

PROTOPOPOV, S.N.; TATUR, S.K., prof., doktor ekonom. nauk, red.; KOCHETOV,
A.A., red.; POSHESHULIN, I.P., tekhn. red.

[Accounting for reconstruction works] Uchet vosstanovitel'nykh
rabot. Pod red. S.K.Tatura. Moskva, Gos. fin. izd-vo, 1946. 93 p.
(MIRA 14:8)

(Construction industry--Accounting)

PROTOPOPOV, S. N.

Bukhgalterskiy uchet v podryadnykh stroitel'nykh organizatsiyakh (Bookkeeping in contract building organizations) Moskva, Gos. izd-vo Lit. po Stroitel'stu i Arkhitekture, 1953.
398 P. Tables.

N/5
611.91
.P9

PHOTOPOPOV, S. M.

Accountancy

Bukhgalterskiy uchet v podryadnykh stroitel'nykh organizatsiyakh.
Moscow, Gosudarstvennoe Izdatel'stvo Literatury po Stroitel'stvu i Arkhitekture, 1953.
pp. 309; 23 x 14.

LXIII-1

PROT. LEON, N'YON... (mirrored text)

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ANALEZ K'ZYAYSTWENIY I YATSEL'ACTI...
ORGANIZSIY (A MANAGER OF... ACTIVITIES OF... AND...
STRUCTURES) IZD. 2... MOSVA, GOS.IZDAT, 1 16.
231 1. TMS.

ПРОТОВОПОВ, С. Н.

Social Science

Analysis of the economy activity of construction projects and building organizations. Moskva, Gosfinizdat, 1952

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

PROTOPOPOV, S N

N/5
748.1
.P9

DIE BETRIEBSANALYSE IN DER BAUWIRTSCHAFT. BERLIN, DIE WIRTSCHAFT, 1955.

379 P. TABLES.

TRANSLATION FROM THE RUSSIAN: "ANALIZKHOZYAYSTVENNOY DEYATEL'NOSTI STROYEK I
SROITEL'NYKH ORGANIZATSIY", MOSCOW, 1952.

BIBLIOGRAPHICAL FOOTNOTES.

PROTOPOPOV, S. N.

PROTOPOPOV, S. N.

ORGANISATION UND PLANUNG IM BAUWESEN (VON) D. I. EUKSHEYN, S. N. PROTOPOPOV, YE. D. SYRTOVA. BERLIN, DIEWIRTSCHAFT, 1954. 271 P. TABLES. TRANSLATION FROM THE RUSSIAN, "ORGANIZATSIYA I PLANIROVANIYE STROITEL'STVA," MOSKOW, 1951. BIBLIOGRAPHICAL FOOTNOTES.

N/5
661
.B91

ПРОТОПОВ, С.М.

Analiz khoziaistvennoi deiatel'nosti stroek i stroitel'nykh organizatsii [Analysis of the economic activity of buildings and building organizations]. Moskva, Gosizdat, 1952. 320 p.

SO: Monthly List of Russian Accessions, Vol. 6, No. 2, May 1953

BUKSHTEYN, D. I.; PROTOPOPOV, S. N.; and SYRISOVA, E. D.

Organizatsiya i Planirovanie Stroitelstva (Organization and Planning of Buildings)
216 p., Published by GOSFINIZDAT, Moscow, 1951.

PROPOPOV, S.N.; TIMOFEYEV, S.P., nauchnyy red.; GERASIMOVA, G.S.,
red.izd-va; NAUMOVA, G.D., tekhn.red.

[Accounting in capital construction] Bukhgalterakii uchet
v kapital'nom stroitel'stve. Izd.2., dop. i perer. Moskva.
Gos.izd-vo lit-ry po stroit., arkhit. i stroit.materialam,
1960. 270 p. (MIRA 14:1)
(Construction industry--Accounting)

ПРОТОКОЛ, С. Н.

Bukhgalterskii uchet v podriadnykh stroitelnykh organizatsiakh /Accounting in contract construction enterprises/. Moskva, Gos. izd. lit. po stroit. i arkh., 1953. 399 p.

SO: Monthly List of Russian Accessions, Vol. 7 No. 1 April 1954.

ПРОЦЕССЫ, С. 11.

Analiz khoziaistvennoi deiatel'nosti stroek i stroitel'nykh organizatsii (Analysis of the economy activity of construction projects and building organizations). Moskva, Gosfinizdat, 1952.

SO: Monthly List of Russian Accessions, Vol 6, No. 3, June 1953

ПРОТОКОЛ, Сергей Николаевич.

Analysis of the economic activity of construction projects and building organization Moskva, Gosfinizdat, 1952. 519 p. (54-42709)

HD9715.R92F7

1. Construction industry - Russia

PROTOPOPOV, Sergey Nikolayevich; GRINSHPAN, Sh., otv. red.;
RYBAL'CHENKO, R., red. izd-va; LEEBEDEV, A., tekhn. red.

[Analysis of the administrative operations of construction
projects and organizations] Analiz khoziaistvennoi deiatel'-
nosti stroek i stroitel'nykh organizatsii. Izd.2., perer.
Moskva, Gosfinizdat, 1956. 231 p. (MIRA 16:7)
(Construction industry--Accounting)

ПРОТОПОВ, Сергей Николаевич.

