L 53651-65
ACCESSION NR: AP5010000 ENCLOSURE: 02

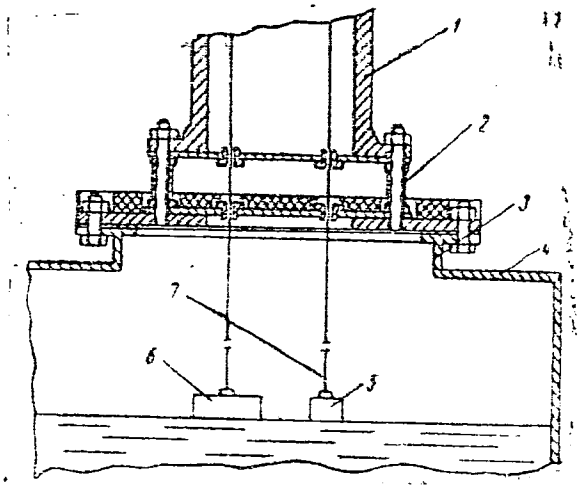


Fig. 2. Setup for UED-2 level gage on roof of tank, showing insulated stand
1- frame of level gage indicator; 2- insulated stand; 3- tra[illegible]
tank; 4- tank with liquid petroleum product; 5- counterweight; [illegible]

Card 4/4

BUTAKOV, D.; BOCHKOVA, V.; SHEVEL', I.; CHIZHOV, K.Ya., otv.red.; ROSHCHINA, L., red.; TELEGINA, T., tekhn.red.

[Finances of the people's democracies] Finansy stran narodnoi demokratii. Moskva, Gosfinizdat, 1959. 343 p. (MIRA 13:3)

1. Nauchno-issledovatel'skiy finansovyy institut (for Butakov, Bochkova, Shevel').
(Finance)

BURLAKOV, M.; BUTAKOV, D.; SHEVEL', I.

General characteristics and special features of the development of the banking system in the people's democracies. Den. i kred. 17 no.9:34-45 S '59. (MIRA 12:12)
(Banks and banking)

BUTAKOV, D.

The enterprise fund in European people's democracies. Fin.SSSR 21 no.5:86-91 My '60. (MIRA 13:7)
(Europe, Eastern--Industrial management)
(Europe, Eastern--Bonus system)

BOCHKOVA, V.; BUTAKOV, D.; BURLAKOV, M.; SHEVEL', I.; CHIZHOV, K.Ya.; ZABOROV, Ya., red. izd-va; POGODIN, Yu., red. izd-va; TELEGINA, T., tekhn. red.

[Banks and credit in the people's democracies] Banki i kredit v stranakh narodnoi demokratii. By V.I.Bochkova i dr. Moskva, Gosfinizdat, 1961. 323 p. (MIRA 14:11)
(Communist countries—Banks and banking)
(Communist countries—Credit)

DITLOV, D.

Problems of economic stimulation and the introduction of new technology in the industry of people's democracies. Vop. ekon. no. 2:130-142 F '61. (MIA 14:2)
(Europe, Eastern—Technological innovations)
(Europe, Eastern—Incentives in industry)

BUTAKOV, D.

Some problems in the theory of credit in the people's democracies. Den. i kred. 20 no.3:37-45 Mr '62. (MIRA 15:3)
(Czeshoclovakia--Credit) (Poland--Credit)

BUTAKOV, D.

Distribution and the utilization of profit in the industry of the European people's democracies. Fin.SSSR 37 no.2:82-89 F '63. (MIRA 16:2)

(Europe, Eastern--Profit)

D'YACHENKO, V.P., glav.red.; BACHURIN, A.V., kand. ekon. nauk, zam. glav. red.; GERASHCHENKO, V.S., kand. ekon. nauk, zam. glav. red.; ALEKSANDROV, A.M., doktor ekon. nauk, prof., red.; KISMAN, N.A., red.; LYUBIMOV, N.N., doktor ekon. nauk, prof., red.; PERESLEGIN, V.I., doktor ekon. nauk, prof., red.; USOSKIN, M.M., doktor ekon. nauk, prof., red.; BREGEL', E.Ya., doktor ekon. nauk, prof., red.; PLESHAKOV, S.Ye., red.; BUTAKOV, P.D., kand. ekon. nauk, red.; PODSHIVALENKO, P.P., red.; CHIZHOV, K.Ya., kand. ekon. nauk, red.; SHEMENEV, M.K., kand. ekon. nauk, red.; DARKOV, G.V., red.

[Financial and credit dictionary] Finansovo-kreditnyi slovar'. Chleny glav. red.: A.M.Aleksandrov i dr. Moskva, Finansy. Vol.2. M-IA. 1964. 688 p. (MIRA 17:9)

1. Chlen-korrespondent AN SSSR (for D'yachenko).

BUTAKOV, D. K.

"Research Methods for an Effective Mazut Torch," Stal', No. 3, 1948.

Engr., Ural Industrial Inst., -c1948-.

BUTAKOV, D. K.

Metod otsenki sklonnosti stali k obrazovaniiu goriachikh treshchin v otlivkakh. (Vestn. Mash., 1950, no. 12, p. 40-42)

Method of evaluating the tendency of steel castings to develop hot cracks.

DLC: TN4.V4

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library of Congress, 1953.

