"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

L 4481-66 EWT(1)/EWT(m)/FCC/T/EWA(h) IJP(c) GW

ACC NR: AP5024635 SOURCE CODE: UR/0048/65/029/009/1690/1692

AUTHOR: Vernov, S.N.; Yegorov, T.A.; Yegimov, N.N.; Krasil'nikov, D.D.; Kuz'min, A.I.; Maksimov, S.V.; Nesterova, N.M.; Nikol'skiy, S.I.; Sleptsov, Ye. I.; Shafer, Yu. G.

37
B
19

ORG: none

TITLE: Plan for a large installation at Yakutsk for study of extensive air showers /Report, All-Union Conference on Cosmic Ray Physics held at Apatity 24-31 August 1964/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 29, no. 9, 1965, 1690-1692

TOPIC TAGS: primary cosmic ray, secondary cosmic ray, extensive air shower, spectral energy distribution, cosmic radiation composition, cosmic radiation anisotropy

ABSTRACT: After a discussion of the significance of extensive air showers for the investigation of ultrahigh energy primary cosmic rays, the authors briefly describe an installation to be completed in the next two or three years near sea level at latitude 62° N in the Yakutsk region; it is anticipated that the installation will yield information concerning the energy spectrum, composition, and anisotropy of primary cosmic rays with energies up to $10^{20}$ eV. The installation, intended for investigation of extensive air showers, will comprise 65 stations spread over an area of 23 $km^2$. Each station will be equipped with scintillation counters with a total sensitive area of 1 $m^2$ or 4 $m^2$, and at the central station - 10 $m^2$. The total sensitive area of scintil-

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ACC NR: AP5024635

lation counters in the whole installation will be 204 $m^2$. Each station will be equipped with photomultipliers (total cathode area 180 $cm^2$ at each station) for recording the Cerenkov flash accompanying a shower. In addition, there will be muon detectors with a total sensitive area of 22 $m^2$. Pulses will be transmitted from the more remote stations to the central laboratory by radio. It is anticipated that this installation will record $2 \times 10^5$ showers per year with energies exceeding $10^{15}$ eV and 2 showers per year with energies exceeding $10^{20}$ eV. Orig. art. has: 1 figure and 1 table.

SUB CODE: NP/ SUBM DATE: 00/ ORIG REF: 002/ OTH REF: 008

Card 2/2

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

L 1891-66 EWT(1)/FCC/EWA(h) GS/GW
ACCESSION NR: AT5022825 UR/0000/65/000/000/0050/0059

AUTHOR: Shafer, Yu. G.

TITLE: On the study of variations of primary cosmic radiation

SOURCE: Vsesoyuznoye soveshchaniye po kosmofizicheskomu napravleniyu issledovaniy kosmicheskikh luchey. 1st, Yakutsk, 1962. Kosmicheskiye luchi i problemy kosmofiziki (Cosmic rays and problems in cosmophysics); trudy soveshchaniya. Novosibirsk, Redizdat Sib. otd. AN SSSR, 1965, 50-59

TOPIC TAGS: primary cosmic ray, cosmic ray intensity, cosmic ray measurement, cosmic radiation composition, cosmic radiation energy

ABSTRACT: The paper reviews recent developments of research into the temporal and spatial variations of the intensity, energy spectrum, and chemical composition of primary cosmic rays. Although most of the progress made in the study of these variations is due to the extremely abundant and detailed material obtained by earthbound stations during the IGY and IGCY, a major contribution was made by high-altitude balloon soundings, and steadily increasing information is coming from artificial earth satellites and space probes. The cosmophysical trend of this research aims at determining the nature and sources of cosmic rays of various energies, the mechanisms of acceleration or primary particles

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"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

L 1891-66
ACCESSION NR: AT5022825

in the Galaxy, and the laws governing the space and time distributions of electromagnetic conditions in various regions of cosmic space. The various experimental techniques of studying cosmic ray variations are discussed in general terms.

ASSOCIATION: Institut kosmofizicheskikh issledovaniy i aeronomii YaF SO AN SSSR (Institute of Cosmic Physics Research and Aeronomy, YaF SO AN SSSR)

SUBMITTED: 29Oct64 ENCL: 00 SUB CODE: AA

NO REF SOV: 000 OTHER: 000

2/2

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

L 1537-66

ACCESSION NR: AT5023632 UR/0000/65/000/000/0513/0513

AUTHORS: Shafer, Yu. G.; Kuzhevskiy, B. M.; Kulagin, A. G.; Skryabin, N. G.

TITLE: Effects of solar and geophysical phenomena in primary radiation, instrumentally recorded by the "Kosmos-19" satellite

SOURCE: Vsesoyuznaya konferentsiya po fizike kosmicheskogo prostranstva. Moscow, 1965. Issledovaniya kosmicheskogo prostranstva (Space research); trudy konferentsii. Moscow, Izd-vo Nauka, 1965, 513

TOPIC TAGS: cosmic ray, cosmic ray measurement, cosmic ray intensity, magnetic storm, satellite, satellite mission analysis

ABSTRACT: Results from the processing of cosmic radiation data recorded at 350 to 450 km by the Kosmos-19 satellite between 6 August and 31 December 1963 are presented. No 27-day variation was noted in the intensity of cosmic rays with magnetic rigidity above 3.5 Bev during this period of minimal solar activity. During the intensive magnetic storms of 17-27 November a sharp drop in the counting rate was registered (the same effect was observed at the Rezol'yut ground-based station in Yakutsk). On 12 August the counting rate was noted to increase above the mid-month data. This effect followed the appearance of

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ACCESSION NR: AT5023632

the solar chromospheric flares by 10—13 hr. A line of equal intensity was produced from the satellite. Its comparison with the lines presented by S. N. Bernov and N. L. Grigorov (sb. "Iskusstvennyye sputniki Zemli," vyp. 1. Izd-vo AN SSSR, 1958) shows that in the period 1957-1963 the intensity increased by only 3%. The smallness of this increase is related to the large threshold rigidity of the particles registered. [04]

ASSOCIATION: none

SUBMITTED: 02Sep65 ENCL: 00 SUB CODE: AA, SV

NO REF SOV: 002 OTHER: 001 ATD PRESS: 4098

Card 2/2

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

L 04890-67 EWT(1)/FCC GW/GW

ACC NR: AT6027218 SOURCE CODE: UR/0000/66/000/000/0097/0101

48
43
B+1

AUTHOR: Shafer, Yu. G.; Sokolov, V. D.; Skryabin, N. G.; Salimzibarov, R. B.

ORG: none

TITLE: Cosmic ray intensity in the stratosphere over Yakutsk during the period from 1958 to 1962

SOURCE: AN SSSR. Sibirskoye otdeleniye. Sibirskiy institut zemnogo magnetizma, ionosfery i rasprostraneniya radiovoln. Issledovaniya po geomagnetizmu i aeronomii (Studies in geomagnetism and aeronomy). Moscow, Izd-vo Nauka, 1966, 97-101

TOPIC TAGS: cosmic ray intensity, ~~data processing~~ cosmic ray telescope, graphic data processing/Yakutsk

ABSTRACT: Data on cosmic ray variation obtained with an airborne counter telescope in the stratosphere over Yakutsk are presented in tabular and graphical form. The mean value of cosmic ray intensity is determined at three isobaric levels (100, 200, and 300 db) for seven separate time intervals between 1958 and 1962. Since some of these periods coincide with magnetic activity, and cosmic ray intensity differs widely for magnetically disturbed and quiet days, the data were processed in two groups: one, covering the total data, and one in which only the "quiet" data were considered. Data analysis indicates that the spectrum of primary

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cosmic rays was much harder in 1958 than in 1962. An explanation for this is seen in a pronounced drop in solar activity during this period. Characteristic for the change in the spectrum is a shift in the position of the maximum of vertical intensity distribution from 110 mb in 1958 to 80 mb in 1962. An analysis of the difference curves (difference in the intensity of the isobaric levels considered) shows that in 1962 the number of particles (including secondary particles) absorbed by the atmosphere between 100 and 200 mb was almost twice that in 1958, while the intensity of these levels increased during the same period by 40 and 30%, respectively. Of the total number of particles recorded at the 100-mb level, an average of 75% reaches the 200-mb level, and 50% the 300-mb level. The authors express their deep gratitude to A. I. Kuz'min for valuable advice and discussions of the results, and to V. A. Belomestnykh, B. S. Nedzvedskiy, S. I. Fedoseyev, and B. I. Ovechkin for their participation in the tests. Orig. art. has: 3 tables and 3 figures.

SUB CODE: 04,18/SUBM DATE: 25Dec65/ ORIG REF: 008/ OTH REF: 002

Card 2/2 egh

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

ACC NR: AP6032696 SOURCE CODE: UR/0203/66/006/005/0924/0924

AUTHOR: Skryabin, N. G.; Sokolov, V. D.; Shafer, Yu. G.

