

MACEK, Milan; MICHL, Jiri; HOSTOMSKA, Lidmila; KUCEROVA, Maria; BRDICKA, Radim; CERNY, Milos. Techn. spoluprace:HAJKOVA,H.; DUCHKOVA, E.

Shereshevskii - Turner syndrome in the light of new clinical and cytological data. Acta Univ. Carol. [med.] (Praha) 10 no.1:87-105 '64

I. Ustav vyzkumu vyvoje ditete fakulty, detskeho lekarstvi University Karlovy v Praze (reditel: prof. MUDr. J. Houstek, Dr Sc); Ustav ser a ockovacich latek (reditel: MUDr. J.Johanovsky, CSc.); II. detska klinika fakulty detskeho lekarstvi University Karlovy v Praze (prednosta: prof. MUDr. J. Houstek, Dr Sc) a Ustav obecne biologie fakulty vseobecneho lekarstvi University Karlovy v Praze (reditel: prof. MUDr. B.Sekla, Dr Sc).

FOJTIK, A.; SPURNY, Z.; BRDICKA, R.

New approach to the preparation of ^{35}S -labelled cystine. Coll
Cz Chem 30 no.3:892-893 Mr '65.

1. Institute of Physical Chemistry and Institute of Nuclear
Research of the Czechoslovak Academy of Sciences, Prague.
Submitted July 16, 1964.

BRDICKA,R.

Taste perception for phenylthiourea (PTC). Sborn.lek. (Praha)
66 no.4:116-120 Ap'64

1. Ustav pro obecnou fakulty vseobecneho lekarstvi University
Karlovy v Praze; prednosta: prof. MUDr. et RNDr. B.Sekla.

*

CZECHOSLOVAKIA

BRDIK, J., Prof. Dr.

Prague, Prakticky lekar, No 18, 1963, p 711

"Thomayer and Peinar."

BRDLIK J.

BRDLIK J. and HOUSTEK J. II. detska klinika, Praha Vysledky lecby TBC Meningitidy po delsim casovem odstupu Long-term results of treatment of tuberculous meningitis Pediatricke Listy, Prague 1949, 4/5 (179-186)

A report on the first 65 children treated with streptomycin, 21 of whom are alive after periods of 14 to 29 months after admission to hospital. The dosage over a period of 3 to 4 months was 40 mg. perkg. intramuscularly and 1-3 mg. per kg. intrathecally (maximum total number of intrathecal injections 20; single intrathecal dose never more than 50 mg). Of the 44 fatal cases, 31 were desperate from the start; 19 of these patients died in the first month. Eight treated children contracted measles; 5 of them are alive and it even appears that the course of their meningitis was mitigated by the measles.

Salamun - Mostar (XX, 7,8,15)

S0: Neurology & Psychiatry Section VIII Vol 3 No 7-12

BEDLIK, J.

Prof. MUDr. Bedrich Frejka sestdesiatnikom. Bratisl.lék.listy 30
no.2: 171-172 F '50. (CLML 19:2)

BRDLIK, J.

Dr Rudolf Brezik sestdesiatnikom. Bratisl.lek.listy 30 no.2:
172-173 F '50. (GLML 19:2)

BRDLIK J.

BRDLIK J. and HOUSTEK J. Z II kliniki Chorob Dzieciacych Un. Karlovy w Pradze. Streptomycyna w leczeniu gruzliczego zapalenia opon mozgowo-Rdzeniowych Strptomycin in the treatment of tuberculous meningitis Pedit. polsk. 1950, 24/3-4 (169-177) Graphs 3

Of 119 children treated with 40 mg. per kg. intramuscularly and 1-2 mg. per kg. intrathecally, 40 are still alive (9 months or more since the end of the treatment). Nineteen are at home, 15 in sanatoria and 6 in hospital. Bogdanowicz - Warsaw (XX, 7,8)

So: Neurology & Psychiatry Section VIII, Vol. 4, No. 1-6

BRDLIK, Gnu

PADOVTSOVA, G.; GORAK, B.; BOR, I.; BRDLIK, professor, zaveduyushchiy.

Angiocardiology in congenital anomalies of the heart shape. Vop.pediat.
21 no.2:35-47 Mr-Ap '53. (MLRA 6:6)

1. Vtoraya detskaya klinika Prazhskogo universiteta,
(Diagnosis, Radioscopic) (Heart--Diagnosis) (Heart--Abnormalities
and deformities)

BRDLIK, Jiri

~~BRDLIK, Jiri~~

Seventieth anniversary of professor Dr. Methodej Mikula. Cesk.
pediat. 10 no.6:469-472 July 55.

(BIOGRAPHIES

Mikula Methodej, bibliog.)

BRDLIK, J.

MUDr Jaroslav Jindra. *Pediat. listy*, Praha 8 no.2:124 Apr 1953.
(CJML 25:1)

BRDLIK, Jiri, Professor Dr., (Praha)

Czechoslovak pediatrics in the past, and how I saw it. Cesk.
pediat. 12 no.1:68-74 Jan 57.

(PEDIATRICS, hist.
in Czech. (Cz))

BRDLIK, Jiri

~~BRDLIK, Jiri~~
Czechoslovakian pediatrics in the past and my own experiences.
3. Wrany, Zit, Souck, Salmon and others. Cesk. pediat. 12 no.3:
258-266 Mar 57.

1. Pokracovani.
(PEDIATRICS, hist.
in Czech. (Cz))
(BIOGRAPHIES
Salmon, Souck, Wrany & Zit (Cz))

BRDLIK, J.

Czechoslovakian pediatrics in the past and my own experiences.
4. B. Neureutter Czechoslovakian pediatric clinic and hospital.
Cesk. pediat. 12 no.4:330-335 Apr 57.

(BIOGRAPHIES

Neureutter, B. (Cz))

(HOSPITALS, hist.

in Czech., Neureutter pediatric clinic & hosp. (Cz))

BRDLIK, Jiri, Professor Dr.

Czechoslovakian pediatrics in the past and how I saw it;
on Loschner and other German pediatricians, also on Matejovsky
and Lambl. Cesk. pediat. 12 no.2:140-147 Feb 57.

(PEDIATRICS, hist.

(Cz))

(BIOGRAPHIES

Loschner (Cz))

BRDLIK, Jiri, Prof. Dr.

Czechoslovakian pediatrics in the past and my own experiences. 5.
Bohdan Neureutter's fight against vaccination. Cesk. pediat. 12 no.7:
640-645 5 July 57.

(BIOGRAPHIES

Neureutter, Bohdan (Cz))

(VACCINES AND VACCINATION

Bohdan Neureutter's fight against pediatric vacc. (Cz))

BRDLIK, Jiri, Prof. Dr.

Bogdan Neuretter & Antonin Dominik Haasz. Cesk. pediat 12 no.8:733-139
5 Aug 57.

1. 02 Neuretter, B.: 92 Haasz, A. D.

(PEDIATRICS, hist.

contribution of Bogdan Neuretter & Antonin Diminik Haasz
(Cz))

(FAMOUS PEOPLE

Neuretter Bogdan & Antonin Dominik Haasz, contribution
to pediatrics (Cz))

BRDLIK, Jiri

To Josef Svejcar. Cas. lek. cesk. 96 no.24-25:729 21 June 57.
(BIOGRAPHIES
Svejcar, Josef (Cz))

BRDLIK, Jiri

Collaborators of Haasz; Al. Bednar, V. Kafka, and M. Pesina in
Vienna. Cesk. pediat. 12 no.9:812-820 5 Sept 57.