RUSSIA(1923- U.S.S.R.)

Calculation of fixed capital in construction agencies

HF5686.B7R85 1946

1. Construction industry-Accounting. 2. Construction industry-Russia

I. Protopopov, Sergy Nikolaevich.

MALYSHEV, S.P.; PROTOPOPOV, S.P.

Quick-acting secondary device based on electric-contact
method. Biul. tekh.-ekon. inform. Gos. nauch.-issl. inst. nauch.
i tekh. inform. no. 3:43-45 '63. (MIRA 16:4)

(Electronic instruments)

PROTOPOPOV, S. P.

Patogenez i Lechenie Dlitelno Ne Zazhivaiushchikh Ran (Pathogenesis and Treatment
of Delayed Healing in Wounds), 184 p., Moscow, 1950.

USSR/Medicine - Novocain Block

Apr 51

"Anesthesia of a Nerve by Novocain in the Light of N. Ye. Vvedenskiy's Parabiosis Theory," S. P. Protopopov, Inst Surg Imeni A. V. Vishnevskiy, Acad Med Sci USSR

"Khirurgiya" No 4, pp 7-19

Studied physiol aspects of transmission of natural stimuli through nerve parts blocked by novocain. Made comparative evaluation of different methods of blocking (chamber method, painting with novocain gradual infiltration of novocain, intraneural method) and physiol evaluation of natural elec discharges

186771

USSR/Medicine - Novocain Block (Contd)

Apr 51

under pathol conditions (inflammation). Describes methods of blocking and shows results on the stimuli in graphs and oscillograms. Physiologically, anesthesia is analogous to parabiosis.

186771

PROTOPOPOV, S. P.

PROTOPOPOV, S. P.; KLYACHKO, V. R.

Combined endocrine and tissue therapy of bronchial asthma.
Klin. med., Moskva 29 no.7:78-80 July 1951. (CML 21:1)

1. Prof. Protopopov. 2. Of the Institute of Surgery imeni A.
V. Vishnevskiy (Director -- Prof. A. A. Vishnevskiy), Academy
of Medical Sciences, Moscow.

PROTOPOPOV, S. P.

Nikolai Evgen'evich Vvedenskii significance of his works
in clinical surgery. Klin. med., Moskva 30 no.4:65-69 Apr.
1952, (CJML 22:2)

1. Professor. 2. Of the Institute of Surgery imeni A. V. Vishnevskiy (Director -- Prof. A. A. Vishnevskiy), Moscow.

PROTOPOPOV, S.P.; ARSHINOVA, M.N.

Basic problems in the scientific research activity of the A.V. Vishnevskii Institute of Surgery of the Academy of Medical Sciences of the U.S.S.R. Vest. AMN SSSR no. 4:17-25 '53. (MLBA 7:1)
(Surgery)

PROTOPOPOV, S.P., professor; GOLOVANOV, V.D.

Report on the Fifth Plenary Session of the Board of Directors of the All-Union Scientific Society of Surgeons which took place in Moscow, December 24-27, 1952. Khirurgia no.6:84-91 Je '53. (MLRA 6:8)

(Surgery--Societies)

PROTOPPOV, S.P.

VISHNEVSKIY, A.A., professor, otvetstvennyy redaktor; PRIOROV, N.I., professor; zamestitel' otvetstvennogo redaktora; PROTOPPOV, S.P., redaktor; GOLOVANOV, V.D., professor, redaktor; GABERLAND, M.I., tekhnicheskiy redaktor

[Anesthesia in surgery. Transactions of the Commission on Anesthesia and of the Fifth plenum of the Board of the All-Union Scientific Society of Surgeons] Obezbolivanie v khirurgii. Trudy problemnoi komissii po obezbolivaniyu i piatogo plenuma pravlenia Vsesoiuznogo nauchnogo obshchestva khirurgov. Moskva, Gos. izd-vo med. lit-ry, 1954. 247 p. (MLRA 8:1)

1. Chlen-korrespondent Akademii meditsinskikh nauk SSSR (for Vishnevskiy)
 2. Chlen-korrespondent Akademii meditsinskikh nauk SSSR (for Priorov)
- (Anesthesia) (Surgery, Operative)

PROTOPOPOV, S.P., professor (Moscow)

"Therapy of ulcers of the lower extremities." R.F.Akulova. Reviewed
by S.P.Protopopov. Khirurgiia no.7:84-85 J1 '54. (MLRA 7:10)
(ULCERS) (AKULOVA, R.F.)

PROTOPPOV, S. P. —

FD-1769

USSR/Medicine - Surgery

Car 1/1 Pub 122-1/9

Author : Protopopov, S. P., Professor

Title : Important problems of present day surgery

Periodical : Vest AMN SSSR, 1, 3-17, Jan/Mar, 1955

Abstract : The 26th All-Union congress of surgeons was held on January 20-27, 1955 with 2,500 people attending. Representatives of 19 foreign countries attended the meetings. Some of the most important problems presently facing surgery in the USSR were discussed. All speakers emphasized that surgery in the USSR reflects to a fairly full extent the physiological teachings of I. P. Pavlov. Materialistic trend in various sciences provides a basis for favorable development of medicine in general and surgery in particular. "Protective stimulation" was recommended for most postoperative cases; this includes encouraging word from medical personnel, supervised gymnastics, early or comparatively early postoperative removal from confinement to bed, occupational therapy, oxygen therapy and the like. Use of "protective stimulation" is indicated more often in surgical cases. Caution was voiced in the use of medicamentous sleep.