ORG: Institute of Cosmo-Physical Observations and Aeronomy, Yakutsk Division, SO AN SSSR (Institut kosmofizicheskikh issledovaniy i aeronomii Yakutskogo filiala SO SSSR)

TITLE: Screening effects and intensity of cosmic rays beyond the limits of atmosphere

SOURCE: Geomagnetizm i aeronomiya, v. 6, no. 5, 1966, 924

TOPIC TAGS: metallic screen, cosmic ray intensity, gas discharge counter, atmospheric radiation

ABSTRACT: Comparison of the intensity of cosmic rays obtained experimentally using screened and unscreened gas-discharge counters has shown considerable differences in results. It has been observed that by increasing the thickness of a lead screen from 0 to 1.5 cm the increase of the screening effect is almost linear. By using a method of linear extrapolation towards the limits of a screen, the intensity outside of the limits of the Earth's magnetosphere, freed from the screening effect, was found to be (0.275 + 0.025) particles $cm^{-2}$ $sec^{-1}$ $ster^{-1}$. Compared with this value, the intensity measured with counters fitted with 0.5 cm Al, 1.5 cm Al and 1.5 cm Pb screens will be greater by 5.5, 16.4, and 31%, respectively. Data of ISZ "Elektron-2" were kindly offered by Yu. I. Logachev. Orig. art. has: 1 table.

SUB CODE: 04 / SUBM DATE: 18Dec65/ ORIG REF: 005

UDC: 523.165

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"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

ACC NR: AP7000524 SOURCE CODE: UR/0048/66/030/011/1776/1777

AUTHOR: Kuzhevskiy, B. M.; Salimzibarov, R. B.; Skryabin, N. G.; Shafer, Yu. G.

ORG: Institute of Space Physics Research and Aeronomy, Yakut Branch, Siberian Branch, Academy of Sciences, SSSR (Institut kosmofizicheskikh issledovaniy i aeronomii Yakutskogo filiala Sibirskogo otdeleniya, Akademiya nauk SSSR)

TITLE: Some preliminary results of a study of intensity variations of cosmic rays carried out by the Kosmos-25 satellite /Paper presented at the All-Union Conference on Physics of Cosmic Rays held in Moscow from 15 to November 1965/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 30, no. 11, 1966, 1776-1777

TOPIC TAGS: cosmic ray, cosmic ray intensity, cosmic ray measurement, cosmic ray particle, solar activity, gas discharge counter, ionization chamber, scintillation counter, meteorologic satellite /Kosmos-25 satellite

ABSTRACT: The satellite Kosmos-25 was launched on 27 Feb 1964 to study cosmic ray variations. The measuring equipment installed on board the satellite included shielded and unshielded gas-discharge counters, a shielded scintillation-counter array, and an ionization chamber. On the basis of monthly mean values of readings of these devices, several assumptions concerning the relationship between variations in cosmic

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ray intensity and solar activity were made. Instrument readings were taken for the energy threshold $P_0$ = 4 Bev with reference to an altitude of 350 km. The informations obtained from the array and from the shielded and unshielded counters indicate a 30-day lag in the variations in cosmic ray intensity in respect to the variations in solar activity (Fig. 1). The ionization chamber readings characterize the ionizing power of particles more than it does their intensity. Fig. 1 indicates that the chamber readings increase when particle intensity, recorded by the counter, is decreased. In a number of cases additional radiation was recorded by the shielded counter, the effect of which increased during flight of the satellite at low latitudes. The authors assume that this phenomena can be attributed to either the recording of electron-positron pairs developed by $\gamma$-quanta, the effect of x-ray on the shield of the counter, or solar x-ray radiation during atmospheric flares. Orig. art. has: 1 figure, 1 table, and 2 formulas.

[WA-75]
[GS]

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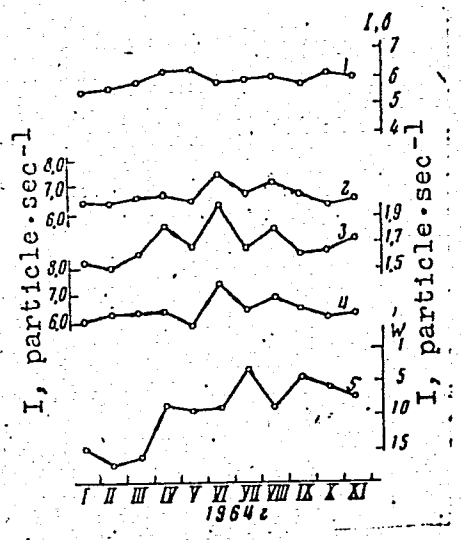


Fig. 1. The time distribution of cosmic ray intensity according to measurements made by the Kosmos-25 satellite in 1964 and obtained from the Wolf numbers for the same period. Curves of intensity variations of cosmic rays were constructed according to data of: 1) an ionization chamber; 2) a single nonshielded counter; 3) a shielded scintillator counter array; 4) a single shielded counter; and 5) Wolf's numbers.

SUB CODE: 22,04/ SUBM DATE: none/ ORIG REF: 004/ OTH REF: 001

Card 3/3

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

SHAFERMAN, Iosif Solomonovich; YAGOVKIN, N.F., redaktor; TRUSHINA, T.M., tekhnicheskiy redaktor.

[Ways of lowering costs in industrial production] Puti snizheniia sebestoimosti promyshlennoi produktsii. Irkutsk, Irkutskoe kn-vo, 1955. 166 p. (MLRA 9:6)

(Costs, Industrial)

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

SHAFERMAN, I.S.

Mining costs of Cheremkhovo coal in the postwar period. Trudy Vost.-Sib.fil.AN SSSR no.21:103-124 '59. (MIRA 13:9)
(Cheremkhovo Basin--Coal mines and mining--Costs)

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

SHAFERMAN, M.; ROYZ, A.; DEMYANKO, F.

Assembling and operating MUKZ-35 feed mills. Muk.-elev.prom. 25 no.6:17-18 Je '59. (MIRA 12:9)

1. Proizvodstvenno-tekhnicheskiy otdel Kaluzhskogo upravleniya khlebproduktov (for Shaferman). 2. Vyselkovskiy khlebopriyemnyy punkt Krasnodarskogo kraya (for Royz, Demyanko).
(Feed mills)

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

SHAFERMAN, M.

"Manual for shift foremen in grain drying" by V.F. Samochetov. Reviewed by M. Shaferman. Muk.-elev. prom. 25 no.8:32 Ag '59. (MIRA 13:1)

1.Proizvodstvenno-tekhnicheskiy otdel Kaluzhskogo upravleniya khleboproduktov.

(Grain--Drying)

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

SHAFERMAN, M.

Connecting MUKZ-35 feed mills with grain storages in Kaluga.
Muk.-elev. prom. 25 no.10:11 O '59. (MIRA 13:3)

1. Kaluzhskoye upravleniye khleboproduktov.
(Kaluga Province--Feed mills)

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

SHAFERMAN, M.

"Grain-cleaning machinery and their operation" by M.A. Skorovarov. Reviewed by M.Shaferman. Muk.-elev. prom. 26 no.9:3 of cover S '60. (MIRA 13:9)

1. Nachal'nik proizvodstvenno-tekhnicheskogo otdela Kaluzhskogo upravleniya khleboproduktov.
(Grain-- Cleaning) (Skorovarov, M.A.)

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

SHAFERMAN, M.

Shortcomings of the design of the break roller mill. Muk.-elev. prom. 27 no.1:29-30 Ja '61. (MIRA 14:1)

1. Nachal'nik proizvodstvenno- ekhnicheskogo otdela Kaluzhskogo upravleniya khleboproduktov.
(Kaluga Province—Flour mills)

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

SHAFERMAN, M., inzh.

"Construction features and operation of grain dryer furnaces" by V.F.Samochetov and G.A.Dzhorogian. Reviewed by M.Shaferman. Muk.-elev. prom. 27 no.2:32 F '61. (MIRA 14:4)

1. Nachal'nik proizvodstvenno-tekhnicheskogo otdela Kaluzhskogo upravleniya khleboproduktov.
(Grain elevators) (Grain milling)
(Samochetov, V.F.) (Dzhorogian, G.A.)

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

SHAFERMAN, M.

Stationary cylindrical cockle separators are being used for cleaning grain in the conveyer chain. Muk.-elev. prom. 27 no.9:20 S '61. (MIRA 15:2)

1. Glavnyy inzh. Kaluzhskogo upravleniya zagotovok.
(Grain--Cleaning)

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

SHAFERMAN, M.

"Terminological manual of equipment" by V.T.Khanin, IU.V. Mestechkin. Reviewed by M.Shaferman. Muk.-elev.prom. 29 no.1:32 Ja '63. (MIRA 16:4)

1. Glavnyy inzhener Kaluzhskogo oblastnogo upravleniya khleboproduktov.

(Grain handling--Machinery--Terminology)
(Khanin, V.T.) (Mestechkin, IU.V.)

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

SHAFERMAN, M.

