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The activation energy of the aging process can be determined from the Arrhenius equation using the experimental values of the oxidation rate constants at two different temperatures. Subsequently, the oxidation rate constants at operational temperature can be determined from equation

$$\lg K_x = \lg K_1 - \frac{E}{4.6}\frac{(T_1 - T_x)}{T_1 \cdot T_x}, \qquad (2)$$

where K_1 and K_x are oxidation rate constants at T_1 and T_x, respectively; E is the activation energy (in cal/ /mole); T_1 is the absolute temperature corresponding to artificial aging conditions; and T_x is the temperature corresponding to normal aging conditions. The actual aging proceeds more quickly than artificial aging, and this is expressed by the correction factor

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K_s which varies in the range of $1.0 \cdot 10^{-4}$ to $6.0 \cdot 10^{-4}$. Accordingly,

$$K_{total} = K_x + K_s \qquad (3)$$

and the final form of Eq. (1) can be written as

$$\lg(\varepsilon_t - \varepsilon_\infty) = \lg(\varepsilon_0 - \varepsilon_\infty) - \left(\frac{K_s + K_x}{2.3}\right) t. \qquad (4)$$

Aging time t_{kp} and the corresponding ε_{kp} can be determined from Eq. (4) and the curves in Fig. 2, and can be used as a guide to establish the guaranteed life of a cable. Correcting factors must be introduced, however, to account for the construction and size of the cable, ambiant humidity, biological medium, kind of core metal, etc., etc. Values of the relative elongation at the moment of rupture for both rubber types were calculated for up to 3,650 days of aging and checked against experimental values for up to

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Aging of Cable Rubber Insulation

75674
SOV/80-32-10-23/51

915 days. Migration of copper into rubber, and migration of thiuram, sulfur, plasticizers, and other compounds was investigated. Thiuram migrated from the intern. core insulation into the external rubber sleeve, and accelerated its aging. Copper compounds migrating from the cable core into the insulation had the same effect on the internal insulation. A method is suggested for the determination of the time of moistening of rubber as function of temperature, sleeve thickness, and electrical breakdown constant. Rubber disks 1 mm thick, and 110 mm in diameter were placed in sleeve rubber envelopes 1 mm and 2 mm thick. The disks were placed above water in a container with water maintained at a given temperature. After a predetermined period of time the disks were removed from the container, freed from the envelope, and tested for electric breakdown according to GOST 2068-54 and 6433-52. The study was made under supervision of Sokolov, S. I., and directions of Lyubchanskaya, L. I., and Kuz'minskiy, A. S. There are 8 figures; 2 tables; and 10 references, 1 German, 9 Soviet.

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Aging of Cable Rubber Insulation

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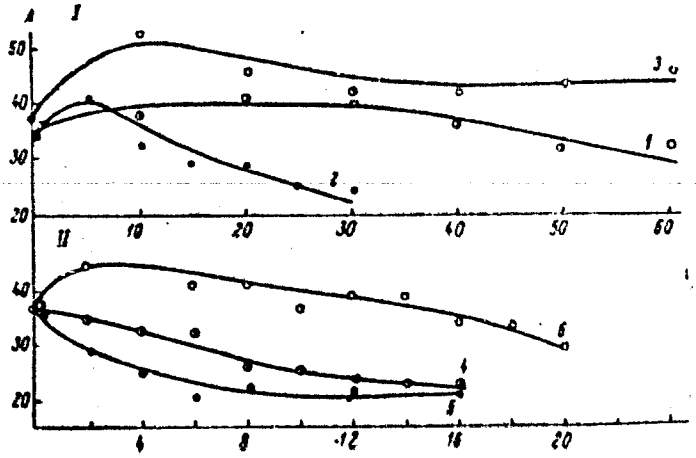
Caption to Fig. 8
on card 8/9.



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Caption to Figure 8.

Fig. 8. Relation between the breakdown voltage of insulation rubber and the time of moistening through rubber sleeve 1 mm thick at 20° and 70°. A, breakdown voltage (in v/mm.); B, time of moistening (in days). At 20°: (1) ShN-40 rubber; (2) ShBM-40 rubber; (3) butyl rubber base compound; at 70°: (4) ShN-40 rubber; (5) ShBM-40 rubber; (6) butyl rubber. Moistening: (I) at 20°; (II) at 70°.

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Caption to Figure 8.

Fig. 8. Relation between the breakdown voltage of insulation rubber and the time of moistening through rubber sleeve 1 mm thick at 20° and 70°. A, breakdown voltage (in v/mm.); B, time of moistening (in days). At 20°: (1) ShN-40 rubber; (2) ShBM-40 rubber; (3) butyl rubber base compound; at 70°: (4) ShN-40 rubber; (5) ShBM-40 rubber; (6) butyl rubber. Moistening: (I) at 20°; (II) at 70°.

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Aging of Cable Rubber Insulation

75674
SOV/80-32-10-23/51

ASSOCIATION: Scientific Research Institute of Cable Industry (Nauchno-issledovatel'skiy institut kabel'noy promyshlennosti)

SUBMITTED: June 25, 1959, for the second time

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DUBROVIN, G.V..

Strut for tie repairs. Put' i put. khoz. 4 no. 12:29 D '60.
(MIRA 13:12)

1. Tekhnik po opytnym rabotam Pushkinskoy distantsii puti Moskovskoy dorogi.
(Railroads--Equipment and supplies)

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DUBROVIN, I., insh.; SAFRONOV, V., insh.

Petroleum fleet operations according to the principle of permanently attaching tows to the barges. Rech.transp. 19 no.5: 10-12 My '60. (MIRA 13:7)
(Tank vessels) (Tugboats)

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PROCESSES AND PROPERTIES INDEX

M

22

The Composition of Metallurgical Powders and Methods of Removing Non-Ferrous Metals from Them. I. M. Dubrovin. (*Uralskii Gosudarst., Nauch.-Issledovatel. Inst. Zvetnym Metal., Sbornik Nauch.-Issledovatel. Rabot.*, 1935, (1), 75-86; *C. Abs.*, 1937, 31, 3839).—[In Russian.] Cottrell powders are heated at 450°-500° C., without adding carbon as a reducer, to distil out arsenic. The residue is leached with 5% sulphuric acid in a series of agitators to remove zinc. The residue from this treatment is heated at 1150°-1200° C. to remove lead and any remaining zinc.—S. G.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

Effect of high temperatures on arsenic salts of lead and zinc. I. M. Dobrovin. *J. Applied Chem.* (U. S. S. R.) 9, 40-[illegible] English 60)([illegible]).—*Zn arsenate* is stable up to 400°. At 400-500° thermal dissocn. takes place, but the valence of As remains unchanged. Above 500° the probable reactions are: oxidation-reduction, thermal dissocn. and oxidation by O of the air. At 550-875° oxidation by air is at its max., while at 700° oxidation-reduction is predominant. *Pb arsenate* begins to dissoc. thermally at 250-300°; this is accompanied by oxidation of As by air. At 350° all As is oxidized to the quinquevalent state. At 700° oxidation with O of the air is at its max., while thermal dissocn. decreases and cannot be detected at 350° or above. At 1000° partial decompn. of the Pb arsenate formed begins. *Zn arsenate* does not decompose up to 800° and *Pb arsenate* up to 900-1000°.

