

UKOLOV., kandidat technicheskikh nauk; MEL'NIK, inzhener.

Determining the velocity of air blown through ventilated grain.  
Muk.-elev. prom. 22 no. 12:10-11 D '56. (MLRA 10:2)

I. Vsesoyuznyy nauchno-issledovatel'skiy institut zerna i produktov ego pererabotki.  
(Grain elevators--Heating and ventilation)

MEL'NIK, B., inzh.

Determining the optimal distance between pipes when ventilating  
bulk grain. Kuk. elev. prom. 24 no.11:10-11 N '58.

(MIRA 11:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut zerna i produktov  
yego pererabotki.

(Ventilation) (Grain--Storage)

MEL'NIK, B. Ye., Cand Tech Sci -- (diss) "Research into the active ventilation of grain hoppers by means of moving pipe assemblies." Moscow, 1960. 22 pp; with illustrations; (Ministry of Higher and Secondary Specialist Education RSFSR, Moscow Technological Inst of the Food Industry); 150 copies; price not given; list of author's work on pp 21-22 (19 entries); (KL, 22-60, 137)

UKOLOV, V., kand.tekhn.nauk; MEL'NIK, B., kand.tekhn.nauk

Visual observations on the circulation of air in ventilated  
bulk grain. Muk.-slev. prom. 27 no.11:29 N '61.

(MIRA 14:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut zerna i  
produktov Yego pererabotki.

(Grain--Storage)

(Ventilation)

L 56037-65

ACCESSION NR: AP5018356

aNR/0020/64/157/004/1003/1005

AUTHOR: Mel'nik, B. Ye.

8  
B

TITLE: Melanophore response of amphibians upon inducing a change in the state of their nervous system by means of neurotropic agents

SOURCE: AN SSSR. Doklady, v. 157, no. 4, 1964, 1003-1005

TOPIC TAGS: nervous system, neurology, nervous system drug, experiment animal, hormone, animal physiology, skin physiology

ABSTRACT: A major adaptation response of the lower vertebrates is their ability to change color on change in their external environment. The author investigated whether amphibia retain an adaptation melanophore response when neurotropic agents that act mostly on the cerebral regions (corazol, Caffeine) and on cerebrospinal functions (dibazol), as well as ganglion-blocking agents (hexamethonium) are administered to them. The animals used in the experiments were light and dark lake frogs (*Rana ridibunda*). The change in the color of the frogs was produced by exposing them against

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I 56097-65  
ACCESSION NR: AP5018356

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a white background and illuminating them with scattered light for 12 hours. The author's assumption that corazol and caffeine produce contraction of the pigment of the melanophores and lighter color of the skin regardless of the illumination was confirmed by repeating these experiments on placing light-colored frogs against a black background. This is attributed to the blocking of the secretion of the melanophore hormone of the hypophysis due to the intensification of efferent impulses from the mesencephalon and diencephalon, i.e., regions of the brain which are the most stimulated by corazol and caffeine. Hexamethonium and dibazol were found to be much less effective in inducing the melanophore response. It is concluded that the principal coordinating mechanism ensuring the adaptive nature of the pigment response of amphibia is the central nervous system rather than the hypophysis. The hypophysis is merely the link of the nervous system whose melanophore hormone directly affects the dispersion of pigment in the melanophores. Orig. art. has: 1 table.

Card 2/3

L 56037-65

ACCESSION NR: AP5018356

ASSOCIATION: Kishinevakiy gosudarstvennyy universitet (Kishinev State University) 0

SUBMITTED: 13Mar64

ENCL: 00

SUB CODE: LS

NR REF SOV: 005

OTHER: 001

JPRS

AR  
Card 3/3

MEL'NIK, B. Ye., kand. tekhn. nauk

Improve the technology of continuous processing of food and  
feed corn. Inform. biul. VDNKH no.10:24-25 0 '64  
(MIRA 18:1)



L 33083-66 EWT(1) RD

SOURCE CODE: UR/0020/66/166/001/0253/0255

ACC NR: AP6024122

AUTHOR: Mel'nik, B. Ye. 29ORG: Kishinov State University (Kishinevskiy gosudarstvennyy universitet) B

TITLE: Effect of some psychotropic drugs on the melanophore reaction of amphibians

SOURCE: AN SSSR. Doklady, v. 166, no. 1, 1966, 253-255

TOPIC TAGS: drug effect, dermatology, nervous system drug, hormone, tranquilizer, endocrinology, brain, gland

ABSTRACT: The effects of a neuroleptic (rausedil), a tranquilizer (neprotane), and of psychoanaleptics (melipromine and centedrine) on the melanophore reaction of *Rana ridibunda* frogs were studied. Rausedil on being injected to the frogs produced darkening of the skin, presumably by stimulating the melanophore function of the hypophysis. Neprotane did not produce any effect. The psychoanaleptics, particularly centedrine, had a pronounced lightening effect on the skin. They apparently blocked the outflow of the melanophroic hormone from the hypophysis, acting through the mesencephalon (extirpation of the frontal part of the brain had no effect on the reaction to these drugs). Introduction of a hypophysis homogenate to hypophysectomized frogs which had been given an injection of centedrine 30-40 min earlier did not produce the darkening of the skin observed on hypophysectomised frogs to which no centedrine had been administered. This article was presented by Academician E. N. Pavlovskiy on 26 Feb 1965. Orig. art. has: 1 table. [JPRS]

SUB CODE: 06 / SUBM DATE: 22Feb65 / ORIG REF: 004 / OTH REF: 002  
Card 1/1 *la*

0915 1698

SOV/140-58-3-20/34

AUTHOR: Mel'nik, D.F.

TITLE: Theorems of Liouville Type for Some Elliptic Systems of Differential Equations (Teoremy tipa teoremy Liuvillya nekotorykh ellipticheskikh sistem differentsial'nykh uravneniy)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Matematika, 1958, Nr 3, pp 163-171 (USSR)

ABSTRACT: Theorem: Let the system with constant coefficients

$$(1) \sum_{k_1 + \dots + k_n \leq s} (-1)^{k_1 + \dots + k_n} A_{k_1 \dots k_n} \frac{\partial^{k_1 + \dots + k_n} u}{\partial x_1^{k_1} \dots \partial x_n^{k_n}} = 0$$

satisfy the following condition: The matrices

$$\sum_{k_1 + \dots + k_n \leq s} A_{k_1 \dots k_n} (i\alpha_1)^{k_1} \dots (i\alpha_n)^{k_n}, \quad \sum_{k_1 + \dots + k_n = s} A_{k_1 \dots k_n} (i\alpha_1)^{k_1} \dots (i\alpha_n)^{k_n}$$

and

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Theorems of Liouville Type for Some Elliptic Systems  
of Differential Equations

SOV/140-58-3-20/34

$$\sum_{k_1 + \dots + k_n = s_0} A_{k_1 \dots k_n} (i\alpha_1)^{k_1} \dots (i\alpha_n)^{k_n},$$

where  $s_0$  is the smallest order of the derivatives in (1), possess inverse matrices for every real non-vanishing  $\alpha = (\alpha_1, \dots, \alpha_n)$ . Let the  $s$ -times continuously differentiable solution of (1) satisfy the estimation  $O(|x|^{-l})$ ,  $l > 0$  for  $|x| \rightarrow \infty$ . Then this solution is a polynomial of degree  $[l]$ , where  $[ ]$  denotes the integer part of the number. The proof uses the ellipticity of the system.

A further theorem of Liouville type is proved in a special case for elliptic systems with variable coefficients. There are 5 references, 4 of which are Soviet, and 1 American.

ASSOCIATION: L'vovskiy pedagogicheskij institut (L'vov Pedagogical Institute)

SUBMITTED: November 26, 1957

Card 2/2

MEL'NIK, D. F., Candidate Phys-Math Sci (diss) -- "The fundamental matrix of linear elliptical systems of differential equations for infinite space". L'vov, 1959. 6 pp (Min Higher Educ Ukr SSR, L'vov State U im I. V. Franko), 150 copies (KL, No 24, 1959, 126)

MEL'NIK, D. G. Cand Agr Sci -- (diss) "~~The~~ Results of the Testing  
of Grades ~~of Grape~~ and Studies of the Influence of ~~Terrain~~ <sup>Locality</sup> Relief  
upon the Biology of ~~the Grape~~ Under Conditions of ~~the~~ ~~USSR~~  
~~the Marmyskaya ASSR.~~ Koz'modem'yansk in ~~Azerbaydzhan~~ ~~SSR.~~ Mos, 1957. 15 pp 20 cm.  
(Mos Order of Lenin Agricultural Academy im K. A. Timiryazev),  
120 copies (KL, 25-57, 116)

136  
EXIB-109-

MEL'NIK, D.G., aspirant.