(PEDIATRICS,

contribution of A. Bednar, V. Kafka & M. Pesina (Cz))

(BIOGRAPHIES,

Bednar, A. (Cz))

(BIOGRAPHIES,

Kafka, V. (Cz))

BIOGRAPHIES,

Pesina, M. (Cz))

BRDLIK, Jiri, Prof.

Activities of the foundling orphanage; Ritter von Rittershain, A. Epstein,
A. Ozerny, J. Dvorak & K. Schwing. Cesk. pediat 12 no.12:1094-1100 5 Dec 57.

(CHILD WELFARE, hist.
in Czech. (Cz))

(PEDIATRICS, hist.
in Czech (Cz))

BRDLIK, Jiri

Concerning Scherer, Svehla, Lusk, Saitz & Lemez. Cesk. pediat. 12 no.12:
1100-1105 5 Dec 57.
(PEDIATRICS, hist.
in Czech. (Cz))

BRDLIK, Jiri

Frantisek, Hamza. Cesk. pediat. 13 no.3:265-267 5 Apr 58.

(BIOGRAPHIES

Hamza, Frantisek (Cz))

(PEDIATRICS

contribution of Frantisek Hamza (Cz))

BRDLIK, Jiri

In Memoriam primarily dr. Bozeny Vranove. Cesk. pediat. 13 no.5:451-452
5 June 58.

(OBITUARIES,
Vranova, Bozena (Cz))

~~BRDLIK, Jiri~~

Antonin Mores on his 50th birthday. Cesk. pediat. 13 no.5:453-455
5 June 58.

(BIOGRAPHIES,
Mores, Antonin (Cz))

BRDLIK, J.

60th anniversary of Dr. O. Vychytil. Cesk. pediat. 13 no.9:847-849 5
Oct 58.

(BIOGRAPHIES

Vychytil, O., bibliog. (Cz))

BRDLIK, J.

50th anniversary of Dr. Jirina Pisarovicova-Cizkova. Cesk. pediat. 13
no.9:850-852 5 Oct 58.

(BIOGRAPHERS

Pisarovicova-Cizkova, Jirina, bibliog. (Cz))

BRDLIK, Jiri, profesor Dr.

Diseases in the past and at present. Cesk.pediat.15 no.11:
1045-1054 N° 60.

(PEDIATRICS)

¹³
BRDLIK, Jiri

Antonia Dominik Haasz. Cesk. pediat. 16 no.6:567-570 J. '61.

(BIOGRAPHIES)

BRDLIK, Jiri; MANN, Quido

Diseases then and now. Cesk. pediat. 16 no.10:943-952 0 '61.

(PEDIATRICS hist)

BRDLIK, Jiri

Diseases then and now. Cesk. pediat. 16 no.11:1022-1025 N '61.
(PEDIATRICS hist)

BRDLIK, J.

60 years of the Czech Children's Hospital and its importance in
Czech pediatrics. Cesk. pediat. 17 no.10:925-928 0 '62.
(PEDIATRICS) (HOSPITALS) (HISTORY OF MEDICINE XX CENT)

BRDLIK, Jiri, prof. dr.

2 anniversaries (90th and 100th). (Josef Pelnar and Casopis Lekaru
Ceskych). Cas. lek. cesk. 101 no.47:1411-1415 23 N '62.
(BIOGRAPHIES) (PERIODICALS)

BRDLIK, Jiri, prof., dr.

Ivan Halek. Cas. Lek. Cesk. 101 no.12:376-381 23 Mr '62.

(BIOGRAPHIES)

BRDLIK, J.

Dr. Zdenek Havlasa. Cesk. pediat. 18 no.8:734-736 Ag '63.

(BIOGRAPHIES) (HISTORY OF MEDICINE, XX CENT.)
(PEDIATRICS)

L 14636-66 EWT(l)/EWP(e)/EWP(m)/EWT(m)/EPF(n)-2/EWA(d)/EWP(v)/EWP(j)/I/FCS(k)/

ACC NR: AP6003581 EWP(b)/ SOURCE CODE: UR/0170/66/010/001/0003/0010
ETC(m)-6/EWA(1) WW/RM/WH 87

AUTHOR: Brdlik, P. M.; Mochalov, V. A. 81
B

ORG: Institute of Structural Physics, Moscow (Institut stroitel'noy fiziki)

TITLE: Experimental study of free convection with porous blowing and suction on a vertical surface 2,144,55

SOURCE: Inzhenerno-fizicheskiy zhurnal, v. 10, no. 1, 1966, 3-10

TOPIC TAGS: convective heat transfer, boundary layer suction, laminar flow, turbulent flow

ABSTRACT: The experiments were made on porous copper plates with a porosity coefficient of approximately 0.5. Five plates were used; they had an effective area of 200 x 300 mm and a thickness of approximately 10 mm. The plates were mounted flush to textolite (resin-impregnated laminated cloth) bodies having shaped grooves. Thus, it was possible to obtain a total height of the working section of 1000 mm and a width of 300 mm. Each textolite body with its plate was carefully sealed and had its own independent heating system and gas supply. Air was blown and sucked out by blowers. The rate of blowing and suction could be varied

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within wide limits. The plates were heated by radiant heaters. The temperature of the blown and sucked air near the plates and at the inlet to the textolite body was measured with Chromel-Kopel thermocouples. Measurement of the temperature field in the boundary layer and of the wall temperatures were carried out with a Mach-Zender Type IZK-454 interferometer with a working field $225 + 5$ mm in diameter. The experimental unit was placed in a container which could be displaced smoothly in two vertical directions, so that any given section of the model under investigation could be observed. A figure shows a comparison of experimental and calculated data on the temperature distribution in the boundary layer, and a second figure shows a comparison of experimental and calculated values of the heat transfer coefficient during free convection with blowing and suction. The article concludes with a theoretical consideration of the transition from laminar to turbulent flow and of the special characteristics of the boundary layer at large blowing or suction values. Orig. art. has: 19 formulas and 4 figures. [06]

SUB CODE: 20/ SUBM DATE: 28Sep65/ ORIG REF: 003/ OTH REF: 005
ATD PRESS: 4/99

Card 2/2 SC

BRDLIK, P.M.:

BRDLIK, P.M.: "Condensing the water vapor from steam-air mixtures in solar stills" Moscow, 1955. Acad Sci USSR. Power Engineering Inst imeni G.M. Krzhizhanovskiy. (Dissertations for the Degree of Candidate of Technical Sciences)

SO: Knizhnaya Letopis' No 44, 29 October 1955, Moscow

BRDLIK, P.M.

BAUM, V.A., doktor tekhnicheskikh nauk, professor; BRDLIK, P.M., kandidat tekhnicheskikh nauk;

Condensation of steam from a moving steam-air mixture. *Teplenergetika*
4 no.1:42-44 Ja '57. (MLRA 10:3)

1. Energeticheskiy institut AN SSSR.
(Steam)

BRDLIK, P.M.

BRDLIK, P.M.

Testing and calculating solar water distillers. Ispol'.soln.
energ. no.1:136-150 '57. (MIRA 10:11)

(Solar energy)

BRDLIK, P.M.

