ZHBANKOV, B.V.; SIDOROV, B.M.

Automatic single-chain OAE elevator for bottle conveying between floors. Trudy UkrNIISP no.9:145-150 '64. (MIRA 17:10)

USTIMENKO, V.F., starshiy dorozhnyy master; ZYKOV, F.M., starshiy dorozhnyy master; KIREY, P.I.; IVANITSKIY, M.V.; LOBANOV, Ye.I., dorozhnyy master; GAYDAR, P.R.; ~~SIDOROV, B.N.;~~ SAVKOV, Ye.I.; SAFONKIN, A.N.; PETROV, A.S.; BURLAK, F.V., inzh.

Letters to the editor. Put' i put.khoz. 5 no.5:42-44 My '61.
(MIRA 14:6)

1. Stantsiya Kupino, Omskoy dorogi (for Ustimenko). 2. Stantsiya Kotel'nich, Gor'kovskoy dorogi (for Zykov). 3. Stantsiya Petropavlovsk, Omskoy dorogi (for Kirey, Ivanitskiy). 4. Stantsiya Stupino, Moskovskoy dorogi (for Lobanov). 5. Zamestitel' nachal'nika distanstsii puti, st., Izyum, Donetskoy dorogi (for Gaydar). 6. Nachal'nik distantsii puti, st. Berlik, Kazakhskoy dorogi (for Sidorov). 7. Nachal'nik PMS-62, st. Nikitovka, Donetskoy dorogi (for Savkov). 8. Smennyy master shchebenochnogo kar'yera st. Chokpar, Kazakhskoy dorogi (for Safonkin). 9. Nachal'nik tekhnicheskogo otdela sluzhby puti, g. Yaroslavl' (for Petrov). 10. Distantsiya zashchitnykh lesonasazhdeniy, st. Artemovsk, Donetskoy dorogi (for Burlak).
(Railroads)

SIDOROV, B.N. (Alma-Ata)

Improving the organization of work. Put' i put.khoz. 8 no.4:12-14 '64. (MIRA 17:4)

SHAPOSHNIKOV, V.N., akademik, redaktor; KONDRAT'YEVA, E.N. [translator]; MEKHTIYEVA, V.L. [translator]; SIDOROV, B.N., redaktor; ENDEN, M.G., redaktor; SHAPOVALOV, V.I., tekhnicheskiy redaktor

[Bacterial physiology. Translated from the English] Fiziologiia bakterii. Perevod s angliiskogo E.N.Kondrat'evoi i V.L.Mekhtievoi. Pod red. i s predisl. V.N.Shaposhnikova. Moskva, Izd-vo inostrannoi lit-ry, 1954. 547 p. (MIRA 7:11)
(BACTERIA)

SIDOROV, B.N.; KHVOSTOVA, V.V.

Factors influencing the genetic effect of ionizing radiations. Itogi nauki: Biol. nauki no. 3:176-227 '60. (MIRA 13:10)
(RADIATION--PHYSIOLOGICAL EFFECT) (VARIATION (BIOLOGY))

DUBININ, N.P.; SIDOROV, B.N.; SOKOLOV, N.N.

Experimental analysis of the primary mechanism of the effect of radiation on cell nuclei. Dokl.AN SSSR 133 no.1:221-224 Jl '60. (MIRA 13:7)

1. Institut biofiziki Akademii nauk SSSR. 2. Chlen-korrespondent AN SSSR (for Dubinin).
(RADIATION--PHYSIOLOGICAL EFFECT)
(CHROMOSOMES)

SIDOROV, B.N.; DUBININ, N.P.; SOKOLOV, N.N.

Experimental study of the role of free radicals and the direct effect in the primary mechanism of the radiation effect. Radiobiologiia 1 no.2:161-171 '61. (MIRA 14:7)

1. Institut biologicheskoy fiziki AN SSSR, Moskva.
(RADICALS (CHEMISTRY))
(RADIATION—PHYSIOLOGICAL EFFECT)

33315

27.1220

S/560/61/000/010/013/016
D299/D302

AUTHORS: Sidorov, B. N., and Sokolov, N. N.

TITLE: Effect of space-flight conditions on the seeds of Allium Fistulosum (winter onion) and Nigella Damascena (ranunculus)

SOURCE: Akademiya nauk SSSR. Iskusstvennyye sputniki Zemli. no. 10. Moscow, 1961, 93-95

X

TEXT: Dry seeds of the radicsensitive A. fistulosum and of the radiostable N. damascena were investigated. From a table, it is evident that the A. fistulosum is 9 times more sensitive to X-rays than the N. damascena. A comparison of the number of aberrations in the seeds which took part in the flight with control seeds showed no difference whatsoever in the frequency of chromosome rearrangements in the seeds under investigation. This negative result, obtained with dry seeds, made it necessary to conduct tests with growing seeds. These tests showed that

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Effect of space-flight...

space-flight conditions have a stimulating effect on the growth of both species; this stimulating effect is more noticeable in the radiostable species N. damascena. In general, dry seeds are fairly stable to ionizing radiation; thus, the seeds of A. fistulosum have to be irradiated by a dose of 250 - 500 r, and those of N. damascena by several thousands of röntgen in order to observe an actual increase in chromosome rearrangements. The authors arrive at the conclusion that the increase in the growth of the seeds cannot be related to stimulating radiation doses, as the stimulating effect is stronger in the radiostable species N. damascena and weaker in the radiosensitive species A. fistulosum. If the observed effect on the N. damascena would have been due to radiation, the indicated dose would have caused chromosome aberrations in the A. fistulosum too. This was, however, not observed. It is evident that the reason for the observed effect should be sought in other factors which are active in space-flight--factors which are thoroughly unlike those

X

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SIDOROV, B.N.

Correlation Between the Redox Potential of the Lymph of Crickets During Irradiation and Radiosensitivity

G. V. Sumarukov

A micromethod has been developed to determine the redox potential of the haemolymph of insects *in vivo*. The effect of various protective factors (hypoxia, protective substances) which influence the radiosensitivity of insects has been investigated.

Uncorrelated differences in the values of the redox potential have been observed for solutions of protective substances and for tissues into which protective substances had been introduced. On the other hand, when protective substances are introduced into the organism during hypoxia, the values of the redox potential exactly correlate with the magnitude of the protective effect and radiosensitivity. The data reported in the literature which failed to show such correlation were obtained when the potential was measured *in vitro* and did not allow for the redistribution of the rates of oxidation-reduction reactions in living systems, altered by the protective effects.

Lomonosov State University, Moscow, USSR

(d)

Direct and Indirect Radiation Damage to the Cell Nucleus

N. P. Dubinin, B. N. Sidorov and N. N. Sokolov

It is known that molecules in aqueous solution can undergo radiochemical reactions due to free radicals from the radiolysis of water, or by direct energy absorption.

The genetic effectiveness of free radicals produced chemically within the cell (Fenton reaction, reaction of ascorbic acid with hydrogen peroxide) allows us to assess the importance of the direct and indirect radiation effects on chromosomes. It was shown in plant cells (rootlets of *Allium fistulosum*) that substances which protect the chromosomes from the effect of the free radicals OH and HO_2 obtained chemically (K, KB, hyposulphite, etc.) are not protective when the chromosomes are irradiated with X-rays. We conclude that the genetic effect of radiation is due mainly to the direct effect and not to the products of water radiolysis.

Parallel experiments with DNA solutions (M. I. Mekshenkov) showed that the effectiveness of the direct action on DNA is much greater than that of the indirect effect.

The considerable protective ability of substances which protect chromosomes from free radicals was demonstrated in solutions of DNA only at low DNA concentrations. In solutions with high DNA concentrations the protective effect is virtually absent which points to the predominant rôle of the direct effect.

Institute of Biophysics, Academy of Sciences of the USSR, Moscow

report presented at the 2nd Intl. Congress of Radiation Research, Harrogate/Yorkshire, Gt. Brit. 5-11 Aug 1962

SIDOROV, B.N.; SOKOLOV, N.N.

Effect of the conditions of space flight on the seeds of Allium fistulosum and Nigella damascena. Probl.kosm.biol. 1:248-251 '62. (MIRA 15:12)

(SPACE FLIGHT--PHYSIOLOGICAL EFFECT) (SEEDS)

KHVOSTOVA, V.V.; PROKOF'YEVA-BEL'GOVSKAYA, A.A.; SIDOROV, B.N.; SOKOLOV, N.N.