Influence of a vineyard's southern exposure on grape biology in  
the Mari ASSR. Izv. TSKhA no.1(20):147-152 '58. (MIRA 11:4)  
(Mari ASSR--Grapes)

MEL'NIK, D.K., inzh.

Inclination angle of the conveyor of the SMT-2,1A sugar beet  
loader. Mekh. i elek. sots. sel'khoz. 21 no.1:48 '63.  
(MIRA 16:7)

1. Ukrainskaya mashinoispytatel'naya stantsiya.  
(Sugar beets) (Conveying machinery)

MEL'NIK, D.K., inzh.

Susceptibility of sugar beet roots to damage during the process  
of loading. Trakt. i sel'khoz mash. no.1:33-34 Ja '65.

(MIRA 18:3)

1. Ukrainskaya mashinoispytatel'naya stantsiya.



MEL'NIK, D.M., kandidat tekhnicheskikh nauk.

Prospective development in mechanizing time-consuming snow  
removal work. Vest. TSNII MPS 15 no.1:27-31 Ag '56. (MLRA 9:12)

(Railroads--Snow protection and removal)

MEL'NIK, D.M., kandidat tekhnicheskikh nauk.

Efficient organization of work to prevent snow drifts. Zhel.dor.  
transp.39 no.1:49-51 Ja '57. (MLBA 10:2)  
(Railroads--Snow protection and removal)

MEL'NIK, D.M., kand. tekhn. nauk

Foreign technology; combatting snow on foreign railroads. Put' i put.  
khoz. no.3:45-46 Mr '58. (MIRA 11:4)  
(Railroads--Snow protection and removal)

MEL'NIK, D.M., kand. tekhn. nauk; OBUKHOV, L.M., inzh.

Removal of snow from switch boxes. Zhel. dor. transp. 40 no.2:63-67  
F '58. (MIRA 11:3)

(Railroads--Snow protection and removal)

(Railroads--Switches)

MEL'NIK, D.M.; KOMAROV, A.A.; ANTONOV, F.I.; OBUKHOV, L.M.; LYAKHOVICH, V.B.;  
PUPOV, A.V., inzh., red.; BOBROVA, Ye.N., tekhn. red.

[Mechanization of snow protection and removal on railroads]  
Mekhanizatsiia snegouborki i snegozashchita na zheleznykh  
dorogakh. Moskva, Gos.transp.zhel-dor.izd-vo. 1959. 112 p.  
(Moscow. Vsesoiuznyi nauchno-issledovatel'skii institut  
zheleznodorozhnogo transporta. Trudy, no.168) (MIRA 12:4)  
(Railroads--Snow protection and removal)

MEL'NIK D. M.

AL'BREKHT, Vladimir Georgiyevich, prof.; LIDERS, Georgiy Vladimirovich, dotsent; NIKIFOROV, Pavel Aleksandrovich, prof. [deceased]; CHELENOV, Mikhail Timofeyevich, kand.tekhn.nauk; CHERNYSHEV, Mikhail Andreyevich, kand.tekhn.nauk; FRISHMAN, M.A., prof., retsenzent; ANDREYCHENKO, A.V., inzh., retsenzent; BABKIN, A.R., inzh., retsenzent; BEZRUCHKO, V.S., inzh., retsenzent; ZHEREBIN, M.I., inzh., retsenzent; MEL'NIK, D.M., inzh., retsenzent; MURAV'YEV, I.V., inzh., retsenzent; NOVITSKIY, G.I., inzh., retsenzent; PASHININ, S.A., inzh., retsenzent; POTOTSKIY, G.I., inzh., retsenzent, red.; RAK, S.M., inzh., retsenzent; TYUTYUNNIK, F.R., inzh., retsenzent; ULYUYEV, D.I., inzh., retsenzent; SHEPELEV, V.N., inzh., retsenzent; BOBROVA, Ye.N., tekhn.red.

[Track work] Putevoe khoziaistvo. Pod red. M.A.Chernysheva. Moskva, Gos.transp.zhel-dor.izd-vo, 1959. 435 p. (MIRA 12:12)

1. Kafedra "Put' i putevoye khozyaystvo" Dnepropetrovskogo instituta inzhenerov zheleznodorozhnogo transporta (for Frishman). (Railroads--Track)

MEL'NIK, D.M., kand.tekhn.nauk

Combined operations for the prevention of snow blocks. Zhel.  
dor.transp. 41 no.12:20-23 D '59. (MIRA 13:4)  
(Railroads--Snow protection and removal)

MEL'NIK, D.M., inzh.; NEDASHKOVSKIY, P.P., inzh.

Machine for cleaning track. Put' 1 put.khoz. 4 no.3:5  
M: '60. (MIRA 13:5)  
(Railroads--Track) (Railroads--Snow plows)



MEL'NIK, D.M., kand.tekhn.nauk

Efficient ways to protect tracks from snow blocks. Zhel.dor.transp.  
42 no.11:14-18 N '60. (MIRA 13:11)

(Railroads--Snow protection and removal)

MEL'NIK, D.M., kand.tekhn.nauk

Make full use of the initiative of Perm' railroad workers. Put'  
i put. khoz. 5 no.3:10-11 Mr '61. (MIRA 14:3)

1. Rukovoditel' laboratorii snegobor'by Vsesoyuznogo nauchno-  
issledovatel'skogo instituta zheleznodorozhnogo transporta.  
(Railroads—Snow protection and removal)

MEL'NIK, D.M. , kand.tekhn.nauk

Problems in the planning of snow protection on railroads.  
Vest. TSNII MPS 21 no.1:49-53 '62. (MIRA 15:2)  
(Railroads--Snow protection and removal)

MEL'NIK, D.M., kand.tekhn.nauk.

Development of the design of the track superstructure. Zhel. dor.  
transp.44 no.3:32-36 Mr '62. (MIRA 15:3)  
(Railroads—Track)

MEL'NIK, Daniil Mikhailovich, kand. tekhn. nauk; FILIPPOVA, L.S.,  
red.; SERGEYEVA, A.I., red. izd-va; DROZDOVA, N.D., tekhn.  
red.

[Mechanized snow entrapping on railroads] Mekhanizirovannoe  
snegozaderzhanie na zheleznykh dorogakh. Moskva, Transzhel-  
dorizdat, 1963. 20 p. (MIRA 16:7)  
(Railroads—Snow protection and removal)

MEL'NIK, D.M., kand.tekhn.nauk

More self-propelled cleaning machines. Put' 1 put.khoz. 7 no.1:15-16  
'63. (MIRA 16:3)  
(Railroads--Snow protection and removal)

MEL'NIK, D.M., kand.tekhn.nauk

Organization of snow removal in stations. Zhel.dor.transp.  
46 no.12:23-25 D '64.

(MIRA 19:1)

MEL'NIK, D.M., kand. tekhn. nauk

Need for self-propelled snow removal machines. Pat' i put. khoz.  
9 no.1817 '65 (MIRA 18:2)



DEV'YAKOVICH, G.M., kand. tekhn. nauk; MEL'NIK, D.M., kand. tekhn. nauk;  
NEDASHKOVSKIY, P.P., naushnyy sotrudnik

Mechanization of track cleaning operations. Put' i put. khoz.  
9 no.10:20-22 '65. (MIRA 18:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut zheleznodorozhnogo transporta Ministerstva putey soobshcheniya.

ACC NR: AP7004587

SOURCE CODE: UR/0050/66/000/008/0033/0035

AUTHOR: Mel'nik, D. M. (Candidate of technical sciences)

ORG: Institute of Railroad Transportation (Institut zhelesnodorozhnogo transporta)TITLE: Meteorological servicing of railroad transportation 14

SOURCE: Meteorologiya i gidrologiya, no. 8, 1966, 33-35

TOPIC TAGS: wind velocity, atmospheric wind

ABSTRACT: A knowledge of wind velocities and the frequency of their occurrence along railroad lines is of great importance in railroad work. For example, until recently permanent snow fences along the entire railroad net were designed for a single wind velocity of 35 m/sec. Now two wind velocities are taken into account -- 25 and 33 m/sec. This still is inadequate. The country should be divided into five regions on the basis of different wind regimes. A knowledge of wind velocities and associated snow drifting would make it possible to dispense with excessive safety factors in the construction of many structures, thereby saving construction materials. The agencies of the Ministry of Railroads, especially

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UDC: 551.5:65.2  
2936 1434

ACC NR: AP7004587

the All-Union Scientific Research Institute of Railroad Transportation, have carried out considerable work on the transport of snow during blizzards. The greater part (90%) of blizzard snow is transported directly in the surface layer with a height of 20 cm. The weight of the mass of snow particles carried by the wind through a cross section of the surface layer 2 m in height and with a width of 1 cm is proportional to the cube of wind velocity. The Ministry of Railroads now is constructing wind roses showing the probable directions of snow transport by the wind during winter for each direction of the horizon for different places. Such roses should be available for each railroad station and section of tracks. In the past it has been suggested that a special "transportation meteorology" be established, but this has too much in common with the needs of construction and engineering in general and the author therefore suggests establishing an "engineering" meteorology, with engineering snow science being an integral part of it.

