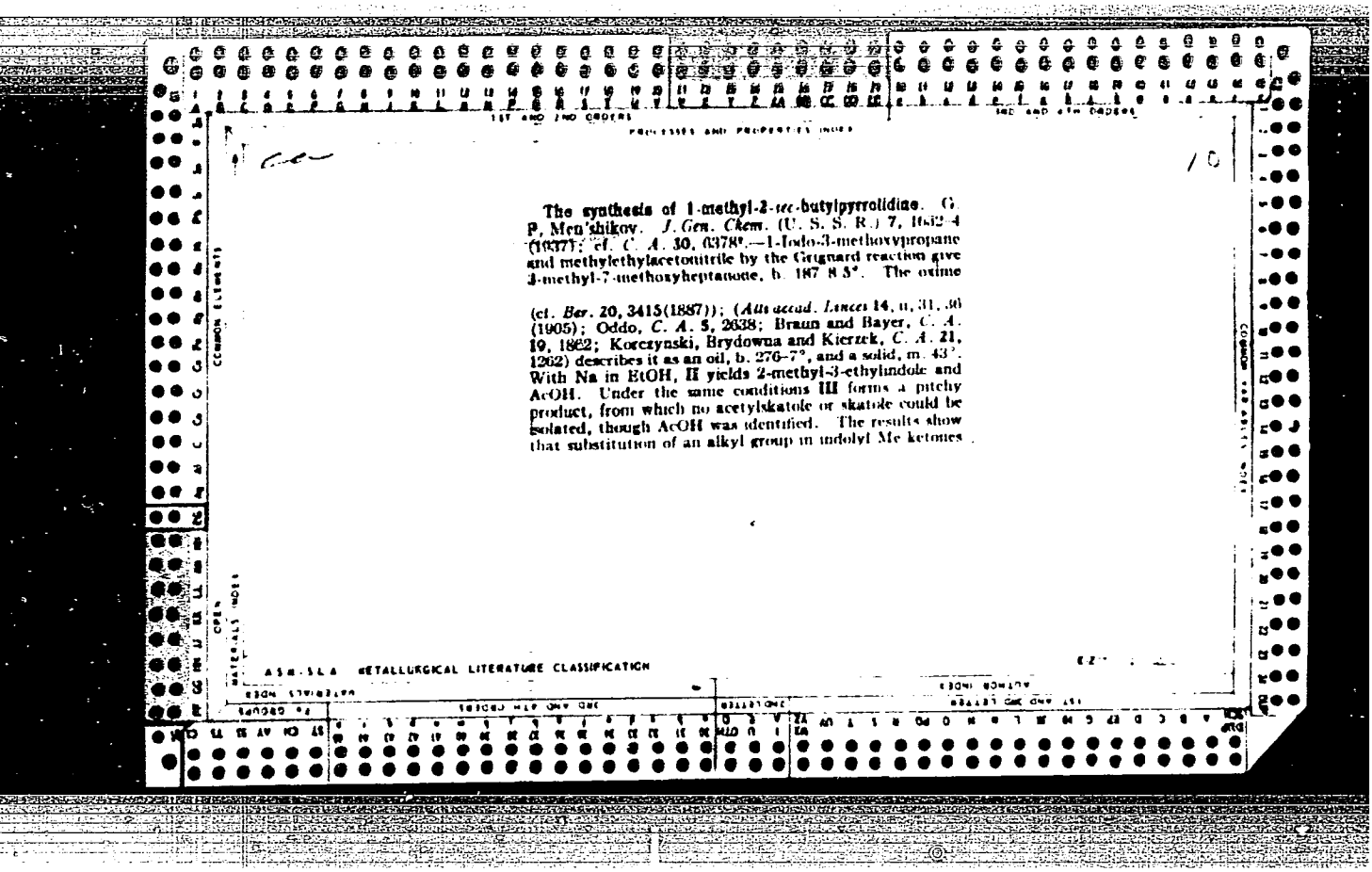
Problems of the Soviet caffeine. G. Men'shikov. *Farmats. i Farmakol.* 1937, No. 1, 59–60; *Khim. Referat. Zhur.* 1, No. 3, 58(1938).—The yellow tea dust from the factories contg. 2.5–3% caffeine, as well as the tea dust from tea plantations contg. 0.2–0.3%, can be utilized to yield 700 kg. and 30,000 kg. of caffeine, resp., annually. A method for the extn. of caffeine with $C_6H_4Cl_2$ from this source is being investigated W. R. Henn