Effect of the conditions of space flight on the seeds of higher plants and on actinomyces. Probl.kosm.biol. 2:153-163 '62. (MIRA 16:4)

(SPACE FLIGHT--PHYSIOLOGICAL EFFECT)
(PLANTS, EFFECT OF SPACE FLIGHT ON)
(ACTINOMYCES)

SIDOROV, B.N.; SOKOLOV, N.N.

Radiation analysis of chromosome discreteness during the process of autoreproduction. Radiobiologiia 3 no.3:415-419 '63. (MIRA 17:2)

1. Institut biologicheskoy fiziki AN SSSR, Moskva.

SIDOROV, B.N.; SOKOLOV, N.N.

Lysis of chromosomes and the blockade of the spindle. Biul. MOIP. Otd. biol. 68 no.5:78-91 S-O '63. (MIRA 16:10)

SIDOROV, B.N.; SOKOLOV, N.N.

Lysis of the chromosomes accompanying spindle blockade. Dokl. AN SSSR 150 no.3:653-656 My '63. (MIRA 16:6)

1. Institut biologicheskoy fiziki AN SSSR. Predstavleno akademikom V.N. Sukachevym.
(Chromosomes) (Karyokinesis)

SIDOROV, B.N.; SOKOLOV, N.N.; ANDREYEV, V.S.

Mutagenic effect of etilenimine in a series of cell generations. Genetika no.1:112-122 '65. (MIRA 18:10)

1. Institut biologicheskoy fiziki AN SSSR, Moskva.

SIDOROV, B.N.; SOKOLOV, N.N.

Radiation analysis of the structure and reproduction of chromosomes.
Radiobiologia 4 no.6:828-835 '64. (MIRA 18:7)

1. Institut biologicheskoy fiziki AN SSSR, Moskva.

SIDOROV, B.N.; SOKOLOV, N.N.

Spindle blocking as a cause of the formation of polymorphous nuclei in polyploid cells. TSitologiia 7 no.5:645-650 S-O '65. ([redacted]8:12)

1. Laboratoriya radiatsionnoy genetiki Instituta biofiziki AN SSSR, Moskva. Submitted August 10, 1964.

SIDOROV, B.S., inzh.

Draft of new norms for determining costs of machinery spare parts.
Stroi. truboprov. 5 no.10:29 O'60. (MIRA 13:10)
(Building machinery--Equipment and supplies)

SIDOROV, B.S., inzh.

Amortization allowances for machines. Stroi. truboprov. 6 no. 2:25 F '61. (MIRA 14:5)

(Pipelines—Accounting)

SIDOROV, B.S., inzh.

Economic basis for choosing pipe-carrying machinery. Stroi. truboprov. 7 no.7:28-29 Jl '62. (MIRA 15:7)
(Pipe—Transportation)

SEMENOV, B.N., kand.tekhn.nauk; SIDOROV, B.S., inzh.

Study of the efficiency of using transportation facilities for moving pipes. Trudy VNIIST no.14:114-123 '62. (MIRA 16:12)

SIDOROV, B.S., inzh.

New standards for amortization deductions for machinery in pipeline construction. Trudy VNIIST no.14:105-113 '62.

Technical and economic analysis of the efficiency of machines for cleaning pipes with a diameter of 720 and 820 mm. Ibid.:164-168
(MIRA 16:12)

SIDOROV, D.

Let' build out of brick. Sel'.stroi. 10 no.7:16 Jl'55. (MLRA 8:10)

1. Nachal'nik otdela po stroitel'stvu v kolkhozakh Mikhaylovskogo rayona, Novosibirskoy oblasti
(Mikhailovka District--Building industry)

SIDOROV, D.A.

Repairing metal bridge spans. Put' i put. khoz. no.9:18 S '58. (MIRA 11:9)

1. Nachal'nik otdela inzhenernykh sooruzheniy, Leningrad.
(Railroad bridges--Maintenance and repair)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001550510007-7"

SIDOROV, D.A., inzh.

New method for repairing abutments. Put' i put. khoz. no.5:19-20 My '59. (MIRA 12:8)

(Railroads--Maintenance and repair)

VOLKOV, P.F.; SIDOROV, D.A.

Remedial treatment of embankments. Put' i put.khoz. 4 no.6:19 Je '60. (MIRA 13:7)

1. Starshiy inzhener distantsii puti, stantsiya Chudovo, Oktyabr'skoy dorogi (for Volkov). 2. Nachal'nik otdela inzhenernykh sooruzheniy sluzhby puti, stantsiya Chudovo, Oktyabr'skoy dorogi (for Sidorov).

(Embankments--Maintenance and repair)
(Railroads--Track)

SIDOROV, D.A., inzh. (Leningrad); POMOGAYEV, P.Ye., inzh. (Leningrad)

Maintenance and repair of massive bridge substructures. Put' i put. khoz. 4 no. 12:28-29 D '60. (MIRA 13:12)
(Railroad bridges--Maintenance and repair)

AID P - 1943

Subject : USSR/Electricity

Card 1/1 Pub. 29 - 23/31

Authors : Yecheistov, N. K., and Sidorov, D. P., Engs.

Title : Complete apartment panelboard

Periodical : Energetik, 3, 28-29, Mr 1955

Abstract : The authors describe the panelboard designed by the design division of the city's Metro Transportation System. They give all data concerning dimensions, equipment, and performance. One detailed drawing with connections diagram.

Institution: None

Submitted : No date

YECHEISTOV, N.K., inzhener; SIDOROV, D.F., inzhener.

Complete apartment electric control box having three circuits, a meter and safety fuses. Gor. khoz. Mosk. 29 no.5:38 My '55. (Wattmeter) (Electric fuses) (MLRA 8:6)

SIDOROV, D.P., inzhener.

Hook for uprooting tree stumps. Torf.prom.33 no.5:35-36 '56.
(MLRA 9:9)

1.Shaturskoye torfopredpriyatiye.
(Hooks) (Clearing of lands)

SIDOROV, D.P.; SLASTENOV, Yu.L.

Stratigraphy of Mesozoic coal-bearing sediments in the Ust'-Vilyuy gas-bearing region. Trudy VNIGRI no.186:32-43 '61. (MIRA 15:3)

(Verkhoyansk Range--Coal geology)

SIDOROV, E.A., insh.

Applicability of the laws of Newton and Furrier to the calculation of friction resistance and heat exchange taking place on the surface of a body washed by a streamflow. Teploenergetika 4 no.12:73 D '57. (Fluid dynamics) (MIRA 10:11)

AUTHOR: ~~SIDOROV, E.A.~~ PA - 2128

TITLE: On the Consideration of the Influence exercised by the Non-Isothermal Flux in a Laminar Current of Liquids which are Capable of Dripping in Tubes.

PERIODICAL: Zhurnal Tekhn. Fiz., 1957, Vol 27, Nr 2, pp 327 - 330 (U.S.S.R.).
Received: 3 / 1957 Reviewed: 4 / 1957

ABSTRACT: The object of the present work is to find an approximative equation for the field of velocity and the temperatures in the case of a laminar current in tubes with liquids which are capable of dripping in consideration of the changing of the viscosity of the liquid with respect to temperature. This investigation was undertaken for the purpose of showing that the modification of the physical characteristics of liquids with temperature is one of the most important causes of the divergence between theoretical solutions and experimental results. At first the equations for the motion and heat transfer in the boundary layer of cylindrically shaped tubes are written down. The existing solutions of this system of equations apply only to the case of μ = const, which leads to more or less grave errors. Therefore, the attempt was made to find an approximated solution for this system of equations for the case that the change of the viscosity μ in connection with temperature is taken into account. The method of successive approximation by SHVETS-TARGA was selected for this purpose. At

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PA - 2128

On the Consideration of the Influence exercised by the Non-Isothermal Flux in a Laminar Current of Liquids which are Capable of Dripping in Tubes.

first, temperature distribution in first approximation for the radial cross section of the boundary layer of the tube was found. Next, the temperature dependence of the viscosity coefficient of the liquid capable of dripping is shown with the required accuracy in form of a series. In practice the polynomial of the third, or even only of the second degree will suffice. After transformation and integration the equation for the velocity of the flux in the case of a nonisothermal motion in the tube is obtained. Next, the formula for the average velocity of the cross section is given, after which only the domain adjoining the wall is investigated and the equation is found in which one of the multiplicands takes the influence exercised by the non-isothermal course of the current into account. In the case of the second initial equation the case of an infinite distance from the wall is dealt with and an ordinary differential equation is obtained. The average value of the heat current passing through the unit of the surface of the tube is written down in form of a formula.