[JPRS: 38,460]

SUB CODE: 04 / SUBM DATE: 03Aug65 / ORIG REF: 003

Card 2/2

MEL'NIK, D.P. [Mel'nyk, D.P.]

Fundamental solutions of elliptic simultaneous equations with a  
parameter for an unlimited space. Nauk. zap. L'viv. un. 44 no.8:  
204-209 '57. (MIRA 11:6)  
(Differential equations, Partial)

MEL'NIK, D.P. [Mel'nyk, D.P.]

Fundamental matrix of variational type systems for an unlimited space.  
Dop. AN URSSR no.6:602-604 '58. (MIRA 11:9)

1.L'vovskiy gosudarstvennyy pedagogicheskiy institut. Predstavil  
akademik AN USSR B.V. Gnedenko [B.V. Hnedienko].  
(Matrices) (Functional analysis)

L 22693-56 ENT(L)/ENP(a)/EPI(m)/ETU(L)/EPP(n)-2/EMG(m)/EMH(v)/T/ENP(L)/ENP(L)  
ACC NR: AP6007261 IJP(c) AD/HE/AT SOURCE CODE: UR/0226/66/000/002/0006/0009

AUTHOR: Lakomskiy, V. I.; Mel'nik, G. A. 110  
B

ORG: Institute of Electric Welding im. Ye. O. Paton (Institut elektrosvariki)

TITLE: Spheroidization in high-frequency plasma discharge of aluminum oxide powder

SOURCE: Poroshkovaya metallurgiya, no. 2, 1966, 6-9

TOPIC TAGS: spheroidization, aluminum oxide, high temperature plasma, plasma arc, argon, heat transfer, metal powder, dissociation constant, plasma discharge

ABSTRACT: (2114455) The paper deals with the spheroidization<sup>6</sup> of aluminum oxide<sup>m</sup> in a high frequency plasma<sup>27</sup>, which is a very promising source of high temperatures. High frequency plasmatrons have no electrodes; therefore, the plasma generated by them is purer than arc plasma. In addition, oxidizing gases may be used to create the plasma. A short description of the apparatus used in the procedure of powder spheroidization is given. It is shown that on adding 10% oxygen to argon, heat transfer from the plasma to the powder particles increases. Furthermore, addition of oxygen depresses dissociation of aluminum oxides. The author notes the participation of Engineer V. A. Chudakov in the study. Orig. art. has: 3 figures. [Based on author's abstract.]

SUB CODE: 11, 10/SUBM DATE: 26Jul65/ OTH REF: 002/

Card 1/1 *110*

KOVALENKO, Daniil Naumovich; SEMENOV, Viktorin Grigor'yevich  
[Semenov, V.H.]; TKACHUK, L.G. [Tkachuk, L.H.], doktor  
geol.-miner. nauk prof., otv. red.; MEL'NIK, G.F.  
[Mel'nyk, H.F.], red.

[Phosphorites of the Ukraine] Fosforyty Ukrainy. Kyiv,  
Naukova dumka, 1964. 177 p. (Seriiia geologii rodovyshch  
korysnykh kopalyn, no.13) (MIRA 19:1)

YARYM-AGAYEV, N.L.; MEL'NIK, G.V.

Thermodynamic properties of fused salt mixtures. Part 6.  
Zhur.fiz.khim. 39 no.11:2650-2655 N '65.

(MIRA 18:12)

1. Donetskij politekhnicheskij institut.



MELNIK, E. I.

GEKKER, V.D.; BELAYA, J.A.; MELNIK, E.P.

Experimental keratoconjunctivitis as a model for the study of  
dysentery. J. Hyg. Eviden., Praha 1 no.1:70-74 1957.

1. Gamaleya Institute of Epidemiology and Microbiology, A.M.S.,  
U.S.S.R., Moscow.

(DYSENTERY, BACILLARY, microbiology,  
Enterobacteriaceae, keratoconjunctivitis in  
guinea pigs induced with strains isolated in dysentery)  
(KERATOCONJUNCTIVITIS, experimental,  
Enterobacteriaceae isolated from dysentery infect.  
of guinea pigs)

MEL'NIK, F., mashinist pod'yemnoy mashiny.

Many thanks. Mast. uel. 7 no.11:26 N '58.

(MIRA 11:12)

1. Shakhta No.14 kombinata Intangel'.  
(Coal miners--Diseases and hygiene)

McNICK, G. A.

*Chem*

✓ 1969. Mixed adsorption indicators in argentimetry. 2  
J. N. Bulancha and G. A. McNick. *Sbornik Pradov*  
*Rizish. Tekhnol. Inst. Lav. Prad.*, 1964, (9), 74-82;  
*Ref. Zhur. Khim.*, 1965, Abstr. No. 26,402.

The following mixed adsorption indicators are recommended for the titration of AgNO<sub>3</sub> with KBr—rhodamine 6G and methylene blue (I), rhodamine 6G and fluorescein (II), and methylene blue and fluorescein (III). Methylene blue is used as a 0.1 per cent. aq. alcoholic solution, the other dyes as 0.1 per cent. alcoholic solutions. To titrate 10 to 25 ml of 0.01 to 0.001 N AgNO<sub>3</sub> with 0.01 to 0.001 N KBr, three drops of one component are added and then one to two drops of the second component. I and II are suitable at pH 1.24 to 7.0. III is suitable at pH 6 to 9.4. Parallel titrations agree to within 0.02 ml. The max. error is 0.04 ml. Partial extraction of the indicator occurs when isobutyl or isoamyl alcohol, CHCl<sub>3</sub>, or benzene is present. III can be used in the presence of benzene and isoamyl alcohol. No interference is caused by > 20 per cent. of Na<sub>2</sub>SO<sub>4</sub>·10H<sub>2</sub>O, CuSO<sub>4</sub>·6H<sub>2</sub>O and > 3 per cent. of Ba(NO<sub>3</sub>)<sub>2</sub>.

G. S. SMITH

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KOVALENKO, Danil Iaumovich; SEMENOV, Viktorin Grigor'yevich; TKACHUK,  
L.G., doktor geol.-mineral. nauk, prof., otv. red.; MEL'NIK, G.F.,  
red.

[Phosphorite of the Ukraine.] Fosforyty Ukrainy. Kyiv, Naukova  
dumka, 1964. 177p. (Akademiia nauk URSR. Instytut geologichnykh  
nauk. Pratsi. Seriiia geologii rodovyshch korysnykh kopalyn, no.13).  
(MIRA 18:3)

MITSKEVICH, Boris Fedorovich [Mitskevych, B.F.]; IVANTISHIN,  
M.M.[Ivantyshyn, M.M.], doktor geol.-miner. nauk, otv.  
red.; MEL'NIK, G.F.[Mel'nyk, H.F.], red.

[Geochemical methods of prospecting and the conditions  
for their use in the Ukraine and in Moldavia] Geokhi-  
michni metody rozshukiv ta umovy ikh zastosuvannia na  
Ukraini i v Moldavii. Kyiv, Naukova dumka, 1965. 127 p.  
(MIRA 18:9)

KHARCHENKO, A.S., dots., otv. red.; MEL'NIK, G.F. [Mel'nyk, H.F.],  
red.

[Comprehensive geographical mapping of the Ukrainian S.S.R.]  
Kompleksne geografichne kartografuvannia Uk.RSR. Kyiv, Naukova  
dumka, 1964. 173 p. (MIRA 17:12)

VUL'CHIN, Yevgeniy Ivanovich[Vul'chyn, IE.I.]; KALYUZHNYI, V.A.  
[Kaliuzhnyi, V.A.], kand. geol.-miner. nauk, otv. red.;  
MEL'NIK, G.F.[Mel'myk, H.F.], red.