V. A. Kalichevsky

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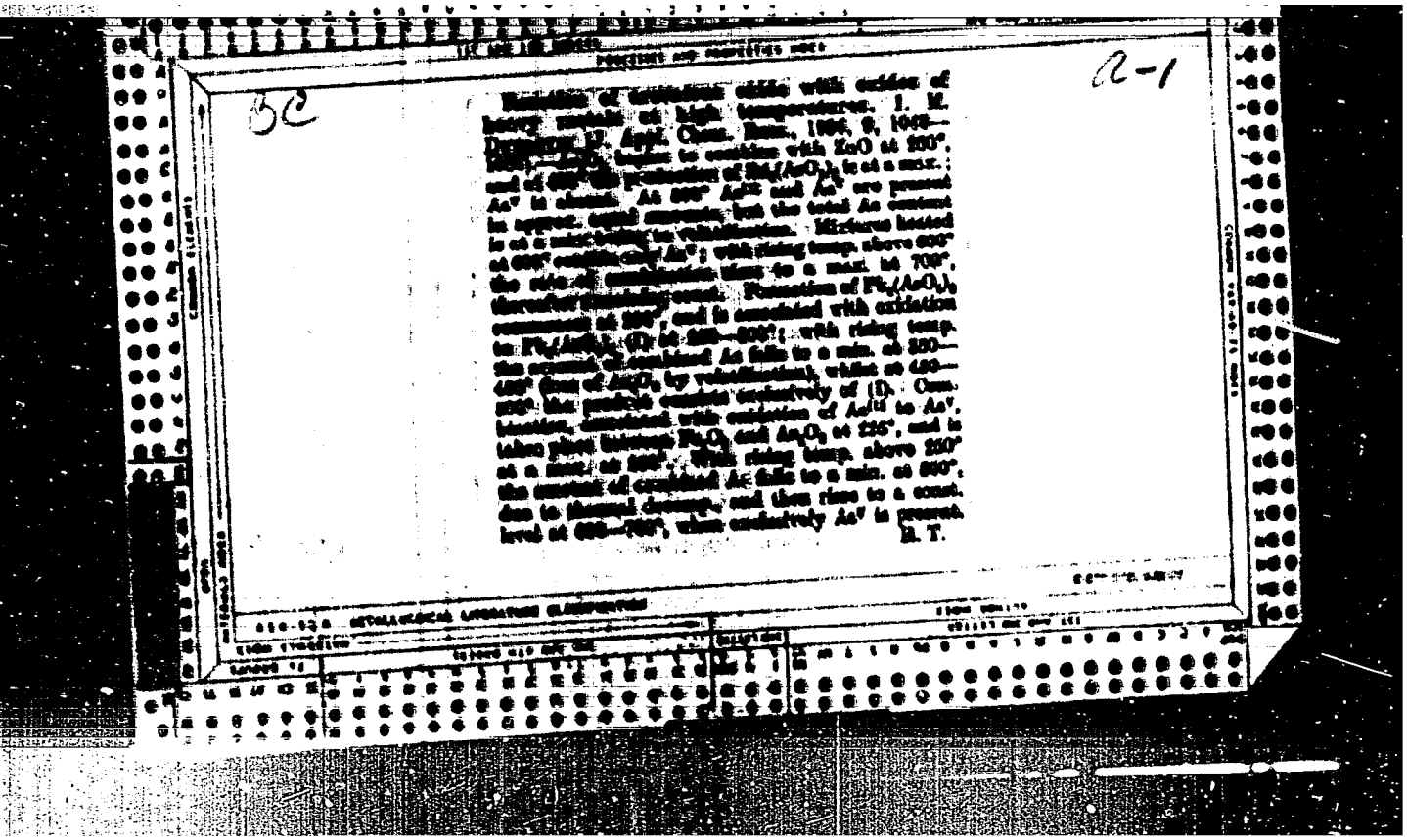

BC

a-1

Reaction of arsenious oxide with oxides of heavy metals at high temperatures. I. M. [illegible] J. Appl. Chem. Russ., 1936, 9, 1048—[illegible]. As_2O_3 begins to combine with ZnO at 200°, and at [illegible] the production of $Zn_3(AsO_4)_2$ is at a max.; As^V is absent. At 500° As^{III} and As^V are present in approx. equal amounts, but the total As content is at a min. [illegible] to volatilization. Mixtures heated at 600° contain only As^V; with rising temp. above 600° the rate of combination rises to a max. at 700°, thereafter [illegible] const. Formation of $Pb_3(AsO_4)_2$ commences at 200°, and is associated with oxidation to $Pb_3(AsO_4)_2$ (I) at 200—300°; with rising temp. the amount of combined As falls to a min. at 350—400° (loss of As_2O_3 by volatilization), whilst at 450—500° the product consists exclusively of (I). Combination, associated with oxidation of As^{III} to As^V, takes place between Fe_2O_3 and As_2O_3 at 225°, and is at a max. at 300°. With rising temp. above 250° the amount of combined As falls to a min. at 500°, due to thermal decomp., and then rises to a const. level at 600—700°, when exclusively As^V is present.

R. T.

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PROCESSES AND PROPERTIES INDEX

BC

Behaviour of arsenious anhydride volatilised together with other oxides in hot gases. I. M. Dubrovin (J. Appl. Chem. Russ., 1936, 9, 2145—2152).—The amount of non-volatile As salts formed when air containing ZnO is mixed with air containing As_2O_3 at 400° is > at 250°, and also in presence of SO_2 and/or H_2O is < in their absence. In presence of PbO fumes formation of non-volatile As^{III} and As^{V} salts at 250° is > at 400°, and is inhibited by H_2O at 400° and increased at 250°; SO_2 inhibits salt formation at 250° and 400°. R. T.

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2A

7

PROCESSES AND PROPERTIES INDEX

The process of distillation of zinc scum in the Faber du Faur furnaces at the lead smelting works of Chimkent. I. M. Dubrovin. *Tsvetnye Metal.* 12, No. 10, 53-62 (1937); *Chem. Zentr.* 1938, II, 755; cf. *C. A.* 33, 4557[7]. Difficulties observed in operation, which are caused by a relatively high Cu content and the presence of Zn, preponderantly in the oxidized condition, in the dry scum, are discussed. In order to prevent these it is recommended that the ZnO be thoroughly reduced during refining, that a reducing agent (e. g., wood charcoal) in finely divided form be introduced, that the furnace temp. be kept below 1300°, and that the fuel oil be dried as thoroughly as possible.

M. G. Moore

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PROCESSES AND PROPERTIES INDEX

C1

9

The over-blowing of black copper in converters. I. M. Dubrovin. *Tsvetnye Metal.* 1938, No. 6, 73-4; *Chem. Zentr.* 1940, I, 127. Over-blowing of black Cu causes it to become enriched in CuO, so that this procedure is avoided in practice. The refining of the Cu, on the other hand, begins by blowing air through for the purpose of oxidizing impurities. The idea is advanced that the refining can be shortened if the blowing through of air has already been done in the converter. In order to prevent a loss of Cu by oxidation and transference into the slag the max. period for the use of the air blast is previously detd. and then accurately timed or the excess CuO is reduced by the addn. of C at the time of casting.

M. G. Moore

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ca

9

Roasting zinc-bearing concentrates in oxygen-enriched air. I. [illegible]. *Trestnye Metal.* 13, No. 3, 53-6 (1938); *Chimie & industrie* 41, 489.—When the concn. of O_2 increases from 21 to 80%, the S content of the slag (in the case of dead roasting) increases from 1.3-1.4% to 2%. The total time required for the process decreases till the proportion of O_2 in the enriched air reaches 30-35%; above and below this concn. the time required for dead roasting increases. Roasting in pure air is uniform, but slower than in air contg. 30-40% O_2. With air contg. 60-80% O_2 roasting is at first more intense than with 30-40% O_2, but subsequently slows down considerably on account of the formation of notable amounts of sulfates.