Aeration of mixed feeds in bins. Muk.-elev. prom. 29 no.4:19 Ap '63. (MIRA 16:7)

1. Glavnyy inzh. Kaluzhskogo oblastnogo upravleniya khlebo-produktov.

(Kaluga—Feed mills)

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"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

SHAFERMAN, M.

New books on safety measures. Muk.-elev. prom. 29 no.9:32, 3 of cover S '63. (MIRA 17:1)

1. Glavnyy inzh. Kaluzhskogo oblastnogo upravleniya khlebo-produktov.

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

SHAFERMAN, M. YA.

AUTHORS: Kvitchenko, I. P., Markevich, I. S. 131-23-5-3/16
Shaferman, M. Ya.

TITLE: Application of Natural Gas in the Manufacturing of Fire-Clay Products (Primeneniye prirodnogo gaza v proizvodstve shamotnykh izdeliy)

PERIODICAL: Ogneupory, 1958, Vol. 23, Nr 5, pp. 201-204 (USSR)

ABSTRACT: The thermal power of the natural gas from the Stavropol' place of discovery is 8500 kcal/ $m^3$. Its chemical composition in % is: $CH_4$ -97,8; $C_2H_6$ -o5; $C_3H_8$ -0,3 $C_4H_{10}$ -0,1; $N_2$ -1,3. The work department n. 5 of the Semiluksk works has rotary driers, air heaters for tunnel drying plants, periodic kilns for burning products and clay into fire-clay, shaft furnaces, an annular kiln and a central boiler plant. The department needs 4500 $m^3$ of natural gas per hour for firing the above aggregates. The pressure in the gas line for natural gas is 4-6 atmospheres excess pressure. In the heat plants with high gas consumption RD pressure regulators are used additionally. In figure 1 such a pressure regulator, built into an annular kiln, is shown. Periodic kilns and rotary driers are equipped with low-pressure torches which permit to regulate the gas

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Application of Natural Gas in the Manufacturing of Fire-Clay Products 131-23-5-3/16

supply from 1o to 6o $m^3$ / per hour (figure 2). The firings of the steam boilers as well as of the rotary driers and heaters are equipped with gas burners of the type Tsarik as can be seen from figure 3. In figure 4 the scheme of the gas supply to the chamber of an annular kiln is shown. A gas firing for a 1oo ton periodic kiln can be seen in figure 5, and in figure 6 a gas firing for a rotary drier of an output of 12-14 tons per hour is shown. Furthermore the equipment of kilns with gas burners is described in detail. In figure 7 curves of the burning of products by means of generator and natural gas in annular kilns is shown and in figure 8 the same curves by means of solid fuel and natural gas. By the change-over to natural gas the finish of the products improved and also the waste portion has been reduced to about half its value. Also the quality of fire-clay improved considerably, the same as its water-absorbing capacity. The drying period in the tunnel drying plants was reduced by 6% the same as the waste. There are 8 figures.

ASSOCIATION: Semilukskiy ogneupornyy zavod (Semiluki Works for Refractories)

AVAILABLE: Library of Congress

Card 2/2 1. Metallurgy 2. Fuels 3. Natural gas - Applications

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

KVITCHENKO, I.P.; SHAFERMAN, M.Ya.

Testing a periodic kiln for firing glass furnace brick by natural gas. Ogneupory 26 no. 4:166-170 '61. (MIRA 14:5)

1. Semilukskiy ogneupornyy zavod.
(Kilns)

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

SHAFEROV, Stoian

Work of the alert mind. Ratsionalizatsiia 14 no.6:12-14 '64

1. Central Committee of the Trade Union of Transportation and Communication Workers.

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

SHAMANOV, V. P.

Physics - Study and Teaching

Physics in a pioneer camp. Fiz. v. shkole 12 no. 3, 1952.

9. MONTHLY LIST OF RUSSIAN ACCESSIONS, Library of Congress, September 1952. Uncl.

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

SHAFEROV, V.P. (Moscow).

Simple circuits for school radio clubs. Fiz.v shkole no.6:44-48 '53.
(MLRA 6:10)
(Radio circuits)

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

BERDYYEVA, S.I.; SHAFEROVA, K.A.; KORSUNOVA, L.I.

Diagnosis of colienteritis in very young children and its treatment with "OZCh" preparation. Zdrav. Turk. 5 no.5:24-27 S-O '61. (MIRA 14:12)

1. Iz Ashkhabadskogo instituta epidemiologii i gigiyeny (dir. - dotsent Ye.S.Popova) i detskikh yasley No.7 (vrach L.I.Korsunova).
(INTESTINES DISEASES) (TEA THERAPEUTIC USE)

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

SHAFEROVA, K.A.; SHEPELENKO, T.A.; TEPLOVA, S.V.

Distribution of pathogenic serotypes of Escherichia coli in a rural locality. Zdrav. Turk. 7 no.11:26-28 N'63 (MIRA 17:3)

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

BEZDENEZHNYKH, I.S.; SHAFERSHTEYN, D.L.

Carriage of Leptospira canicola by wild rats in Sakhalin. Zhur. mikrobiol. epid. i immun. no.12:71-72 D '54. (MLRA 8:2)

(RATS,
carriage of Leptospira canicola)
(LEPTOSPIRA CANICOLA,
carriage by rats)

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

BEZDENEZHNYKH, I.S.; SHAFERSHTEYN, D.L.

Dogs as carriers of L. canicola in Sakhalin. Zhur.mikrobiol.epid. i immun. no.3:102-105 Mr '55. (MLRA 8:7)

(LEPTOSPIRA CANICOLA,
carriage in dogs)
(DOGS,
carriage of Leptospira canicola)

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

SHAFERSHTEYN, D.L.; AYZENSHTADT, D.S.

Studying the susceptibility of Norway rats to infection by leptospirosis in the southwestern Ukraine; author's abstract. Zhur.mikrobiol.,epid.i immun. 30 no.11:116 N '59. (MIRA 13:3)
(LEPTOSPIROSIS) (UKRAINE--RATS AS CARRIERS OF DISEASE)

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

SHAFERSHTEYN, D.L.; FEOKTISTOV, A.Z.; POKROVSKAYA, Ye.V.; LIKHONOS, A.N.

Epidemiological significance of the migration of Br. melitensis to cattle (according to data from the Stavropol Territory). Zhur. mikrobiol. epid. i immun. 32 no.6:59-61 Je '61. (MIRA 15:5)

1. Iz Stavropol'skoy krayevoy sanitarno-epidemiologicheskoy stantsii.
(STAVROPOL TERRITORY--BRUCELLOSIS IN CATTLE)

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

YAROVOY, L.V.; RYBAKOV, N.A.; [illegible]

Clinicoepidemiological characteristics of sheep and goat brucellosis [illegible] workers engaged in the primary processing of wool. Gig. sanit. 27 no.10:52-53 O '62. (MIRA [illegible])

1. Iz kafedry infektsionnykh bolezney (zav.-dotsent L.V. Yarovoy) Stavropol'skogo meditsinskogo instituta i Stavropol'skogo kraevogo otdela zdravookhraneniya.

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"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

CA

8 **Determining small quantities of nitrous acid by esterification methods.** I. Ya Shafershtein. *J. Applied Chem.* (U. S. S. R.) 6, 905-7(1933).—The esterification method by Fischer and Schmidt (*C. A.* 23, 3180) for detg. $HNO_2$ is developed into a micro method. Methyl and ethyl nitrites are absorbed with the undild. Bernoulli reagent (first soln. 2 g. naphthylamine-HCl in 500 cc. $H_2O$ and second 10 g. sulfanilic acid + 100 g. tartaric acid in 500 cc. $H_2O$) instead of KI. The $HNO_2$ is displaced with air instead of $CO_2$, and the further detn. is carried out colorimetrically. In the expts. 0.025 mg. of $NaNO_2$ in 40 cc. liquid was detd.

A. A. Boehtlingk

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

Ca

1

**Determining vapors of methyl and ethyl alcohols in air.** I. Ya. Shafershtein. *J. Applied Chem. U. S. S. R.* 7, 239-50(1934).—MeOH and EtOH in air were detd. colorimetrically by conversion into alkyl nitrites. The smallest amts. which could be detd., with an accuracy of 4%, were 0.0001 g. alc. in 20 cc. of soln. EtOAc, $Et_2O$, $Me_2CO$, HCHO, $C_6H_6$ and PhOH do not interfere with the detn. The alcs. were absorbed in water and the results were accurate within 5%. A. A. Bochtlingk

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

PROCESSES AND PROPERTIES INDEX

**Potentiometric determination of hydrochlorides of alkaloids.** I. Ya. Shafershtein and M. A. Belgova. *Trans. Ukrain. Inst. Exptl. Pharm.* 1, 122-5 in Russian, 125-6; in English, 126(1938).—The titrations were made with $AgNO_3$ by Müller's method. The AgCl formed does not interfere and the results are within 2% of the truth. R. Levine

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

PROCESSES AND PROPERTIES INDEX

**Potentiometric determination of alkaloid bases and salts.** I. Ya. Shafershtein, Yu. S. Khavkin and N. A. Izmailov. *Trans. Ukrain. Inst. Expl. Pharm.* 1, 127-33(in Russian, 133; in English, 131)(1938). The titrations were made in 90% alc. or acetone with 0.1 *N* KOH in EtOH or 0.1 *N* HCl in EtOH, *of HCl*. The suitable pH for the titration was detd. on the basis of potentiometric curves, and then a standard electrode was prepd from a buffer mixt. of the same pH. The accuracy is 2% R. Levine

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

11F

ca

**Mechanism of the homostatic action of nettle.** I. Ya. Shafershtein and T. K. Pavlenko (Stalinabad Med. Inst.). *Farmakol. i Toksikol.* 8, No. 6, 20-31 (1945). Unlike *Dabois* venum, nettle infusion does not of itself accelerate coagulation of recalcified plasma, but it does activate cerebral ext. (I) prepd. by extg. human brain with physiol. salt soln. satd. with toluene. This activation occurs in spite of lowered thrombokinase content in I. The technique of Edsall, *et al.* (*C.A.* 34, 1376[1], 8032[6]; 35, 8112[9]) is recommended.