[Trace elements in the rocks of the Riphean formation  
of the western slope of the Ukrainian Crystalline Shield]  
Mikroelementy v porodakh ryfeis'koi tovshchi zakhidnoho  
skhyly Ukrain's'koho krystalichnoho shchytta. Kyiv, Naukova  
dumka, 1964. 117 p. (MIRA 18:2)

DRONOV, V.I.; LEVEN, E.Ya.; MEL'NIK, G.G.; PASHKOV, B.R.

Stratigraphy of Ordovician sediments in the central Pamirs. Sov.  
geol. 3 no.10:133-136 0'60. (MIRA 13:10)

1. Upravleniye geologii i okhrany nedr pri Sovete Ministrov  
Tadzhikskoy SSR.  
(Pamirs--Geology, Stratigraphic)



BARKHATOV, B.P.; MEL'NIK, G.G.

Lower Paleozoic of the Pamirs and the Darvaza Range. Dokl. AN  
SSSR 136 no.2:408-411 '61. (MIRA 14:1)

1. Leningradskiy gosudarstvennyy universitet imeni A.A. Zhdanova  
i Upravleniye geologii i okhrany nedr pri Soveta Ministrov TadzhSSR.  
Predstavleno akademikom D.V. Malivkinym.

(Pamirs—Geology, Stratigraphic)  
(Darvaza Range—Geology, Stratigraphic)

Mel'nik, G.N.

MEL'NIK, G.N.

Excretion of 17-ketosteroids in women with tuberculosis. Vrach.delo  
supplement '57:29-30 (MIRA 11:3)

1. Kafedra tuberkuleza (zav.-prof. I.T.Stukalo) i kafedra biokhimii  
(zav.-dots. B.A.Sobchuk) L'vovskogo meditsinskogo instituta.  
(TUBERCULOSIS) (STEROIDS)

MEL'NIK, G.P.

Reticulosarcomatosis in an infant. *Pediatria* no.7:78-79  
'61. (MIRA 14:9)

1. Iz Kotovskoy rayonnoy bol'nitsy (glavnyy vrach G.V. Yakimenko).  
(RETICULO-ENDOTHELIAL SYSTEM---TUMORS)

MEL'NIK, G.V., inzh.

Heating congealed fats in railroad tank cars without increasing  
moisture content. Masl.-shir. prom. 24 no. 8:31-35 '58.(MIRA 11:8)

1. Ushgorodskiy margarinovyy savod.  
(Oil and fats)

MEL'NIK, G.Ye.

Efficient circuit for electric power supply to zinc electrolyzers.  
Izv. AN Kazakh. SSR. Ser.tekh. i khim.nauk no.3:96-102 '64.

(MIRA 17:2)

MELNIK, I. A.

2012. Bilirubin test with Methylene Blue. *Trav. Med. 1934*  
 1934 28, 78-80. *Trav. Med. 1934*  
 The colour reaction appearing after Methylene Blue was added to the  
 urine of patients with jaundice was compared with that appearing  
 in the infusion of tea. The addition of a drop of Methylene Blue to  
 tea produces a green colour. The colour appears after the addition  
 of 5 drops. In the urine containing bilirubin the green colour was  
 retained after 30 drops were added. The shade of the green colour  
 differs from that in the tea. The green colour is due to the oxidation  
 of bilirubin to biliverdin. The test is a positive only in the  
 presence of bilirubin. No difference of reaction with pH was found.  
 By dilution a quant. estimation could be made. (Cassan)

(G. EGLES)

*Chair of Hospital Therapy, Odessa Med Inst.*  
*in N. I. Piragov*

I. A. MELNIK

U S S R .

✓ Observations on functional state of the liver in rheumatism. I. A. Melnik (N. I. Pirogov Med. Inst., Odessa). *Klin. Meditsina S.S.R.*, No. 11, 69-70 (1954).—More than 2/3 of the 30 rheumatic cases under observation showed impairment of hepatic functions. The impairment was most pronounced in the presence of severe clinical symptoms. Abnormal results were obtained most frequently with the thymol turbidity and Takata-Ara tests, less often with Quick's hippuric acid test. Urobilinuria was present in 2/3 of cases, bilirubinuria and bilirubinemia in a few cases. A. S. Mirkin.

MEL'NIK, I.A., dotsent (Chernovitsy)

Endemic goiter or endemic thyroid disease? Probl.endok, 1 gorn.  
} no.1:108-110 Ja-F '57. (MLBA 10:6)

1. Iz kliniki gospital'noy terapii Chernovitskogo meditsinskogo  
instituta (dir. - dotsent M.M.Kovalev).  
(GOITER,  
endemic, terminol. aspects (Rus))



MEL'NIK, I.A., dots. (Chernovtsy)

Some new data on the dynamics of blood changes in myocardial  
infarct. *Klin.med.* 36 no.8:60-62 Ag '58 (MIRA 11:9)

1. Iz gosptial'noy terapevticheskoy kliniki (zav. - prof. V.A. Triger)  
Chernovitskogo meditsinskogo instituta (dir. - dots. M.M. Kovalev)  
(MYOCARDIAL INFARCT, blood in  
hemogram (Rus))  
(BLOOD CELLS,  
count in myocardial infarct (Rus))

MEL'NIK, I.A., dotsent (Ternopol')

Casoni's test in lymphogranulomatosis. Klin.med. 39 no.4:147-  
150 '61. (MIRA 14:4)

1. Iz kliniki fakul'tetskoy terapii (zav. - dotsent I.A. Mel'nik)  
Ternopol'skogo meditsinskogo instituta (dir. - dotsent P.Ye.  
Ogiy).

(HODGKIN'S DISEASE)

MEL'NIK, I. A., dotsent

Phases in the course of collagen diseases. Vrach. delo no.7:  
77-80 J1 '62. (MIRA 15:7)

1. Fakul'tetskaya terapevticheskaya klinika (zav. - dotsent  
I. A. Mel'nik) Ternopol'skogo meditsinskogo instituta na baze  
oblastnoy klinicheskoy bol'nitsy.

(COLLAGEN DISEASES)

MEL'NIK, I.A.

Automation of technological processes at the Kherson Woodpulp  
Plant. Bum. i der. prom. no.4:28-31 O-D '65.

(MIRA 18:12)

GORAK, Sergey Vladimirovich [Horak, S.V.]; BONDARCHUK, V.G. [Bondarchuk, V.H.],  
akademik, vidpoval'dal'niy red.; MEL'NIK, I.F. [Mel'nyk, I.F.], red.  
vidavnitstva; MATVIYCHUK, O.O., tekhnichnyy red.

[Ostracoda in certain middle and upper Carboniferous horizons in  
the Donets Basin and factors governing their existence] Ostrakody  
delakyykh horizontiv seredn'oho i verkh'n'oho karbonu Donets'koho  
basainu ta umovy ikh isnuvannia. Kyiv, Vyd-vo Akad. nauk Ukrain's'koi  
RSR. 1958. 74 p.) (Akademia nauk URSR, Kiev. Instytut geologichnykh  
nauk. Trudy. Seriya stratigrafii i paleontologii, no.28).

(MIRA 11:9)

1.AN URSR (for Bondarchuk).

(Donets Basin--Ostracoda, Fossil)

18.9100  
18.1280

68178  
SOV/58-59-5-10565

Translation from: Referativnyy Zhurnal Fizika, 1959, Nr 5, p 104 (USSR)

AUTHORS: Bushuyev, Ye.S., Mel'nik, I.G.

TITLE: Structure and Properties of Ag-Cu Alloys Obtained by Joint and Alternate Condensation in a Vacuum

PERIODICAL: Nauk. zap. Chernivets'k.un-t., 1955, Vol 12, pp 97 - 104 (Ukr.; Russ. resume)

ABSTRACT: The application of X-rays to the study of the structure of very thin metallic films is extremely difficult in view of the small extent of the scattering material, although in the case of unstable structure it is more expedient to use this method than the electron diffraction method. In this connection it became necessary to work out a method of preparing thin samples in which the metal would present the maximum degree of dispersity and at the same time possess sufficient volume. The authors used the method of alternately overlapping the molecular beams from the evaporating metals by means of a rotating disk with apertures. Cu and Ag samples, obtained by simultaneous and alternate condensation of the metals onto mica, proved to be extremely unstable:

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68178

SOV/58-59-5-10565

Structure and Properties of Ag-Cu Alloys Obtained by Joint and Alternate Condensation in a Vacuum

they cracked upon their very first contact with the air. X-ray studies showed that the most non-uniform structure is observed in Cu in the case of its condensation onto cooling mica. On the X-ray photograph of a Cu and Ag mixture, the copper was only represented by two lines: a very intense, somewhat blurred 111 line, and a strongly blurred 200 line with a scarcely noticeable maximum. The remaining lines of Cu, as well as the last lines of Ag, are so blurred that they form a continuous background. The blurring of the diffraction maxima is due to the high degree of dispersity of the crystalline structure and to internal stresses. The stronger line blurring of Cu is explained by the fact that the atoms of this metal, which has a higher melting point, evince a lesser ability to migrate.