Testing a solar refrigerator. Ispol'.soln.energ. no.1:118-123 '57

(MIRA 10:11)

(Solar energy) (Refrigeration and refrigerating machinery)

BRDLIK, P.M., kand.tekhn.nauk

Problems of convection drying and evaporation. Nauch.trudy. /
MTI no.9:114-123 '58. (MIRA 11:12)
(Drying) (Evaporation)

KONAKOV, Petr Kuz'mich; LYKOV, A.V., prof., fetsenzent; BRDLIK, P.M.,
kand.tekhn.nauk, red.; MATVEYEV, G.I., tekhn.red.

[Theory of similitude and its application in heat engineering]
Teoriia podobii i ee primeneniie v teplotekhnike. Moskva,
Gos.energ.izd-vo, 1959. 207 p. (MIRA 12:8)

1. Deystvitel'nyy chlen AN BSSR (for Lykov).
(Heat engineering) (Dimensional analysis)

39510

S/649/61/000/139/015/018
1028/1228

245200
AUTHORS: Brdlik, P. M., Verevochkin, G. E. and Smirnov, V. A.

TITLE: Heat exchange between a jet and a plate placed normal to the stream

SOURCE: Moscow, Institut inzhenerov zheleznodorozhnogo transporta. Trudy, no. 139. 1961.
Teoriya podobiya i yeye primeneniye v teplotekhnike; trudy pervoi mezhvuzovskoy konferentsii, 182-192

TEXT: The paper describes the results of an investigation of heat exchange between a heated water jet and a plate normal to it. The study of Perry and Thurlow is too restricted in scope, their conclusions being valid only within a narrow range of variation of the basic parameters Re , d , h/d (d = nozzle diameter, h = distance from the nozzle to the plate). In the present work, the range of variation of these parameters was $d = 2.5 \div 30.0$ mm, $Re_d = 50 \div 31000$, $h/d = 0.04 \div 8.0$. The experimental data suggests the existence of three different zones, according to the value of h/d : a) for $h/d \leq 0.5$, the experimental data obtained satisfy relationship (4); b) for $0.5 < h/d < 10$, the empirical relationship (7) is derived from the experimental data; c) for $h/d > 10$, formula (8) is proposed, with some reservations due to insufficient data, by extrapolation

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Note: \div indicates 'to'

Heat exchange...

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of (7) with the aid of Thurlow's formula. The results of Perry and Schmidt in the medium range satisfy the proposed empirical formula (7).

$$Nu_h = 0.55 \sqrt{Re_h} Pr^{1/3} \quad (4)$$

$$Nu_d = C Re_d^{0.64} Pr^{1/3} \exp(-0.037 h/d) \quad (7)$$

$$Nu_d = C_1 (Re_d Pr)^{1/3} \exp(-0.037 h/d) \quad (8)$$

Formulas (7) and (8) are extended to the case of arbitrary angles of attack, and of efflux in a restricted medium. There are 6 figures. The most important English-language references read as follows: Perry, K. P., Proc. Inst. Mechan. Eng. v. 168, no. 30, pp. 775-780, 1954; Thurlow, G. G., Proc. Inst. Mechan. Eng. v. 168, no. 30, pp. 781-783, 1954.

Card 2/2

SOV/170-59-3-1/20

AUTHOR: Brdlik, P.M.

TITLE: Steam Condensation From Stationary Steam-Gas Mixtures (Kondensatsiya para iz nepodviznykh parogazovykh smesey)

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1959, Nr 3, pp 3-8 (USSR)

ABSTRACT: The process of steam condensation from stationary steam-gas mixtures has been insufficiently studied thus far. The author undertook to study this process both by analyzing the literature data available and by carrying out his own experiments. He shows that two different cases are to be distinguished: 1. the case of low concentration of a non-condensing gas in the mixture, which does not exceed 3% by volume, and 2. the case of higher gas concentrations. The following papers deal with the first case: V.A. Gudemchuk [Ref. 1], Othmer [Ref. 2], Langen [Ref. 3], V.I. Tolubinskiy and N.G. Yampol'skiy [Ref. 4]. The data of these investigators can be represented by the formula:

$$\frac{\alpha_B}{\alpha_{\pi}} = 0.43 \left(\frac{p_c}{p_1} \right)^{0.1} C_B^{-0.28}$$

where α_B and α_{π} are heat exchange coefficients for steam condensation from the steam-air mixture and for the "pure" steam respectively, p_c is the pressure of the steam-air mix-

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Steam Condensation From Stationary Steam-Gas Mixtures

SOV/170-59-3-1/20

ture, p_1 is barometric pressure, and $C_B = \frac{G_B}{G_D}$ is the air content in steam by weight. This formula is applicable within the range of pressures from 0.2 to 1.5 atm. In order to study steam condensation in the case of higher concentrations of a gas in the mixture, the author devised a special experimental installation which is described in the article. Experiments were carried out under various conditions: the volumetric steam concentration in the mixture varied from 0.4 to 0.9; the temperature of the mixture varied from 84° to 104°C, and its pressure from 1 to 1.07 atm. The results of experiments are represented in the graphical form in Figure 4, and the analytical expression for the straight line obtained is given. The formula proposed is applicable for concentrations of gas in the mixture exceeding 3% and for pressures of the mixture ranging from 1 to 14 atm. Comparing his results with those of I.V. Mazyukevich [Ref. 7] who experimented with the stationary mixtures of ammonia with air the author concludes that his formula holds also for the latter case.

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Steam Condensation From Stationary Steam-Gas Mixtures

SOV/170-59-3-1/20

There are 3 graphs, 1 diagram and 10 references, 8 of which are Soviet, 1 English and 1 German.

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

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23747
S/170/61/004/006/001/015
B129/B212

11.9000
AUTHORS:

Baum, V. A., Bologa, M. K., Brdlik, P. M.

TITLE:

Heat transfer in the case of a transverse flow around plane surfaces

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, v. 4, no. 6, 1961, 13-20

TEXT: This paper deals with the theoretical and experimental research of heat transfer in vertical plane surfaces. The experimental data agreed well with those obtained theoretically. The heat exchange on plane surfaces surrounded by an air current is of great practical interest since it determines the reliability and life of many technical products. So far, this type of heat exchange has hardly been investigated. Two experiments are known, which treat several points of this problem. The paper of Jakob, which is mentioned in the literature, deals with the case of a plane surface surrounded by an air current. Summarizing, the following can be said: 1) The tests were done on small surfaces and the local heat transfer coefficients had not been determined. 2) The theoretical investigations dealt with the frontal point and its surroundings. It is

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Heat transfer in the case of ...

still uncertain whether this solution is valid for the whole surface. The present paper aims at determining this and at investigating the heat transfer in transverse flows around plane surfaces, determining the effect of the dimensions on the mean heat transfer coefficient, and an analysis of the local heat transfer coefficients and their distribution on the surface of the heat exchange. An attempt has also been made by the authors to solve the problem analytically for a plane disk. The theoretical considerations start from the energy equation

$$W_r \frac{\partial t}{\partial r} + W_z \frac{\partial t}{\partial z} = a \left(\frac{\partial^2 t}{\partial r^2} + \frac{1}{r} \frac{\partial t}{\partial r} \right) + a \frac{\partial^2 t}{\partial z^2} \quad (1)$$

(the dissipation function and terms which are pressure dependent have been neglected). Assuming incompressibility of the liquid and neglecting the heat conduction along r the simplified energy equation $W_z \frac{dt}{dz} = a \frac{d^2t}{dz^2}$ is obtained. This equation is solved by employing reduced parameters. The solution shows that the local heat transfer coefficient will not be a function of the disk radius, i.e., it is constant for the whole disk.