Julian F. Smith

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

CA

X

**Membranes for equilibrium dialysis.** A. M. Bulgakova and I. Ya. Shafershtein (Univ. Kharkov). *Kolloid. Zhur.* 13, 78 (1951).—Cellulose membranes prepd. by treating collodion membranes with satd. $H_2S$ soln. in 95% EtOH 6, and 17% aq. $NH_3$ 4 parts, adsorb ions less than collodion or cellophane membranes and are suitable for detg. the binding capacity of proteins for org. ions. Collodion adsorbs bromothymol blue, thymol blue, and bromophenol blue less the greater the pH; only at pH > 9 can a sufficient correction be introduced to take care of this adsorption.

J. J. Bikerman

1951

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

SHAFERSHTEYN, I.Ya.; ZINOVA, A.P.

Determination of sulfosalicylic acid. Ukr.khim.zhur.17 no.5:786-792 '51. (MLRA 9:9)

1.Khar'kovskiy gosudarstvennyy universitet.
(Salicylic acid)

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

SHAFERSHTEYN, I.Ya.;ZINOVA, A.P.

Analysis of combination of serum albumin with sulfosalicylate ion. Biokhimiia, Moskva 17 no.1:7-12 Jan-Feb 1952. (CLML 24:5)

1. Institute of Chemistry of Khar'kov State University.

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

SHAFERSHTEYN, I. Ya.

Effect of salts on the acid denaturation of globulins. M. Ya. Shafershtein and D. S. Shun. *Trudy Nauch.-Issledovatel. Inst. Khim. Kharkov. Gosudarst. Univ.* 10, 145-51 (1953); *Referat. Zhur., Khim.* 1954, No. 35997.—The effect of salts on the acid denaturation of horse pseudoglobulin (I) has been investigated. The degree of the denaturation was detd. by measuring the decrease of the resistance of I against salt denaturation. The amt. of the denatured I and the relative viscosity of the acid I solns. have been detd. Denatured I was pptd. by the addn. of an equal vol. of 50% satd. $(NH_4)_2SO_4$. Native I, remaining in the soln., was then pptd. by $CCl_3COOH$ and detd. by the biuret method. To 1% solns. in 0.01 N HCl, pH 2.4-2.5, were added a chloride, sulfate, benzenesulfonate, 2-naphthalenesulfonate, sulfosalicylate, and trichloroacetate in concns. of 0.0015-0.15 M. The relative viscosity of the I solns., maximal at pH 2.4-2.5, decreases with increasing acidity accompanied by an increase of the amt. of the denatured I. $SO_4^{--}$ ions decrease the viscosity at relatively lower concn. than in the case of $Cl^-$. The viscosity is decreased still more when the org. anions are used. The addn. of any salt increases the degree of the I denaturation. Glucose soln. (20%) partially decreases the acid denaturation of I, probably due to the formation of new linkages between the side chains of the protein mol. E. Wierbicki

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"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

SHAFERSHTEYN, I. Ya.

The interaction between soluble proteins and thio acids. I. Ya. Shafershtein and A. M. Bulgakova. *Uchenye Zapiski Khar'kov. Univ.* 47, *Trudy Nauch.-Issledovatel. Inst. Khim.* (Khar'kov. Univ.) 10, 153-8(1953); *Referat. Zhur. Khim., Biol. Khim.* 1955, No. 12390.—A method is described for the detn. of the relative adsorbability of sulfonate ions by sol. proteins. The method is based on the fact that sulfo acids lower the rate of sulfophthalein adsorption by proteins, due to the fact that the anions of both substances are adsorbed onto the same structural part of the protein mol., where the positively charged groups prevail. The rate at which the adsorption of sulfophthalein is reduced in the presence of sulfo acids is a measure of the relative adsorbability of these acids to proteins. The adsorbability of sulfo acids can be detd. with the aid of an equilibrium dialysis of a 25% soln. of protein in a phosphate-acetate-borate buffer through a denitrified collodion bag submerged into the same type of buffer soln. contg. either a mixt. of sulfo acids and sulfophthalein or sulfophthalein alone. After 3 days at 15° the outer soln. is adjusted to pH 10 and the concn. of sulfophthalein detd. colorimetrically. A study was made of the adsorbability of 8 aromatic thio acids, benzene, and naphthalene derivs. to proteins including gelatin. Contrary to the prevailing opinion, it was found that the presence in the nucleus of a second thio group in many instances enhances its adsorbability. Supplementary polar substitution and a second benzene ring in the anion also enhance the adsorbability of the thio acids. It is suggested that the method may be of value in the study of the interaction between synthetic anticoagulants (derivs. of aromatic thio acids) and serum protein. B. S. Levine

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[illegible], [illegible], [illegible]

"Measuring the Ion Activity of Alkali Metals With a Membrane Electrode," Tr. N. -I. In-ta Khimii (Khar'kovsk. Un-t) Vol 10, pp 159-167, 1953

Determined the activity of potassium ions by measuring the emf with the aid of two calomel electrodes and a semipermeable membrane with a selective permeability for cations. The activity coefficients of the potassium ion in 0. 1 normal solutions of various potassium salts as determined by this method are listed. (RZhKhim, No 22, 1954)

Sum. No. 681, 7 Oct 55

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

SHAFERSTEYN, I. Ya.

USSR

Use of a membrane electrode for determination of sodium ion in natural waters. I. Ya. Shafershtein and A. M. Bulgakova. *Uchenye Zapiski Khar'kov. Univ.* 47, *Trudy Nauch.-Issledovatel. Inst. Khim.* 10, 169-72(1953); *Referat. Zhur., Khim.* 1954, No. 40003.—The app. consists of a vessel divided into 3 compartments by an alkali-treated collodion diaphragm. Into one of the compartments is placed the analyzed soln. and into the other distil. $H_2O$. To the latter is gradually added from a buret a NaCl soln. of known concn. while measuring all the time the potential difference between a calomel electrode connected by agar bridges to both compartments. The concn. of $Na^+$ in the 2nd compartment at which the e.m.f. is 0 is detd. graphically. This concn. is directly proportional to the concn. of $Na^+$ in the studied soln., the coeff. of proportionality being the const. of the app. and detd. experimentally. The relative error did not exceed 3%. $K^+$ interfered with the detn. of $Na^+$, $Ca^{++}$ does not. $Mg^{++}$ is removed by pptn. with $Ca(OH)_2$. The method is suitable for detn. of $Na^+$ in various water contg. $Na^+$, $Mg^{++}$, $Ca^{++}$ and $SO_4^{--}$.

M. Hosch

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"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

SHAFERSHTEYN, I.Ya.; TSAREVSKAYA, Ye.A.

Complexometric determination of calcium and magnesium. Izv. Otd. est. nauk AN Tadzh. SSR no.1:81-87 '58. (MIRA 12:1)

1. Kafedra khimii Tadzhikskogo sel'skokhozyaystvennogo instituta.
(Calcium--Analysis) (Magnesium--Analysis)

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

SHAFERSHTEYN, I.Ya.; BONDAR', V.V.; MALAKHOVA, S.I.; KHAMATOVA, A.T.; TSAREVSKAYA, Ye.A.

New method for the determination of nitrates. Dokl. AN Tadzh. SSR 1. no.2:11-15 '58. (MIRA 12:1)

1.Tadzhikskiy sel'skokhozyaystvennyy institut. Predstavleno akademikom AN Tadzhikskoy SSR S.Yusupovoy.
(Soils--Analysis) (Nitrates)

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

SHAFERSHTEYN, I.Ya.; PULATOV, A.

Methods for controlling iron electrolytes. Dokl.AN Tadzh.SSR 2 no.2:35-38 '59. (MIRA 13:4)

1. Tadzhikskiy sel'skokhozyaystvennyy institut. Predstavleno akademikom AN Tadzhikskoy SSR S.Yusupovoy.
(Iron plating)

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

SHAFERSHTEYN, I.Ya.; *SAVVA, I.Ye.; LIPKIND, I.M.