A. Papineau-Couture

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PROCESSES AND PROPERTIES INDEX

9

CR

The working up of slags from the smelting of copper in water-jacketed furnaces in the Moscow Molotov Works. I. M. Dubrovin. *Tsvetnye Metal.* 13, No. 11, 60-74(1938); *Chem. Zentr.* 1939, II, 2371; cf. C. A. 34, 8[illegible]. The following figures are given for the recovery: Cu in the mat, 81%; Sn in the dust, 85%; Pb in the dust, 95%; and Zn in the dust, 60%. From 48 to 50% of coke and 13% of magnetic pyrites (calcd. on the granulated slag) were used. By the addn. of magnetic pyrites (or better Fe pyrites) the Cu content of the mat was held to a max. of 15%. The slag should contain about 20% or somewhat more CaO. The temp. of the blast-furnace gas was about 750°; the gas contained 7-15% CO_2, 0-0.8% O_2 and 2.5-11% CO. The slag should be drawn off with a temp. of at least 1200°. M. G. Moore

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11(7),5(2)

AUTHORS: Dubrovin, I. M., Yevseyev, A. K. SOV/89-7-4-14/28

TITLE: The Thermodynamics of the Reduction of Uranium Tetrafluoride by Magnesium

PERIODICAL: Atomnaya energiya, 1959, Vol 7, Nr 4, pp 379-382 (USSR)

ABSTRACT: A system consisting of condensed phases (uranium, magnesium fluoride, uranium tetrafluoride) and magnesium vapor may be considered to be monovariant at the temperature of thermal magnesium reduction ($\sim 1400^{\circ}C$) if a certain reciprocal solubility of its components is neglected. In this case the constants of reaction equilibrium at various temperatures may be determined from the equation of the isothermal line of the reaction: $\Delta F^{o} = -4.576\ T \lg K$ or $\Delta F^{o} = -4.576\ T \lg(1/P^{2}_{Mg})$. Here, P_{Mg} denotes the equilibrium pressure of the magnesium vapors. The variations ΔF^{o}_{T} of the free energy of the reaction were determined for various temperature intervals from the Gibbs-Helmholtz-equation. When determining the variation of free energy the following phase transformations were taken into

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account: (1) The melting of magnesium at the temperature of 923°K. (2) The transition of α-uranium into β-uranium at 938°K. (3) The transition of β-uranium into γ-uranium at 1045°K. (4) The melting of UF_4 at 1,309°K (5) The boiling of the magnesium at 1,374°K. (6) The melting of the uranium at 1,406°K. (7) The melting of MgF_2 at 1,536°K. The results of the computations are compiled in a table in form of equations for the variation of the free energy of the reaction. The smoothed values of this variation ΔF^o are shown by a diagram. The third table shows the numerical values of ΔF^o, lg K, and P_{Mg} for the characteristic temperatures, and, for comparison, the results of other calculations of ΔF^o. According to these results, the reduction of UF_4 by magnesium at 1,400°C develops practically completely in the direction of the side at which metallic uranium and MgF_2 are produced, because the equilibrium pressure of the magnesium vapors is very low at this temperature (0.8 torr). The higher the magnesium vapor pressure in the closed reaction

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apparatus (in the closed vessel), the more rapid and complete will be the reduction. In the case of an excess (0.5% to 10%) of magnesium in the melting stock its vapor pressure in the bomb amounts to 8 atmospheres at 1,400°C. If black uranium is remelted (refined)($\sim$1,400°C) in vacuum (which is higher than the magnesium vapor pressure corresponding to equilibrium for the reduction) a reaction develops in the inverse direction between the black uranium and the slag inclusions of MgF_2. In this case separation of uranium from MgF_2 is brought about more completely by the volatilization of the produced magnesium and of UF_4. There are 1 figure, 3 tables, and 11 references, 4 of which are Soviet.

SUBMITTED: April 9, 1959

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S/089/60/009/005/013/020
B025/B070

21.3100

AUTHORS: Dubrovin, I. M., Yevseyev, A. K.

TITLE: Thermodynamics of the Reduction of the Fluorides of Potassium and Sodium by Metallic Calcium and Magnesium

PERIODICAL: Atomnaya energiya, 1960, Vol. 9, No. 5, pp. 414 - 417

TEXT: Impurities of potassium and sodium occur in uranium tetrafluoride mostly in the form of fluorides. They disturb the reaction of uranium and decrease its yield. It is with a view to study these disturbing effects that the change of the thermodynamic potential ΔF_T^o in the reactions quoted in Table 2 has been calculated for different intervals of temperature, starting data being taken from Table 1. The calculated temperature dependence of the free energy of potassium and sodium fluorides on reaction with calcium and magnesium is represented in the attached diagram. The conclusion is that in the fusion reduction of uranium tetrafluoride the admixtures of alkali metals must be as low as possible. There are 1 figure, 2 tables, and 9 references:

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85568

Thermodynamics of the Reduction of the Fluorides of Potassium and Sodium by Metallic Calcium and Magnesium

S/089/60/009/005/013/020
B025/B070

5 Soviet, 1 US, and 3 British.

SUBMITTED: February 29, 1960

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Table 1

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Термодинамическая величина и ее размерность 1)	Компонент реакции 2)	Значение термодинамической величины 3)	Литература 4)	Теплоемкость C_p, кал/моль·град 5)	Температурный интервал C_p, °K 6)	Литература для C_p 7)
ΔF°_{298}, ккал/моль	NaF	−129,3	[2]	—	—	—
ΔF°_{298}, » »	KF	−127,4	[3]	—	—	—
ΔF°_{298}, » »	CaF_2	−277,7	[2]	—	—	—
ΔH°_{298}, ккал/моль	NaF	−136,0	[2]	—	—	—
ΔH°_{298}, » »	KF	−134,5	[3]	—	—	—
ΔH°_{298}, » »	CaF_2	−290,3	[2]	—	—	—
ΔS°_{298}, кал/моль·град	NaF	14,0	[3]	$10,79+4,2\cdot10^{-3}T$	273—1265	[4]
ΔS°_{298}, » » »	KF	15,91	[3]	$11,27+3,86\cdot10^{-3}T-0,69\cdot10^{5}\cdot T^{-2}$	330—550	[4]
ΔS°_{298}, » » »	CaF_2	16,46	[3]	$13,8+7,8\cdot10^{-3}T$	298—1424	[4]
ΔS°_{298}, » » »	Na	12,2	[3]	$5,01+5,36\cdot10^{-3}T$	298—371	[4]
ΔS°_{298}, » » »	K	15,2	[3]	$5,24+5,55\cdot10^{-3}T$	273—336,5	[4]
ΔS°_{298}, » » »	Ca	9,95	[3]	$5,31+3,33\cdot10^{-3}T$	273—713	[4]
$\Delta H_{пр}$, ккал/моль	α Ca → → β Ca	0,24	[4]	$1,5+7,74\cdot10^{-3}T+2,5\cdot10^{5}\cdot T^{-2}$	750—1123	[4]
$\Delta H_{пр}$, » »	α CaF_2 → → β CaF_2	1,14	[3]	$25,81+2,5\cdot10^{-3}T$	1424—1691	[4]
$\Delta H_{пл}$, ккал/моль	NaF	7,8	[4]	16,0	>1256	[5]
$\Delta H_{пл}$, » »	KF	6,3	[4]	16,7	>1159	[5]
$\Delta H_{пл}$, » »	CaF_2	7,1	[3]	23,88	1691—1800	[4]
$\Delta H_{пл}$, » »	Na	0,63	[4]	7,5	371—450	[4]
$\Delta H_{пл}$, » »	K	0,57	[4]	7,7	336,5—373	[4]
$\Delta H_{пл}$, » »	Ca	2,2	[3]	7,4	1123—1223	[4]
$\Delta H_{исп}$, ккал/моль	Na	23,4	[4]	4,07	>1156	[3]
$\Delta H_{исп}$, » »	K	19,0	[4]	4,97	>1048	[3]
$\Delta H_{исп}$, » »	Ca	34,8	[6]	4,07	1713	[3]

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Legend to Table 1:
1) Thermodynamical quantity and its dimension
2) Components of reaction
3) Value of the thermodynamical quantity
4) References
5) Specific heat C_p (cal/mole.deg)
6) Temperature interval for C_p
7) References for C_p