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Heat transfer in the case of ...

Fig. 1 shows the experimental arrangement which was used for checking the theoretical results. The temperature of the disk surface had been varied from 50-350°C. The air channel having a cross section of 600 · 600 mm furnished an air flow of from 1-17 m/sec (the one having a cross section of 250 · 250 mm showed velocities up to 40 m/sec). The temperature fields on the boundary layer, which were used to determine the distribution of the local heat transfer coefficients along the diameter of the disk, had been measured by changing the location of the thermocouples. The experiment showed that the mean heat transfer coefficients for the whole disk agree with the mean values of the local heat transfer coefficients. These had been found according to the temperature distribution along the boundary layer. It was also found that for $N_{Re} = \text{const.}$ (abstracter's note: N_{Re} is not defined) the local heat transfer coefficients are practically constant for the whole surface. V. P. Motulevich and G. Shlikhting are mentioned. There are 4 figures and 10 references: 6 Soviet-bloc and 4 non-Soviet-bloc. The most important reference to English-language publication reads as follows: Jakob M., Proc. Phys. Soc., 59, 335, 726, 1947.

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B129/B212

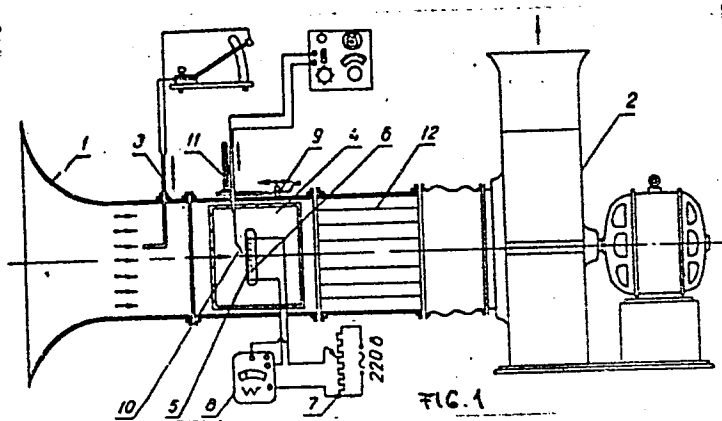
Heat transfer in the case of ...

ASSOCIATION: Energeticheskiy institut imeni G. M. Krzhizhanovskogo AN SSSR
(Institute of Power Engineering imeni G. M. Krzhizhanovskiy
of the AS USSR)

SUBMITTED: April 8, 1961

Fig. 1: Diagram of the experimental arrangement

Legend: 1) Wind tunnel; 2) fan; 3) Prandtl tube; 4) observation window; 5) examined disks; 6) heater; 7) heater control; 8) voltmeter; 9), 10), and 11) adjusting device of the micrometer.



Card 4/4

BRDLIK, P.M.; KAKABAYEV, A.

Experimental investigation of the condensation of inside-coil
steam pipes. Inzh.-fiz.zhur. 6 no.10:104-108 0 '63. (MIRA 16:11)

1. Institut stroitel'noy fiziki, Akademii stroitel'stva i arkhi-
tektury SSSR, Moskva.

BRDLIK, P. M.; TURCHIN, I. A.

"Heat transfer by natural convection near a vertical flat surface with discrete-distributed injection."

report submitted for 2nd All-Union Conf on Heat & Mass Transfer, Minsk, 4-12 May 1964.

Sci Res Inst S^T ructural Physics.

13108-65 DWT(1)/EPP(c)/EPP(n)-2/ENG(n)/EPR Pr-1/Ps-1/Pu-1 WW/GW
 ACCESSION NR: AP5006224 S/0170/65/008/002/0146/0155

AUTHOR: Brdlik, P. M.; Savin, V. K.

TITLE: Heat exchange between an axisymmetric stream and a disc placed normal to the flow 2/

SOURCE: Inzhenerno-fizicheskiy zhurnal, v. 8, no. 2, 1965, 146-155

TOPIC TAGS: heat transfer, desiccant production, combustion chamber design, solid rock drilling, frozen earth drilling, concrete cutting, heat exchange

ABSTRACT: The results of an experimental (see fig. 1 of the Enclosure) and theoretical study of local and average heat exchange between an axisymmetric stream and a disc normal to the flow for the case of a laminar boundary layer are given. Two regions of heat transfer are found which correspond to the initial and main portions of the stream. Theoretical relations are suggested for calculation of the local heat transfer coefficient

$$Nu_R = 0,82 \frac{1}{f(Pr)} Re^{1/2}, \quad \bar{Nu}_R = 1,09 \frac{1}{f(Pr)} Re^{1/2} \text{ and}$$

$$Nu_R = 0,82 Pr^{1/2} Re^{1/2}, \quad \text{and the average heat transfer coefficient } \bar{Nu}_D = 1,54 \frac{1}{f(Pr)} Re^{1/2}.$$

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ACCESSION NR: AP5006224

$\overline{Nu}_D = 1.54 Pr^{1/4} Re_D^{1/2}$, when the entire disc is located in the initial portion of the stream $h + R \leq 6.2d_0$, as well as the local heat transfer coefficient

$$Nu_r = 1.18 \frac{Re_D^{1/2}}{f(Pr)} \frac{\bar{r}^3}{1+\bar{r}} \left[\bar{r} \left(\frac{1}{2} \bar{r} - 1 \right) + \ln(1+\bar{r}) \right]^{-1/4},$$

$$\bar{\alpha} = 4.72 \frac{\lambda}{R} \frac{Re_D^{1/2}}{f(Pr)} \frac{h}{R} \left[\frac{R}{h} \left(\frac{1}{2} \frac{R}{h} - 1 \right) + \ln \left(1 + \frac{R}{h} \right) \right]^{1/4}, \quad \text{and}$$

$$Nu_r = 1.18 Pr^{1/4} Re_D^{1/2} \frac{\bar{r}^3}{1+\bar{r}} \left[\bar{r} \left(\frac{1}{2} \bar{r} - 1 \right) + \ln(1+\bar{r}) \right]^{-1/4},$$

and the average heat transfer coefficient $\overline{Nu}_R = 4.72 Re_D^{1/2} \eta(\bar{R}) [f(Pr)]^{-1}$, and

$$\overline{Nu}_R = 4.72 Pr^{1/4} \frac{Re_D^{1/2}}{\bar{R}} \left[\bar{R} \left(\frac{1}{2} \bar{R} - 1 \right) + \ln(1+\bar{R}) \right]^{1/4}.$$

for the case when $h + R > 6.2d_0$, where h is the distance from the nozzle to the heat

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L 43108-65

ACCESSION NR: AP5005224

exchange surface; R is the disc radius; d_0 is the nozzle diameter. Experimental data (see figs. 3, 4, 5 of the Enclosure) obtained by the authors and other investigators agree well with theoretical calculations. Orig. art. has: 5 figures, 40 formulas.