The authors' résumé

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SOV/139-58-4-15/30

AUTHORS: Gorodetskiy, A.F., Gutin, S.S., Mel'nik, I.G.,  
Serbulenko, M.G. and Shadrin, V.S.

TITLE: Some Electrical Properties of Thin Layers of Tellurium  
and Germanium (Nekotoryye elektricheskiye svoystva  
tonkikh sloyev tellura i germaniya)

PERIODICAL: Izvestiya Vysshikh Uchebnykh Zavedeniy, Fizika,  
1958, Nr 4, pp 91-96 (USSR)

ABSTRACT: The dependence of resistivity on temperature, voltage-  
current characteristics and limiting current densities  
was determined for thin layers of tellurium and germanium  
condensed in vacuo onto bases of various materials at  
various temperatures. Some relations between resistivity  
and deformation were also established. The main  
conclusions, derived from measurements described below, were:  
1) The resistivity of germanium films is fairly stable  
with time. The change in resistivity with deformation  
is about 2.3% for a relative deformation of  $4.5 \times 10^{-4}$ .  
2) The resistivity of tellurium films is not stable.  
Mechanically such films are not durable. The change in  
resistivity with deformation is about half that of  
germanium films.

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SOV/139-58-4-15/30

Some Electrical Properties of Thin Layers of Tellurium and Germanium

Preparation of Specimens. The thin films were produced by condensation in a vacuum of the order of  $1 \times 10^{-4}$  to  $5 \times 10^{-4}$  mm Hg in the form of strips 4 mm across and 30 mm long. The ends of the strips were overlapped for 1 to 2 mm by 5 x 9 mm rectangles of metal, also vacuum-condensed, to which copper wires were soldered. The metal contacts for tellurium were always of nickel, but tin was also tried for germanium. The bases used were mainly glass, but in special cases polymerized VL-7 lacquer on a metal disc, mica and fused quartz were tried. The bases were heated by radiation from a current-carrying tantalum wire placed above the base and the temperature was controlled by a copper-constantan thermocouple attached to the surface of the base. The tellurium from which the specimens were made had less than  $10^{-4}\%$  impurities. The germanium used had a specific resistivity of 4 to 20 Ohm.cm. In all cases the conductivities were of the hole type.

Experimental Results and Discussion.

a) Tellurium condensed onto a cold base. Fig.1 shows Card 2/8 the log of the resistivity (which was of the order of some

SOV/139-58-4-15/30

Some Electrical Properties of Thin Layers of Tellurium and Germanium

hundred thousand Ohms) plotted against reciprocal of the absolute temperature. The resistivity in air at a given temperature clearly increases after thermal cycling, as it also does for specimens stored at room temperature. This increase is irreversible.

b) Tellurium condensed onto a hot base (150-160°C). Fig.2 shows again a rapid resistivity increase after an initial thermal cycle. There is no further change after some 4 to 5 thermal cycles.

Fig.3 shows the difference in characteristics for changes in the atmospheric environment. Experiments started at the moment of preparation of the specimen and carried out in vacuo are shown by the curves beginning at the asterisk and marked by white cycles on the graph. These characteristics are approximately two straight line segments with a break at 90°C. After each cycle a lower resistance was obtained. However, after leaving the specimen in vacuo at 130°C for 30 mins, the resistivity increased - without reaching its initial value. When air was admitted into the system resistance fell and the curves with the

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## Some Electrical Properties of Thin Layers of Tellurium and Germanium

black dots were obtained. The final curve was straighter and had a smaller gradient. When the same specimen was examined after 10 days in air, the curves at the bottom of Fig.3 were obtained. These are approximately straight lines. Subsequent evacuation of the system did not reproduce the original properties of the specimen, though its resistance increased.

c) Germanium. Specimens condensed onto a cold base showed resistivities of the order of 10 megohms, while those condensed onto bases heated to 500-550°C showed resistivities between 7 and 30 kOhms (most lay between 10 and 16). It can be verified that in the hot-base specimens the layer structure is crystallographic, (see Refs 1 and 2). Specimens condensed in the same experiment onto bases of glass, mica and fused quartz showed practically identical resistivities, of the order of 12 kOhms. The resistivities of all specimens showed little change after ageing in air: 1.8% increase after 40 days. The resistivity temperature relationship was close to exponential between room temperature and 130°C.

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## Some Electrical Properties of Thin Layers of Tellurium and Germanium

The points obtained by repeated thermal cycling lay fairly accurately on a single characteristic curve. It is noted in (Ref 3) that there is a significant change in resistivity for extension or compression of specimens of PbS. Furthermore, there are theoretical (Refs 4, 5) and experimental (Ref 6) grounds for a deformation-resistivity relationship for germanium monocrystals. The deformation in the experiments, on thin layers of Te and Ge, here described, was produced by the method described in (Ref 3) and measured optically to an accuracy of  $1\mu$ . For tellurium each deformation cycle produced an irreversible increase in resistance. A single cycle is shown in Fig.4. For germanium the results were independent of the cycling history, and are shown in Fig.5.

Current Densities and Voltage-Current Characteristics.

Specimen thicknesses were measured by an interference microscope type MII-4 to an accuracy of  $0.027\mu$ . The tellurium specimens had thicknesses between  $0.230$  and  $0.430\mu$ , the germanium between  $0.18$  and  $0.3\mu$ . With poor

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SOV/139-58-4-15/30

Some Electrical Properties of Thin Layers of Tellurium and Germanium

heat dissipation (measurement in air for specimens on glass bases) current densities of  $600 \text{ A/cm}^2$  were obtained for tellurium and  $200 \text{ A/cm}^2$  for germanium. The static voltage-current characteristics of tellurium and germanium were strictly linear for current densities up to  $300 \text{ A/cm}^2$  and  $400 \text{ A/cm}^2$  respectively. The dynamic characteristics, taken on an oscilloscope, were strictly linear; increasing voltage and the corresponding heating changed the gradient of the characteristic.

Discussion. Takemaro Sakurai et al. (Ref 7) have already noted the irreversible changes in resistivity of thin tellurium layers condensed onto cold bases. They explained the effect by stating that such layers have a micro-crystalline structure with amorphous patches between crystals and that heating causes the crystals to grow at the expense of the amorphous patches. The effect does not occur in layers condensed onto hot bases at temperatures below that at which the specimen was condensed, which is in accordance with the above

Card 6/8 explanation. Such specimens behave in the same way as

SOV/139-58-4-15/30

Some Electrical Properties of Thin Layers of Tellurium and Germanium

those cut from the solid. The authors point out that this theory is too simple to explain all the effects noted in the experiments described: for example, the coincidence of characteristics for specimens measured below 90°C in vacuo with those cut from the solid. The effects can be explained by introducing two additional considerations: first, the properties of surface levels, described by E. Clark (Ref 8), which explain the break in characteristics at 90°C when all surface levels are occupied and, secondly, the additional acceptor levels produced by oxygen at the layer surface. Subsidiary considerations are the effect of water vapour which may affect the surface ionic conductivity and the diffusion of oxygen into the depths of the specimens creating conduction electron traps. For tellurium the noise level makes measurement difficult.

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SOV/139-58-4-15/30

Some Electrical Properties of Thin Layers of Tellurium and Germanium

Paper presented at the Conference of higher educational establishments on dielectrics and semiconductors, Tomsk, February, 1958.

There are 5 figures and 8 references, 2 of which are Soviet, 6 English.

ASSOCIATION: Novosibirskiy elektrotekhnicheskiy institut  
(Novosibirsk Electro-technical Institute)

SUBMITTED: March 12, 1958

Card 8/8

MEL'NIK, I. G., Novosibirsk Institute of Electrical Engineering

"A simple distribution chamber for a vacuum plant"

Report presented at a Conference on Solid Dielectrics and Semiconductors,  
Tomsk Polytechnical Inst., 3-8 Feb. 58.  
(Elektrichestvo, '58, No. 7, 83-86)



9(3), 24(3)

AUTHORS:

Mel'nik, V. G., Mel'nik, I. G.,  
Gutin, S. S.