Card 2/2

ASSOCIATION: Not given
PRESENTED BY:
SUBMITTED:
AVAILABLE: Library of Congress.

SIDOROV, E. A.

PA - 2547

AUTHOR SIDOROV E.A.

TITLE On the Correlation between Surface Friction and Heat Exchange. (O svyazi poverkhnostnogo treniya s teploobmenom.- Russian)

PERIODICAL Zhurnal Tekhn. Fiz. 1957, Vol 27, Nr 3, pp 560 - 566 (U.S.S.R.)
Received: 4/1957 reviewed: 5/1957

ABSTRACT Though the theory on the analogus phenomena on the occasion of the transmission of momenta and energy in relation to the quantitative part, which was for the first time mentioned by Reynolds, was named the hydrodynamic theory of heat exchange, the auther believes that it ought to be called the theory of thermofriction analogy. The reason given for this is that the main task of this theory is the discovery out of a direct relation between the hydrodynamic and the heat exchange characteristics. Existing methods are not complete and results differ up to 100 % and more. A much more simple and safe way is shown here. At first the universal relation between Nu and Re is deduced:

$$Nu = \frac{1}{2} c_f Re \left(\frac{\partial \Theta}{\partial \varphi}\right)_o \qquad \Theta = \frac{t}{t_o} \text{ .....dimension/less temperature}$$

$$\varphi = \frac{u}{U} \text{ ....dimension/less velocities}$$

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PA - 2547

On the Correlation between Surface Friction and Heat Exchange.

c_f .... coefficient of surface friction, dimensionless.

The value ($\frac{\partial \theta}{\partial y}$) here acts as second parameter. The determination of this value gives the solution. Since a laminary sub layer exists in the turbulent boundary layer the value of this parameter can be assumed to differ only little from that of the laminary boundary layer. This value can be found analytically for the laminary boundary layer. It is derived here and the basic equation reads as follows:

$$Nu = \frac{1}{2} c_f Re \, Pr \, 1/3.$$

Now this formula for the different cases of a turbulent flow is applied and it is shown that the results obtained agree with those of the experiments. The same is shown to be the case with motions of liquids in tubes as well as with the motions of a compressed gas. The last mentioned formula remains the same for gases. (With 2 tables)

ASSOCIATION: not given.
PRESENTED BY: -
SUBMITTED: June 30th, 1956.
AVAILABLE: Library of Congress.

SIDOROV, E.A., Cand Tech Sci -- (diss) "Certain problems of the theory of convective and radiant heat exchange." Mos, [Pub House of Acad Sci USSR], 1958, 9 pp (Acad Sci USSR. Power Engineering Inst im G.M. Krzhizhanovskiy) 185 copies. List of author's works pp 8-9 (11 titles) (KL, 50-58, 125)

SIDOROV, E.A.

Contemporary methods in convection heat transfer theory and their application. Inzh.-fiz.zhur. no.5:62-70 My '58. (MIRA 12:1)

1. Energeticheskiy institut AN SSSR, g. Moskva.
(Heat--Transmission)

SIDOROV, E.A., inzh.

A valuable book on the theory of convective heat exchange ("Foundations of the theory of heat exchange" by S.S. Kutateladze. Reviewed by E.A. Sidorov). Energomashinostroenie 4 no.11:43 N '58. (MIRA 11:11)

(Heat exchangers)
(Kutateladze, S.S.)

AUTHOR: Sidorov, E.A. (Moscow) SOV/24-58-9-18/31

TITLE: Convective Heat Transfer Under Non-stationary Conditions (Konvektivnyy teploobmen pri nestatsionarnom rezhime)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1958, Nr 9, pp 116 - 117 (USSR)

ABSTRACT: Non-stationary convective heat transfer is met with in many branches of technology. The non-stationarity may be associated with the process itself or with a transition state from one stationary process to another. In spite of the major practical importance of non-stationary thermal convection, there are no theoretical or experimental data on the subject at the present time. The absence of such data is due to the great mathematical difficulties involved in an accurate solution of the problem. This is the reason why in calculations of heat-transfer processes in which speeds and temperatures are functions of time, one has been forced to use formulae which describe stationary convection assuming that these formulae will also apply when the speeds and temperatures which enter into them vary with time. However, there are no data in the literature which would indicate the range of applicability of these formulae. The present paper is an attempt to obtain an

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SOV/24-58-9-18/31

Convective Heat Transfer Under Non-stationary Conditions

approximate solution of the problem of non-stationary convection. In calculation of heat transfer between a medium in which convection takes place and a surface, the basic energy equation in a layer near the surface may be written in the form:

$$\frac{\partial t}{\partial \tau} + u \frac{\partial t}{\partial x} + v \frac{\partial t}{\partial y} = a \frac{\partial^2 t}{\partial y^2} \qquad (1).$$

Here u and v are the components of the velocity vector along the x and y axes which coincide with the direction of flow and the normal to the surface respectively, $t = T-T_1$ is the temperature difference between a point in the layer and the surface, τ is the time and a is the coefficient of "temperature conductivity". In the zero-order approximation only the conductive term is retained. On solving the equation:

$$\frac{\partial^2 t}{\partial y^2} = 0 \qquad (2)$$

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in which convection is taken indirectly into account via the boundary conditions:

$$t = 0 \quad \text{for} \quad y = 0, \quad t = t_0 \quad \text{for} \quad y = \delta \qquad (3)$$

we find:

$$t = t_0 y/\delta \qquad (4)$$

where δ is the thickness of the layer, $t_0 = T_0 - T_1$ and T_0 is the temperature of the main current. Substituting this expression into Eq (1), in which only convective terms are now neglected, we find the equation which takes into account the non-stationary nature of the phenomenon in the first-order approximation:

$$y \frac{\partial}{\partial \tau}\left(\frac{t_0}{\delta}\right) = a \frac{\partial^2 t}{\partial y^2} \qquad (5).$$

On solving this equation, one finds that:

$$\frac{q}{q_o} = 1 - \frac{\rho c \lambda t_o^2}{6 q_o^2}\left(\frac{t_c'}{t_o} + m\frac{U'}{U}\right) \qquad (8)$$

where q is the thermal flux through the surface in the non-stationary case and q_o is the flux under stationary conditions. It follows that the formulae describing the stationary process will hold approximately provided:

$$\frac{\rho c \lambda}{6 \alpha_c^2}\left(\frac{t_o'}{t_o} + m\frac{U'}{U}\right) \ll 1 \qquad (10)$$

where ρ and c are the density and specific heat, respectively and u is the velocity of the main current beyond the layer near the surface. For laminar flow

$m = 1/2$ and for turbulent flow $m = 1/5$. The prime indicates differentiation with respect to time and $\alpha_0 = q_0/t_0$.

SUBMITTED: February 27, 1957

24(8)

AUTHOR: Sidorov, E. A. SOV/57-58-12-10/15

TITLE: On the Influence of Non-Isothermicity on the Hydraulic Drag in Laminar Motion of Drop Liquids in Pipes (O vliyanii neizotermichnosti na gidravlicheskoye soprotivleniye pri laminarnom dvizhenii kapel'nykh zhidkostey v trubakh)

PERIODICAL: Zhurnal tekhnicheskoy fiziki, 1958, Nr 12, pp 2711-2712 (USSR)

ABSTRACT: The results obtained previously in the paper cited in reference 1 are further developed, made more precise and compared with experimental data. In order to check formula (4) specifying the heat flow between the liquid and the wall of the tube the problem of the influence of the direction of a heat flow is investigated. The influence of the non-isothermic course on the hydraulic resistance is then examined. It is shown that formula (8) is a generalization of formula (9) established by Poiseuille (Puazeyl') for the case of a non-isothermal motion. The relative of ξ (coefficient of hydraulic drag) in the case of a change in direction of the heat flow was calculated. Water was used as fluid medium and for the calculation of the coefficient of the non-isothermicity formula (5) was employed. It is shown that for the hydraulic

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On the Influence of Non-Isothermicity on the Hydraulic Drag in Laminar Motion of Drop Liquids in Pipes SOV/57-58-12-10/15

drag the difference between the theoretical and experimental values does not exceed 1 %. There are 3 references 2 of which are Soviet.