ASSOCIATION: Institut stroitel'noy fiziki, Moscow (Institute of Structural Physics)

SUBMITTED: 13May64

ENCL: 03

SUB CODE: TD, ME

NO REF SOV: 007

OTHER: 004

Card 3/6

L 43114-65 EWT(1)/EPF(c)/EPF(n)-2/ENG(m)/EPR Pr-4/PS-4/Pu-4 7/1
 ACCESSION NR: AP5006230 S/0170/65/008/002/0229/0237

AUTHOR: Brdlik, P. M.; Mochalov, V. A.

TITLE: Porous blowing and suction with free convection near a vertical surface (laminar boundary layer)

SOURCE: Inzhenerno-fizicheskiy zhurnal, v. 8, no. 2, 1965, 229-237

TOPIC TAGS: heat transfer, heat exchange, laminar boundary layer, free convection

ABSTRACT: An approximate method for calculating free-convection heat transfer on a vertical surface with porous blowing and suction for $T_{wall} = \text{const}$ is presented. The values of Nu_x and $\delta(x)$ may be calculated by:

$$Nu_x = 12Gr_x^M \left[\frac{504.4/}{f^{(5)}(\delta=0, v_w, Pr)} \right]^{-M} \left[1 - \frac{\eta f^{(5)}(\delta=0, v_w, Pr)}{20 \sqrt[4]{4} f^{(4)}(\delta=0, v_w, Pr)} \right] \times$$

$$\times \left\{ 6 + \left[\left(\frac{504.4/}{f^{(5)}(\delta=0, v_w, Pr)} \right)^M Pr - \frac{3 f^{(5)}(\delta=0, v_w, Pr)}{10 f^{(4)}(\delta=0, v_w, Pr)} \right] \frac{\eta}{\sqrt[4]{4}} \right\}^{-1}$$

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L 43114-65

ACCESSION NR: AP5006290

$$\text{and: } \left(\frac{\partial}{x}\right) = Gr_x^{-1/4} \left(\frac{504.41}{f^{(0)}(\delta=0, v_w, Pr)}\right)^{1/4} \times \left(1 - \frac{f^{(0)}(\delta=0, v_w, Pr) Re_x (Gr_x/4)^{-1/4}}{20 \sqrt{4} f^{(0)}(\delta=0, v_w, Pr)}\right)^{-1}$$

which become

$$\left(\frac{\partial}{x}\right) = 5.42 Gr_x^{-1/4} [1 - 0.268 Re_x (Gr_x/4)^{-1/4}]^{-1}$$

$$Nu_x = 0.369 Gr_x^{1/4} [1 - 0.268 Re_x (Gr_x/4)^{-1/4}]^2 [1 + 0.192 Re_x (Gr_x/4)^{-1/4}]^{-1}$$

for Pr = 0.72. The method of calculation gives results with accuracy sufficient for practical purposes if the parameters of blowing and suction are in the following ranges

$$\left|\frac{v_w x}{\nu}\right| \left(\frac{Gr_x}{4}\right)^{-1/4} < 0.75 \text{ for } Pr = 0.72,$$

$$\left|\frac{v_w x}{\nu}\right| \left(\frac{Gr_x}{4}\right)^{-1/4} < 0.70 \text{ for } Pr = 1.0.$$

Orig. art. has: 3 figures, 35 formulas.

ASSOCIATION: Institut stroitel'noy fiziki Moscow (Institute of Structural Physics)

SUBMITTED: 13 May 64

ENCL: CO

SUB CODE: TD, ME

NO REF SOV: 006
Cord 2/2 *inc.*

OTHER: 001

BRDLIK, P.M.; KOZHINOV, I.A.; PETROV, N.G.

Experimental investigation of heat and mass transfer during the condensation of water vapor from humid air on a vertical surface under natural convection conditions. Inzh.-fiz. zhur. 8 no.2:243-246 F '65. (MIRA 18:5)

1. Institut stroitel'noy fiziki, Moskva.

BRDLIK, P.M.; MEZHEVNIKOV, B.S.

Unsteady thermal conditions in water-covered roofs. Inzh.-fiz.
zhur. 8 no.2:263-267 F '65. (MIRA 18:5)

1. Institut stroitel'noy fiziki, Moskva.

L 43107-65 EWT(1)/EPP(c)/EPT(n)-2/ENG(m)/EPR Pr-4/PS-4/Pu-4 WJ

ACCESSION NR: AP5006232

S/0170/65/008/002/0268/0272

AUTHOR: Brdlik, P. M.; Turchin, I. A.TITLE: The effect of discretely distributed blowing and suction on natural convection heat exchange at a vertical surface

SOURCE: Inzhenerno-fizicheskiy zhurnal, v. 8, no. 2, 1965, 268-272

TOPIC TAGS: heat exchange, natural convection, ventilation, heating, air conditioning, interferometry

ABSTRACT: The effect of discretely distributed air blowing and suction on natural convection heat exchange near a plane vertical surface is studied. The heat exchanger used for the tests was made up of about 60 copper sheets spaced horizontally one behind the other with a 0.5 mm gap. Air was blown in or drawn off at the gaps between the plates. The device was made in such a way that the distance between the gaps could be varied from 1 to 60 cm. An interferometer was used to determine temperature fields in the boundary layer. Three specific regions of heat exchange are found bounded by lines I and II (see fig. 1 of the Enclosure). For velocity $v < 0.6$ m/sec, the mean heat exchange coefficient is found by

$$Nu_L = 0.50 Gr_L^{1/4} (L/h)^{2.5 \cdot 10^{-4} Re_L^{0.5}}; \quad (1)$$

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L 43107-65

ACCESSION NR: AP5006232

for $v > 0.5$ m/sec, by

$$Nu_L = 10 Gr_h^{1/4} h_p/h. \quad (2)$$

A qualitative picture of the boundary layer development for different rates of blowing and suction at $s = 30$ and 1.7 (s is the relative distance between slits, L/h) is presented. Orig. art. has: 2 formulas, 4 figures.

ASSOCIATION: Institut stroitel'noy fiziki Moscow (Institute of Structural Physics)

SUBMITTED: 13May64

ENCL: 01

SUB CODE: TD, ME

NO REF SOV: 000

OTHER: 000

Card 2/3

BRDLIK, P.M., kand. tekhn. nauk; MEZHEVNIKOV, B.S., inzh.

Calculating thermal properties of water covered roofs. From,
stroj. 42 no.3:42-45 '65. (MIRA 18:7)

BRDLIK, P.M. ; MOCHALOV, V.A.