Determining nitrates in soils by reducing them to nitrites.
Pochvovedenie no.9:96-101 S '62. (MIRA 16:1)

1. Nauchno-issledovatel'skiy institut pochvovedeniya Ministerstva sel'skogo khozyaystva Tadzhikskoy SSR i Tadzhikskiy sel'skokhozyaystvennyy institut.
(Soils—Nitrogen content)

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"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

SHAFRISHTEYN, S. YA.

Medicine

Rheumatism in children and how to prevent it; for parents and children; Kyiv, Med. vyd-vo URSR, 1952.

Monthly List of Russian Accessions, Library of Congress, May 1952. UNCLASSIFIED.

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

SHAFERSHTEYN, S.Ya., prof. doktor med.nauk, zasluzhennyy deyatel' nauki [deceased]; GIL', S.A., doktor med.nauk

Some problems of infant nutrition in foreign countries; survey of the literature published in recent years. Pediatriia 38 no.10:83-89 O '60. (MIRA 13:11)

(INFANTS—NUTRITION)

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

SHAFEEV, A.A.

Stratigraphy and metamorphism of the Pre-Cambrian in the southwestern part of the Lake Baikal region. Dokl. AN SSSR 158 no.3:618-621 S '64. (MIRA 17:10)

1. Institut zemnoy kory Sibirskogo otdeleniya AN SSSR. Predstavleno akademikom A.L.Yanshinym.

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

SHAFEYEV, A.A.

Problems of the Pre-Cambrian stratigraphy and metamorphism of the southwestern part of the Lake Baikal region and Khamar-Daban Range. Geol. i geofiz. no.2:59-72 '65. (MIRA 18:9)

1. Institut zemnoy kory Sibirskogo otdeleniya AN SSSR, Irkutsk.

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L 15714-66 EWT(d)/EWT(1)/EWT(m)/EWP(w)/EWP(v)/T/EWP(t)/EWP(k)/EWA(h)/EWP(b)/ETC(m)-6
ACC NR: AT6003103 LJP(c) SOURCE CODE: UR/3181/63/000/015/0315/0323
JD/WW/EM

AUTHOR: Aksenov, G.I.; Morozov, N.P.; Shafeyev, M.N.

ORG: None

TITLE: Numerical method for calculating the temperature field in heat treatment of cylinders, taking into account the evolution of the latent heat of transformation and the dependence of thermophysical properties on temperature

SOURCE: Kuybyshev. Aviatsionnyy institut. Trudy, no. 15, pt. 2, 1963. Doklady kustovoy nauchno-tekhnicheskoy konferentsii po voprosam mekhaniki zhidkosti i gaza (Reports of the Joint scientific-technical conference on problems of the mechanics of liquid and gas), 315-323

TOPIC TAGS: metal heat treatment, heat of reaction, heat conductivity

ABSTRACT: In the symmetrical heating and cooling of a hollow cylinder of infinite length, the determination of the temperature field, taking into account the dependence of the heat conductivity coefficient, $\lambda$, and the specific heat capacity, C, on the temperature, t, is based on the solution of the following limiting problem:

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L 15714-66

ACC NR: AT6003103

$$\begin{cases} C(t)\gamma \dfrac{\partial t}{\partial \tau} = \dfrac{1}{r}\dfrac{\partial}{\partial r}\left[r\lambda(t)\dfrac{\partial t}{\partial r}\right]; \; 0 < R_1 \leqslant r \leqslant R_2, \; t_0 \leqslant t \leqslant t_k & (1) \\ t(r, 0) = f(r); \; 0 < R_1 < r < R_2, & \\ \left.\dfrac{\partial t}{\partial r}\right|_{r=R_i} + \dfrac{\alpha(t)}{\lambda(t)} \cdot \Delta R_i t = 0, & (2) \end{cases}$$

where $R_1$ and $R_2$ are, respectively, the inside and outside radii of the hollow cylinder; $\gamma$ is the specific weight; $\alpha$ is the heat transfer coefficient,

$$\Delta_{R_i} t = t_{R_i} - t_{C_p}^{(R_i)} \; (i = 1, 2);$$

$t_{R_1}$ and $t_{R_2}$ are the temperatures of the inner and outer surfaces of the cylinder; and, $t_{C_p}^{(R_1)}$ and $t_{C_p}^{(R_2)}$ are the temperatures of the medium surrounding the cylinder on the inside and on the outside. The solution, developed on the basis of the above assumptions, is said to be suitable for heat calculations of processes for the heat treatment of steel cylinders. Orig. art. has: 18 formulas and 2 figures.

SUB CODE:11,20/ SUBM DATE:00/ ORIG REF:003/ SOV REF:000/ OTH REF:001

Card 2/2

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

SHAFRIN, M.N. (Kuybyshev)

Boundary value problem for biharmonic functions of two complex variables. Izv. vys. ucheb. zav.; mat. no.5:109-114 '64.

(MIRA 17:12)

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

88299

16.3000

S/041/60/012/001/007/007
C111/C222

AUTHOR: Shafeyev, M.N.

TITLE: On Functions of Two Complex Variables Being Analytic in a Hypersphere

PERIODICAL: Ukrainskiy matematicheskiy zhurnal, 1960, Vol. 12, No. 1, pp. 101 - 106

TEXT: A.A. Temlyakov (Ref. 1) has shown that if $f(w,z)$ is a function analytic in a $(p,q)$ - twofold circular region $\overline{D}$ then it admits the representation

$$(1) \qquad f(w,z) = \frac{1}{2\pi} \int_0^{2\pi} d\psi \int_0^1 \frac{d}{dU} \left[ Uf(r_1(t)U^p,\ r_2(t)V^q) \right] dt$$

where

$$U = t \left( \frac{w}{r_1(t)} \right)^{\frac{1}{p}} + (1 - t) \cdot \left( \frac{z}{r_2(t)} \right)^{\frac{1}{q}} e^{i\psi}; \quad V = Ue^{-i\psi} .$$

In the present paper, (1) is applied to functions $f(w,z)$ analytic in a hypersphere.

Let $f(w,z)$ be analytic in the hypersphere $|w|^2 + |z|^2 \leq 1$. The function

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"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

88299

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C111/C222

On Functions of Two Complex Variables Being Analytic in a Hypersphere

$$F(U,V) = \frac{d}{dU}\left[Uf(U\sqrt{t}\ ,\ V\sqrt{1-t})\right] \quad , \quad U = w\sqrt{t} + z\sqrt{1-t}\ e^{i\psi}\ ,\ V = U\ e^{-i\psi}$$

is called a determining function of $f(w,z)$ in the hypersphere.

Theorem 1 : If $f(w,z) = \sum_{m,n=0}^{\infty} a_{mn} w^{2m} z^{2n}$ converges absolutely in $|w|^2 + |z|^2 < 1$ then $F(U,V) = \sum_{m,n=0}^{\infty} b_{mn} U^{2m} V^{2n}$, where $b_{mn} = \frac{m!n!}{(m+n)!} a_{mn}$ converges absolutely in $\left\{|U| < 1,\ |V| < 1\right\}$.

Theorem 2 : If $\sum_{(m+n)\ \text{even}} a_{mn} w^m z^n$ converges absolutely in $|w|^2 + |z|^2 < 1$ then the series $F(U,V) = \sum_{(m+n)\ \text{even}} c_{mn} U^m V^n$, where

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"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

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C111/C222

On Functions of Two Complex Variables Being Analytic in a Hypersphere

$$c_{mn} = \left[ - \frac{2}{m+n-1} - \sum_{k=2}^{\infty} \frac{2^k n(n-2)(n-2^2)\ldots(n-2^{k-2})}{(m+n-1)(m+n-3)\ldots(m+n-2k+1)} \right] a_{mn}$$

converges absolutely in $\{|U| < 1 , |V| < 1\}$.

Theorem 3 : If $\sum_{m,n=0}^{\infty} \sqrt{\frac{m!n!}{(m+n)!}}\, a_{mn} U^m V^n = F(U,V)$ converges absolutely in $\{|U| < 1 , |V| < 1\}$, then $f(w,z) \sum_{m,n=0}^{\infty} a_{mn} w^m z^n$ converges absolutely in $|w|^2 + |z|^2 < 1$.

Theorem 4 : If $f(w,z) = \sum_{m,n=0}^{\infty} a_{mn} w^{2m} z^{2n}$ where $a_{oo} = 1$, $a_{mo} = 0$ for $m \geqslant 1$ ($a_{oo} = 1$, $a_{on} = 0$ for $n \geqslant 1$) converges absolutely in $|w|^2 + |z|^2 < 1$, and if $R[F(U,V)] \geqslant 0$ in $\{|U| < 1 , |V| < 1\}$ then $|a_{mn}| \leqslant \frac{2(m+n)!}{m!n!}$ for $m = 0,1,2,\ldots$ ; $n = 1,2,\ldots$ ($m = 1,2,\ldots$ ; $n = 0,1,2,\ldots$).