SUBMITTED: December 20, 1957

Card 2/2

SIDOROV, E. A.

AUTHOR: Sidorov, E. A., Engineer. 96-4-15/24

TITLE: A method of allowing for unstable conditions during convective heat exchange. (Uchet vliyaniya nestatsionarnosti rezhima pri konvektivnom teploobmene).

PERIODICAL: Teploenergetika, 1958, 5 No.4, pp.79-80 (USSR).

ABSTRACT: Despite the practical importance of unstable thermal convection, the problem has been neglected. A strict theoretical solution presents great mathematical difficulties. Therefore, use is usually made of formulae appropriate to the steady state; their applicability to unstable conditions of heat exchange is assumed. However, there is as yet no way of estimating the error inherent in this assumption. The present article uses the method of successive approximations to establish a simple expression whereby the applicability of the assumption can be roughly calculated. Formulae are derived to determine the applicability of the steady convection formulae. They are applied in a numerical example on turbulent flow in a pipe, and the use of the steady state equations is found to be admissable.

Card 1/1

ASSOCIATION: All-Union Thermo-Technical Institute. (Vsesoyuznyy Teplotekhnicheskiy Institut).

AVAILABLE: Library of Congress.

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S/124/61/000/011/023/046
D237/D305

26.5000

AUTHOR: Sidorov, E.A.

TITLE: Radiant and convection heat exchange in absorbing medium

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 11, 1961, 88, abstract 11B591 (Sb. vopr. teploobmena, M., AN SSSR, 1959, 49 - 52)

TEXT: In the energy equation of a flat laminar boundary layer of a incompressible fluid the heat gain is assumed to be due to radiation and influence of viscosity is neglected. Direction of the radiant beam is considered to be normal to the streamlined surface and the fluid is optically grey. The energy transfer equation is taken in the form averaged over direction and on its integration the approximation is assumed that inside the boundary layer the temperature is constant and equal to that of a free flow outside the boundary layer. The resulting energy equation is

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$$\rho c\left(u \frac{\partial T}{\partial x} + v \frac{\partial T}{\partial y}\right) = \lambda \frac{\partial^2 T}{\partial y^2} + \varepsilon m \sigma n^2 (T_1^4 - T_o^4) e^{-my},$$

where u, v, ρ, T are velocity components, density and temperature of the fluid, λ - coefficient of thermal conductivity, c - heat capacity, T_1, T_o - temperature of the surface and the fluid on the boundary of the layer, ε - coefficient of blackness (absorption) of the surface, σ - Stefan's constant, n - index of refraction of fluid, m = 3/2 k, k = coefficient of absorption of fluid. This equation is solved (to 1st approximation) by modified Shvetz method (Shvetz, M.Ye. Prikl. matem. i mekhan. 1950, 14, no. 1)). The solution is sought of the equation with the L.H.S. neglected, satisfying the condition of equal temperatures on the wall and on the boundary of the layer, when the thickness of thermal boundary layer δ is the 2nd approximation obtained by Shvetz method, when radial heat transfer is neglected. Thus, the author obtains the following expression for heat transfer intensity q through the wall

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D237/I305

Radiant and convection heat ...

$$q = \frac{\lambda(T_1 - T_0)}{\delta} + \frac{q_1}{m\delta}(1 - e^{-m\delta})$$

q_1 - intensity of incident beam on the wall. For $k\lambda/\alpha_0 < 0.1$, where α_0 - coefficient of heat transference, convective and radiant heat transfer are practically additive and can be calculated separately. [Abstractor's note: Complete translation].

X

24.5200

68767

AUTHOR: Sidorov, E. A.

S/170/59/002/11/013/024
B014/B014

TITLE: Calculation of Resistance and Convective Heat Exchange Under Turbulent Nonsteady Conditions

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1959, Vol 2, Nr 11, pp 86-91 (USSR)

ABSTRACT: Proceeding from the set of equations (1) for heat transfer under arbitrary conditions, the author derives equations (5) and (6) for equations (2) and (3). These two equations are considered to be sufficiently accurate solutions of (1). For practical purposes, however, they proved to be not very useful. The author suggests to derive less complicated and thus more useful approximate solutions. A correction of the solution for steady conditions leads to formula (9) for nonsteady conditions, which has the form of the ordinary Bernoulli differential equation. Next, formula (11) for the resistance coefficient is deduced herefrom. A similar way is chosen for equation (6) for the heat exchange. Thus, formula (20) is obtained which is used to compute the Stanton number. There are 5 references, 4 of which are Soviet.

ASSOCIATION: Institut teplofiziki SO AN SSSR (Institute of Thermophysics SO, AS USSR)

Card 1/1

24.5200

67604

SOV/179-59-5-26/41

AUTHOR: Sidorov, E.A. (Moscow)

TITLE: The Interaction of Convection and Radiation in an Absorbing Medium

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Mekhanika i mashinostroyeniye, 1959, Nr 5, pp 134-136 (USSR)

ABSTRACT: The paper is a continuation of previous work (Ref 5). The plane motion of an incompressible fluid with constant physical properties near a non-isothermal surface is considered. The equations for the conservation of mass and energy and for radiational transfer are written in differential form; the latter equation involves the Stefan-Boltzmann constant and the refractive index of the medium. These equations are solved by means of exponential functions to obtain the radiation transfer, which is then substituted in the energy equation. The resulting equation is solved by an iterative process for both turbulent and laminar flow to obtain the final equation for total heat transfer. There are 6 Soviet references.

4

SUBMITTED: July 13, 1959

Card 1/1

66077

S/179/59/000/06/028/029
E081/E141

AUTHOR: Sidorov, E.A. (Moscow)

TITLE: The Influence of Initial Section on the Hydraulic Resistance in Laminar Flow of Liquids in Tubes

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Mekhanika i mashinostroyeniye, 1959, Nr 6, p 150 (USSR)

ABSTRACT: Attempts to establish theoretical and experimental corrections allowing for the influence of the initial section of the tube have already been made by Bussinesq (Refs 1-3). The most accurate solution giving a basis for practical recommendations on the calculation of hydraulic resistance in the initial section is the relatively recent analytical solution of S.M. Targ (Ref 4). The accuracy of the solution is established by the very good correspondence with the experimental distribution of flow velocity in a tube found by Nikuradze (Ref 3). On the basis of S.M. Targ's findings, the fall in pressure $p_o - p$ between the section of entry ($x = 0$, $p = p_o$) in a circular tube and an arbitrary section distance x from the entrance can be calculated from the change along the length of the tube of

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S/179/[illegible]/000/0[illegible]/02[illegible]/0[illegible]
E031/E1[illegible]1

The Influence of Initial Section on the Hydraulic Resistance in Laminar Flow of Liquids in Tubes

the local ζ and the mean ζ_0 of the hydraulic resistance coefficient. Omitting intermediate steps, the final result can be written

$$\zeta = \frac{dp}{dx}\,\frac{2d}{\rho U^2} = \frac{64}{R} + \frac{32}{R}\sum_{k=1}^{\infty} \exp\left(-\frac{4\beta_k^2}{R}\,\frac{x}{d}\right) \quad (1)$$

$$(R = Ud/\nu)$$

$$\zeta_0 = \frac{1}{x}\int_0^x \zeta\,dx = \frac{64}{R} + \frac{2d}{x}\left[\frac{1}{3} - 4\sum_{k=1}^{\infty}\frac{1}{\beta_k^2}\exp\left(-\frac{4\beta_k^2}{R}\,\frac{x}{d}\right)\right] \quad (2)$$

where R is Reynold's number; U the mean flow velocity; d the equivalent diameter of the tube; ν and ρ respectively the kinematic viscosity coefficient and density of the moving fluid; and β_k ($k = 1,2,3,\ldots$) the successive roots of the equation $I_2(z) = 0$. If the second term of the formulae (1) and (2) amounts to 1% of the value of the first term, the value