Experimental study of free convection with blowing and suction
through a porous material on a vertical surface. Inzh.-fiz.
zhur. 10 no.1:3-10 Ja '66. (MIRA 19:2)

1. Institut stroitel'noy fiziki, Moskva. Submitted September 28,
1965.

I 24402-66 EWT(1)/ETC(f)/EPF(n)-2/EWG(m) WW/GS

ACC NR: AT6006916

SOURCE CODE: UR/0000/65/000/000/0299/0304

AUTHOR: Brdlik, P. M.; Turchin, I. A.ORG: Scientific research institute for Construction Physics, Moscow
(Nauchno-issledovatel'skiy institut stroitel'noy fiziki) 419
BH

TITLE: Effect of a discrete distribution of blowing and suction on heat transfer in natural convection on a vertical surface

SOURCE: Teplo- i massoperenos. t. II: Teplo- i massoperenos pri vzaimodeystvii tel s potokami zhidkostey i gazov (Heat and mass transfer, v. 2: Heat and mass transfer in the interaction of bodies with liquid and gas flows). Minsk, Nauka i tekhnika, 1965, 299-304

TOPIC TAGS: convective heat transfer, heat transfer coefficient

ABSTRACT: The experiments were carried out in a specially constructed unit consisting essentially of a heat exchanger made of a large number (about 60) of copper plates 0.01 meters high and 0.3 meters thick, placed horizontally one above the other with a spacing of 0.5×10^{-3} meters. Blowing or suction was effected through slits between the plates. Determination of the temperature fields in the boundary layer (excluding the surface temperature of the plate itself) was done with an interferometer. Control thermocouples made of Chromel-Kopel wire with a

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24402-66

ACC NR: AT6006916

diameter of 0.15×10^{-3} meters were located in the body of the plate. The temperature of the air entering the slits was controlled by thermocouples. The distance between the slits was varied over a range of 0.010 to 0.320 meters. The velocity of the blowing or suction of the air through the slits was varied from 0 to 10 meters/sec. The temperature difference between the walls and the surrounding air varied from 20 to 40°C. The experimental results are exhibited graphically. The regular nature of the change in the heat transfer coefficients as a function of the basic parameters makes it possible to correlate the experimental data by the following empirical relationship:

$$Nu_L = 0.5 Gr_L^{0.5} \left(\frac{L}{h} \right)^{2.5} 10^{-3} Re_L^{0.5}$$

in which L is the total height of the plate. Orig. art. has: 2 formulas and 3 figures.

SUB CODE: 20/ SUBM DATE: 09Nov65

Card 2/2 *vr*

~~I 27154-66~~ ~~AP6012670~~ ~~AP6012670~~ EMT(1)/EMP(m)/ETC(f)/EPF(n)-2/EWG(m)/EWA(d)/EWA(1) WW/RM
SOURCE CODE: UR/0170/66/010/004/0423/0428

AUTHOR: Brdlik, P. M.; Savin, V. K.

ORG: Institute of Physics of Construction, Moscow (Institut stroitel'noy fiziki)

69
B

TITLE: Heat transfer near the critical point in an axisymmetrical jet flow around plane surfaces normal to the stream

SOURCE: Inzhenerno-fizicheskiy zhurnal, v. 10, no. 4, 1966, 423-428

TOPIC TAGS: heat transfer, jet flow, heat transfer, axisymmetric flow

ABSTRACT: The results are given of an experimental and theoretical investigation of heat transfer between an axisymmetrical jet and disk normal to the flow near the critical point. The theoretical relations for the calculation of the local and mean heat-transfer coefficients are determined. Comparison of the experimental data presented by the authors shows good agreement and with those of some previous authors (R. Gordon, Cobongue. I. Intern. Heat Transfer. Conf., II, N. Y. 1961; H. Iakob, Proc. Phys. Sov., 59, 1947; K. P. Perry, Proc. Inst. Mech. Eng., N 30, 1954; V. N. Timofeyev, I. A. Fevraleva, and M. A. Vavilov, Tr. VNII metallurgich. teplomekhniki, no. 8, 1962). Orig. art. has: 3 figures and 12 formulas. [Based on authors' abstract.]

[BT]

SUB CODE: 20/ SUBM DATE: 11Sep65/ ORIG REF: 004/ OTH REF: 005

Card 1/1 BK

UDC: 536.246

2

ACC NR: AR6033532

SOURCE CODE: UR/0170/66/011/004/0432/0437

AUTHOR: Brdlik, P. M.; Savin, V. K.

ORG: Institute of Structural Physics, Moscow (Institut stroitel'noy fiziki)

TITLE: Transition of laminar boundary layer into a turbulent layer under axially symmetrical jet flow around flat surfaces disposed normal to the stress

SOURCE: Inzhenerno-fizicheskiy zhurnal, v. 11, no. 4, 1966, 432-437

TOPIC TAGS: laminar boundary layer, turbulent boundary layer, jet flow, flow profile, Reynolds number, *flow velocity, boundary layer flow, hydrodynamics*

ABSTRACT: This is a continuation of earlier work (Stroitel'naya teplofizika [Structural Thermophysics], Energiya, 1966), where it was shown that in the case of transverse flow across a plate by an axially symmetrical jet, there are three regions in the boundary layer next to the wall: the region of the critical point, the transition region, and the region of the main flow. The present article reports experimental research on the hydrodynamics of the boundary layer next to the wall and deals with a determination of the conditions under which a laminar boundary layer exists and can go over into a turbulent boundary layer. Plots are presented showing the variation of the velocity profiles and of the thickness of the boundary layer for different flow velocities. A method of visualizing the transition between the laminar and boundary flow is also described. The minimum Reynold's number at which only a laminar boundary layer exists is equal to $< 9,000$ (relative to the initial jet parameters). Orig. art. has: 5 figures and 4 formulas.

SUB CODE: 20 / SUBM DATE: 07May66 / ORIG REF: 003 / OTH REF: 004

Card 1/1

UDC: 532.517.2

BRDON, Z.

"Importance of standardization in the meat industry", p. 17, (GOSPODARK MIESNA, Vo. 5, No. 1, January, 1953)

SO: Monthly List of East European Accessions, L.C., Vol. 3, No. 4, April, 1954

BRDON, Z.

The standardization of sausages. p. 18. (Gospodarka Miesna, Vol. 8, No. 7/8,
July/Aug 1956, Warsaw, Poland)

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 6, No. 8, Aug 1957. Uncl.

BREABAN, M.

The opportunity of standardizing nonalloy nodular cast-iron pieces. P 173

STANDARDIZAREA. Comisiunea de Standardizare. Bucuresti, Rumania
Vol. II, no. 4, Apr. 1959

Monthly List of East European Accessions (EEAI) LC. vol. 8, no. 9, Sept. 1959

Uncl.

VICIU, E., dr.; ARSENESCU, Gh., dr.; RUSSU, M., dr.; DULBERU, Carmen, dr.;
~~BREASLA, I., dr.~~; CHEORGHESCU, B., dr.; TACQRIAN, S., dr.

Investigations of cardiovascular disorders in patients with portal
cirrhosis with ascites. Med. inter., Bucur 13 no.3:389-399 Mr '61.

1. Lucrare efectuata in Clinica a V-a medicala, Spitalul "Vasile
Roaita" I.M.F., Bucuresti, director prof. T.Spirchez.
(LIVER CIRRHOSIS complications) (ASCITES complications)
(CARDIOVASCULAR DISEASES)

SPIRCHEZ, T., prof.; GHEORGHESCU, B., dr.; BREASLA, I., dr.;
MERCULIEV, Elena, fiz.; VASILESCU, V.V., fiz.

Considerations on the metabolism of vitamin B 12 in gastrecto-
mized patients. Med. intern. 15 no.6:649-652 Je '63.

1. Lucrare efectuata in Clinica medicala a Spitalului
"V. Roaita", Bucuresti.

(POSTGASTRECTOMY SYNDROMES)
(ANEMIA, PERNICIOUS)
(VITAMIN B 12)
(METABOLISM) (INTRINSIC FACTOR)

BREAZRIC, V.

"Track Curves Of Small Radius And Their Use In The Port Of Rijeka" p. 194. (Zeleznice, Vol. 9, no. 6, June, 1953, Beograd.)