SOV/20-121-5-24/50

TITLE:

On the Electron-Hole Transition in Point-Contact Solid  
Rectifiers (Ob elektronno-dyrochnom perekhode v tochechnykh  
tverdykh vypryamitelyakh)

PERIODICAL:

Doklady Akademii nauk SSSR, 1958, Vol 121, Nr 5,  
pp 852 - 854 (USSR)

ABSTRACT:

By applying the method discussed in this paper, the  
authors discovered the formation of a region with  
hole conduction around the point contact of the diode.  
This formation is caused by the influence of an  
electric pulse on electron germanium or electron  
silicon. The carrying out of the experiments is discussed.  
The oscillograms of the thermoelectromotive force and  
of the volt-ampère characteristics of the germanium  
diodes before and after the formation of the above  
mentioned region are similar to the oscillograms of  
the silicon diodes. For germanium the authors therefore

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On the Electron-Hole Transition in Point-Contact  
Solid Rectifiers

SOV/20-121-5-24/50

give only the oscillogram of the thermoelectromotive force after formation, since this oscillogram is the most important. Before the above mentioned formation, there is only a region with an electron mechanism of conduction. In this case, the rectifying action is insignificant. After formation, a region of hole conduction is developed around the point contact. This is also confirmed by the lower branch of the oscillogram of the thermoelectromotive force. The sign of the thermoelectromotive force then becomes negative, and the rectifying action of the diodes is improved noticeably. It is possible that the rectifying action of the diodes before the formation of the region with hole conduction is caused by the difference between the contact potentials of the metal and of the semiconductor. After formation, the improved rectifying action may be caused by the p-n-transition developed as a result of the above discussed formation. Thus, in germanium and silicon point rectifiers, there are 2 regions with

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. On the Electron-Hole Transition in Point-Contact  
Solid Rectifiers

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different types of conduction which implies the existence of a p-n-transition. The authors thank A.F.Gorodetskiy for his constant interest in this paper. There are 4 figures and 3 references, 2 of which are Soviet.

ASSOCIATION: Novosibirskiy elektrotekhnicheskiy institut (Novosibirsk Institute of Electrical Engineering)

PRESENTED: April 14, 1958, by A.F.Ioffe, Academician

SUBMITTED: April 5, 1958

Card 3/3

GORODETSKIY, A.F.; MEL'NIK, V.G.; MEL'NIK, I.G.

Method of producing ohmic contact with silicon. Fiz.tver.tela  
1 no.1:173-174 Ja '59. (MIRA 12:4)  
(Silicon—Electric properties)  
(Electric contactors)

MEL'NIK, I. L.

"Effect of Ultraviolet Light on the Secretion of the Parotid Salivary Glands and Stomach, and on the Motor Activity of the Stomach and Cecum of the Horse (Clinical Experimental Investigation)," Cand Vet Sci, L'vov State Zooveterinary Inst, Min Higher Education USSR, L'vov, 1955 (KL, No 8, Feb 55)

SO: Sum. No. 631, 26 Aug 55 - Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (14)

MEL'NIK, I. M.

AID P - 1776

Subject : USSR/Geology

Card 1/1 Pub. 78 - 14/26

Authors : Sofronitskiy, P. A., Trifonova, N. A., and Mel'nik, I. M.

Title : Changed views on the geological structure of the Molotov-Kama River region

Periodical : Neft. khoz., v.33, no.3, 58-63, Mr 1955

Abstract : A detailed analysis is made of the stratigraphy, oil-bearing capacity and tectonic structure of the Molotov region west of the Urals in the basin of the Kama River.

Institution: None

Submitted : No date

MEL'NIK, I.M.

Objectives and trends of geological prospecting and research in Perm  
Province in the next few years. Trudy VNEGNI no.36:3-8 '63.  
(MIRA 17:9)

ANDREYEV, V.S.; MEL'NIK, I.M.

Hydraulic blast hole stemming for dust control. Bezop.truda v prom.  
7 no.7:22-23 JI '63. (MIRA 16:9)

1. Rukovoditel' konstruktorskogo-tekhnologicheskoy gruppy shakhty no.  
3-ts kombinata Primorskugol' (for Andreyev). 2. Glavnyy inzh. shakhty  
No.3-ts kombinata Primorskugol' (for Mel'nik).  
(Maritime Territory--Coal mines and mining)



MEL'NIK, I.M.

Basic characteristics of the structure and formation of the Kama-Kinel' Depression in Perm Province in connection with oil and gas potentials. Geol.nefti i gaza 7 no.2:1-7 F '63.  
(MIRA 16:2)

1. Kamskiy filial Vsesoyuznogo nauchno-issledovatel'skogo geologorazvedchnogo neftyanogo instituta, Moskva.  
(Perm Province--Petroleum geology)  
(Perm Province--Gas, Natural--Geology)

MEL'NIK, I. M.

Call Nr: AF 1108825

Transactions of the Third All-union Mathematical Congress (Cont.) Moscow,  
Jun-Jul '56, KTrudy '56, V. 1, Sect. Rpts., Izdatel'stvo AN SSSR, Moscow, 1956, 237 pp.

Mel'nik, I. M. (Rostov-na-Donu). Behavior of a Cauchy  
Type Integral in the Points of Discontinued Density and  
Exceptional Cases of the Riemann Boundary Problem. 89

Men'shov, D. Ye. (Moscow). On the Limits of a Subsequence  
of Partial Sums of a Trigonometric Series. 89-90

Mergelyan, S. N. (Moscow). The Problem of the Best  
Majorant. 90

Mirak'yan, G. M. (Odessa). On Approximating by Means  
of Expressions Containing Cylindric Functions. 90-91

Mention is made of Voronovskaya, Ye. V. and Bernshteyn, S. N.

There is 1 USSR reference.

Myshkis, A. D. (Minsk). Vigant, Ye. I. (Riga), Lepin, A. Ya.  
(Minsk). Improper Integrals in  $n$ -space. 91-92  
Card 28/80

~~MEL'NIK, I.M.~~

Limit values of analytic function represented by the curvilinear  
integral . Soob. AN Gruz.SSR 17 no.8:681-688 '56.  
(MIRA 10:3)

1. Rostovskiy gosudarstvennyy universitet im. V.M. Molotova. Pred-  
stavleno akademikom N.I.Muskhlishvili.  
(Functions, Analytic)

67083

SOV/44-59-1-287

16(1) 16. 4500, 16. 3000

Translation from : Referativnyy zhurnal. Matematika, 1959, Nr 1, pp 53-54 (USSR)

AUTHOR: Mel'nik, I.M.TITLE: Exceptional Case of the Riemannian Boundary Value Problem

PERIODICAL: Tr. Tbilissk. matem. in-ta AN Cruz SSR, 1957, 24, 149-162

ABSTRACT: In the paper the behavior of the integral of Cauchy type

$$\frac{1}{2\pi i} \int_L \frac{\varphi(t)}{t-z} dt$$

is investigated in the neighborhood of a point  $c$  of the path of integration  $L$ , if the density  $\varphi(t)$  has the form  $\varphi(t) =$

$= \varphi_*(t)(t-c)^\lambda \cdot \ln^p(t-c)$ , where  $\varphi_*(t)$  possesses a discontinuity of first kind in  $c$  and satisfies the Hölder condition near  $c$  on closed arcs with ends in  $c$ ; the complex number  $\lambda = \alpha + i\beta$  is so that  $-1 < \alpha \leq 0$ , while it is  $p = 0, 1, 2, \dots$ . Starting from N.I. Muskhelishvili who considered the case  $p = 0$  (Singular Integral Equations, M., 1946, page 80).

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SOV/44-59-1-287

## Exceptional Case of the Riemannian Boundary Value Problem

the author investigates the case of an arbitrary natural  $p$ . This result is applied for the solution of the boundary value problem

$$\phi^+(t) = G(t)\phi^-(t) + g(t). \quad t \in L$$

(concerning this problem see N.I. Muskhelishvili, page 243 of the book mentioned above) in the case, where  $L$  consists of finitely many smooth open curves which do not intersect,  $G(t)$  satisfies the Hölder condition, is different from zero on each closed arc belonging to  $L$  and having no ends, and possesses the form

$$G(t) = (t - c)^r G_*(t) \quad \text{near each end } c,$$

where  $r$  is a real number and the function  $G_*(t)$  satisfies the Hölder condition and is everywhere different from zero including  $c$ ;  $g(t)$  satisfies the Hölder condition.