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The Influence of Initial Section on the Hydraulic Resistance in Laminar Flow of Liquids in Tubes

$$L = 0.04d\,R \qquad (3)$$

is found for the length of the local frictional section, agreeing with the findings of S.N. Targ for the length of the velocity of the initial section. The length of the mean frictional section is 26 times larger and is

$$L^o = 1.04d\,R \qquad (4)$$

It follows from Eq (4) that $L^o = 1040d$ for $R = 10^3$, so that in the majority of cases of laminar flow in tubes, Poiseuille's equation

$$\xi = 64/R \qquad (5)$$

is strictly speaking valid only for $x \to \infty$ (when $\xi = \xi^o = \xi_{\infty}$), and corrections are required. Values of these corrections can be found from formulae (1) and (2). However, for practical calculations the expressions thus obtained are unsuitable, owing to the slow convergence of the corresponding series. For this reason the following simple approximate formulae are suggested for calculating the mean hydraulic resistance

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The Influence of Initial Section on the Hydraulic Resistance in Laminar Flow of Liquid in Tubes

coefficient:

$$\xi^{\circ} = \xi_{\infty}\left[1 + \frac{1}{96}\left(R\,\frac{d}{x}\right)\right] \quad \left(R\,\frac{d}{x} < 50\right) \quad \left(\xi_{\infty} = \frac{64}{R}\right)$$

$$\xi^{\circ} = \xi_{\infty}\,0.30\left(R\,\frac{d}{x}\right)^{0.40} \qquad \left(R\,\frac{d}{x} > 50\right) \qquad (6)$$

Equations (6) cover practically all the useful range of the parameter Rd/x from 0 to 1000, in which the maximum error of approximation does not exceed 3%. For comparison we give the results of calculations for ξ°/ξ_{∞} by the available formulae and also by formula (6) for various Reynolds numbers

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Rd/x =	1	10	20	50	100	200	500	1000

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001550510007-7"

S/179/59/000/06/028/029
E081/E141

The Influence of Initial Section on the Hydraulic Resistance in Laminar Flow of Liquids in Tubes

[illegible] =								
	1.02	1.22	1.44	1.97	2.55	3.30	5.08	7.19
	(Shiller-Boussinesq, Ref 2)							
	1.00	1.00	1.00	1.07	1.26	1.52	1.3[illegible]	-
	(Frenkel, Ref 5)							
	1.01	1.10	1.21	1.52	1.89	2.49	3.60	4.77
	(Formula (6))							

There are 5 references, as follows:

1) Shiller, L. Movement of liquid in tubes, ONTI, 1936.
2) Present State of hydrodynamics of viscous liquids, Vol 1, IL, 1948.
3) Prandtl', L, Tit'ens, O. Hydro- and aeromechanics, Vol 2, ONTI, 1935.
4) Torg, S.M. Basic problems of the theory of laminar flow. GTTI, 1951.
5) Frenkel', N.Z. Hydraulics. GEN, 1956.

Card 5/5

This is a complete translation.

SUBMITTED: April 13, 1959

10(4) SOV/170-59-6-18/20

AUTHOR: Sidorov, E.A.

TITLE: On the Calculation of Hydraulic Resistance in the Initial Section of Pipes Under Turbulent Conditions

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1959, Nr 6, pp 111-115 (USSR)

ABSTRACT: In order to investigate the effect of the initial section of a pipe on hydraulic resistance, the author writes down equations of mass and moment conservation in dimensionless form. He makes use of the results of two experimental findings: 1. One of them expresses the law of velocity distribution over the cross section of a boundary layer, and 2. The second is the statement that the character of development of a boundary layer in the initial section of a pipe is similar to the character of development of a boundary layer, when a liquid flows around flat surfaces. The boundary conditions are obtained for the distribution of surface tension, c_f, and the coefficient of hydraulic resistance along the length of a pipe ξ, and the problem is reduced to a system of six algebraic equations. The solution of this system yields the expressions for average

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SOV/170-59-6-18/20

On the Calculation of Hydraulic Resistance in the Initial Section of Pipes Under Turbulent Conditions

hydraulic resistance, Formulae 15 and 16, and the values of relative coefficient of hydraulic resistance, plotted versus the values of pipe length, are shown in Figure 1.
There are: 1 graph, 1 table and 11 references, 10 of which are Soviet and 1 German.

ASSOCIATION: Energeticheskiy institut AN SSSR (Power Engineering Institute of the AS USSR), Moscow.

Card 2/2

69942
S/024/59/000/06/023/028
E032/E214

10.4000

AUTHOR: Sidorov, E. A. (Moscow)

TITLE: Generalization of the Grets Solution to the Case of Radiative Heat Transfer

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Energetika i avtomatika, 1959, Nr 6, pp 183-185 (USSR)

ABSTRACT: Grets (Ref 1) has given a solution of the problem of convective heat transfer in the case of laminar flow of liquids in stabilized sections of tubes. The differential equation for the heat transfer, which does not take into account radiative terms, is given by Eq (1), where T(r, z) is the absolute temperature of the liquid, r and z are the radial and axial cylindrical coordinates, a is the reduced thermal conductivity (i.e. the ratio of the thermal conductivity and the product of the specific heat and the density of the medium), and v(r) is the velocity of the liquid. Grets has found solutions of Eq (1) for two cases, namely, when the velocity distribution is parabolic (Eq (2)), and when it is constant (Eq (3)). However, it can be shown (Ref 2) that provided the condition

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S/024/59/000/06/023/028
E032/E214

Generalization of the Grets Solution to the Case of Radiative Heat Transfer

$2RP/z < 15$ is satisfied (and it is satisfied in many practical cases), the two solutions are almost identical. In this condition $P = 2UR/a$. The present author assumes that this condition is satisfied and writes down the energy equation in the form given by Eq (5), in which radiation effects are included in the form of the second term on the right-hand side of Eq (5). In this equation, ρ, c and λ are the density, specific heat and thermal conductivity of the liquid, $k = 3\alpha/2$, and φ is defined by the fourth equation on p 184 in which $D = 2R$ is the diameter of the tube, σ is Stefan's constant, and n is the refractive index. Eq (5) is then linearized using the substitution given by Eq (6), where T_m is given by Eq (7) and T_0 and T_1 are the temperatures of the liquid at the input and of the walls of the tube respectively. The equations are then transformed into a dimensionless system of coordinates, which is defined by the relations immediately above Eq (8). When this substitution is carried out, the heat transfer

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S/024/59/000/06/023/028
E032/E214

Generalization of the Grets Solution to the Case of Radiative Heat Transfer

equation can be rewritten in the form of Eq (8), the boundary conditions being

$\theta = 0$ when $x = 0$
θ finite when $y = 0$
$\theta = 1$ when $y = 1$

The temperature distribution is then given by the last equation on p 184 in which J_0, J_1 and I_0 are the ordinary and modified cylinder functions, and β_i are the roots of the equation $J_0(x) = 0$. For a transparent medium (B tending to zero), when the radiation can be neglected, one obtains the solution given by Eq (11) which is the same as that obtained by Grets for purely convective heat transfer. The total heat flux q passing through the walls of the tube (per unit area) can be found from Eq (11) and is given by Eq (12). An important consequence of Eqs (10) and (12) is the fact that when radiative corrections are brought in, the temperature drop and the quantity of heat given up by the medium change more

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E032/E214

Generalization of the Grets Solution to the Case of Radiative Heat Transfer

rapidly along the length of the tube as compared with the case when the correction is not included. There are 4 references, 3 of which are Soviet and 1 English.

SUBMITTED: June 2, 1959

4

Card 4/4

SIDOROV, E.A. (Moskva)

Calculating the temperature dependence of the heat conduction coefficient in nonstationary conductive heat exchange. PMTF no.4:62-63 N-D '60. (MIRA 14:7)

(Heat—Conduction)

S/170/60/003/005/012/017
B012/B056

AUTHOR: Sidorov, E. A.