Institution: --

Submitted : --

PROTOPOPOV, S.P., professor

To all medical personnel. Fel'd. i akush.no.1:63 Ja '56 (MLRA 9:4)

1. Zamestitel' direktora instituta khirurgii imeni A.V.
Vishnevskogo AMN SSSR po nauchnoy chasti.
(PIROGOV, NIKOLAI IVANOVICH, 1810-1881)

ПРОТЦОПОВ, С.П.

First Congress of Surgeons of the R.S.F.S.R. Eksp. khir. 1 no.5:
63-64 S-0 '56. (MLRA 10:2)
(APPENDICITIS) (VEINS--DISEASES)

PROTOPOPOV, S.P., professor

To all medical personnel. S.P. Protopopov, Zhur. nevr. i psikh.
56 no.1:80 '56 (MLRA 9:4)

1. Zamestitel' direktora Instituta khirurgii imeni A.V.
Vishnevskogo AMN SSSR po nauchnoy chasti.
(ACADEMY OF MEDICAL SCIENCES OF THE U.S.S.R.)

PROTOPOPOV, S.P., professor (Moskva)

Problems of hypothermia in surgery. Vest. AMN SSSR 11 no.1:48-58
'56. (MLBA 9:5)

(BODY TEMPERATURE
hypothermia, controlled)
(SURGERY, OPERATIVE
hypothermia in)

PROTOPPOV, S.P., professor

Surgery of the large vessels; according to materials of the Eighth Session of the Vishnevskii Institute of Surgery of the Academy of Medical Sciences of the U.S.S.R. held on Nov. 13-14, 1956. Vest. AMM SSSR 12 no.2:65-71 '57. (MIRA 10:10)
(BLOOD VESSELS--SURGERY)

PROTOPOPOV, S.P., professor (Moskva, D252, Novopeschanaya ul., d.19/10,
kv.192)

Fundamentals of lower extremity thrombophlebitis; compound therapy
[with summary in English, page 157]. Vest.khir. 78 no.3:3-11 Mr '57.
(MLRA 10:6)

1. Iz Instituta khirurgii im. A.V.Vishnevskogo Akademii meditsin-
skikh nauk SSSR (dir. - prof. A.A.Vishnevskiy)

(LEG, dis.

thrombophlebitis, ther. (Rus))

(THROMBOPHLEBITIS, ther.

legs. methods (Rus))

ПРОТОПОПОВ, С. П.

ПРОТОПОПОВ, S.P., prof.

Plenary session of the administration of the All-Russian Society
of Surgeons, Krasnoyarsk, 1957. Vest.AMN SSSR 13 no.1:87-90 '58.
(SURGERY) (MIRA 11:2)

PROTOPOPOV, S.P., prof.; KRYMSKIY, L.D., kand. med. nauk.

Tenth session of the Vishnevskii Institute of Surgery of the
Academy of Medical Sciences of the U.S.S.R. Vest. AMN SSSR 14
no.2:73-81 '59. (MIRA 12:4)
(HEART--SURGERY) (SURGERY, PLASTIC)

PROTOPOPOV, S.P., prof.; MERLAGA, S.K.

Surgical technique in acute catarrhal appendicitis. Sov. med.
27 no.11:70-74 N '63 (MED 18:1)

PROTOPOPOV, S.P., prof. (Moskva)

Second All-Russian Congress of Surgeons. Khirurgiia 39
no.8:138-143 Ag '63. (MIRA 17:6)

VISHNEVSKIY, A.A., prof. Laureat Leninskoy premii; PROTOPOPOV, S.P., prof.,
zasluzhennyy deyatel' nauki RSFSR; ARSHINOVA, M.N., kand.med. nauk

On the 60th birthday of Professor N.I.Krakovskii. Sovet. med.
27 no.9:148-149 S'63 (MIRA 17:2)

1. Deystvitel'nyy chlen AMN SSSR (for Vishnevskiy).

PROTOPOV, Sergey Petrovich; LYUSTIBERG, V.F., inzh., ved. red.;
KHIMCHENKO, N.V., kand. tekhn. nauk, red.; SOROKINA, T.M.,
tekhn. red.

[Electronic device for determining residual austenite in
steel]Elektronnyi pribor dlia opredeleniia ostatochnogo
austenita v stali. Moskva, Filial Vses. in-ta nauchn. i
tekhn. informatsii, 1958. 9 p. (Peredovoi nauchno-
tekhnicheskii i proizvodstvennyi opyt. Tema 33. No.P58-92/4)
(MIRA 16:3)

(Steel--Analysis) (Electronic measurements)
(Austenite)

PROTOPOPOV, S.P., zasl. deyatel' nauki RSFSR, doktor med. nauk, prof.,
otv. red.; BAZHENOV, P.S., zasl. vrach RSFSR, red.; IVANOV,
S.S., zasl. vrach RSFSR, kand. med. nauk, red.; KOKIN, M.K.,
zasl. vrach RSFSR, kand. med. nauk, red.; TROFIMOV, K.A., red.;
TSUKANOVA, Ye.P., zasl. vrach RSFSR, red.; SHIPEROVA, R.Ya.,
zasl. vrach RSFSR, kand. med. nauk, zam. otv. red.; ANTONOV, V.,
red.; KUZIN, N., tekhn. red.