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1) Интервал температур, °K	ΔF°_{T}, ккал/моль
	$2NaF + Ca = 2Na + CaF_2$
298—371	$-17\,690 - 21,4T - 3,4\cdot10^{-3}T^2 + 7,06T\lg T$
371—713	$-17\,540 + 5,64T + 1,97\cdot10^{-3}T^2 - 4,39T\lg T$
713—1123	$-19\,730 + 31,9T + 4,17\cdot10^{-3}T^2 + 1,25\cdot10^5T^{-1} - 13,14T\lg T$
1123—1156	$-19\,820 - 5,07T + 0,3\cdot10^{-3}T^2 + 0,43T\lg T$
1156—1265	$32\,840 - 86,29T + 0,3\cdot10^{-3}T^2 + 12,08T\lg T$
1265—1424	$23\,700 - 148,1T - 3,9\cdot10^{-3}T^2 + 36,05T\lg T$
1424—1691	$13\,100 - 57,48T - 1,23\cdot10^{-3}T^2 + 8,42T\lg T$
1691—1713	$27\,010 - 82,13T + 12,86T\lg T$
1713—1977	$-11\,960 - 41,3T + 7,26T\lg T$
	$2KF + Ca = 2K + CaF_2$
298—336,5	$-20\,200 - 27,39T - 3,93\cdot10^{-3}T^2 - 0,69\cdot10^5T^{-1} + 8,2T\lg T$
336,5—713	$-20\,090 - 1,1T + 1,63\cdot10^{-3}T^2 - 0,69\cdot10^5\cdot T^{-1} - 3,1T\lg T$
713—1048	$-22\,280 + 25,16T + 3,83\cdot10^{-3}T^2 + 0,56\cdot10^5\cdot T^{-1} - 11,85T\lg T$
1048—1123	$21\,460 - 54,3T + 3,83\cdot10^{-3}T^2 + 0,56\cdot10^5\cdot T^{-1} + 0,75T\lg T$
1123—1159	$21\,350 - 61,27T - 0,94\cdot10^{-3}T^2 - 0,69\cdot10^5\cdot T^{-1} + 14,32T\lg T$

Table 2

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B025/B070

Table 2

1159—1424	$16\,060 - 158{,}63T - 3{,}9\cdot10^{-3}T^2 + 39{,}32T\,\lg T$
1424—1691	$5460 - 68{,}02T - 1{,}25\cdot10^{-3}T^2 + 11{,}7T\,\lg T$
1691—1713	$19\,370 - 92{,}67T + 16{,}14T\,\lg T$
1713—1775	$-19\,600 - 51{,}84T + 10{,}54T\,\lg T$
	$2NaF + Mg = 2Na + MgF_2$
298—371	$7530 - 0{,}18T - 1{,}29\cdot10^{-3}T^2 + 1{,}28\cdot10^{-5}T^{-1} + 0{,}02T\,\lg T$
371—923	$7680 + 26{,}85T + 4{,}09\cdot10^{-3}T^2 + 1{,}28\cdot10^5\cdot T^{-1} - 11{,}43T\,\lg T$
923—1150	$7180 + 9{,}61T + 2{,}85\cdot10^{-3}T^2 + 1{,}33\cdot10^5\cdot T^{-1} - 5{,}06T\,\lg T$
1150—1265	$59\,830 - 71{,}61T + 2{,}85\cdot10^{-3}T^2 + 1{,}33\cdot10^5T^{-1} + 6{,}6T\,\lg T$
1265—1376	$50\,690 - 133{,}41T - 1{,}35\cdot10^{-3}T^2 + 1{,}33\cdot10^5\cdot T^{-1} + 30{,}56T\,\lg T$
1376—1536	$14\,520 - 85{,}12T - 1{,}35\cdot10^{-3}T^2 + 1{,}33\cdot10^5\cdot T^{-1} + 23{,}56T\,\lg T$
1536—1977	$23\,040 - 50{,}98T + 10{,}47T\,\lg T$
	$2KF + Mg = 2K + MgF_2$
298—336,5	$5020 - 6{,}17T - 1{,}82\cdot10^{-3}T^2 + 0{,}59\cdot10^5\cdot T^{-1} + 1{,}17T\,\lg T$
336,5—923	$5120 + 20{,}12T + 3{,}74\cdot10^{-3}T^2 + 0{,}59\cdot10^5\cdot T^{-1} - 10{,}13T\,\lg T$
923—1048	$4630 + 2{,}87T + 2{,}51\cdot10^{-3}T^2 + 0{,}64\cdot10^5\cdot T^{-1} - 3{,}76T\,\lg T$
1048—1159	$48\,330 - 76{,}30T + 2{,}51\cdot10^{-3}T^2 + 0{,}64\cdot10^5\cdot T^{-1} + 8{,}65T\,\lg T$
1159—1376	$43\,060 - 143{,}95T - 1{,}35\cdot10^{-3}T^2 + 1{,}33\cdot10^5\cdot T^{-1} + 33{,}85T\,\lg T$
1376—1536	$6880 - 95{,}66T - 1{,}35\cdot10^{-3}T^2 + 1{,}33\cdot10^5\cdot T^{-1} + 26{,}85T\,\lg T$
1536—1775	$15\,400 - 61{,}52T + 13{,}76T\,\lg T$

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Legend to Table 2: 1) Temperature

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E194/E384

26.5200

AUTHOR: Dubrovin, I.V., Candidate of Technical Sciences

TITLE: The Influence of the Temperature Factor on Heat Exchange

PERIODICAL: Teploenergetika, 1960, No. 11, pp. 69 - 74

TEXT: All the physical constants that determine the structure of a flow of liquid and its heat-exchange with a heating surface are functions of some power of the temperature. However, investigators often simplify the conditions to make experimentation easier and attempts are made to exclude the dependence of the physical constants on temperature. As strictly isothermal conditions cannot be maintained the changes in temperature affect the final results causing appreciable scatter. Some kind of governing or determining temperature may be introduced to help reduce this scatter; thus, some authors adopt the wall temperature, others relate the coefficient of thermal conductivity and the viscosity to the mean temperature of the boundary layer and the density to the flow temperature, and so on. Similarly, the Reynolds number may be assessed

Card 1/~~20~~ 6

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in different ways. Thus, various complications have arisen because experimenters have tried to simplify their conditions so as to exclude the temperature factor from the formulae. Most tests on convective heat transfer are carried out at low temperatures, small temperature differences and only slight deviations of temperature from the mean value and then the relationship between the Nusselt and the Reynolds numbers may conveniently take the following form:

$$Nu = cRe^n = c\left(\frac{w\gamma d}{\eta}\right)^n \qquad (1)$$

However, if the temperature varies over a wide range this is not satisfactory and the following formula should be used:

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$$Nu = cRe^{n}Pr^{0.33}\left(\frac{Pr_{n}}{Pr_{CT}}\right)^{0.25} \qquad (2) .$$

When it is necessary to introduce the temperature criterion the following expression should be used:

$$Nu = cRe^{n}\left(\frac{T_{CT}}{T_{n}}\right)^{p} \qquad (3) .$$

Tests were made with bundles of tubes with the mean tube-wall temperature ranging from 130 to 915 °C. The Reynolds number ranged from 5 800 to 19 700. The results of using the simplified formulae (1) and (2) are plotted in Figs. 1 and 2, which show, respectively, the total heat transfer of the

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first and second rows of a tube bundle in square arrangement with $s_1 = 2\ d$ and $s_2 = 2.5\ d$. It will be seen that the experimental points could be laid out on a number of different lines corresponding to different temperatures. In order to obtain a unique relationship between the Nusselt number and the other criteria the results were worked out by Eq. (3) and the results are plotted in Fig. 3. This figure plots the total heat-transfer from the tube bundles to the flow; here, it will be seen that the results lie very near to a single straight line. The characteristics used to determine the total heat-transfer coefficient entering into Eq. (3) for the tube bundles in question are given in Table 1. The first column of Table 1 gives the number of the row in the bundles and the lines correspond to, respectively, the first, second, third and fourth rows. Results published by other authors are then treated in a similar way and the great increase in the scatter of the results where this is done is shown. In solving heat-exchange problems when liquids flow in pipes or ducts of arbitrary shape, attempts are also made to avoid the temperature

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The Influence of ....

criterion and as governing temperature it is sometimes recommended to adopt that which is given in technical calculations or which can most easily be determined. Difficulties arise because of the different physical properties of the various liquids that are used in practice. Test results for heat-transfer from tube walls to air flowing inside the tube are given in Fig. 6: the upper curves with marked scatter corresponding to expression (1) and the lower curve round which the experimental points lie closely being calculated by expression (3). Analysis showed that the temperature of either the heat-emitting or heat-receiving medium could be used equally well. Expression (1) of a simplified type can be applied over a narrow range of temperature change and only for the temperatures actually observed in the tests. For engineering calculations on industrial heat-exchange apparatus operating over a wide range of temperatures, Eq. (3) is recommended. If the Reynolds criterion is expressed in terms of the mean flow by weight the formula acquires a unified form. The procedure recommended for practical calculations

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The Influence of ....

is valid with external flow across the surface and when liquid flows inside the tubes, whatever the direction of heat flow. There are 6 figures, 2 tables and 6 Soviet references.