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C111/C222

On Functions of Two Complex Variables Being Analytic in a Hypersphere

Theorem 5 : If $f(w,z) = \sum_{m,n=0}^{\infty} a_{mn} w^{2m} z^{2n}$ is analytic in $|w|^2 + |z|^2 < 1$ and if

(7)
$$R\left\{\frac{1}{2\pi}\int_0^{2\pi}\int_0^1 \left[\frac{V}{\sqrt{1-t}} f'_z(U\sqrt{t}, V\sqrt{1-t}) - f(U\sqrt{t}, V\sqrt{1-t})\right] dt\, d\psi\right\} \geqslant -1$$

(8)
$$R\left\{\frac{1}{2\pi}\int_0^{2\pi}\int_0^1 \left[\frac{U}{\sqrt{t}} f'_w(U\sqrt{t}, V\sqrt{1-t}) - f(U\sqrt{t}, V\sqrt{1-t})\right] dt\, d\psi\right\} \geqslant -1$$

for $|U| < 1$, $|V| < 1$, then $|a_{mn}| \leqslant \frac{2(m+n)!}{m!n!}$ for $m = 0,1,2,\ldots$, $n = 0,1,2,\ldots$ with an exception of $a_{00}$.

Theorem 6 : If $f(w,z) = \sum_{m,n=0}^{\infty} a_{mn} w^{2m} z^{2n}$ converges absolutely in

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On Functions of Two Complex Variables Being Analytic in a Hypersphere

$|w|^2 + |z|^2 < 1$ and the function $F(U,V)$ determining for this hypersphere is schlicht in $\{|U| < 1, \ |V| < 1\}$ then it holds

(9) $|a_{mn}| \leq \frac{e(m+n)!}{m!(n-1)!}$ for $m = 0,1,2,\ldots,\ n = 2,3,4,\ldots$

and

(10) $|a_{mn}| \leq \frac{e(m+n)!}{(m-1)!n!}$ for $m = 2,3,4,\ldots,\ n = 0,1,2,\ldots$

The author mentions Z.I. Bavrin. There are 3 Soviet references.

SUBMITTED: June 24, 1958

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APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

SHAFEYEV, M. N. Cand Phys-Math Sci -- (diss) "Border and certain othe properties of analytic functions of many complex variables," Tomsk, 1960, 16 pp, 150 cop. (Tomsk State U im V. V. Kuybyshev) (KL, 42-60, 111)

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"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

SHAFEYEV, M.N. (Kuybyshev)

Boundary properties of the $S_p$ integral Izv. vys. ucheb. zav.; mat. no.2:165-175 '64. (MIRA 17:8)

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"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

AUTHOR: Shafeyev, M.N. SOV/41-10-3-6/14

TITLE: Boundary Properties of Biharmonic Functions (Granichnyye svoystva dvoyakogarmonicheskikh funktsiy)

PERIODICAL: Ukrainskiy matematicheskiy zhurnal, 1958, Vol 10, Nr 3, pp 299 - 317 (USSR)

ABSTRACT: A twice differentiable function $U(w,z) = U(u,v;x,y)$ defined in the cylinder $\xi : |w| < 1, |z| < 1$ is called biharmonic, if it satisfies the equations $\frac{\partial^2 U}{\partial u^2} + \frac{\partial^2 U}{\partial v^2} = 0$ and $\frac{\partial^2 U}{\partial x^2} + \frac{\partial^2 U}{\partial y^2} = 0$. A real function $h(w,z)$ defined in $\xi$ is called bisubharmonic, if 1.) $\overline{\lim}_{(w,z)\to(w_0,z_0)} h(w,z) \leq h(w_0,z_0)$, 2.) $h(w,z)$ is subharmonic in all plane open sets which are intersections of $\xi$ with the analytic planes and 3.) for all $(w,z) \in \xi$ and sufficiently small $r$ and $\varrho$ it holds:

$$h(w,z) \leq \frac{1}{4\pi^2} \int_0^{2\pi} \int_0^{2\pi} h(w + r e^{i\varphi}, z + \varrho e^{i\theta}) d\varphi d\theta.$$ At first

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the author proves some theorems on the uniform convergence of a double series of functions biharmonic in $\xi$ (generalization of the theorem of Harnack), on certain bounded sequences of functions of bounded variation (Generalization of the theorems of Helly) and the fundamental lemma : In order that a function bisubharmonic in $\xi$ possesses there a biharmonic majoran it is necessary and sufficient that

$$\lim_{r,\varrho\to 1} \frac{1}{4\pi^2} \int_0^{2\pi}\int_0^{2\pi} h(r e^{i\alpha}, \varrho e^{i\beta})\, d\alpha\, d\beta < \infty$$

Then the Poisson - Stieltjes integral

$$(1) \quad \frac{1}{4\pi^2} \int_0^{2\pi}\int_0^{2\pi} \frac{1-r^2}{1+r^2-2r\cos(\varphi-\alpha)} \frac{1-\varrho^2}{1+\varrho^2-2\varrho\cos(\theta-\beta)}\, d\,d\psi(\alpha,\beta)$$

is introduced and proved that a function $U(w,z)$ biharmonic in $\xi$ which is representable in $\xi$ by (1) possesses almost everywhere on the boundary frame of $\xi$ finite radial boundary values which form a summable function identical with $\psi''_{\alpha\beta}(\alpha,\beta)$, i.e. $\lim_{r,\varrho\to 1} U(r e^{i\alpha}, \varrho e^{i\beta}) = \psi''_{\alpha\beta}(\alpha,\beta)$



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Boundary Properties of Biharmonic Functions SOV/41-10-3-6/14

Four further theorems contain, as conclusions of this general state, several statements on different special classes of biharmonic functions.

There are 6 references, 5 of which are Soviet, and 1 French.

SUBMITTED: June 1, 1956 (Kuybyshev)

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"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

AKSENOV, G.I., doktor tekhn.nauk, prof.; MOROZOV, N.P., inzh.; SHAFEYEV, M.N., kand. fiziko-matem. nauk

Numerical integration of the equation of heat conductivity of a cylinder with physical characteristics dependent on temperature. Izv. vys. ucheb. zav.; energ. 6 no.5:85-91 My '63. (MIRA 16:7)

1. Kuybyshevskiy aviatsionnyy institut. Predstavlena kafedroy metallovedeniya Kuybyshevskogo aviatsionnogo instituta.
(Heat--Transmission)

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

SHAFEYEV, N.G.

Contributions to the study of lichens of the Alai Mountains (Contributiones ad cognitionem lichenum montium Alajensium). Bot.mat.Otd.spor.rast. 9:26-31 My '53. (MLRA 7:2)
(Alai Range--Lichens) (Lichens--Alai Range)

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

SHAFEYEV, N.G. (g. Novozybkov)

A case of intracapsular prolificacy in Papaver somniferum L.
Bot.zhur. 42 no.3:456-457 Mr '57. (MLRA 10:5)
(Poppy) (Plants, Flowering of)

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

SHAFEYEV, N.G. (g.Novozybkov)

A rare phenomenon observed in the flower of Nymphaea alba L.
Bot. zhur. 46 no.4:579-580 Ap '61. (MIRA 14:3)
(Iput' River--Water lilies) (Abnormalities (Plants))
(Flowers--Morphology)

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

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SHAFRYEV, N.G.

Interrelations of the rosette leaves and adventitious roots in the ontogenesis of valerian. Bot. zhur. 49 no.9:1322-1324 S '64. (MIRA 17:12)

1. Pedagogicheskiy institut, g. Novozybkov.

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~~SHAFEYEV, R. Sh.~~

SHAFEYEV, R. SH.

1-17

Preparation of ores and concentrates for flotation. S. V. Dudenkov and R. Sh. Shafeev. U.S.S.R. 104,073, Oct. 25, 1956. Ores and concentrates are treated with high and ultra-high frequency currents to change the flotation properties of their surfaces. M. Hosin

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SHAFEYEV, R. Sh.

4
1-RMF

Nuc Sci

The application of the autoradiographic method to the distribution of flotation reagents on the surfaces of mineral particles. I. M. Plaksin, R. Sh. Shafeev, and S. P. Zuitseva. *Proc. Acad. Sci. U.S.S.R., Sect. Chem. Technol.* 108, 73-4 (1956) (English translation).—See C.A. 51, 2490g.
B. M. H.

RMF

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

SHAFEYEV, R. Sh.

Chem

**Application of autoradiography to study of distribution of flotation reagents on surface of mineral particles.** I. N. Plaksin, R. Sh. Shafeev and S. P. Zaltseva (*Doki. Akad. Nauk SSSR*, 1956, 108, 905—906).—The mineral (galenite) is treated with aq. KEtCS, containing $^{35}S$, washed, dried, and placed on a photographic plate, which is then developed, and enlargements of the positive are compared with photomicrographs of the same particles, at the same enlargement. The reagent is found to be unevenly distributed over the crystal surfaces, even when the total amount adsorbed exceeds several monolayers.