[Problems of practical medicine; from the practice of medical
institutions in Orel Province] Voprosy prakticheskoi meditsiny;
iz opyta meditsinskikh uchrezhdenii Orlovskoi oblasti. Orel,
Orlovskoe knizhnoe izd-vo, 1962. 335 p. (MIRA 16:6)

1. Zaveduyushchiy Orlovskim oblastnym otdelom zdravookhraneniya
(for Trofimov).

(OREL PROVINCE--MEDICINE--PRACTICE)

PROTOPOPOV, S.P.

Dermatoplasty by the implantation method in extensive burns.
Eksp.khir.i anest. 6 no.1:48-51 '61. (MIRA 14:10)
(BURNS AND SCALDS) (SKIN--TRANSPLANTATION)

PROTOPOPOV, S.P., prof.

International Congress on Phlebology. Vest. AMN SSSR 15 no.9:65-
67 '60. (MIRA 13:11)

(VEINS)

PROTOPOPOV, S.P., prof.; KERIMOV, K.B.

Anesthetizing properties of the benzoic ester of diethylaminoethanol.
Akt. vop. obezbol. no.2:219-225 '59. (MIRA 14:5)

1. Iz Instituta khirurgii im. A.V.Vishnevskogo AMN SSSR (direktor -
chlen-korrespondent AMN SSSR, zasluhenryy deyatel' nauki RSFSR
prof. A.A.Vishnevskiy).
(ETHANOL)

DAVYDOVSKIY, I.V., *otv. red.*; YEGOROV, B.G., *red.*; KRAYEVSKIY, N.A., *red.*; PRIOROV, N.N., *red.*; PROTOPOPOV, S.P., *red.*; GRIGOROVSKIY, I.M., *red.*; GRIGOROVSKIY, I.G., *red.*; LYUDZOVSKAYA, N.I., *tekh. red.*

[Problem of trauma; transactions of the 11th session of the General Meeting of the Academy of Medical Sciences of the U.S.S.R.] Problema travmy; trudy XI sessii obshchego sobraniia Akademii meditsinskikh nauk SSSR. *Otv. red. I.V. Davydovskii.* Red. kol. B.G. Egorov i dr. Moskva, Gos. izd-vo med. lit-ry, 1960. 175 p. (MIRA 14:5)

1. Akademiya meditsinskikh nauk SSSR, Moscow. 2. *Deystvitel'nyy chlen AMN SSSR (for Davydovskiy)*
(TRAUMATISM) (BURNS AND SCALDS) (RADIATION SICKNESS)

*Protopopov, S.P.
and
1-4/11/60*

*30 Sept. 60
FB*

LADOSKAYA, N.I.

PROTOPOPOV, S.P.

Nervous factor in the pathogenesis of varicose dilatation of the
veins of the lower extremities. Khirurgia 36 no.6:115-119 Ja '60.
(MIRA 13:12)

(VARIX)

(NERVOUS SYSTEM, AUTONOMIC)

VISHNEVSKIY, A.A., prof., zaslužhenny deyatel' nauki, otv.red.;
VITEBSKIY, Ya.D., kand.med.nauk, zamestitel' otv.red.; ARAPOV,
D.A., prof., red.; ~~PROTOPOPOV, S.P., prof., zaslužhenny~~
deyatel' nauki RSFSR, red. (Moskva); KRAKOVSKIY, N.I., prof.,
red. (Moskva); KOVALENKO, D.G., prof., red. (Leningrad);
MITROFANOVA, V.P., tekhn.red.

[Transactions of the Interprovince Conference of Surgeons from
the Urals and Western Siberia, 1959; complications of peptic and
duodenal ulcer, acute intestinal obstruction, problems in thoracic
surgery, osteoarticular tuberculosis, and some other problems in
surgery and urology] Trudy Mezhhoblastnoi nauchnoi konferentsii
khirurgov oblastei Urala i Zapadnoi Sibiri; oslozhnenia iazvennoi
bolezni zheludka i dvenadtsatiperstnoi kishki, ostraya kishechnaia
neprokhodimost', voprosy khirurgii organov grudnoi polosti, kostno-
sustavnogo tuberkuleza i nekotorye drugie voprosy khirurgii i
urologii. Kurgan, Izd-vo gazety "Sovetskoe Zaural'e," 1960. 483 p.
(MIRA 14:7)

1. Mezhhoblastnaya nauchnaya konferentsiya khirurgov oblastey Urala
i Zapadnoy Sibiri, 1959. 2. Deystvitel'nyy chlen AMN SSSR (for
Vishnevskiy). 3. Chlen-korrespondent AMN SSSR (for Arapov).
(SURGERY---CONGRESSES)

PROTOPOPOV, S.P., prof., zasluzhennyi deyatel' nauk RSFSR; KRAKOVSKIY,
N.I., prof. (Moskva)

International Congress of Phlebologists in Chambéry (France),
May 6-8, 1960. Sov.med. 25 no.1:152-154 Ja '61. (MIRA 14:3)
(VEINS--DISEASES)

PROTOPOPOV, V.A.