PROCESSES AND PROPERTIES INDEX

METALLURGICAL LITERATURE CLASSIFICATION



Alkaloids of Heliotropium lasiocarpum. The synthesis and structure of heliotridane. G. P. Men'shikov. *Bull. acad. sci. U. R. S. S., Classe sci. math., Sér. chim.* 1937, No. 5, 1035–47(in English 1047-8); cf *C. A.* 30, 6378⁸, 31, 5365⁹.
Chas. Blanc



The synthesis of 1-methyl-2-*sec*-butylpyrrolidine. G. P. Men'shikov. *J. Gen. Chem.* (U. S. S. R.) 7, 1652-4 (1937); cf. *C. A.* 30, 6378⁸.—1-Iodo-3-methoxypropane and methylethylacetonitrile by the Grignard reaction give 3-methyl-7-methoxyheptanone, b. 187° 8.5°. The oxime

(cf. *Ber.* 20, 3415(1887)); (*Atti accad. Lincei* 14, II, 31, 50 (1905); Oddo, *C. A.* 5, 2638; Braun and Bayer, *C. A.* 19, 1862; Korczynski, Brydowna and Kierzek, *C. A.* 21, 1262) describes it as an oil, b. 276–7°, and a solid, m. 43°. With Na in EtOH, II yields 2-methyl-3-ethylindole and AcOH. Under the same conditions III forms a pitchy product, from which no acetylskatole or skatole could be isolated, though AcOH was identified. The results show that substitution of an alkyl group in indolyl Me ketones