SO: Monthly List of East European Vol. 2, No. 9, September 1953, Uncl.
Accessions,/Library of Congress, September 1953, Uncl.

PRISLOPEANU, A., dr.; MIRCEA, Zalaru; PAMBUCCIAN, Gr., dr.; BREAZU, H., dr.

The determination of chloride in gastric juice as a method
of detection of chronic gastritis (superficial and interstitial).
Med. intern. 16 no.1:97-102 Ja'64

1. Lucrare efectuata in Spitalul nr. 1 si 2 din Ploesti, in
colaborare cu Institutul de anatomie patologica "V. Babes" din
Bucuresti.

*

RUMANIA/General Problems of Pathology - Tumors. Tumor of Man. U.

Abs Jour : Ref Med - Biol., No 21, 1958, 98358

Author : Tabacu, C., Chiotan, H., Veinescu, D., Breazu, H.

Inst : -

Title : A Rare Tumor of Joints: Malignant Sinovioma.

Orig Pub : Chirurgia, 1958, 7, No 2, 207-215.

Abstract : After general data on malignant sinoviomas (MS), a case of MS in the region of knee joint in a 39-year-old patient is described. For the given tumor, the affection of only the sinovial membrane is characteristic, without affection of bone tissue and connective apparatus. Histologically, the presence of cells with an epithelial character among sarcomatous and vessel cells of the tumor is discovered in the tumor. MS take a course according to the type of tubercular sinovitis or rheumatoid arthritis. In connection with this, diagnosis of MS is difficult and biopsy of all sinovial lesions is recommended.

Card 1/1

SERBAN, P.; PAPPO, A.; PRISLOPEANU, A.; TASCA, C.; BREAZU, H.

2 cases of primary obstruction of the suprahepatic veins (Budd-Chiari disease). Stud. cercet. med. intern. 4 no.2:211-217 '63.
(HEPATIC VEIN THROMBOSIS)

BITTNER, J., dr.; RADU, I., dr.; SEFER, M., dr.; COCA, R., dr.;
ROSEN, P., dr.; BREAZU, H., dr.

A case of fatal septicemia caused by *Clostridium perfringens*.
(Clinical, bacteriological and hematological study). Micro-
biologia (Bucur) 8 no.3:243-252 My-Je '63.

1. Institutul "Dr. I. Cantacuzino" (for Bittner, Radu, Sefer).
2. Spitalul de adulti nr. 2 Ploiesti (for Coca, Rosen, Breazu).
 (SEPTICEMIA) (CLOSTRIDIUM PERFRINGENS)
 (PATHOLOGY) (BACTERIOLOGICAL TECHNICS)
 (HEMATOLOGY)

BOTEZ, M., prof. dr.; ATUDCREI, M., asist. ing.; GHITAU, D., asist. ing.;
BREBAN, A., asist. ing.

Experimental measurements by means of the M.R.A.l/C.W. tellurometer.
Rev geodezie 7 no.3:5-17 '63.

1. Institutul de constructii Bucuresti - sectia geodezie.

BREBENEL, D., ing..

Measures which can be taken to put steam turbine blades out of resonance. EnergeticalRum 9 no.7:280-283 J1 '61.

Brebdo, V.I.

USSR/ Chemistry Physical chemistry

Card : 1/1 Pub. 147 - 20/25

Authors : Vol'kenshteyn, M. V., and Brebdo, V. I.

Title : Effect of intermolecular reactions on reversible isomerization

Periodical : Zhur. fiz. khim. 28/7, 1313 - 1318, July 1954

Abstract : The differences in energies of intermolecular reactions of convolute and trans-isomers of 1,2-dichloroethane and 1,2-dibromethane, were estimated quantitatively. It was found that an orientational reaction, between molecules, balances the energies of reversible isomers in liquids. The effect of intermolecular reactions, on the relative stability of reversible isomers, is explained. Eleven references: 4 Japanese; 3 USSR and 4 USA (1939 - 1953). Tables.

Institution : Acad. of Sc. USSR, Institute of High Molecular Compounds, Leningrad

Submitted : November 30, 1953

RUMANIA

BREBEANU, Gh., Dr, Maj [affiliation not given]

"Some Clinical Observations on the Toxicity of Radioactive Substances Following the Contamination of Wounds with I¹³¹, P³², and Na²⁴. (Experimental Study)."

Bucharest, Revista Sanitara Militara, Vol 62, No 5, Sep-Oct 66, pp 887-900.

Abstract: In an experimental study involving 3 lots of 12 guinea pigs each, the author found that the harmful effect of radioactive iodine after contamination of a wound without surgical processing is quite small even at relatively high dosages but that radioactive phosphorus and radioactive sodium have a pronounced effect under the same conditions.

Includes 4 tables, 15 figures and 15 references, of which 5 Rumanian, 7 Russian, 2 English-language and one French. -- Manuscript submitted 1 July 1966.

R/006/60/008/003/001/002
D015/D105

AUTHOR: Brebenel, D.S., Engineer

TITLE: Aspects of the problem of blade vibrations in steam turbines

PERIODICAL: Energetica, v. 8, no. 3, 1960, 103 - 114

TEXT: The article describes the causes, characteristics and effects of turbine blade vibrations, deals with vibration measuring methods and offers suggestions for the improvement of blade efficiency. The main causes of blade vibrations are a) non-uniformity of steam flow through the annular sections of the guide vane nozzles, and b) perturbing forces, i.e. forces due to the perturbation of the continuous steam flow at the "diaphragm" separation points, and forces due to the perturbation of the continuous steam flow, caused by the non-uniformity of the guiding channel sections. With regard to the direction of the oscillation, three types of vibrations may be distinguished, i.e. axial or longitudinal, torsional, and tangential vibrations. The most frequent and dangerous vibrations are tangential vibrations. In laboratory experiments, blade vibrations are caused by

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R/006/60/008/003/001/002
D015/D105

Aspects of the problem of blade vibrations in steam turbines

applying to the free end of the blade an impulse produced by a.c. of variable frequency and an excitation electromagnet. The natural frequency of the blade vibration is achieved by increasing the frequency of the excitation force, which produces the resonance phenomenon. Blade vibration can be of the first, second or third tone depending on the intensity of the vibration frequency. Usually the blades are assembled in sets, held together by wire or shrouding. However, in experimental research, the blade sets are considered as separate blades. Blade sets are subjected to different types of vibrations, depending on the wavelength. The vibration frequency of some types of blade sets also depends on the dimensions of the stiffening wires or shroudings and on their location along the blade. There are two types of blade vibration, produced by excitation forces of different frequencies: a) the period of the disturbing force is shorter than the total cessation period of the damped free vibration of the blade, and b) the period of the disturbing force is equal, or longer, than the total damping period of the vibrating blade. Impulses generated by steam under resonance conditions

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R/006/60/008/003/001/002
D015/D105

Aspects of the problem of blade vibrations in steam turbines

and depending on multiplicity, produce various deviations of the blades, hence different stress values. Multiplicity is the required number of periods of a vibratory motion causing the external impulse due to which the initial vibration enters into resonance. Since the blade deviations increase with each subsequent resonance impulse, the strains also increase accordingly. Blade deviations, however, increase only up to a certain limit, since internal resistance forces of the blade and stiffening materials limit the deviation increase; the maximum deviation occurs only when the vibration is stable and the energy of steam impulses absorbed by friction between the particles of the blade and stiffening material. The low number of initial blade deviations corresponds proportionally to the high number of multiplicity. This rule, however, applies if all factors which influence the vibration remain constant, and only the disturbing forces vary. The effect of the centrifugal force is shown by an increase in the natural frequency of the blade. Low frequency blade vibrations are measured by the free vibration or by the resonance vibration method. The measuring tolerance of