PROTOPOPOV, V.A., inzh.

Circuit for warning singals. Energetik 5 no.12:21-22 D '57.
(Electric substations) (MIRA 10:12)

PROTOPOPOV, V.B. (Leningrad); ALEKSEYEV, N.I. (Leningrad)

Investigation of flange couplings for flanged pipes. Stroi. truboprov.
10 no.9:14-16 S '65. (MIRA 18:9)

L 57806-65 EPA(s)-2/EWP(k)/EWP(z)/EWA(c)/EWT(m)/EWP(b)/T/EWA(d)/EWF(r)/
EWP(t) Pf-4/Pad LIP(c) MJW/JD/HM/HW UR/0304/64/000/006/0027/0029
ACCESSION NR: AP5018876

AUTHOR: Protopopov, V. B. (Engineer); Alekseyev, N. I. (Engineer)

32
28
B

TITLE: New flange joints for pipe lines

SOURCE: Mashinostroyeniye, no. 6, 1964, 27-29

TOPIC TAGS: pipe, pipeline transportation system

ABSTRACT: This article describes studies made of the possibility of extending the use of flanged pipe joints, including adaptation to other metals than steel and copper. For the investigation, only types of joints were chosen which did not require nonferrous-metal parts or soldering or welding.

A pressed pipe joint combines the advantages of the pressed ring free flange; it also affords better conditions for the transitional portion of the flange, and eliminates the possibility of burning out the packing. The joint consists of a steel flange onto which the steel pipe is press-fitted. Test samples were subjected to hydraulic pressure of 38 kg/cm², and then to vibration at this same internal pressure; all samples withstood these treatments.

Card 1/2

L 57806-55

ACCESSION NR: AP5018876

The pressed steel ring joint consists of a free steel flange and a steel ring around which the end of the pipe is press-fitted. Test samples prepared from copper MZS and copper-nickel alloy MNZh 5-1 passed the usual tests successfully. Some samples, put in actual use for 1.5 to 2 years, were then examined and found to be in good condition.

The flanged-pipe joint with steel ring consists of a free steel flange and a steel ring to which the pipe end is crimped. This joint is intended for use with copper and copper-nickel pipe. Test samples have successfully passed a series of hydraulic tests at pressure 38 kg/cm².

The laboratory tests indicate that the new flange joints can be used in various areas of industry to secure a saving in nonferrous metal and production expenditures. Orig. art. has: 2 figures, 1 table.

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: IE

NR REF SOV: 000

OTHER: 000

JPRS

lpp
Card 2/2

ПРОТОПОРОВ, В.В., инж.

Elastic helically wound gaskets for steampipes flange couplings.
Elek. sta. 35 no.12:11-17 D '64.

(MIRA 18:2)

L 30954-66 EPF(n)₂/EWA(h)/EWT(1)/EWT(m)/ETC(m)-6/EWP(t) IJP(c) WW/JW/JDI
 ACC NR: AP6013489 SOURCE CODE: UR/0120/66/000/002/0037/0040

45
B

AUTHOR: Degtyarev, Yu. G.; Kazarinova, M. I.; Protopopov, V. N.

ORG: none

TITLE: Fast neutron spectrometer using Si surface-barrier detectors and Li⁶F

SOURCE: Pribory i tekhnika eksperimenta, no. 2, 1966, 37-40

TOPIC TAGS: spectrometer, neutron spectrometry, neutron bombardment

ABSTRACT: A semiconductor neutron spectrometer has been developed whose sensing element is a thin film of ⁶LiF sandwiched between two layers of n-Si. Neutron bombardment of the film yields the splitting reaction $Li^6 + n \rightarrow T + \alpha + Q$, in which the combined energies of the triton T and the α -particle equal the neutron kinetic energy plus the reaction energy Q. A section of the sensor is shown in Fig. 1. Allowing for the loss caused by the gold foil, the authors used a figure of $Q = 4.6$ Mev for thermal neutrons and 4.7 Mev for those above 3 Mev energies. The preamplified pulses from each counter are summed, giving an output of about $E_n + Q$, and this output is connected via an expander to the spectrum analyzer; with the expander, any desired portion of the energy spectrum can be observed. Amplitude spectra of tritons, α -particles, and neutrons were obtained for bombarding energies up to 3.2 Mev. De-

UDC: 539.1.074.5

Card 1/2

PROTOPOPOV, Vladimir Pavlovich; ZHELEZNAYA, T., red.; ZELENKOVA, Ye.,
tekh.red.

[Heating furnaces] Pechnye raboty. Kiev, Gos.izd-vo lit-ry po
stroit. i arkhit.USSR, 1961. 125 p. (MIRA 14:6)
(Furnaces)

PROTOPOPOV, Viktor Pavlovich, 1880-1957

[Selected works] Izbrannye trudy. Kiev, Izd-vo AN USSR,
1961. 557 p. (MIRA 17:2)

Prilozhenie

STEFANOV, G.V.; PROTOPOPOV, V.P.