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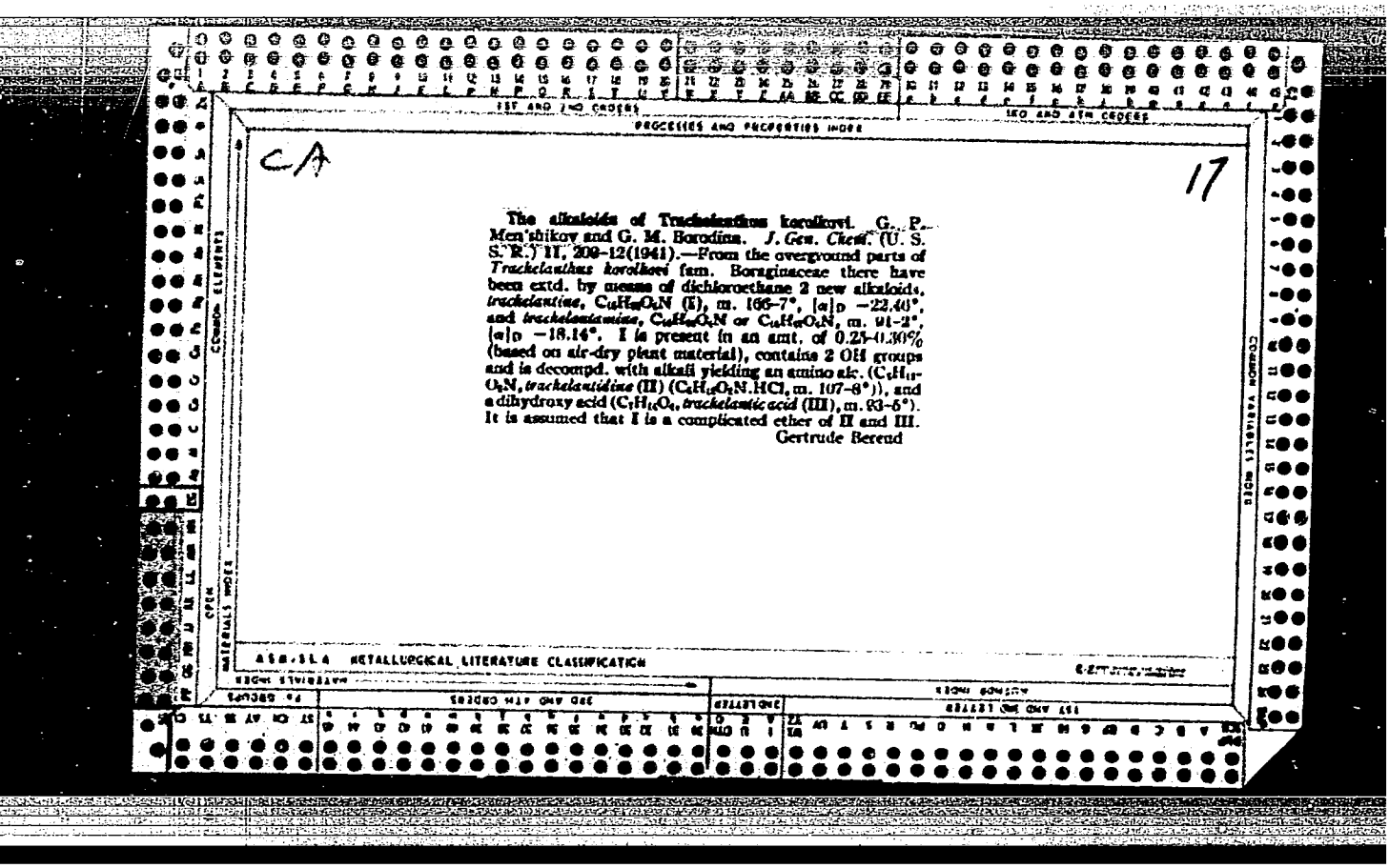
Alkaloids of Heliotropium lasiocarpum. The structure of heliotrinic acid. G. P. Men'shikov. *J. Gen. Chem.* (U. S. S. R.) 9, 1851–5(1939); cf. *C. A.* 32, 2944[9].—Previously it was shown (*C. A.* 31, 5365[8]) that the alkaloid heliotrine from *Heliotropium lasiocarpum* is hydrolyzed into the amino alc., heliotridine, and a *l*-rotatory fatty acid, *heliotrinic acid*, $C_8H_{16}O_4$. Since it contains 1 OH and 1 OMe group and is oxidized in 5% H_3PO_4 by PbO_2 to CO_2 and *3-methyl-4-methoxy-3-pentanone* (I), the acid is 2-methyl-3-hydroxy-4-methoxypentane-3-carboxylic acid. I, b. 144–6° (*semicarbazone*, m. 146–7°, *oxime*, b_{14} 108.5–9.5°) is oxidized by alk. $KMnO_4$ to iso-$PrCO_2H$ and reacts with PhMgBr in ether to form 2-methyl-3-hydroxy-3-phenyl-4-methoxypentane, b_{11} 112–13°, which is oxidized by CrO_3 in AcOH to iso-PrCOPh, b. 216–17°, *oxime*, m. – 5, 8.5°. Chas. Blanc