The author proceeds analogously to the case investigated by N.I. Muskhelishvili, where for all ends it is  $r = 0$  (see as above page 239) and decomposes the solutions of the problem into certain classes. Under the assumption that  $g(t)$  satisfies certain additional conditions near the ends of  $L$ , all the solutions of the problem are obtained in quadratures in correspondingly chosen classes of functions.

Card 2/2

B.V. Khvedelidze

MEL'NIK, I.M.: *Master Phys-Math Sci (diss) -- "Exceptional cases in the marginal problems of the theory of analytic functions and of special integral equations"*. Rostov na Donu, 1958. 6 pp, (Rostov State U), 150 copies (KL, No 1, 1959, 113)

||| ELNIK, I M

3(5) PHASE I BOOK EXPLOITATION SOV/2284  
Moscow, Vsesoyuzny nauchno-issledovatel'skiy geologo-rasvedochnyy  
naftnyy institut

Paruspektivy nafto-gazonenosti i nepravielniye geologorazvedochnykh  
rabot v svernykh-vozvostnykh rayonakh Uralo-Volzhskoy neftennoy  
oblasti, vysshaya nauchnaya shkola Volzhskoy neftennoy  
oblasti. (Oil- and Gas-bearing Possibilities and the Direction of  
Geological Exploration in the Northern Regions of the Volga-  
Ural Petroleum Region. Session of the Scientific Council of  
the All-Union Petroleum Scientific Research Institute for Geologi-  
cal Exploration Held at Kazan; December, 1956) Moscow, 1956.  
Printed.

Additional Sponsoring Agency: USSR- Ministerstvo geologii i obratny  
nedr.  
Ed. I. A. I. Kleshchev, Candidate of Geological and Mineralogical Sci-  
ences; Executive M. I. P. N. Yershov; Tech. Ed. I. E. A. Mukhina.  
FOREWORD: This book is intended for petroleum geologist.

COVERAGE: This collection of articles is the result of a field  
session held in Kazan in December 1956 by the scientific council  
of the All-Union Petroleum Scientific Research Institute for Geologi-  
cal Exploration. The session was attended by members of the geo-  
logical services of Kazan, Zhigalskaya, Perm', Kuybyshev, etc. The  
council discussed the prospects and possibilities of oil-bearing pro-  
duction in the northeastern parts of the Ural-Volga oil-bearing pro-  
vince, its current problems in geological surveying and ex-  
ploration, and plans for future drilling. All recommendations made  
by the council, and the chairman's concluding remarks, are re-  
produced in this collection. The articles are accompanied by  
diagrams and tables. No references are given.

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68007

SOV/155-58-6-8/36

~~16(1)~~ 16.3000

AUTHOR:

Mel'nik, I.H.

TITLE:

The Application of an Integral of the Cauchy Type to the Investigation of the Solution of a Varied Dirichlet Problem

PERIODICAL:

Nauchnyye doklady vysshey shkoly. Fiziko-matematicheskkiye nauki, 1958, Nr 6, pp 41-48 (USSR)

ABSTRACT:

The paper completes the publication [Ref 1] of R.M. Nasyrov who considered the following problem: Let  $\bar{L}$  be a partial arc of the unit circle,  $\alpha(t)$ ,  $\beta(t)$  be functions satisfying certain conditions; a piecewise holomorphic function  $F(z)$  is to be determined which maps the plane cut along  $L$  to a bounded domain  $D$ , whereby the boundary conditions

$$(I) \quad \frac{d F^+(t)}{dt} = \alpha(t) \quad , \quad \left| \frac{d F^-(t)}{dt} \right| = \beta(t) \quad \text{on } L$$

are to be satisfied. In [Ref 1] the sought function  $F(z)$  was explicitly given

$$(1) \quad F(z) = \int e^{\lambda(z)} dz + C \quad ,$$

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The Application of an Integral of the Cauchy Type SOV/155-58-6-8/36  
to the Investigation of the Solution of a Varied Dirichlet Problem

where  $\chi(z)$  is represented by certain integrals. In the present paper the author investigates the properties of the function  $F(z)$ . He states that  $F(z)$  is bounded in the whole plane. Furthermore that the points  $F(c)$ , where  $c$  is one of the end points of the circular arc  $L$ , can be cusps as well as joints or ordinary points of the boundary  $\Gamma$  of  $D$ .

The author mentions N.I. Muskhelishvili, Yu.V. Sokhotskiy, Professor F.D. Gakhov (the latter one guided the present paper). There are 2 Soviet references.

ASSOCIATION: Rostovskiy gosudarstvennyy universitet (Rostov State University)

SUBMITTED: October 7, 1956 (Uspekhi matematicheskikh nauk)  
October 24, 1958 (Nauchnyye doklady vysshey shkoly. Fiziko-matematicheskiye nauki) X

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16(1)

AUTHOR:

Mel'nik, I.M.

SOV/140-59-2-15/30

TITLE:

On the Riemannian Boundary Value Problem With Discontinuous Coefficients ( O krayevoy zadache Rimana s razryvnymi koeffitsiyentami )

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Matematika, 1959, Nr 2, pp 158-166 (USSR)

ABSTRACT:

The Riemannian boundary value problem with the condition  $\Phi^+(t) = G(t)\Phi^-(t) + g(t)$  on  $L$  was already treated by F.D. Gakhov and N.I. Muskhelishvili. In the present paper the author investigates the case where  $G(t)$  has discontinuities of first and second kind. If  $L$  is closed, then it is assumed that  $G(c_k+0) \neq 0$ , where  $c_k$  is a point of discontinuity, while  $G(c_k, 0)$  either is 0 or a logarithmic-potential infinity. If  $L$  is open, then  $G(t)$  may become 0 or  $\infty$  (of the above type) at the ends. In all mentioned cases the solutions are constructed according to usual methods. ~~Formulae~~ of Yu.V. Sokhotskiy is used. The author thanks Professor F.D. Gakhov for the guidance. There are 4 Soviet references.

ASSOCIATION: Rostovskiy gosudarstvennyy universitet (Rostov State University)

SUBMITTED: March 27, 1958

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16(1)

AUTHORS: Gakhov, F.D., and Mel'nik, I.M. (Rostov-  
na-Doni) SOV/41-11-1-3/12

TITLE: Singular Boundary Points in Reversion-Boundary Value Problems  
of the Theory of Analytic Functions

PERIODICAL: Ukrainskiy matematicheskiy zhurnal, 1959, Vol 11, Nr 1,  
pp 25-37 (USSR)

ABSTRACT: According to M.T.Nuzhin [Ref 1] the reversion problem consists  
in the determination of the boundary from the given values of an  
analytic function on this sought boundary. The given functions  
are chosen sufficiently smooth by the authors in order to avoid  
a nowhere smooth boundary as solution, but for the given  
functions single simple singularities are admitted so that the  
boundary becomes also singular in the corresponding points. The  
kind of these singularities is investigated with function  
geometrical and differential geometrical methods. The authors  
mention G.G.Tumashev.  
There are 7 Soviet references.

SUBMITTED: April 17, 1957

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AUTHOR:

Mel'nik, I.M.

TITLE:

The behavior of an integral of Cauchy type in the neighborhood of the points of discontinuity of the density, and a singular case of the Riemannian boundary value problem

PERIODICAL:

Referativnyy zhurnal. Matematika, no.7, 1960, 65,  
Abstract no.7489. Uch.zap.fiz.-matem.fak.Rostovsk.-n./D  
un-t, 1959, 43, no.6, 59-71

TEXT: The author investigates the behavior of the integral of Cauchy type for the case where the density of the integral in the neighborhood of some points of the path of integration has the form

$$\varphi(t) = \varphi^*(t)(t-c)^{\gamma} \ln \ln(t-c), \quad (1)$$

where  $\varphi^*(t)$  satisfies the Hölder condition in the neighborhood of  $c$  and in  $c$ ;  $\gamma = \alpha + i\beta$ ,  $-1 < \alpha \leq 0$ . The case when in (1) the factor  $\ln \ln(t-c)$  is missing was considered in an earlier paper of N.I.Muskhelishvili (Singular integral equations, M., 1946, 80); these results are extended by the author for his case. Furthermore, the author applies the obtained results - again joining N.I.Muskhelishvili - to the investigation of the boundary

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problem of the theory of functions

$$\phi^+(t) = G(t)\phi^-(t) + g(t), \quad t \in L$$

(for this problem cf. N.I.Muskhelishvili, p.243 of the book loc.cit.).  
The author considers the case where L is a finite set of closed or open smooth curves, G(t) satisfies the Hölder condition and is different from zero on every closed curve if this curve belongs to L and does not contain certain points in the neighborhood of which  $G(t) = G_*(t) \ln^r(t-c)$ , where  $G_*(t)$  satisfies the Hölder condition, and r is a real number.