Sinking reinforced concrete wells using hydraulic earth removal
with the aid of centrifugal pumps. Rats. i izobr. predl. v stroi.
no.3:115-117 '57. (MIRA 11:1)
(Wells) (Centrifugal pumps) (Excavation)

PROTOPOPOV, V. P.

DECEASED 1957

see ILC

Psychiatry
Physiology.

ПРОТОПОВ, В. П.

USSR (600)

Technology

Minimum technical knowledge for furnace-man. Kyiv, Derzh, vyd-vo tekhn. lit-ry. 1950.

Monthly List of Russian Accessions, Library of Congress, June 1952, Unclassified.

PROTOPOPOV, V.P. (Kiyev)

Determining the efficiency of heating stoves. Vod.i san.tekh.
no.7:23-26 J1 '57. (MIRA 10:11)

(Stoves)

PHOTOPOPOV, V.P. (Kiyev)

The GOST 3000-45 method of testing heating stoves needs a revision.
Vod. i san. tekhn. no.12:24-26 D '58. (MIRA 11:12)
(Stoves--Testing)

S/137/61/000/011/023/123
AC60/A101

AUTHOR: Protopopov, V. S.

TITLE: Peculiarities of the operation of high-tonnage open-hearth furnaces

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 11, 1961, 37 - 38, abstract 11V225 (V sb.: "Novoye v teorii i praktike proiz-va martenovsk. stali". Moscow, Metallurgizdat, 1961, 249 - 252. Discuss. 332 - 334)

TEXT: Described is operation of two-trough open-hearth furnaces of KMK operating on low-manganese pig iron. The main characteristics of the furnaces are presented. The furnaces are heated by a mixture of coke and producer gases (75% of all furnaces) and by a mixture of coke and blast-furnace gases with tar carburation of the burners. The productivity of two-trough furnaces heated by a mixture containing producer gas is 5% higher for the actual time than that of the same furnace heated by a mixture of coke and blast-furnace gases only. The reference fuel expenditure for the smelting time taking into account the losses of (25% of the coal in the course of gasification is 111.2 and 107.5 kg, and in one-trough furnaces - 151.5 kg. The durability of the crown in two-trough furnaces is 15 - 20% lower than that in small furnaces, and the durability of the hearth

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is higher. The down-time of large furnaces for hot and cold repairs for 1956 constituted 6.88% and that for small furnaces - 7.38%. A comparative investigation was carried out for the quality of the metal smelted in one-trough furnaces and two-trough furnaces in the grades: axle, 10tp, 20tp, 20X, 40X, 40XH (10tr, 20tr, 20Kh, 40Kh, 40KhN) and others. It was concluded thence that the smelting of alloy grades in large furnaces is possible and represents no difficulty. The degree of reduction does not deteriorate, the steel is obtained with low O₂ content (0.002 - 0.005%). The steel 20Kh and 40Kh smelted in large furnaces have a compact grain structure. The mechanical characteristics are considerably higher than those demanded by the technical conditions. There is no metal spoilage from the liquation square and no spongy centers. The quantity of nonmetallic impurities is practically the same (0.005 - 0.006%). The ingot surface in both cases is satisfactory but is somewhat worse in metal smelted in two-trough furnaces as result of the fact that the founding is carried out from the top directly from a large ladle. The total metal output is the same. The output of the first quality was lowered by 1.14% for steel 40Kh and by 0.24% for steel 20Kh on account of the surface deterioration. The unsatisfactory surface of the metal when poured from the top and the impossibility of intermediate dressing be-

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fore the rolling for finished grade make it impossible to produce axle steel in two-trough furnaces. The specific cost per 1 ton of steel produced in large furnaces in 1958 is lower by 5 rubles 64 kop. Compressed air is fed into the gas caissons through injector atomizers in all open-hearth furnaces in order to intensify the burning of the fuel. Since its pressure is low (2.5 - 3 atm) the quantity of injected atmospheric air is low (1.5 - 2.5 thous. m³/hr). At the present time an analogous feeding of high-pressure steam (9 - 10 atm) is being tried out in two furnaces. The steam ensures the sucking in of atmospheric air in the quantity of 6,000 m³/hr and besides, lowers the pressure of the gas mixture under the caisson by 5 - 6 mm water which is convenient for furnaces having producer gas.

Yu. Nechkin

[Abstracter's note: Complete translation]

Card 3/3

PROTOPOPOV, V.S., kand.tekhn.nauk

Tensiometric differential pressure gauge. Teploenergetika 10
no.1:92-93 Ja '63. (MIRA 16:1)

1. Moskóvskiy energeticheskiy institut.
(Tensiometers) (Pressure gauges)

PROTOPOPOV, V.S.

"Investigating the Resistance of Friction and the Coefficient of Wall Temperature Restoration During the Motion of a Gas Through a Circular Pipe at a High Subsonic Speed," by Doctor of Technical Sciences B. S. Petukhov, Candidate of Technical Sciences A. S. Sukomel and Engr V. S. Protopopov, Moscow Power Engineering Institute, Teploenergetika, No 3, Mar 57, pp 31-37

The article describes the method of investigating the resistance of friction and the coefficient of wall temperature restoration during the flow of air through a round tube at a high subsonic speed.