TITLE: Calculation of the Combined Heat Interaction Between Solid and Liquid Media

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1960, Vol. 3, No. 5, pp. 106-110

TEXT: Approximation methods for the calculation of non-steady heat exchange are given. The problem to be solved is the following: An opaque solid of arbitrary shape, round which a liquid (or gas) flows, and which has the absolute surface temperature T, the integral degree of blackness ε and the heat-transfer coefficient α is assumed. V is the velocity and T_0 the absolute temperature of the thermally not disturbed part of the liquid flow. q_0 is the density of the heat flux due to radiation from outside (upon the surface of the solid). As a result of the complicated heat exchange, the resulting heat flux q_1 passes through the unit of the body surface. It is assumed that the thermophysical properties of the liquid (or gas, respectively) and of the solid do not depend on temperature. The

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Calculation of the Combined Heat Interaction Between Solid and Liquid Media

S/170/60/003/005/012/017
B012/B056

functional interrelation between V, T_o, q_o, T_1, and q_1 is sought. First, the heating of the body by radiation without convection is investigated. In this case, only the interrelation between q_o, T_1 and q_1 need be found. The formula (1) for thermal conductivity is written down, and it is shown that consideration of heat transfer by radiation leads to the nonlinear boundary condition (5). As a concrete example, the heating of a plane, rather thick wall by radiation is investigated. The thickness of the wall makes it possible to regard it as a semi-limited body during the time of investigation. If internal sources for heat production should be lacking, the differential equation (6) may be written down, for which the boundary conditions (7), (8), and (9) are given. Assuming formula (13), the boundary condition (8) is linearized, and formulas (17), (18), (19), and (20), which determine the required interrelation between q_o, T_1, and q_1, are derived. Next, the convective heat exchange is investigated in consideration of radiation. For this case, the approximate formula (24) is recommended, where the nonlinear boundary condition (5) becomes formula (25). In the present case, the solution of equation (1) makes it possible to determine the interrelation between q_1, T_1, q_o, and T_o^*. $\alpha = \alpha(V)$ is assumed to be

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Calculation of the Combined Heat Interaction Between Solid and Liquid Media

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B012/B056

known. In conclusion, the flow round a body of a great transverse thickness is investigated as an example. In this case, the body may be looked upon as a plane wall of unbounded thickness. There are 5 references: 4 Soviet and 1 British.

ASSOCIATION: Institut teplofiziki SO AN SSSR (Institute of Heat Physics of the SO AS USSR)

Card 3/3

16.8000,21.1320,24.5200

78327
SOV/89-8-3-12/32

AUTHOR: Sidorov, E. A.

TITLE: Choice of Coolant for Nuclear Reactors. Letter to the Editor

PERIODICAL: Atomnaya energiya, 1960, Vol 8, Nr 3, pp 252-254 (USSR)

ABSTRACT: The author analyzed various coolants from the standpoint of heat-transfer and energy used in transporting the material. The goal was to bring the existing data by Goodman up to date by using more recent information by Vargaftik (Teplofizicheskiye svoystva veshchestv, Spravochnik (Thermal Properties of Materials, Manual) edited by Vargaftik, M., Gosenergoizdat, 1956) and Mikheyev (Osnovy teploperedachi (Introduction to Heat-Transfer) M., Gosenergoizdat, 1956). To compute the heat-transfer coefficients of heat carriers of the first class (liquids and gases with the Prandtl number $Pr \geqslant 1$) the author used the equation valid for the stabilized turbulent flow:

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APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001550510007-7"

$$\alpha = 0{,}023 C \lambda Pr^{0.4} \nu^{-0.8} \qquad (1)$$

where C depends on the construction of the heat exchanger, and λ and ν are coefficients of heat conduction and kinematic viscosity, respectively. For the second class of carriers, representing liquid metals ($Pr = 10^{-2}$ to 10^{-4}), the author uses the approximate equation:

$$\alpha = 0{,}025 C \lambda Pr^{0.8} \nu^{-0.8} \qquad (3)$$

Table 1 contains the result of the computations. The author also develops an expression for the dimensionless economic coefficient of heat-transfer which is equal to the ratio of the heat energy transferred by a particular

Choice of Coolant for Nuclear Reactors. Letter to the Editor

78327
SOV/89-8-3-12/32

Table 1. Heat-transfer coefficients for various heat carriers. (a) heat carrier; (b) heat-transfer coefficient (relative unit--2.8 kcal·sec$^{0.8}$/m^2·h·deg) at temperatures in $^\circ$C; (c) air; (d) carbon dioxide; (e) water vapor (on saturation curve); (f) water (on saturation curve); (g) dowtherm (liquid biphenyl mixture); (h) saltpeter mixture (melted salt); (i) mercury; (j) alloy (25% Na + 75% K); (k) sodium; (l) alloy (56.5% Bi + 43.5% Pb); (m) lithium; (n) tin; (o) bismuth.

(a)	(b)				
	100	200	300	400	500
(c) ($p = 1$ atm)	1,0	0,9	0,8	0,7	0,7
(d) ($p = 1$ atm)	1,2	1,1	1,1	1,0	1,0
(e)	1,0	10	70	—	—
(f)	$1,0 \cdot 10^3$	$1,2 \cdot 10^3$	$1,2 \cdot 10^3$	—	—
(g)	—	$1,6 \cdot 10^4$	$2,2 \cdot 10^3$	$2,5 \cdot 10^3$	$2,6 \cdot 10^3$
(h)	—	$2,3 \cdot 10^3$	$3,0 \cdot 10^4$	$3,3 \cdot 10^2$	$3,2 \cdot 10^2$
(i)	$1,2 \cdot 10^3$	$1,3 \cdot 10^3$	$1,3 \cdot 10^3$	—	—
(j)	$8,9 \cdot 10^2$	$8,2 \cdot 10^3$	$7,9 \cdot 10^4$	$7,3 \cdot 10^4$	$7,0 \cdot 10^3$
(k)	—	$1,3 \cdot 10^3$	$1,2 \cdot 10^3$	$1,2 \cdot 10^3$	$1,1 \cdot 10^3$
(l)		$1,1 \cdot 10^3$	$1,1 \cdot 10^3$	$1,0 \cdot 10^3$	$1,1 \cdot 10^3$
(m)		$1,8 \cdot 10^3$	$1,8 \cdot 10^3$	$1,8 \cdot 10^3$	$1,8 \cdot 10^3$
(n)		—	$1,6 \cdot 10^3$	$1,5 \cdot 10^3$	$1,5 \cdot 10^3$
(o)	—	—	$1,1 \cdot 10^3$	$1,1 \cdot 10^3$	$1,2 \cdot 10^3$

Card 3/5

coolant to the mechanical energy needed for its transport through tubes. Computed results are tabulated in Table 2. The final choice of coolant should, of course, also take into account other technical and economic factors, e.g., corrosion effects, stability, etc. There are 2 tables; and 4 references, 3 Soviet, 1 U.S. The U.S. reference is: Scientific and Technical Foundations of Nuclear Power Production, C. Goodman (ed.), M., Izd-vo inostr. lit., 1948-1950, Vol 1, p 287; Vol 2, p 124.

SUBMITTED: December 18, 1958

Choice of Coolant for Nuclear Reactors. Letter to the Editor

[illegible]
SOV/89-8-3-12/32

Table 2. Economic coefficients of heat transfer for various heat carriers. (a) Heat carrier; (b) economic heat-transfer coefficients (relative unit--43 kcal·sec 1.05 kgm/m$^{0.1}$·h·deg. at temperature in ^{o}C); (c to o) same as in Table 1.

(a)	(b) 100	200	300	400	500
(c) (p 1 atm)	1,0	1,0	1,0	1,0	1,0
(d) (p 1 atm)	0,9	0,9	1,0	1,1	1,1
(e)	1,7	2,3	3,8		
(f)	2,9	4,6	5,8		
(g)		0,18	0,28	0,35	0,37
(h)		0,17	0,20	0,37	0,41
(i)	0,34	0,37	0,39		
(j)	2,5	2,6	2,6	2,6	2,7
(k)		0,37	0,37	0,39	0,39
(l)		0,31	0,33	0,31	0,37
(m)		7,2	7,7	8,0	8,2
(n)			0,66	0,68	0,70
(o)			0,36	0,39	0,41

Card 5/5

SIDOROV, E.A.

Effect of internal heat sources on convective heat transfer. Atom.energ. 9 no.1:51-52 Jl '60. (MIRA 13:7)
(Heat--Transmission) (Heat--Convection)

SIDOROV, E.A., inzh.