ASSOCIATION: (Vsesoyuznyy nauchno-issledovatel'skiy institut metallurgicheskoy teplotekhniki (All-Union Scientific Research Institute of Metallurgical Heat Engineering)

Card 6/[redacted] 6

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DUBROVIN, I. V. PA 18/49T25

USSR/Engineering Dec 48
Stokers, Mechanical
Boilers

"Pneumatic Fuel Stoker for Small-Capacity Boilers,"
I. V. Dubrovin, Cand Tech Sci, VNIIT, 3 3/4 pp

"Stal'" No 12

All-Union Sci Res Inst of Fuel Utilization has designed simple and reliable pneumatic stoker for low-output boilers. This decreases labor and number of firemen. Stoker recommended for use with metallurgical furnaces. Three sketches.

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F

m

4168. EXPERIENCE IN INSTALLATION OF VINIIT TYPE PNEUMATIC FUEL SPREADER. Saironov, AP., Mutrovin, IV and Kaplun, YM. (Za Econ Toplive (Fuel Econ.), 1949, (12), 7-9). This type was designed for converting hand fire boilers of about 7.5 sq. meters grate area. The spreader is installed above the existing fire door, so that hand firing remains possible. The fuel passes from an overhead hopper through a feeding device, consisting of a variable speed drum with vanes, on to a distributor plate. Air at 300-400 mm head of water is fed to a series of 9-11 nozzles and blows the fuel from this plate, over the fire. To ensure even distribution over the grate area, the nozzles are fanned outwards slightly and are in groups of 2 or 3 each with a valve for regulating air pressure.

METALLURGICAL LITERATURE CLASSIFICATION

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4

DUBROVIN, I.V.

F

798. OPERATION OF FURNACES WITH VNIIT TYPE PNEUMATIC FUEL SPREADERS. Smirnov, AP. and Dubrovin, IV. (Za. Ekon. Toplive (Fuel Econ) May 1950, (5), 9-13). Details of successful results obtained with the soviet spreader stroker previously described in Fuel Abstr., May 1950, n.s.7, 4168. (L)

METALLURGICAL LITERATURE CLASSIFICATION

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4

137-1957-12-23262

The Effect of a Recovery Boiler on the Operation (cont.)

junction with an RB. The duration of the melting process is shortened by 9.5 percent. The consumption of conventional fuel is reduced by 23 percent. At the Magnitogorsk metallurgical combine the amount of steel skimmed was 12 percent greater in a open-hearth furnace that was equipped with an RB; the duration of the smelting process was reduced by 9 percent. The exhaust system must have at least a 25 percent excess in evacuation capacity.

Ye. N.

1. Boilers-Effect 2. Furnaces-Applications 3. Steel-Smelting

Card 2/2

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4

S/096/60/000/011/010/018
E194/E184

119200

AUTHOR: Dubrovin, I.V. (Candidate of Technical Sciences)

TITLE: The Influence of the Temperature Factor on Heat Exchange

PERIODICAL: Teploenergetika, 1960, No 11, pp 69-74

TEXT: All the physical constants that determine the structure of a flow of liquid and its heat exchange with a heating surface are functions of some power of the temperature. However, investigators often simplify the conditions to make experimentation easier and attempts are made to exclude the dependence of the physical constants on temperature. As strictly isothermal conditions cannot be maintained the changes in temperature affect the final results causing appreciable scatter. Some kind of governing or determining temperature may be introduced to help reduce this scatter; thus some authors adopt the wall temperature, others relate the coefficient of thermal conductivity and the viscosity to the mean temperature of the boundary layer and the density to the flow temperature, and so on. Similarly, the Reynolds number may be assessed in different ways. Thus various complications have arisen because experimentors have tried to

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The Influence of the Temperature Factor on Heat Exchange

simplify their conditions so as to exclude the temperature factor from the formulae. Most tests on convective heat transfer are carried out at low temperatures, small temperature differences and only slight deviations of temperature from the mean value, and then the relationship between the Nusselt and the Reynolds numbers may conveniently take the form of expression (1). However, if the temperature varies over a wide range this is not a satisfactory expression and formula (2) should be used. When it is necessary to introduce the temperature criterion expression (3) should be used. Tests were made with bundles of tubes with the mean tube wall temperature ranging from 130 to 915 °C. The Reynolds number ranged from 5800 to 19700. Other experimental details are given. The results of using the simplified formulae (1) and (2) are plotted in Figs 1 and 2 and it will be seen that the experimental points could be laid out on a number of different lines corresponding to different temperatures. In order to obtain a unique relationship between the Nusselt numbers and the other criteria the results were worked out by formula (3) and the results are plotted in Fig 3, from which it will be seen that the

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The Influence of the Temperature Factor on Heat Exchange

results lie very near to a single straight line. The characteristics used to determine the total heat transfer coefficient or entering into Eq (3) for the tube bundles in question are given in Table 1. Results published by other authors are then treated in a similar way and the great decrease in scatter of the results when this is done will be seen from the graphs of Figs 4 and 5, the first of which relates to flow over a single cylinder with the tube wall temperature ranging from 100 to 900 °C, and the latter to tests carried out with a constant tube wall temperature of 102-116 °C with an air flow temperature ranging from 150 to 455 °C. In solving heat-exchange problems when liquids flow in pipes or ducts of arbitrary shape, attempts are also made to avoid the temperature criterion, and as governing temperature it is sometimes recommended to adopt that which is given in technical calculations or which can most easily be determined. Difficulties arise because of the different physical properties of the various liquids that are used in practice. Test results for heat transfer from tube walls to air flowing inside the tube are given in Fig 6; the upper curve with marked

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The Influence of the Temperature Factor on Heat Exchange

scatter corresponding to expression (1), and the lower curve round which the experimental points lie closely being calculated by expression (3). Analysis showed that the temperature of either the heat emitting or heat receiving medium could be used equally well. Expression (1) of a simplified type can be applied over a narrow range of temperature change and only for the temperatures actually observed in the tests. For engineering calculations on industrial heat exchange apparatus operating over a wide range of temperatures, formula (3) is recommended. If the Reynolds criterion is expressed in terms of the mean flow by weight the formula acquires a unified form. The procedure recommended for practical calculations is valid with external flow across the surface and when liquid flows inside tubes whatever the direction of heat flow.

There are 6 figures, 2 tables and 6 Soviet references.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut Metallurgicheskoy teplotekhniki (All-Union Scientific Research Institute of Metallurgical Thermo-Technics)

Card 4/4

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4

DUBROVIN, I.V., kand.tekhn.nauk

Heat emission at high temperatures and in transverse flow around bundles of pipe. Izv. vys. uchreb. zav.; energ. 3 no. 7:75-80 Jl '60. (MIRA 13:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut metallurgicheskoy Teplotekhniki. Predstavlena Uchenym sovetom etogo instituta.
(Heat--Transmission)

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4

DUBROVIN, I.V., kand. tekhn. nauk

Effect of the temperature factor on heat emission. Teploenergetika 7 no.11:69-74 N '60. (MIRA 14:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut metallurgicheskoy teplotekhniki.
(Heat--Transmission)

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4

DUBROVIN, K.