The authors present data on the coefficients of resistance and the restoration of temperature during stabilized motion and in the initial portion of the tube in a turbulent boundary layer.

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24,5200,21.1200

AUTHORS: Krasnoshchekov, Ye. A., Candidate of Technical Sciences,
and Protopopov, V. S., Engineer

TITLE: Heat Transfer in the Super-Critical Region During the
Flow of Carbon Dioxide and Water in Pipes

PERIODICAL: Teploenergetika, 1959, Nr 12, pp 26-30 (USSR)

ABSTRACT: There is increasing interest in heat exchange under
super-critical conditions. Published work indicates
that existing formulae for calculating heat exchange,
obtained under conditions far removed from the critical
region, are not valid in this region. Therefore, the
authors made an experimental investigation of local
heat exchange during turbulent flow of carbon dioxide
in a pipe in the super-critical region. The tests were
made with various heating conditions at pressures of
100 and 90 atms, using a uniformly-heated tube through
which the carbon dioxide was pumped, in a closed circuit.
The experimental equipment is briefly described and is
illustrated in Fig 1. The actual test section consisted
of thin-walled copper tube 6.70 mm internal diameter and
670 mm long, heated electrically. Arrangements were
provided to measure flow rates, temperatures and ✓

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pressures. During the course of the tests the mean calorimetric temperature of the carbon dioxide in the section, and the wall temperature, were varied from test to test in such a way as to reveal most clearly the influence on heat transfer of changes in the physical parameters, and in particular of the specific heat at constant pressure with temperature. There are three typical cases of change of specific heat across the tube section: (1) if the wall temperature is less than that corresponding to the maximum specific heat at the given pressure, the specific heat rises steadily from the centre of the flow to the wall; (2) if the mean calorimetric temperature is greater than that corresponding to the maximum specific heat, the specific heat of the liquid falls steadily from the nucleus of the flow to the centre; and (3) if the temperature of greatest specific heat lies between the mean temperature and the wall temperature, there is a maximum in the specific heat between the nucleus of flow and the walls.

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All three typical cases occurred in the tests. Forty five tests were made, of which 37 were at 100 atms and 8 at 90 atms. The Reynolds number ranged from 4×10^4 to 3×10^5 . Analysis of the experimental data throws light upon the nature of the changes in heat-transfer coefficient along the length of the tube. The changes correspond neither to the change in specific heat taken from the mean temperature of the liquid nor to that taken from the wall temperature, but to an effective specific heat which may be obtained from Eq (1). By way of example, experimental curves are plotted in Fig 2 for a test corresponding to the third case described above. In previous published work expression (2) has been recommended for calculations of heat transfer in the super-critical region, but it does not fit the present experimental results. The analysis of the results was therefore combined with that of data on heat transfer in water, in order to obtain more general and reliable relationships. Data relating to 360 experimental points were worked out. They included the present authors' 111 points obtained ✓

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with carbon dioxide, and data of the All-Union Thermo-Technical Institute and the Power Institute of the Academy of Sciences, USSR for water at pressures ranging from 227.5 to 280 atms. As was to be expected, the application to these data of formulae derived for conditions far removed from the critical gave a great scatter of results. However, experimental results for water and carbon dioxide at super-critical pressures are described by the usual formulae valid for turbulent flow below the critical region, provided that the wall temperature is appreciably less than that corresponding to the maximum specific heat. With this stipulation, the previously published expression (3) gives the least scatter of experimental points ($\pm 10\%$). The expression requires no further correction when the wall temperature is below the temperature corresponding to maximum specific heat, but in the other two typical cases of heat transfer the change in physical properties of the liquid across the section of the flow has greater effect. In these two cases the influence of the change in

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specific heat, viscosity and thermal conductivity can be allowed for to a first approximation by simple modifications of expression (4). This is illustrated in Fig 3, where the ratio of experimental values of the Nusselt criterion to those calculated by expression (4) are plotted as functions of the ratio of the specific heat given by Eq (1) to the specific heat corresponding to the mean temperature of the liquid. It is shown that experimental data on local heat-transfer during the heating of carbon dioxide and water in the super-critical region are satisfactorily described by three expressions. They correspond to the three conditions of change of specific heat across the section of flow, and are expressions (3), (5) and (6). Their ranges of validity are stated. Graphs of the experimental data and curves corresponding to the three expressions are plotted in Fig 4. It will be seen that 90% of the experimental points lie within $\pm 20\%$ of the recommended relationships. These relationships can therefore be used for heat exchange calculations during the heating of water and

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carbon dioxide in the super-critical region. If the changes of physical parameters across the section are small the formulae (3), (5) and (6) are reduced to the usual expression (4), which is valid for regions far removed from the critical. Further experimental work may indicate a need for more accurate expressions. There are 4 figures and 9 references, 5 of which are Soviet and 4 English.

ASSOCIATION: Moskovskiy energeticheskiy institut (Moscow Power
Institute)

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Card 6/6

KRASNOSHCHÉKOV, Ye.A., kand.tekhn.nauk; PROTOPOPOV, V.S., inzh.