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



CA

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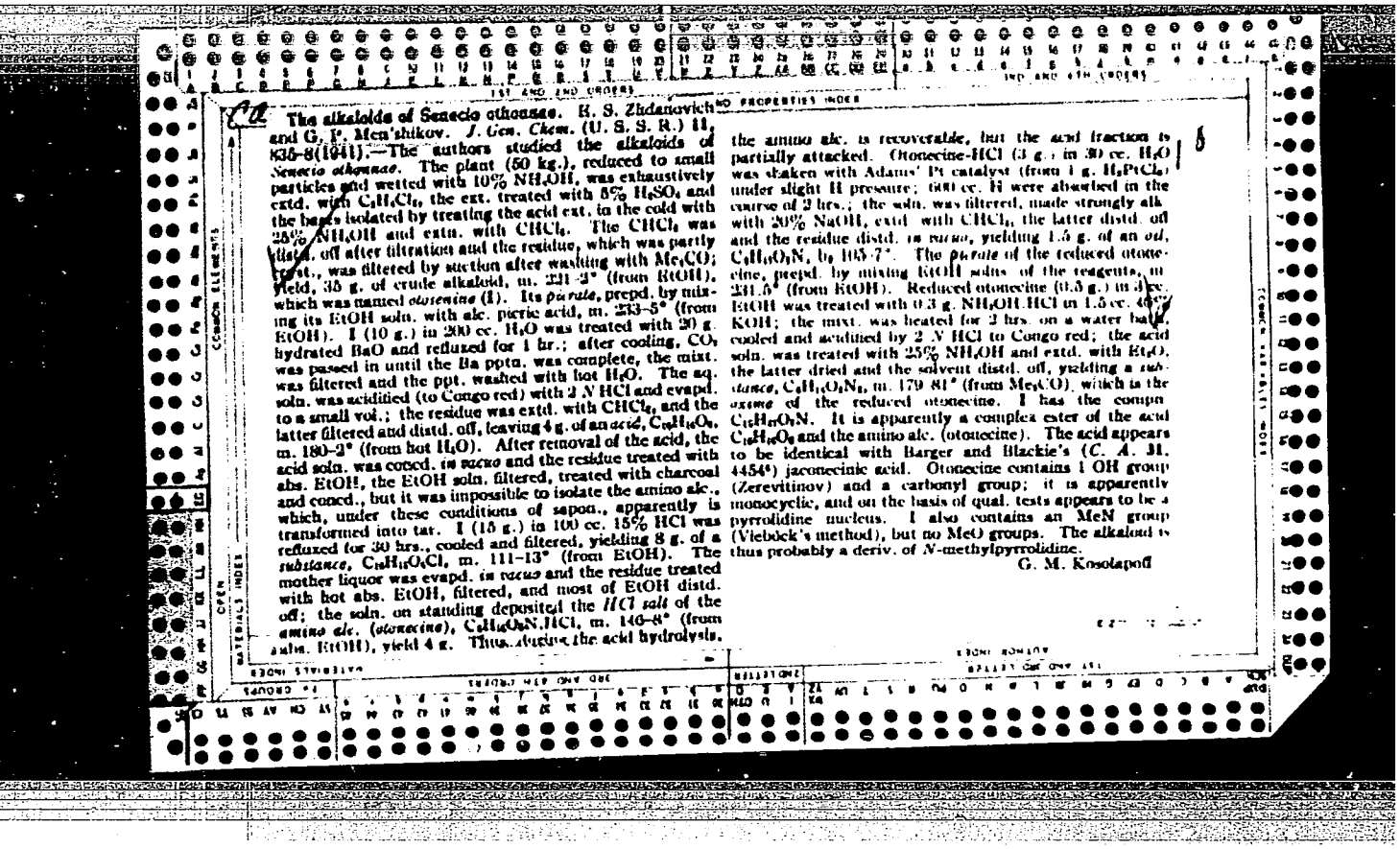
The alkaloids of Trachelanthus korolkovi. G. P. Men'shikov and G. M. Borodina. *J. Gen. Chem.* (U. S. S. R.) 11, 208-12(1941).—From the overground parts of *Trachelanthus korolkovi* fam. Boraginaceae there have been extd. by means of dichloroethane 2 new alkaloids, *trachelantine*, $C_8H_{13}O_2N$ (I), m. 166-7°, $[\alpha]_D$ −22.40°, and *trachelantamine*, $C_8H_{15}O_2N$ or $C_8H_{17}O_2N$, m. 91-2°, $[\alpha]_D$ −18.14°. I is present in an amt. of 0.25-0.30% (based on air-dry plant material), contains 2 OH groups and is decompd. with alkali yielding an amino alc. ($C_5H_{11}O_2N$, *trachelanidine* (II) ($C_5H_{11}O_2N.HCl$, m. 107-8°)), and a dihydroxy acid ($C_7H_{12}O_4$, *trachelantic acid* (III), m. 93-5°). It is assumed that I is a complicated ether of II and III.