Fertilizer spreaders. Tekhnov. MTS 17 no.24:1-5 D '56. (MLRA 10:2)

(Fertilizer spreaders)

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4

DUBROVIN, K., ofitser zapasa (Leningrad)

So that there may be more sports fans.... Voen. Znan. 41 no.5: 40 My '65. (MIRA 18:5)

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4

DUBROVIN, Klaudija; KRAJINOVIC, Slobodan

Enterocolitis caused by pathogenic E. coli in children and adults. Higijena, Beogr. 6 no.1:58-67 1954.

1. Bakterioloski institut Medicinskog fakulteta, Beograd
(COLITIS, bacteriol.
E. coli in enterocolitis)
(ENTERITIS, bacteriol.
E. coli in enterocalitis)
(ESCHERICHIA COLI, infect.
enterocolitis)

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4

DUBROVIN, K., Dr.; KRAJINOVIC, S., dr.; ARSENIJEVIC, K., m-r ph.; KOSTIC, M., dr.

Single and combined effects of antibiotics in vitro on conditionally pathogenic Escherichia coli. Voj. san. pregl., Beogr. 12 no.7-8:394-396 July-Aug 55.

1. Mikrobiloski institut Medicinskog fakulteta u Beogradu.
(ESCHERICHIA COLI, eff. of drugs on, antibiotics, single & combined treatment in vitro (Ser))
(ANTIBIOTICS, eff. on E. coli, single & combined treatment in vitro (Ser))

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4

DUBROVIN, K. P.

"On Some Physico-Chemical Processes Occurring in Fissionable Materials Under the Influence of Irradiation", by K. P. Dubrovin, S. T. Konobeyevsky, B. H. Levitsky, L. D. Panteleyev, and N. F. Pravdyuk.

Report presented at 2nd UN Atoms-for-Peace Conference, Geneva, 9-13 Sept 1958

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4

DUBROVIN, K. P.

AUTHORS: Konobeyevskiy, S. T., Pravdyuk, N. F., Dubrovin, K. P., Levitskiy, B. M., Pantelayev, L. D., Golyanov, V. M. 89-1-4/29

TITLE: Investigations of Structural Changes Occurring in an Uranium-Molybdenum Alloy by Neutron Irradiation. (Issledovaniye strukturnykh izmeneniy, proiskhodyashchikh v splave urana s molibdenom pod deystviyem neytronnogo oblucheniya).

PERIODICAL: Atomnaya Energiya, 1958, Vol. 4, Nr 1, pp. 34-44 (USSR).

ABSTRACT: An U + Mo alloy with 9.05 weight percents of Mo is produced in a vacuum induction furnace. The melting charge is rolled out in a warm and cold state until a thickness of 0,1 mm is attained. From these foils the samples for measuring resistance and for radiographic investigations are produced. Before irradiation with neutrons, the samples are subjected to a homogenizing process of annealing (in the vacuum) at a temperature of 1000°c for three hours, after which they were cooled in the air.
After irradiation by neutrons the electric resistance was measured and the structure of the alloys was investigated radiographically and under the microscope.
The thermal treatment described made it possible to obtain samples

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89-1-4/29

Investigations of Structural Changes Occurring in an Uranium-Molybdenum Alloy by Neutron Irradiation.

with the structure of an eutectoid $\alpha + \gamma'$, which has different sizes of grain.
It was found that the diffusion velocity leading to a homogenization under the influence of irradiation in the annealed samples is inversely proportional to the square of the size of grain.
In the homogeneous sample (γ- phase) irradiation causes a modification of properties and of structure, and already within a period of from 2 - 4 hours a maximum of effect is attained. This may be imagined to be something like "irradiation incandescence". In the γ- phase also a re-orientation with transitions to a cubic lattice has been observed. This phenomenon occurs already during the first hours of exposure.
The size of the domain of the thermal peak and the energy liberated was determined at $2.5 \cdot 10^{-17}$ cm^3 and $\sim$ 2 MeV. These values are lower than those computed theoretically according to reference 2.
There are 13 figures, 4 tables, and 4 references, 3 of which are Slavic.

SUBMITTED: September 11, 1957.

AVAILABLE: Library of Congress.

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DUBROVIN, L.

Operative accounting for the cost of meat production. Mias.ind. SSSR 35 no.1:52-53 '64. (MIRA 17:4)

1. Leningradskiy ordena Trudovogo Krasnogo Znameni myasokombinat imeni S.M.Kirova.

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4

YEFIMOV, A.; TERAUD, V.; DUBROVIN, L.

Shortcomings in the method of calculating the cost of products. Miss. ind. SSSR 29 no. 4:42-44 '58. (MIRA 11:8)

1. Leningradskiy myasokombinat.
(Packing-house products--Costs)

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4

DUBROVIN, L. D. (Aspirant)

"An Investigation of the Technological Factors in the Honing of Slot Apertures With Tempered Slots." Cand Tech Sci, Moscow Automotive Mechanics Inst, 30 Dec 54. (VM, 22 Dec 54)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (12)

SO: SUM No. 556, 24 Jun 55

APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4"

"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4

DUBROVIN, L. I.

DUBROVIN, L. I.- "Geography of the Ice Cap in the Seas of the Near-Atlantic Artic." Molotov State U imeni A. M. Gor'kiy, Geology-Geography Faculty, Molotov, 1955 (Dissertations For the Degree of Candidate of Geographical Sciences)

SO: Knizhnaya Letopis' No. 26, June 1955, Moscow

APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4"

"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4

DUBROVIN, L.I., kandidat geograficheskikh nauk.

Floating islands in Kama Reservoir. Priroda 46 no.3:112-113 Mr '57. (MIRA 10:3)

1. Molotovskiy gosudarstvennyy universitet im. A.M. Gor'kogo.
(Kama Reservoir--Islands)

APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4"

"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4

DUBROVIN, L.I.; MAFARZIN, Yu. M.

Transformation of the Kama. Geog. v shkole 21 no. 1:55-57 Ja-F '58. (MIRA 11:7)

(Kama Basin--Hydroelectric power stations)

APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4"

"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4

DUBROVIN, L.I.

Opening the Lazarev Station. Inform. biul. Sov. antark. ekisp. no.7:40-41 '59 (MIRA 13:3)
(Lazarev(Antarctica)

APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4"

"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4

DUBROVIN, L.I.

Return of the Third Continental Expedition. Inform. biul. Sov. antark. eksp. no.8:34-35 '59. (MIRA 13:3)
(Antarctic regions)

APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4"

"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4

DUBROVIN, L.I.

Belgian orders awarded to members of the Soviet Antarctic Expedition. Inform. biul. Sov. antark. eksp. no.8:35 '59. (MIRA 13:3)

(Antarctic regions) (Rewards (Prizes, etc.))

APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4"

"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4

DUBROVIN, L.I., kand. geograf. nauk

Scientific stations in Antarctic and subantarctic regions in 1957-1959. Inform. biul. Sov. antark. ekep. no.9:43-47 '59 (MIRA 13:3)

1. Arkticheskiy i antarkticheskiy nauchno-issledovatel'skiy institut.
(Antarctic regions--Observatories)

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DUBROVIN, L.I., kand. geograf. nauk

Overland exploration traverses in Antarctica during the International Geophysical Year. Inform. biul. Sov. antark. eksp. no.10:5-8 '59 (MIRA 13:3)

1. Arkticheskiy i antarkticheskiy nauchno-issledovatel'skiy institut.
(Antarctic regions--Ice)

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3(3) SOV/26-59-3-31/47

AUTHOR: Dubrovin, L.I., Candidate of Geographic Sciences (Leningrad)

TITLE: Where is the Cold Pole?

PERIODICAL: Priroda, 1959, Nr 3, p 115 (USSR)

ABSTRACT: The earth's Cold Pole seemed to be in the Verkhoyansk District in North Yakutia with absolute minimum temperatures of up to -69.8°C and in the Oymekon area 700 km southeast of Verkhoyansk where absolute minimum temperatures of up to - 71°C were recorded. While the British "Northice" Station in Greenland and the American Amundsen-Scott Station in the Antarctic recorded very low absolute and mean minimum temperatures, the Soviet Antarctic station of Vostok (78°27S/106°52E), 3420 m above sea level, recorded -87.4°C on 25 Aug 1958 and a mean temperature of -71.6°C for the same month, and the station of Sovetskaya (78°24 S/87°35E), 3570 m above sea level, recorded an absolute minimum of -86.8° for one day in Aug 1958 and a mean -71.8°C for the same month. Consequently, the earth's Cold Pole

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SOV/26-59-3-31/47

Where is the Cold Pole?

apparently is situated in the southern hemisphere in the region of the geometric center of the continent.