Precise calculation of thermal insulation. Teploenergetika 8 no.3:88-89 Mr '61. (MIRA 14:9)
(Insulation (Heat))

S/170/63/006/002/018/018
B108/B186

26.5200

AUTHOR: Sidorov, E. A.

TITLE: The critical diameter of a spherical heat insulator

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, v. 6, no. 2, 1963, 131-132

TEXT: The critical diameter, i.e. that diameter at which the heat resistivity has a minimum, is calculated for a spherical heat insulator, the dependence of the coefficient $\alpha_x(x)$ of convective heat transfer on the diameter of the sphere being taken into consideration. $x = D/d$ is the ratio of the variable outer diameter D of the insulation to the constant inner diameter d. The heat resistance of a spherical body is $r = r_0 + \frac{1}{\pi d}\left[(1 - 1/x)/2\lambda + 1/\alpha_x dx^2\right]$. The relation $Nu = ARe^n$ was found experimentally for convective heat transfer (B. D. Kantsel'son, F. A. Timofeyeva. Trudy Tsentral'nogo kotloturbinnogo instituta (Proceedings of the Central Boiler and Turbine Institute), v. 12, no. 3, Mashgiz, 1949). $n = 0$ and $A = 2$ for $Re < 10$. With increasing Re, n increases from $n = 0$ ($Re \rightarrow 0$) to $n = 1$ ($Re \rightarrow \infty$). The above leads to

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VB

SIDOROV, E.A.

Considering the effect of some factors on heat and mass transfer during turbulent flow of compressible gas in underground gas producers. Nauch.trudy VNIIPodzemgaza no.10:17-21 '63.

Significance of coefficients of the exponential law covering drag and heat and mass transfer in calculations of the underground gasification process. Ibid.:21-24

Calculation of heat losses due to heat transfer in an underground gas generator. Ibid.:24-32 (MIRA 17:5)

1. Laboratoriya aerodinamicheskaya Vsesoyuznogo nauchno-issledovatel'skogo instituta podzemnoy gazifikatsii ugley.

[illegible]

[illegible]tions for the igniting of underground gas producers in lean coal seams. Trudy VNIIPodzemgaza no.12:27-32 '64. (MIRA 18:9)

1. Laboratoriya aerodinamicheskaya Vsesoyuznogo nauchno-issledovatel'skogo instituta podzemnoy gazifikatsii ugley.

SIDOROV, E.A.

Calculation of the oxygen zone in a cylindrical carbon channel. Nauch. trudy VNIIPodzemgaza no.8:21-26 '62. (MIRA 16:6)

1. Laboratoriya aerodinamicheskaya Vsesoyuznogo nauchno-issledovatel'skogo instituta podzemnoy gazifikatsii ugley. (Coal gasification, Underground)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001550510007-7"

SIDOROV, E.A.

Methods of calculating the unidimensional gas flow in an underground gas producer channel with high temperatures and rates of flow. Trudy VNIIPodzemgaza no.12:32-35 '64. (MIRA 18:9)

1. Laboratoriya aerodinamicheskaya Vsesoyuznogo nauchno-issledovatel'skogo instituta podzemnoy gazifikatsii ugley.

SIDOROV, E. G.

G-1

USSR/Zooparasitology - General Problems

Abs Jour : Ref Zhur - Biol., No 3, 1958, 10029

Author : Sidorov, E.G.
Inst : -
Title : Fish Parasites of Irgis-Turgay Basin Water Reservoirs.

Orig Pub : Sb. rabot po ikhtiologii i gidrobiol. No 1, Alma-Ata, 1956, 232-251

Abstract : In the summer of 1953 on Lake Dzhalangash 126 fish of six species, and on Lake Su-Zhargan 268 fish of five species were dissected. 45 species of parasites were found: 3 protozoa, 10 monogenetic trematodes, 16 digenetic, 5 cestodes, 5 nematodes, 2 "skreben" 1 leech, and 2 species of parasitic crustacea. The qualitative and quantitative wealth of ichthyoparasitofauna depends upon good attemperation of the lakes, mass development of plankton and benthos, and high density of fish population. A wide distribution of trypanosomes and a great variety of

Card 1/2

SIDOROV, E. G.

Tenth Conference on Parasitological Problems and Diseases with Natural Reservoirs, 22-29 October 1959, Vol. II, Publishing House of Academy of Sciences, USSR, Moscow-Leningrad, 1959.

DROKIN, A.I.; SUDAKOV, N.I.; SIDOROV, F.K.; YARICHINA, K.V.

Magnetic crystallographic anisotropy and losses on rotational hysteresis in single crystals of cobalt ferrites. Izv. SO AN SSSR no.6. Ser. tekh. nauk no.2:103-109 '65. (MIRA 18:11)

1. Institut fiziki Sibirskogo otdeleniya AN SSSR, i Institut tsvetnykh metallov imeni M.I. Kalinina, Krasnoyarsk.

SIDOROV, G., kand.geograf. nauk

Told by Academician D.I.Shcherbakov: geological prospecting at the desk. Tekh.mol. 31 no.5:35-36 '63. (MIRA 16:6)
(Prospecting)

1. , . F.

Uborka zernovykh kul'tur v severozapadnoi zone [Harvesting grain crops in the North-west]. Moskva, Sel'khozgiz, 1953. 83 p.

SO: Monthly List of Russian Accessions, Vol. 6 No. 11 February 1954

SIDOROV, F.F.

SIDOROV, F.F.; ZGIRSKIY, Ch.I.; ANAKIN, I.A.; YERAKHTIN, D.D., kandidat tekhnicheskikh nauk, retsenzent; SOBOLEV, L.A., inzhener, retsenzent; BUSHUYEV, N.M., kandidat tekhnicheskikh nauk, redaktor; SHABASHOV, A.P., kandidat tekhnicheskikh nauk, redaktor.

[Repair of agricultural machinery] Remont sel'skokhoziaistvennykh mashin. Sverdlovsk, Gos. nauchno-tekhn. izd-vo mashinostroit. i sudostroit. lit-ry [Uralo Sibirskoe otd-nie] 1953. 295 p. (MLRA 7:6)
(Agricultural machinery--Repairing)

SIKOROV, F. F.

Potatoes

Improving the qualities of potato planting stock. Sel. i sem. 20, No. 3, 1953.

Monthly List of Russian Accessions, Library of Congress, June 1953. Uncl.

SIDOROV, F. F.

6812. Sirorov, F. F. Agrotekhnika zernovykh kul'tur v severo-zapadnoy zone. M.-L., Sel'khozgiz, 1954. 156 s. s. ill. 20 sm. 10.000 ekz. 2 r. 15 k. -- (55-3081) P 633.1(47.16)

SO: Knizhnaya Letopis' No. 6, 1955

SIDOROV, F.F

SIDOROV, F. F.

(2)

9097* **Influence of Azotobacter on Yield of Potatoes.** (Russian.) F. F. Sidorov. *Doklady Vsesoiuznoi Ordena Lenina Akademii Sel'skokhoziaistvennykh Nauk, Imeni V.I. Lenina,* v. 19, no. 1, 1954, p. 25-27.

Superphosphate, K, and NH_4NO_3 fertilizers increased growth and yield. Tables.

Sidorov, F.F.

M-2

USSR/Cultivable Plants - Grains.

Abs Jour : Ref Zhur - Biol., No 3, 1958, 10726

Author : Galeyev, G..., Sidorov, F.F.

Inst : All-Union Institute of Plant Husbandry.

Title : An Investigation of a Collection of Self-Pollinating Corn Lines from the Point of View of Selection.

Orig Pub : Byul. Vses. in-ta rasteniyevodstva. VASKhNIL, 1956, No 2, 3-13.

Abstract : The experiments were conducted in the Kuban' Test Station of the All-Union Institute of Plant Husbandry between 1947 and 1956. Every year between 23 and 148 lines were studied. The lines are evaluated according to the following indices: length of the vegetation period, productivity, resistance to blister smut, resistance to soil drought, tendency to fall down, brittleness of the stalk, duration of the period

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USSR/Cultivable Plants - Grains. M-2

Abs Jour : Ref Zhur - Biol., No 3, 1958, 10726

between the emergence of shoots and flowering and of the period between flowering and maturity of the spadices, ability of the plant to produce well-developed pollen. An estimation is also given of the combination value of the self-pollinating lines. The results obtained on 130 lines are drawn up in a table. Materials are also given on the origin of the 73 self-pollinating lines most widely used in selection and seed production.