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R/006/60/008/003/001/002
D015/D105

Aspects of the problem of blade vibrations in steam turbines

the frequency should not be lower than 1%, as compared to the value to be measured. When using the free vibration method, the frequency is measured by a cathode or loop oscillograph, whereby with the resonance vibration method, a special device is used, consisting of an amplifier, an acoustic generator, an excitation electromagnet, an electronic voltmeter, an electromagnetic transducer and an oscilloscope. The free vibration method can only be used for measuring first-tone vibrations, while the resonance method permits the measuring of the first, and higher tones. The measuring data of the blade vibration frequency of each individual stage can be used for computing and determining the following vibration characteristics a) divergence of frequencies; b) dynamic frequencies; c) critical number of revolutions; d) verification of the frequency impulses; e) deviation from the resonance frequency; and f) deviation from the rated rpm. In practice, the measuring of the blade vibrations depends on the quality of the blading and reblading. The life of steam turbine blades depends on the resistance of the blade material determined by its fatigue limit. Repeated tests on blade vibrations

Card 4/5

R/006/60/008/003/001/002
D015/D105

Aspects of the problem of blade vibrations in steam turbines

should be conducted a) periodically, when blades are subjected to corrosion and erosion; b) after reblading of the turbine; and c) annually, when defective blade operation of the blades has been established. Since the values of the natural vibration frequencies obtained after blading, and, subsequently after a certain number of operation hours, differ from each other it is imperative that periodical measuring of blade vibrations be carried out. The characteristics of blade vibrations can be improved as follows: sharp edges and surface scratches should be removed; the wiring holes should be properly rounded and provide gradual passage at the connections; reblading operations should include a detailed examination of the blades to insure a rigid fixing in the blade supports, since clamping differences might modify the natural frequency up to 10 - 15%. The distance between the individual rotor blades and between the individual stator blades should be as equal as possible. After reblading, the vibrations must be measured to check the divergence of frequencies and the computation results. There are 27 figures, 1 table and 5 references: 4 Soviet-bloc and 1 non-Soviet-bloc.

Card 5/5

R/006/61/009/002/001/001
A231/A126

AUTHOR: Brebenel, D., Engineer

TITLE: Utilization of the resonance phenomenon in measuring the blade vibrations in steam and gas turbines

PERIODICAL: Energetica, v. 9, no. 2, 1961, 68 - 72

TEXT: Based on two previous articles by Engineer Dumitru Brebenel (Ref. 3: Citeva aspecte privind problema vibrațiilor la paletele turbinelor cu abur [Some Aspects Concerning the Vibration of Steam Turbine Blades], Energetica, no. 3, March 1960), and Engineers Gh. Vărađi and V. Vlădeanu (Ref. 4: Un aparat electronic pentru determinarea frecvenței paletelor turbinelor cu abur prin metoda rezonanței [An Electronic Apparatus for the Determination of the Frequency of Steam Turbine Blades by the Resonance Method], Energetica, no. 3, March 1960), the author analyzes the physical-mathematical aspects of the resonance phenomenon used in measuring the vibrations of turbine blades at the Întreprinderea Energo-Reparații (Power - Repair Enterprise) in Bucharest. In case of steam turbine blades, generally free vibrations and forced vibrations are found. The author briefly mentions the equations of the damped free vibrations, damped and undamped

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Utilization ...

R/006/61/009/002/001/001
A231/A126

forced vibrations and three types of compound vibrations, i.e. compound vibrations of the same frequency, compound vibrations of different frequencies, but very close to each other; and, compound vibrations of different frequencies. Principally, the method of measuring steam turbine blade vibrations by resonance oscillation consists in the excitation through an electromagnet, of the blade having a natural pulsation p . This electromagnet fed by an oscillator has a frequency which may be varied until it becomes equal with the natural blade pulsation. Thus, two transformations take place by this method: - the first one transforms the electric variation into mechanical vibrations, while the second one transforms the mechanical vibrations into electric variations. The voltage induced in the transducer is led to one of the plate pairs of an oscilloscope. The voltage of the variable-frequency oscillator is led to the second pair of plates. Having now two vibrations of perpendicular directions they may be composed, thus forming figures on the screen on the oscilloscope Lissajous, which may be used for the determination of the frequency of one of the voltages. The oscillator voltage is already known. The force F acting on the blade can be determined by the expression

$$F = \frac{1}{2} \frac{U^2}{\omega^2 \omega^2 g^2} \frac{dG}{dx} \quad (28)$$

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Utilization ...

R/006/61/009/002/001/001

A231/A126

This force depends on the efficiency value of the sinusoidal voltage U of the variable-frequency oscillator which feeds the exciter on the value of the ω pulsation of these voltages, or the value of the variable frequency f , respectively, and on the value of the permeance G . This is the external excitation force which produces the forced vibration of the blade. The nondamped forced vibration is expressed by:

$$x_1 = \frac{F}{m} \frac{1}{\sqrt{(p^2 - \omega^2)^2 + 4n^2\omega^2}} \sin(\omega t - \alpha),$$

in which p is the natural pulsation of the blade vibrations, and ω the pulsation of the excitation force.

Varying ω , at a certain moment one may have: $\omega = p$, in which case the resonance phenomenon appears. In the same moment, a voltage will appear in the transducer coil, the frequency of which will be the natural blade frequency. The transformation of the mechanical vibration into electric vibration is accomplished by an induction transducer. However, induction transducers can be used directly only in the measuring of linear or approximately linear displacements. The transducers should have coils with a great number of spires. Another factor which should be taken into consideration is the magnetic reactance of the coil. There are 7 figures and 4 references: 3 Soviet-bloc and 1 non-Soviet-bloc. ✓

Card 3/3

BREBENIK, V.M., dotsent, kand.tekhn.nauk

Fatigue curves and methods for calculating parts subjected to variable loads. Izv. vys. ucheb. zav.; mashinostr. no. 10:73-81 '60. (MIRA 14:1)

1. Dneprodzerzhinskiy vecherniy metallurgicheskiy institut.
(Strength of materials)

BREBERA, A. Stavebni Prumysl, Vol.3, No.1, Jan. 1953, Praha.)
"Possibilities of Economizing on the Use of Wood in the Construction of Buildings,"
p. 9.

SO: Monthly List of East European Accessions, Vol.2, No.9, Library of Congress, September
1953, Uncl.

BREBERA, A.

The creeping of patent wire and the improvement of its quality by reinforcing. p.317

INZENYRSKE STAVBY. (Ministerstvo stavebnictvi) Praha

Vol. 3, no. 8, Aug. 1955

East European Accessions List

Vol. 5 No. 1

Jan. 1956

BREBERA A.

Quality of our patented wire and uniformity of its production. p.266.
INZENYRNE STAVBY. (Ministerstvo stavebnictvi) Praha.
Vol. 4, no. 8, Aug. 1956.

SOURCE: East European Accessions List, (LEAL), Library of Congress
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