ASSOCIATION: Arkticheskiy i antarkticheskiy nauchno-issledovatel'skiy institut (The Arctic and Antarctic Scientific Research Institute)

Card 2/2

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4

DUBROVIN, L.I.; MATARZIN, Yu.M.; PECHERKIN, I.A.; NIKOLAYEV, S.F., red.; SYCHKIN, A.M., tekhn.red.

[Kama Reservoir] Kamskoe vodokhranilishche. Perm', Permskoe knizhnoe izd-vo, 1959. 159 p. (MIRA 13:6)
(Kama Reservoir)

APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4"

"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4

Dubrovin, L.I.

PART I BOOK EXPLOITATION

Leningrad. Arktichesky i Antarkticheskiy nauchno-issledovatel'skiy ...

Problemy Arktiki i Antarktiki; sbornik statey, ...
Antarctic; Collection of Articles, ...
1960. Errata slip inserted. ...

Additional Sponsoring Agency: U.S. Distribution ...
Hydrologiya Lednikovogo Bassyna ...

Resp. Ed.: V.F. Predtechenskiy, Editorial Board: V.S. ...
P.A. Gorbunov (Deputy Resp. Ed.), ...
E.S. Ivanovskiy, V.V. Lavrov, ...
B.V. Petlenov, Tech. Ed.: L.F. ...

PURPOSE: The publication is intended for ...
interested in the Arctic and ...

COVERAGE: This collection of 13 articles ...
Scientific Research Institute ...
... aspects, basic circulation ...
of oceanographic observations. ...

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4

S/169/62/000/004/050/103
D228/D302

AUTHOR: Dubrovin, L. I.

TITLE: Air flows in the snow-firn stratum of the Lazarev shelf glacier

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 4, 1962, 55, abstract 4V24 (Inform. byul. Sov. antarkt. ekspeditsii, no. 26, 1961, 13-14)

TEXT: Air flows, whose velocity is closely related to the wind speed in the near-ground layer of air, exist in the snow-firn stratum at a depth of not more than 15 m. Hole measurements showed that at a wind speed of 28 m/sec the velocity of air movement in the stratum's upper layers equals 1.4 cm/sec; it decreases with depth and becomes inappreciable at a depth of 15 m. The close connexion of the air circulation in the snow-firn stratum with the wind speed indicates that both phenomena are due to the same cause -- to the atmospheric pressure gradient. The coefficient of correlation equals 0.985. This phenomenon is reflected in the forma-

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S/169/62/000/004/050/103
D228/D302

Air flows in ...

tion of the glacier's temperature regime. The air circulation sometimes causes the formation of snow fountains and leads to the formation of a large amount of sublimation ice in the Lazarev glacier's numerous fissures. /Abstracter's note: Complete translation./

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DUBROVIN, L. I., kand. geograf. nauk

Bottom relief in the area of Lazarev Station. Inform. biul. Sov. antark. eksp. no.32:27-28 '62. (MIRA 16:4)

1. Arkticheskiy i antarkticheskiy nauchno-issledovatel'skiy institut.

(Lazarev Station, Antarctica—Ocean bottom)

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DUBROVIN, L.I., kand.geograficheskikh nauk

Development of coastal ice in the area of Lazarev Station. Inform. biul. Sov. antark. eksp. no.33:35-41 '62. (MIRA 16:2)

1. Arkticheskiy i antarkticheskiy nauchno-issledovatel'skiy institut.

(Lazarev region, Antarctica—Ice)

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DUBROVIN, L.

"Voice of the snow." Inform. biul. Sov. antark. eksp. no.33:49-50 '62. (MIRA 16:2)
(Lazarev Station, Antarctica—Snow)

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DUBROVIN, L.I., kand. geograf. nauk

Brines in shelf ice. Inform. biul. Sov. antark. eksp. no.35: 35-38 '62. (MIRA 16:11)

1. Arkticheskiy i antarkticheskiy nauchno-issledovatel'skiy institut.

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BOLOTINA, F.Ye.; GAMBARYAN, Kh.P.; DENISOVA, G.A.; DUBROVINA, L.I.; KOZHINA, I.S.; KYURKCHAN, V.N.; MAKAROVA, T.I.; PAVLOVA, U.G.; REZVETSOV, O.A.; SMIRNOVA, V.V.; SURZHIN, S.N., kand. tekhn. nauk; TAMAMSHYAN, S.G.; TRUSOVA, S.A.; FILOGRIYEVSKAYA, Z.D.; CHINENOVA, E.G.; SHISHKINA, N.N.; IL'IN, M.M., zasl. deyatel' nauki RSFSR, doktor biol. nauk prof., red.; PRITYKINA, L.A., red.; ZARSHCHIKOVA, L.N., tekhn. red.

[Spice and aromatic plants of the U.S.S.R. and their use in the food industry] Priano-aromaticheskie rasteniia SSSR i ikh ispol'zovanie v pishchevoi promyshlennosti. Moskva, Pishchepromizdat, 1963. 430 p. (MIRA 17:2)

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4

DUBROVIN, L.I., kand.geograf.nauk

Dynamics of the Lazarev Shelf Ice. Inform.biul.Sov.antark.eksp. no.42: 17-21 '63. (MIRA 17:1)

1. Arkticheskiy i antarkticheskiy nauchno-issledovatel'skiy institut.

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4

DUBROVIN, L.I.; SYCHEV, K.A.

An obsolete manual. Okeanologiia 3 no.5:949 '63. (MIRA 16:11)

APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4"

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DUBROVIN, L.I., kand. geograf. nauk; PETROV, V.N., insh.

Thermal action of an air current on thermometers measuring the temperature of a snow layer in a hole. Inform. biul. Sov. antark. eksp. no.39:15-19 '63. (MIRA 16:6)

1. Arkticheskiy i antarkticheskiy nauchno-issledovatel'skiy institut.
(Lazarev station, Antarctica—Snow—Temperature)

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DUBROVIN, L.I., kand.geograf.nauk; PETROV, V.N., inzh.

Accuracy of snow measurements in Antarctica. Inform.biul. Sov.antark. eksp no.43:15-20 '63. (MIRA 17:1)

1. Arkticheskiy i antarkticheskiy nauchno-issledovatel'skiy institut. (for Dubrovin).

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SHESTERIKOV, N.P., kand.geograf.nauk; DUBROVIN, L.I., kand.geograficheskikh nauk

Tidal waves in the Lazarev Station region. Inform.biul.Sov.antark. eksp. no.44:39-42 '63. (MIRA 17:4)

1. Arkticheskiy i antarkticheskiy nauchno-issledovatel'skiy institut.

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DUBROVIN, L.I. (Leningrad)

"Soviet expeditions to the Antarctic in 1959-1961" by A.V.Nudel'man. Reviewed by L.I.Dubrovin. Priroda 52 no.4:121 '63. (MIRA 16:4)

(Antarctic regions—Russian exploration)
(Nudel'man, A.V.)

APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4"

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DUBROVIN, L.I.

An unfortunate error in the book by B.A. Savel'ev. Okeanologiia 4 no.3:535 '64 (MIRA 18:1)

APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4"

"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4

DUBROVIN, L.I., kand.geograf.nauk; PETROV, V.N., insh.

Average height of the crust surface of Antarctica. Inform. biul. Sov. antark. eksp. no.45:14-16 '64. (MIRA 18:1)

1. Arkticheskiy i antarkticheskiy nauchno-issledovatel'skiy institut.

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4

DUBROVIN, L.I., starshiy nauchnyy sotrudnik; KONOVALOV, G.V., mladshiy nauchnyy sotrudnik

Dependence of snow accumulation on the topography in the region of the Lazarev Station. Inform. biul. Sov. antark. eksp. no.45:29-32 '64. (MIRA 18:1)

1. Arkticheskiy i antarkticheskiy nauchno-issledovatel'skiy institut.

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4

LUBROVIN, L.I., kand.geograf.nauk; MITROV, V.M., inzh.