R. TRUSCOE.

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"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

SHAFEYEV, R. SH.

AUTHORS: Zaitseva, S.P., Plaksin, I.N. and Shafeyev, R.Sh. (Moscow).

TITLE: Application of autoradiography in studying the distribution of reagents between the particles of minerals in the flotation pulp. (Primeneniye avtoradiografii dlya izucheniya raspredeleniye reagentov mezhdu chastitsami mineralov vo flotatsionnoy pul'pe).

24-4-29/34

PERIODICAL: "Izv. Ak. Nauk, Otd. Tekh. Nauk" (Bulletin of the Ac. Sc., Technical Sciences Section), 1957, No.4, pp.164-168 (USSR).

ABSTRACT: The aim of the investigations was to elucidate the dependence of the yield of grains of reduced silver on the content of a radio-active reagent at the surface of a particle of flotation size. First the authors produced their own emulsions in their laboratories but later they used a standard, Soviet produced, emulsion intended for recording electron radiation. Fig.1 shows a galenite particle at 250 times magnification, treated with a solution of ethyl xanthogenate (containing S35), the reagent dose was 10 g/t. Fig. 2 - same for a reagent dose of 50 g/t. Fig.3 shows five galenite particles treated with a solution of radio-active ethyl xanthogenate with a reagent of 50 g/t. These particles were subjected to a photometric analysis by comparing the light density transmitted through the mass of the particles; the results are given. Fig.4 shows pulp consisting of PbS, $CuFeS_2$ and $SiO_2$, galenite absorbed

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Application of autoradiography in studying the distribution of reagents between the particles of minerals in the flotation pulp. (Cont.) 24-4-29/34

most of the xanthogenate, $CuFeS_2$ absorbed less and $SiO_2$ absorbed almost none. This non-uniform distribution can also be seen from Fig.5 which shows particles of galenite and quartz treated with a solution of ethyl xanthogenate, the dose being 50 g/t. Determination of the distribution of the reagent in the pulp by means of micro-autoradiography can yield useful additional information in investigating the beneficiation properties of ores. There are 5 figures, 2 American, 2 Russian references. (See also "Auto-radiography technique in investigating the distribution of flotation reagents at the surface of particles of sulphide minerals" by I. N. Plaksin, L. P. Starchik and V. I. Tyurikova, same journal, No.3, 1957, pp.187-189).

SUBMITTED: April 24, 1956.

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"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

SHAFEYEV, R. Sh.

PLAKSIN, I.N.; ZAYTSEVA, S.P.; STARCHIK, L.P.; TRET'YAKOV, O.V.; TYURNIKOVA, V.I.; SHAFEYEV, R.Sh.

Studying the reaction of reagents and minerals in flotation by the microautoradiographic method. Zav. lab. 23 no.3:313-316 '57. (MLRA 10:6)

1. Institut gornogo dela Akademii nauk SSSR.
(Radiography) (Flotation)

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4"

"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

SHAFEYEV, R.SH.

AUTHORS: Plaksin, I. N., Corresponding Member, AN USSR, 20-3-37/59
Shafeyev, R. Sh.

TITLE: The Influence of the Electrical Potential on the Distribution of Xanthates on the Surface of Sulfides (O vliyanii elektricheskogo potentsiala na raspredeleniye ksantogenatov na poverkhnosti sul'fidov).

PERIODICAL: Doklady AN SSSR, 1958, Vol. 118, Nr 3, pp. 546-548 (USSR)

ABSTRACT: The electrical potential of a mineral in water is irregular owing to the irregularity of its structure. The structure, however, is a result of the conditions of formation and further changes of the surface. The difference of the surface potentials influences the oxidation of sulfides. The authors give a survey of technical literature concerning the connection between the properties of flotation of the surface and their potential (ref. 1-6). There exists a relation between the irregularity of the potential, the fastening of a flotation reagent and the process of attachment of a mineralparticle to a small gas bubble. The authors suggest an explanation of the mechanism regulating the irregular distribution of the reagent on the surface of a mineral. It is based on the potential difference of the

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micro- and macro-elements formed. The authors measured potentials of newly stripped sulfide minerals. For this purpose they used an oscillographic apparatus without inertia (Bezynertsionnaya) with an electro-magnetic input scheme guaranteeing a minimum polarization. Measuring results were by 15-50 % higher or lower than those obtained by methods. The forming of a change of the potential on an uneven surface of a sulfide mineral particle is shown schematically in fig. 2. A formed electric field (of forces) affects, the further placing of ions and molecules to be absorbed because of the change of potential e.g. because of oxygen absorption. Due to this fact the reagent is distributed irregularly on the surface. The distribution of ions or molecules reduces the importance of free energy to a minimum. The phenomena occurring on the occasion of flotation are often observed under conditions which are not equilibrium-like. The collisions of mineral particles with different potentials as well as the physical-chemical interaction with the medium influence the potential differences of the micro sections of the surface. Therefore also the distribution of the reagent is influenced as well as the shifting of its layers



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from one surface place to the other. This occurs especially in the case of shifting of the reagent from the upper layers of a shell of several layers to surface places still free from reagent. The current impulses between sulfide minerals at the moment of collision in a 0,01 n-KCl-solution amounted to 2,0 - 2,5 mA. Such a current related to the point of contact between the mineral particles as well as to the depths of the absorbing layers produces considerable energy gradients which are able to change the original distribution of reagents thoroughly. The authors observed that the the buresting of an air bubble starts at the moment of attachment to any active point. This burst spreads rapidly on the surface of attachment. The potential is probably changed by an air bubble approaching the mineral surface. The change is the greater the more the bubble approached this surface. If the liquid phase is interrupted in an active point at the moment of contact between the air bubble and the mineral surface and then fastening starts, the potential gradiant on the formed 3-phase limit increases with the increasing surface of attachment of the bubble to the mineral



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The Influence of the Electrical Potential on the Distribution of Xanthates on the Surface of Sulfides 20-3-37/39

at the cost of the influence of the gaseous phase of the bubble.
There are 2 figures, and 7 references, 5 of which are Slavic.

SUBMITTED: September 3, 1957

AVAILABLE: Library of Congress

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"APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548520002-4

AUTHORS: Plaksin I. N., Corresponding Member, Academy of Sciences, USSR, Shafeyev, R. Sh. SOV/20-121-1-41/55

TITLE: The Influence of the Electrochemical Heterogeneity of the Sulfide Mineral Surface on the Xanthate Distribution Under Flotation Conditions (Vliyaniye elektrokhimicheskoy neodnorodnosti poverkhnosti sul'fidnykh mineralov na raspredeleniye ksantogenata v usloviyakh flotatsii)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol. 121, Nr 1, pp. 145 - 148 (USSR)

ABSTRACT: The irregular distribution of the reagent on the mineral particles in the flotation pulp may be caused by the different sorption activity of the bare mineral surfaces as well as by numerous secondary actions in the flotation process. The adsorption-chemical effect of the medium which contains the destroyed crystals tends to reduce the energetic irregularity of the surface to a minimum. The velocity of such an action is different even for two particles of one destroyed crystal. This probably leads to the observed irregularity of the sorption properties of the same mineral in the flotation pulp. The

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authors investigated the change of the electric potential between two particles of a pyrite crystal. They investigated this change in distilled water as well as in a solution of butyl xanthate (0,001%). Figure 1 gives the measuring results. The maxima of the curves correspond to the greatest difference of the energetic state of the pyrite surface which was placed in a liquid medium in consequence of the adsorption-chemical action of the medium on the mineral surface. The sulfide minerals are in most cases semiconductors with an n-type conductivity. The measurable electro-chemical potential is therefore a sensitive indicator of the physical-chemical processes which take place on the surface of the sulfides. The electro-chemical processes on the surface of the sulfide minerals play an important rôle in the mechanism of the re-distribution of the reagent. The influence of the anodic surface sections on the distribution of the reagent on the surface of the sulfide minerals may be considered fixed. These sections form electric fields which on their part considerably change the qualitative composition of the adsorption diffusion layer, and therefore



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The Influence of the Electrochemical Heterogeneity of the Sulfide Mineral Surface on the Xanthate Distribution Under Flotation Conditions SOV/20-121-1-41/55

also the distribution of the reagent on these facets. When the xanthate ions enter the effective zone of the mentioned electric field they are subjected to the orientated effect of the gradient of these fields and are mainly placed in the zone of the anodic sections. The occurrence of the reducing properties of the xanthates is to be expected, owing to the increased xanthate concentration. The dixanthogen produced in this connection may either screen the anodic section in changing the potential of the latter or shift to the surface sections with an isoelectric state, or leave the mineral surface. In the cathodic sections a stronger bond of xanthate may be assumed, since electric repulsive forces are effective which reduce the formation of the xanthate adsorbed by the surface. Under flotation conditions a re-distribution of xanthate takes place on the surface of a sulfide particle as well as between individual particles under the influence of electrochemical factors. There are 3 figures and 10 references, 9 of which are Soviet.