Card 2/3

SIDOROV, F.F.

SIDOROV, F.F.

[Biological characteristics of corn] Biologicheskie osobennosti kukuruzy. Leningrad, ob-vo po rasprostraneniiu politicheskikh i nauchnykh znanii RSFSR. Leningradskoe otd-nie, 1957. 46 p. (MLRA 10:9)
(Corn (Maize))

SIDOROV, Fedor Filippovich; NAUMOV, G.I., inzh., retsenzent; PICHAK, F.I., kand. tekhn. nauk, red.; POLKANOV, I.P., kand. tekhn. nauk, red.; SARAFANNIKOVA, G.A., tekhn. red.

[Progressive practices in using sugar beet, potato, and flax harvesters] Peredovoi opyt ispol'zovaniia sveklokombainov, kartofelekombainov i mashin dlia uborki l'na. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1957. 76 p. (MIRA 11:7)

(Harvesting machinery)

ANDRYUSHCHENKO, Yu.S., BAGIN, Yu.I., BASHKIRTSEV, A.A., BELEN'KOV, G.Ye.
BELINICHER, I.Sh., BUSHUYEV, N.M., VAGANOV, A.K., GASHEV, A.M.,
YES'KOV, K.A., ZOIRSKIY, Ch.I., IGNAT'YEV, M.I., KORUSHKIN, Ye.N.
KUZ'MOV, N.T., PATSKEVICH, I.P., PICHAK, F.I., RAYTSES, V.B.,
RUDAKOV, A.S., SAPRYKIN, V.M., SIDOROV, F.F., UMINSKIY, Ye.A.
KHANZHIN, P.K., CHEREMOVSKIY, Yu.I., BUSHUYEV, N.M., kand.tekhn.
nauk, red.; DUGINA, N.A., tekhn.red.

[Manual for agricultural machinery operators] Pt. 3. Stationary internal combustion engines, steam engines and windmills. Rural electrification. Mechanization of production in animal husbandry. Spravochnik mekhanizatora sel'skogo khoziaistva. Pt. 3. Statsionarnye dvigateli vnutrennego sgoraniia, lokomobili i vetrodvigateli. Elektrifikatsiia sel'skogo khoziaistva. Mekhanizatsiia proizvodstvennykh protsessov v zhivotnovodstve. Pod red. N.M. Bushueva. Moskva, Gos.nauchno-tekhn. izd-vo mashinostroit. lit-ry. 1957. 200 p. (MIRA 11:8)

(Agricultural machinery)

SIDOROV, F.F.

ANDRYUSHCHENKO, Yu.S.; BAGIN, Yu.I.; BASHKIRTSEV, A.A.; BELEN'KOV, G.Ye.; BELINICHER, I.Sh.; BUSHUYEV, N.M.; VAGANOV, A.K.; GASHEV, A.M.; YES'KOV, K.A.; ZGIRSKIY, Ch.I.; IGANT'YEV, M.I.; KORUSHKIN, Ye.N.; KUZ'MOV, N.T.; PATSKEVICH, I.R.; PICHAK, F.I.; PAYTSES, V.B.; RUDAKOV, A.S.; SAPRYKIN, V.M.; SIDOROV, F.F.; UMINSKIY, Ye.A.; KHANZHIN, P.K.; CHERNOMOVSKIY, Yu.I.; YERAKHTIN, D.D., kand. tekhn. nauk, retsenzent; MAKAROV, M.P., inzh., retsenzent; TORBEYEV, Z.S., kand. tekhn. nauk, retsenzent; POLKANOV, I.P., kand. tekhn. nauk, retsenzent; IGNAT'YEV, M.G., agronom, retsenzent; GUTMAN, I.M., inzh., retsenzent; YERMAKOV, N.P., tekhn. red.; SARAFANNIKOVA, G.A., tekhn. red.

[Reference manual for the agricultural machine operator] Spravochnik mekhanizatora sel'skogo khoziaistva. Pt.2. [Repair of tractors and agricultural machinery] Remont traktorov i sel'skokhoziaistvennykh mashin. Pod red. N.M. Bushueva. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry. 1957. 335 p. (MIRA 11:9)

(Agricultural machinery--Maintenance and repair)

SIDOROV, F.I.

ANDRYUSHCHENKO, Yu.S.; BAGIN, Yu.I.; BASHKIRTSEV, A.A.; BELEN'KOV, G.Ye.; BELINICHER, I.Sh.; BUSHUYEV, N.M.; VAGANOV, A.K.; GASHEV, A.M.; YES'KOV, K.A.; ZGIRSKIY, Ch.I.; IGNAT'YEV, M.I.; KORUSHKIN, Ye.N.; KUZ'MOV, N.T.; PATSKEVICH, I.R.; PICHAK, F.I.; RAYTSES, V.B.; RUDAKOV, A.S.; SAPRYKIN, V.M., SIDOROV, F.F.; UMINSKIY, Ye.A.; KHANZHIN, P.K.; CHERNOMOVSKIY, Yu.I.; YERAKHTIN, D.D., kand.tekhn.nauk; retsenzent; MAKAROV, M.P., insh.,retsenzent; TORBEYEV, Z.S., kand. tekhn.nauk, retsenzent; POLKANOV, I.P., kand.tekhn.nauk, retsenzent; IGNAT'YEV, M.G., agronom, retsenzent; GUTMAN, I.M., inzhener, retsenzent; SARAFANNIKOVA, G.A., tekhn.red.; YERMAKOV, N.P., tekhn.red.

[Manual for agricultural mechanizers] Spravochnik mekhanizatora sel'skogo khoziaistva. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit. lit-ry. Pt.1. [Tractors and automobiles, agricultural machinery and implements, and operation of machine and tractor yards] Traktory i avtomobili, sel'skokhoziaistvennye mashiny i orudiia, ekspluatatsiia mashinno-traktornogo parka. Pod. red.N.M.Bushueva. 1957. 462 p. (MIRA 10:12)

(Machine-tractor stations)

M.

USSR/Cultivated Plants - Grains.

Abs Jour : Ref Zhur - Biol., No 10, 1958, 44058

Author : Sidorov, F.F.
Inst : -
Title : World Corn Collection at the Institute of Horticulture.

Orig Pub : Kukuruza, 1957, No 11, 51-54.

Abstract : No abstract.

Card 1/1

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COUNTRY : USSR
CATEGORY : Cultivated Plants. Cereals. M

ABS. JOUR. : RZhBiol., No. 1958 No. 104639

AUTHOR : Sidorov, F. F., Batygin, N. F.
INST. : -
TITLE : Some Biological Characteristics of the Development in Corn.

ORIG. PUB. : Kukuruza, 1958, No. 1, 38-40

ABSTRACT : Results of the studies (in Leningrad oblast') of the processes in the formation of inflorescences, leaves, and stems in different varieties. One part of the plants of each variety was raised with natural day illumination, the other - with a short, 10-hour day. With the shortened day of illumination, the number of leaves decreases and the height of the plants declines. Under the conditions of a normal day, the plants developed a larger number of leaves and a longer stem. During this, the differences among the

Card: 1/2

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SIDOROV, Fedor Filippovich; ALEKSEYEV, G.P., inzh., red.; BUSHUYEV, N.M., kand.tekhn.nauk, red.; GUTMAN, I.M., inzh., red.; KUZ'MOV, N.T., inzh., red.; IGNAT'YEV, M.G., agronom, red.; PICHAK, F.I., kand. tekhn.nauk, red.; PLAKSIN, V.N., inzh., red.; POLKANOV, I.P., kand.tekhn.nauk, red.; MARCHENKOV, I.A., tekhn.red.

[Mechanic for combines and agricultural machinery] Slesar' po remontu kombainov i sel'skokhoziaistvennykh mashin. Moskva, Gos. nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1960. 107 p.
(MIRA 14:3)

(Agricultural machinery--Maintenance and repair)

SIDOROV, F.F., kand.sel'skokhozyaystvennykh nauk

Agriculture in Ethiopia. Zemledelie 23 no.11:81-86 N '61.
(MIRA 14:11)

(Ethiopia--Agriculture)