[Abstracter's note: The above text is a full translation of the original Soviet abstract.]

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McLain, 1977

ISSUE I 800 (REVISED) 8/1/73

Introduction to asymptotic problems... (Abstracts of papers presented at the 1977 International Conference on the Theory of Functions in the Theory of Complex Variables, Collection of Articles) Moscow, Fizmatgiz, 1976. 544 p. 3,000 copies printed.

McLain, 1977. A. I. Markushevich. (Title book) V. S. Vinnitsky and E. Ya. Gornitskiy. 2nd. 211 p. Moscow.

PREFACE: This book is intended for specialists in the theory of functions of a complex variable. It may also be used by advanced university students, scientific workers, and specialists in other fields of mathematics.

CONTENTS: The book contains 48 papers originally read at the Third All-Union Conference on the Theory of Functions of a Complex Variable held at Moscow University from May 28 to June 2, 1977. The articles treat problems in the modern theory of functions and its applications. The book is divided into 7 parts. The first part discusses the problem of univalence, plane sections, boundary and extremal properties. The second part discusses entire functions and interpolation and approximation problems. The third part discusses functions of many complex variables. The fourth part discusses conformal mappings and boundary-value problems. The fifth part discusses extremal problems and the theory of distribution. The sixth part discusses generalized analytic functions. The seventh part discusses applications.

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PART V

S/038/60/024/006/003/004  
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AUTHOR: Mel'nik, I.M.

TITLE: On Topological Methods in the Theory of Functions of one Complex Variable

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya matematicheskaya, 1960, Vol. 24, No. 6, pp. 921 - 942

TEXT: The multivalent function  $f(z)$ , analytic in  $G$  with the eventual exception of a finite number of interior points  $a_k$ , is assumed to be everywhere continuously continuable on the boundary  $\Gamma^k$  of  $G$  except a finite number of boundary points  $a_k$ . Let  $G$  be bounded by  $\alpha$  Jordan curves

$(\Gamma_1, \Gamma_2, \dots, \Gamma_\alpha) = \Gamma$ . In the neighborhood of  $a_k$  let

$$(I) \quad f(z) = (z-a_k)^{p_k} \left[ g_k(z) \ln^{q_k}(z-a_k) + \psi_k(z) \right] + C,$$

if  $a_k$  is finite, and

$$(II) \quad f(z) = z^{-p_k} \left[ g_k(z) \ln^{q_k} z + \psi_k(z) \right] + C,$$

if  $a_k$  is the finite point.  $p_k, q_k$  are arbitrary integers;  $q_k \neq 0$ ;  $C$  is Card<sup>1/5</sup>

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On Topological Methods in the Theory of Functions of one Complex Variable

a complex constant. Furthermore:

1.) If  $a_k$  is an interior point of  $G$ , then  $g_k(z)$ ,  $\psi_k(z)$  are assumed to be analytic in the neighborhood of  $a_k$ ; 2.) if  $a_k$  is a boundary point, then  $g_k(z)$ ,  $\psi_k(z)$  are assumed to be continuous in  $a_k$  and to possess first derivatives in the neighborhood of  $a_k$  on the boundary of  $G$ .

3.)  $|g_k(a_k)| + |\psi_k(a_k)| \neq 0$  ;

4.) if  $q_k \neq 1$  and if  $a_k$  lies in the interior of  $G$  or on an interior  $\Gamma_1$ , then assume in addition:  $\text{Im } g_k(x+i\beta_k) = 0$ ,  $x \leq \alpha_k$  ( $x \in G$ ) if  $a_k = \alpha_k + i\beta_k$  is an interior point, and  $\text{Im } g_k(x) = 0$ ,  $x \leq 0$  ( $x \in G$ ), if  $a_k$  is the infinite point.

A point  $a_k$ , in the neighborhood of which  $f(z)$  has the representations (I) or (II) is denoted as a power-logarithmic point;  $p_k$  as its order.

Let  $f(z) = u(x,y) + iv(x,y)$ . Let  $L_k$  be a section in  $G$  connecting  $a_k$  with  
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a point of the exterior boundary curve  $\Gamma_\alpha$ . If  $q_k \neq 1$ , then  $u(x,y)$  is everywhere continuously continuable over  $L_k$  with eventual exception of the point  $a_k$ :  $u^+(x,y) - u^-(x,y) = 0$ . If  $q_k = 1$ , then, however,  $u^+(x,y) - u^-(x,y) = 2\tilde{u} \cdot v_k(x,y)$ . Sections  $L_k$ , for which  $v_k(x,y)$  is constant or piecewise constant, are denoted as admissible. The author considers only cases in which admissible sections exist. He proves that admissible sections  $L_k$ , on which  $u^+ - u^- \neq 0$ , by adding a real constant to  $u(x,y)$  can be replaced by admissible sections  $C_k$  which have the following properties:

1.) they do not intersect each other, they have no common points with interior boundary curves, they do not pass through internal critical points of  $u(x,y)$  and terminate on  $\Gamma$  in ordinary points of  $u(x,y)$ . 2.) The boundary values  $u^+(x,y)$ ,  $u^-(x,y)$  of the function  $u(x,y)$  on  $C_k$  possess at most a finite number of relative extremum points on  $C_k$  and increase under approach to the point of intersection of  $C_k$  with the exterior boundary  $\Gamma_\alpha$ .

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Since the points of intersection of  $C_k$  and  $\Gamma$  are ordinary points, the boundary index of the function  $u(x,y)$  over the contour  $\Gamma$  with respect to  $G$  can be defined as usual.

Theorem 1 : Let  $I$  be the boundary index of  $u(x,y)$  over the boundary  $\Gamma$  with respect to  $G$ . Then

$$(III) \quad \sum_{j=1}^m (1-p_j) = 2 - \alpha + I \quad ,$$

where  $m$  is the number of the power-logarithmic points of  $f(z)$  in  $G$ , and  $p_j$  are their orders.

The proof is based on the lemma : Assume that  $z = a$  is a power-logarithmic point of  $f(z)$  with order  $p$ . Let  $L$  be an admissible section starting in  $a$

on which  $u^+(x,y) - u^-(x,y) = 0$ . There exists a sufficiently small  $r_0$  so that

the increase  $I_\gamma$  of the boundary index of the function  $u(x,y)$  from the circle  $\gamma(|z-a| = r_0)$  with respect to the domain  $|z-a| > r_0$  is equal to  $p$ .

Under a corresponding modification of the definition of the boundary index  
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I the relation (III) equally holds, if  $f(z)$  possesses a finite number of power-logarithmic points on  $\Gamma$ .

The author considers four examples for calculating the boundary index and

the  $\sum_{k=1}^m (1 - p_k)$ .

F.D. Gakhov, Yu.M. Krikunov and T.A. Kolomiytseva are mentioned. There are 4 figures, and 3 references : 2 Soviet and 1 American. ✓

PRESENTED: by M.A. Lavrent'yev, Academician

SUBMITTED: August 12, 1959

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AUTHOR: Mel'nik, I.M.TITLE: On Topological Methods in the Theory of Functions of a Complex Variable <sub>1b</sub>

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 131, No. 5, pp. 1015-1018

TEXT: Let  $f(z)$  be analytic in  $G$ , continuously continuable on the boundary of  $G$ , and let it have finitely many inner singular points  $a_k$  and such lying on the boundary, in the neighborhood of which it holds

$$(1) \quad f(z) = (z-a_k)^{p_k} [g_k(z) \ln^{q_k}(z-a_k) + \psi_k(z)] + C$$

for finitely  $a_k$  and

$$(2) \quad f(z) = z^{p_k} [g_k(z) \ln^{q_k} z + \psi_k(z)] + C$$

for  $a_k = \infty$ ;  $q_k \neq 0$ ,  $g_k(z)$  and  $\psi_k(z)$  analytic in the neighborhood of the inner points  $a_k$  of  $G$  and continuously differentiable in  $a_k$  if  $a_k$  lies on the boundary of  $G$ ;  $|g_k(a_k)| + |\psi_k(a_k)| \neq 0$ ;  $G$  is bounded by  $\alpha$  Jordan curves

$$(\Gamma_1, \Gamma_2, \dots, \Gamma_\alpha) = \Gamma.$$

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