Heat exchange during the flow of carbon dioxide and water
in the supercritical area of parameters of state. Teplo-
energetika 7 no.10:94 0 '60. (MIRA 14:9)
(Heat--Transmission)

PROTOPOPOV, V. S.

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KRASNOSHCHIEKOV, Ye. A.; KURAYEV, I. V.; PROTOPOPOV, V. S.; VON FEN

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Moscow Power Engineering Inst.

KURAYEVA, I.V.; PROTOPOPOV, V.S.

Second All-Union Conference on Heat and Mass Transfer.

Teplofiz. vys. temp. 2 no.4:654-655 J1-Ag '64. (MIRA 17:9)

L 12879-66 EWT(1)/EWP(m)/EWT(m)/ETC(F)/EPF(n)-2/EWG(m) ✓

ACC NR: AT6001349 IJP(c)/RPL JD/WH/JW/RM SOURCE CODE: UR/0000/65/0000

AUTHOR: Krasnoshchekov, Ye. A.; Protopopov, V. S.; Wang, Feng; Kurayeva, I. V. ✓

ORG: Moscow Power Engineering Institute (Moskovskyy energeticheskiy institut) ✓

TITLE: Experimental study of heat transfer in the supercritical region for carbon dioxide ✓

SOURCE: Teplo- i massoperenos. t. 1: Konvektivnyy teploobmen v odnorodnoy srede (Heat and mass transfer. v. 1: Convective heat exchange in a homogeneous medium). Minsk, Nauka i tekhnika, 1965, 32-39

TOPIC TAGS: heat transfer, heat transfer agent, carbon dioxide, heat exchanger, cooling

ABSTRACT: Since there is no published data available on the heat transfer of fluids at close to critical conditions, a study was made of the heat transfer in the turbulent flow of carbon dioxide at very high temperature gradients. The experiments were conducted in a steel tube with a 4.05 mm inner and a 5.0 mm outer diameter and a length of 51 d. The experiments were conducted with pressures of 785 — 981 n/m², mean fluid temperatures of 20 — 110C, temperature gradients up to 500C, and heat flux densities of 2.6 10⁶ w/m². Changes in the liquid and wall temperatures along the tube were plotted. The experimental data could be correlated with an accuracy of 1.5%

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±20% by use of the following formula:

$$Nu_l = Nu_0 \left(\frac{\rho_c}{\rho_l} \right)^{0.3} \left(\frac{c_p}{c_{p,l}} \right)^n /$$

$$n = 0,4 \text{ at } T_w/T_m \leq 1 \text{ or } T_l/T_m > 1,2;$$

$$n = n_1 = 0,22 + 0,18(T_w/T_m) \text{ at } 1 \leq T_w/T_m \leq 2,5;$$

$$n = n_1 + (5n_1 - 2)(1 - T_l/T_m) \text{ at } 1 \leq T_l/T_m \leq 1,2,$$

where Nu_l is the liquid Nusselt number; Nu_0 is the Nusselt number determined by a theoretical formula previously derived by B.S. Petuchov and V.V. Kirillov (Teplo-energetika, No 4, 1958); ρ , density; c_p , specific heat at constant pressure; T_m , temperature at which the heat capacity of the liquid has a maximum; T_w , wall temperature, and subscripts l and w refer to the condition of the liquid and the wall, respectively. The graphs showed that the wall temperature increases more sharply than the liquid temperature. At small heat flux densities and large mass flow rates, the wall temperature increases steadily as the liquid temperature increases, i.e., in the flow direction. However, at relatively large heat flux densities and small mass flow rates, the wall temperature increases up to the point where the liquid temperature equals the temperature at which the heat capacity is a maximum, then it decreases, and then, as the liquid temperature increases further, it increases again. Orig. art. has: 3 figures. [PV]

SUB CODE: 29 B SUBM DATE: 31Aug65/ ORIG REF: 006/ OTH REF: 003/ ATD PRESS:

4/83

Card 2/2 HLW

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ACC NR: AP6021216

SOURCE CODE: UR/0294/66/004/003/0389/0398

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TITLE: Experimental investigation of the heat exchange of carbon dioxide in a supercritical region at higher temperature gradients ^v _{v1}

SOURCE: Teplofizika vysokikh temperatur, v. 4, no. 3, 1966, 389-398

TOPIC TAGS: temperature gradient, heat loss, critical pressure, superhigh pressure, calorimetry

ABSTRACT: The results of experimental investigation of the heat loss of carbon dioxide in turbulent flow in pipes are presented. The study was conducted at supercritical pressures of 785 and 981 Newtons per cm² with heating of the fluids up to 500°C. A thermal flow density in the range of 2.6 Mwats/m² was used. Typical calorimetric temperature in a given point of the flow cross section, temperature of the inside wall of a conducting pipe, and heat flow are graphed and tabulated and the heat deposition coefficient is given. It is seen that wall temperature increases along the tube length more pronouncedly than the liquid temperature and the heat deposition coefficient drops correspondingly. The results are compared with theoretical values of the measured quantities as well as with the Nusselt number and the deviations are plotted in a series

UDC: 536.24:661.97

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