Observations at scientific stations in the Antarctic during the IGY and the IQSY. Inform.biul. Sov. antark.eksp. no.49:48-56 '64. (MIRA 18:5)

1. Arkticheskiy i antarkticheskiy nauchno-issledovatel'skiy institut.

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4

DUBROVIN, L.I., kand.geograf.nauk; SIMONOV, I.M., mladshiy nauchnyy sotrudnik

Tides in the Novolazarevskaya Station region. Inform.biul. Sov. antark.eksp. no.50:24-27 '64. (MIRA 18:5)

1. Arkticheskiy i antarkticheskiy nauchno-issledovatel'skiy institut.

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4

DUBROVIN, L. N.

112-1-1249

Translation from: Referativnyy Zhurnal, Elektrotekhnika, 1957, Nr 1, p. 194 (USSR)

AUTHOR: Dubrovin, L.N.

TITLE: Table Automat for the Control of Rollers of Bush Bearings of Agricultural Machinery. (Nastol'nyy avtomat dlya kontrolya rolikov vtulochnykh podshipnikov sel'skokhozyaystvennykh mashin). Scientific Research Institute of Tractors and Agricultural Machinery (NIItraktorosel'khozmash)

PERIODICAL: Vestn.tekhn. inform.M-vo trakt. i s.-kh. mashinostr. SSSR, 1956, Nr 4, pp.23-28.

ABSTRACT: Bibliographic entry

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4

DUBROVIN, L.N., insh.

Automatic machine for facing and removing chamfers on steel-aluminum thick-walled bushings. Mashinostroenie no.1:84-85 Ja.-F '63. (MIRA 16:7)

1. Nauchno-issledovatel'skiy institut tekhnologii traktornogo i sel'skokhozyaystvennogo mashinostroyeniya.
(Machine tools)

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4

DUBROVIN, L.N.

Automatic machine for mechanical and photoelectric control and grading piston pins. Avt. i trakt. prom no.10:35-38 O '56. (MIRA 10:1)

1. Nauchno-issledovatel'skiy institut traktorosel'khozmash.
(Pistons)

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4

DUBROVIN, L.V.

Quantitative theory of critical control of gradient observations of wind velocity in the lowest atmospheric layer. Trudy GGO no.86:42-48 '58. (MIRA 11:11)
(Winds)

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Dubrovin, L.V.

PHASE I BOOK EXPLOITATION SOV/3603
SOV/2-[illegible]

Leningrad. Glavnaya geofizicheskaya observatoriya

Voprosy metodiki meteorologicheskikh nablyudeniy i nablyudeniya v Antarktide. (Problems of Meteorological Observation Methods and of Observations in Antarctica) Leningrad, Gidrometeoizdat, 1959. 105 p. (Series: Inst. Trudy, vyp. 96) Errata slip inserted. 1,200 copies printed.

Sponsoring Agency: U.S.S.R. Glavnoye upravleniye gidrometeorologicheskoy sluzhby pri Sovete Ministrov.

Ed. (Title page): Z.I. Pivovarova, Candidate of Geographical Sciences; Ed. (Inside book): T.V. Ushakova; Tech. Ed.: N.V. Volkov.

PURPOSE: The publication is intended for meteorologists working in offices of the Hydrometeorological Service and in hydrometeorological stations.

COVERAGE: This is a symposium of 11 articles, published as No. 96 of the Transactions of the Main Geophysical Observatory imeni A.I. Voyeykov. Several articles are devoted to special features in the distribution of meteorological elements and the radiation condition in the USSR and in Antarctica. Other articles analyze methods of meteorological and actinometric observations and the processing of their results. References are given at the end of each article.

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4

DUBROVIN, L.I.

Effect of local advection of moisture on the results of evaporation observations. Trudy GGO no.108:91-97 '60. (MIRA 13:11)

(Evaporation)

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4

DUBROVIN, L.V.

Determination of the height of low clouds from ground data.
Meteor. i gidrol. no.9:52-55 S '62. (MIRA 15:8)

1. Kuybyshevskaya gidrometeorologicheskaya observatoriya.
(Clouds)

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4

DUBROVIN, L. V., kand.geograf.nauk (Leningrad)

Decoding the riddles of the sixth continent. Nauka i zhyttia 12 no.6:46-47 Je '62. (MIRA 15:7)
(Antarctic regions)

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4

DUBROVIN, L.V.

Determining the lower cloud boundary (below 300m from surface data. Trudy GGO no. 112:191-198 '63. (MIRA 17:5)

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4

DUBROVIN, L.V.

Graphic method of determining the coefficient of thermal conductivity. Sbor. rab. Kuib. gidromet. obser. no.1:38-41 '64.

Derivation of the formula for determining the magnitude of the convective velocity W in the surface layer. Ibid.:42-44

Determining the derivative of wind velocity according to altitude for any condition according to data of gradient observations. Ibid.:45-46 (MIRA 17:12)

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4

L 08469-67 EWT(1) GW

ACC NR: AR6016472 SOURCE CODE: UR/0124/65/000/012/B144/B144

AUTHOR: Dubrovin, L. V.

TITLE: Computation of all characteristics of the turbulent atmosphere for an altitude of one meter from standard gradient observations

SOURCE: Ref. zh. Mekhanika, Abs. 12B998

REF SOURCE: Sb. rabot Komsomol'sk. gidrometeorol. observ., vyp. 4, 1964, 45-55

TOPIC TAGS: atmospheric turbulence, weather forecasting

ABSTRACT: In calculating the characteristics of the turbulent atmosphere, the author based his work on that of A. S. Monin and A. M. Obukhov who showed that all these characteristics for a fixed altitude in the ground layer are functions of three parameters: dynamic velocity v^*, turbulent heat flow q and the quantity g/T. This ratio may be considered constant. The quantities v^* and q are expressed in terms of the derivatives $\partial u/\partial z$ and $\partial T/\partial z$. In his own work (sb. rabot Kuybyshevsk. gidrometeorol. observ., 1964, vyp. 1) the author showed that the following formulas are valid for an altitude of one meter under all conditions of temperature stratification and for all degrees of roughness in the underlying surface:

$$\frac{\partial u}{\partial z}=0.72\Delta u, \quad -\frac{\partial T}{\partial z}=0.72\Delta t$$

Card 1/2

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L 08469-67

ACC NR: AR6016472

where $\Delta u = u_{2.0} + u_{0.5}$, $\Delta t = t_{0.5} - t_{2.0}$. Consequently, data of gradient observations (i. e. Δu, Δt and $\Delta \theta$) may be used as a basis for calculating all characteristics of turbulence for an altitude of one meter. The author made these computations and compiled a table for the state of the turbulent atmosphere at an altitude of one meter as a function of measured values of Δu, Δt and $\Delta \theta$. The resultant formulas were then verified on the basis of available experimental data published in the literature. Analysis showed that extensive experimental material confirms the author's formulas. Bibliography of 15 titles. S. I. Rudenko. [Translation of abstract]

SUB CODE: 04

Card 2/2

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"APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R000411410015-4

Some peculiarities of eddy formation in the surface boundary layer

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[illegible] for any

[illegible] the coefficient of turbulent [illegible]

servations. Orig. art. has: 8 tables, 13 formulas.

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DUBROVIN, M.; MIKHAYLOV, V.

Comprehensive economic evaluation of the transportation of coal for power production. Rech. transp. 24 no.4:18-19 '65.

(MIRA 18:5)

1. Glavnyy spetsialist Gosudarstvennogo instituta proyektirovaniya i izyskaniya na rechnom transporte (for Dubrovin). 2. Zamestitel' nachal'nika Upravleniya gruzovoy i kommercheskoy raboty Morskogo rechnogo flota (for Mikhaylov).

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