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The Influence of the Electrochemical Heterogeneity of the Sulfide Mineral Surface on the Xanthate Distribution Under Flotation Conditions SOV/20-121-1-41/55

SUBMITTED: April 16, 1958

1. Minerals--Flotation 2. Minerals--Adsorptive properties
3. Sulfides--Electrochemistry 4. Reagents--Performance
5. Xanthate ions--Chemical effects

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20-119-3-44/65

AUTHORS: Plaksin, I. N., Corresponding Member, Academy of Sciences, USSR, Zaytseva, S. P., and Shafeyev, R. Sh.

TITLE: Quantitative Microautoradiography of Xanthates Layers on the Surface of Galenite (Kolichestvennaya mikroavtoradiografiya sloyev ksantogenatov na poverkhnosti galenita)

PERIODICAL: Doklady Akademii Nauk SSSR, 1958, Vol. 119, Nr 3, pp. 551-552 (USSR)

ABSTRACT: A nonuniform distribution of the flotation reagents on the surface of the sulfide minerals (size 43 - 500μ) under formation of poly-layers in single cases was found by means of the mentioned method. In the present paper the degree of nununiformity of the galenite particles which have a size of 200-500μ is evaluated quantitatively by flotation collectors by means of the same method. The layers on the particles were radiographed by means of contrast-micro-autoradiography (ref 1), according to the blackening of single sections of the impressions (determined by micro-photometer). 2 curves of density of blackening were constructed from the results of the photometric evaluation:

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one for the maximum, the other for the minimum densities. The distribution curve was constructed from the results of the photometric evaluation of the microautoradiograph with normal blackening (not more than 2,0). The absolute covering density of single surface sections of the particles was detected according to the blackening density of the microautoradiographs by comparison with the blackening density of the etalon. Radioactive monolayers are the best radioactive sources for the quantitative radiography (ref 6). The authors established conditions (ref 7) under which a monomolecular adsorption layer of xanthate is formed on the surface of a small plate of chemically pure gold. A photometric analysis of the autoradiographic impression showed a complete homogeneity of the mentioned etalon. The coefficients of the backword scattering of the material on which the reagent was adsorbed were taken into account because of an absolute evaluation of the image intensity on the autoradiographs. In consequence of the very approximated values of these coefficients (for PbS 67 %,



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for Au 65 %) the measurement of the number of the molecular layers of xanthate on the sections of the particle surface is possible by means of a direct comparison of the blackening density on the radiographs of the galenite particles and the gold plate. Figure 1 shows the distribution curves of the blackening of the microautoradiograph (1) and of the radiographic impression of the gold plate with a monolayer coating (2) and with ethyl-xanthate which contains S35. The dosage for the case (figure 1) amounts to 100 g/to. The analysis of the curve makes possible the determination of the number of molecular layers on the sections of the microautoradiograph and the detection of the coefficients of the nonuniformity of the distribution of ethyl-xanthate on the galenite surface. The nonuniformity variation coefficient of the last mentioned coatings amounts to 168 %. The triple xanthate dose does not lead to a complete coating of the particles with the reagent, increases, however, only the nonuniformity coefficient up to 385 %. Butyl- and isoamyl xanthates are distributed nonuniformly, too, on the galenite surface.



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Quantitative Microautoradiography of Xanthates Layers on the Surface of Galenite 20-119-3-44/65

The nonuniformity decreases if 2 different xanthates are combined with each other. Figure 2 shows the blackening curve of the microautoradiograph of the galenite particles which were treated with a mixture (1:1) of ethyl- and butyl xanthate in the case of a total dosage of 100 g/to. The curve characterizes a more uniform blackening of the microautoradiograph and thus a more uniform distribution of the xanthates on the surface. In consequence of the reduction of the sections which were not occupied by the reagent the nonuniformity coefficient here reduces to 73 %. Thus the increased extraction by 2 sulfo-hydryl collectors is explained to a certain extent.
There are 2 figures and 8 references, 7 of which are Soviet.

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PLAKSIN, I.N.; SHAFEYEV, R.Sh.

Influence of the electrochemical heterogeneity in the sulfide mineral surface on the xanthate distribution in flotation. Dokl. AN SSSR 121 no.1:145-148 Jl-Ag '58. (MIRA 11:9)

1.Chlen-korrespondent AN SSSR (for Plaksin).
(Flotation) (Xanthic acid)

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SHAFEYEV, R. Sh: Master Tech Sci (diss) -- "A study of the distribution of xanthogent through the products of selective flotation of lead-zinc ores, using radioactive isotopes". Moscow, 1959. 10 pp (Acad Sci USSR, Inst of Mining), 150 copies (KL, No 10, 1959, 126)

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SOV/20-125-3-37/63

5(1)

AUTHORS: Plaksin, I. N., Corresponding Member, AS USSR, Shafeyev, R. Sh.

TITLE: On the Problem of the Mechanism Underlying the Formation of Electrochemical Heterogeneity on the Surface of Sulphide Minerals (K voprosu o mekhanizme vozniknoveniya elektrokhimicheskoy neodnorodnosti poverkhnosti sul'fidnykh mineralov)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 125, Nr 3, pp 599-600 (USSR)

ABSTRACT: Electrochemical processes occurring on the surface mentioned in the title greatly influence the interaction mechanism between the flotation reagent and the surface of the said minerals in the flotation pulp. Electrochemical heterogeneity of the surface in question (Refs 1,2), the anodic and cathodic spots on it, as well as high values of the potential differences between these spots (Ref 3) exert a strong influence upon the distribution of the flotation reagents on the surface of the mineral particles. The ions and molecules of the said reagent, in the proximity of the mineral surface, are under the influence of electric fields. These fields form on a surface of electrochemical heterogeneity. Consequently, the further distribution

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of this reagent is determined by the gradient value of the electric field forming between the anodic and cathodic spots of the surface. The stable xanthogenate is irregularly distributed on the surface of various sulphide minerals (Refs 4,5). This was determined by micro-radiographic investigations by using isotope $S^{35}$. Apart from the heterogeneity discussed, however, there are also spots with various potentials, forming in consequence of the peculiarities of adsorption at sulphide minerals. Some scientific workers (Refs 6,7) observed a concentration increase of the flotation reagent (especially of xanthogenate) by the aid of an air bubble in the 3-phase contact of the mineral particle. Such spots are regularly distributed on the surface of the sulphide minerals, as investigations (Ref 8) have shown. The cathodic spots have the tendency of concentrating in the proximity of the salient parts, whereas the anodic spots gather at the less accessible spots of the sulphide minerals (Fig 1). To investigate this, the authors scratched the surface of the samples (Fig 3). Furthermore, a cathodic spot was found under an air bubble (Fig 2). The physical adsorption exerts a considerable



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On the Problem of the Mechanism Underlying the Formation of Electrochemical Heterogeneity on the Surface of Sulphide Minerals

influence upon the formation of the electrochemical heterogeneity as well as upon the fixation and distribution of the flotation reagents on the surface. This type of adsorption proceeds much quicker than chemosorption (Ref 9). Still, the quantity of the physically sorbed substance is much larger at the more accessible spots of the mineral than at the less accessible ones. In consequence of the uneven thickness of the adsorption film, the ions are able to pass the boundary solid body - liquid with varying difficulty. A difference of potential is the result. A scratch destroys the adsorption film, bringing about the formation of an anodic spot. Here, xanthogenate concentrates with the radioactive isotope $S^{35}$. Under an air bubble a cathodic spot forms in consequence of the diffusion of the air molecule through the mentioned boundary, and also because the bubble is negatively charged in many solutions of organic substances (Ref 10). There are 3 figures and 10 references, 9 of which are Soviet.

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SOV/20-125-3-37/63

On the Problem of the Mechanism Underlying the Formation of Electrochemical Heterogeneity on the Surface of Sulphide Minerals

ASSOCIATION: Institut gornogo dela Akademii nauk SSSR (Mining Institute of the Academy of Sciences, USSR)

SUBMITTED: December 24, 1958

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SOV/20-127-2-41/70

5(4)

AUTHORS: Plaksin, I. N., Corresponding Member AS USSR, Shafeyev, R. Sh.

TITLE: Effect of Iodine on the Floatability of Sulfide Minerals

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 127, Nr 2, pp 384-385 (USSR)

ABSTRACT: According to reference 1 iodine exhibits a natural floatability, and in this respect is comparable to elementary sulphur, as in both these elements the intermolecular forces are feeble as compared to the interatomic forces. To test the effect of iodine as a concentrating reagent, an investigation was first made of the iodine adsorption by sulfide minerals (Table 1). The effect of iodine on flotation was investigated in a flotation machine with a chamber of 100 ml capacity. Mixing with iodine was done for three min, and flotation also took three min. Xanthogenate and iodine were added separately. Results are given in table 3. Iodine enters reaction with xanthogenate. This was proven by experiments with iodine and $S^{35}$-marked butyl xanthogenate (Table 3).

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