Gertrude Berend



The alkaloids of Senecio othonnae. B. S. Zhdanovich and G. P. Men'shikov. *J. Gen. Chem.* (U. S. S. R.) **11**, 835–8(1941).—The authors studied the alkaloids of *Senecio othonnae*. The plant (50 kg.), reduced to small particles and wetted with 10% NH_4OH, was exhaustively extd. with $C_6H_4Cl_2$, the ext. treated with 5% H_2SO_4 and the bases isolated by treating the acid ext. in the cold with 25% NH_4OH and extn. with $CHCl_3$. The $CHCl_3$ was distd. off after filtration and the residue, which was partly crystn., was filtered by suction after washing with Me_2CO; yield, 35 g. of crude alkaloid, m. 221–2° (from EtOH), which was named *otosenine* (I). Its *picrate*, prepd. by mixing its EtOH soln. with alc. picric acid, m. 233–5° (from EtOH). I (10 g.) in 200 cc. H_2O was treated with 20 g. hydrated BaO and refluxed for 1 hr.; after cooling, CO_2 was passed in until the Ba pptn. was complete, the mixt. was filtered and the ppt. washed with hot H_2O. The aq. soln. was acidified (to Congo red) with 2 *N* HCl and evapd. to a small vol.; the residue was extd. with $CHCl_3$, and the latter filtered and distd. off, leaving 4 g. of an *acid*, $C_8H_{16}O_3$, m. 180–2° (from hot H_2O). After removal of the acid, the acid soln. was concd. *in vacuo* and the residue treated with abs. EtOH, the EtOH soln. filtered, treated with charcoal and concd., but it was impossible to isolate the amino alc., which, under these conditions of sapon., apparently is transformed into tar. I (15 g.) in 100 cc. 15% HCl was refluxed for 30 hrs., cooled and filtered, yielding 8 g. of a *substance*, $C_{13}H_{17}O_4Cl$, m. 111–13° (from EtOH). The mother liquor was evapd. *in vacuo* and the residue treated with hot abs. EtOH, filtered, and most of EtOH distd. off; the soln. on standing deposited the *HCl salt* of the *amino alc.* (*otonecine*), $C_8H_{15}O_2N.HCl$, m. 146–8° (from soln. EtOH), yield 4 g. Thus, during the acid hydrolysis, the *amino* alc. is recoverable, but the *acid* fraction is partially attacked. Otonecine-HCl (3 g.) in 30 cc. H_2O was shaken with Adams' Pt catalyst (from 1 g. H_2PtCl_6) under slight H pressure; 600 cc. H were absorbed in the course of 2 hrs.; the soln. was filtered, made strongly alk. with 30% NaOH, extd. with $CHCl_3$, the latter distd. off and the residue distd. *in vacuo*, yielding 1.5 g. of an *oil*, $C_8H_{17}O_2N$, b. 105–7°. The *picrate* of the reduced otonecine, prepd. by mixing EtOH solns. of the reagents, m. 231.5° (from EtOH). Reduced otonecine (0.5 g.) in 3 cc. EtOH was treated with 0.3 g. $NH_2OH.HCl$ in 1.5 cc. 40% KOH; the mixt. was heated for 2 hrs. on a water bath, cooled and acidified by 2 *N* HCl to Congo red; the acid soln. was treated with 25% NH_4OH and extd. with Et_2O, the latter dried and the solvent distd. off, yielding a *substance*, $C_8H_{18}O_2N_2$, m. 179–81° (from Me_2CO), which is the *oxime* of the reduced otonecine. I has the compn. $C_{13}H_{19}O_5N$. It is apparently a complex ester of the acid $C_5H_8O_3$ and the amino alc. (otonecine). The acid appears to be identical with Barger and Blackie's (*C. A.* **31**, 4454⁸) jaconecinic acid. Otonecine contains 1 OH group (Zerevitinov) and a carbonyl group; it is apparently monocyclic, and on the basis of qual. tests appears to be a pyrrolidine nucleus. I also contains an MeN group (Viebock's method), but no MeO groups. The alkaloid is thus probably a deriv. of *N*-methylpyrrolidine.

G. M. Kosolapoff

MENSHIKOV, G. P.

"Investigation of alkaloids in Halostachis caspica"., Menshikov, G. P., and Rubinstein, M. M. (p. 801)

SO: Journal of General Chemistry (Zhurnal Obshchei Khimii) 1943, Volume 13, no. 11-12.