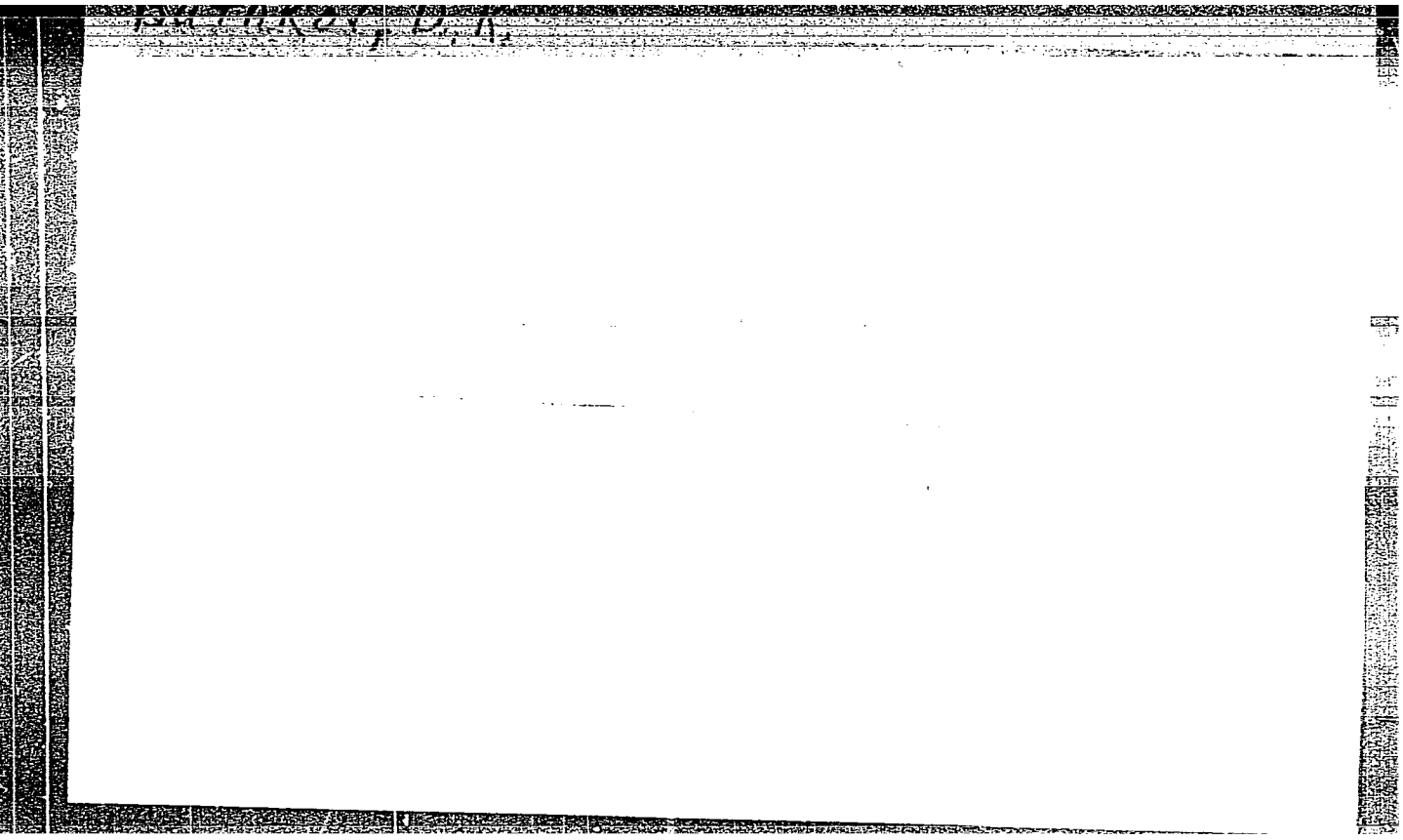
DEMAKOV,A.Ye.; KUZIN,R.P., laureat Stalinskoy premii, inzhener, redaktor; BUTAKOV,D.K., kandidat tekhnicheskikh nauk, retsenzent; DUGINA,N.A., tekhnicheskiy redaktor

[Methods for rapid high quality steel making] Skorostnoi metod kachestvennogo stalevareniia. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroitel'noi lit-ry, 1952. 41 p. [Microfilm] (MIRA 9:3)
(Steel industry)

BILYNSKIY, S.V.; BOGACHEV, I.I., professor, doktor tekhnicheskikh nauk, retsenzent; BUTAKOV, D.K., dotsent, kandidat tekhnicheskikh nauk, redaktor; SYRCHINA, M.M., inzhener, vedushchiy redaktor, redaktor literatury po goryachey obrabotke metallov.

[Investigation of cast and forged steel] Issledovanie litoi i kovanoi stali. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1952. 210 p. [Microfilm] (MLRA 7:10)

1. Uralo-Sibirskoye otdeleniye Mashgiza (for Syrchina).
(Steel)



APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000307720016-5"

Translation from: Referativnyy zhurnal, Metallurgiya, 1957, Nr 6, p 217 (USSR) SOV/137-57-6-10920

AUTHOR: Butakov, D.K.

TITLE: Granulation in Steel (Granulyatsiya stali)

PERIODICAL: V sb.: Probl. metalloved. i term. obrabotok. Moscow-Sverdlovsk, Mashgiz, 1956, pp 23-30

ABSTRACT: A critical review of data on the appearance of the primary austenite grain upon cooling of the cast dendritic structure after solidification. A classification of steels in accordance with their granular structure is presented, and problems of the growth and crumbling of the dendritic crystals and of the stability of the granulation structure are examined. Bibliography: 15 references.

A. F.

Card 1/1

Translation from: Referativnyy zhurnal. Metallurgiya, 1957, Nr 1, p 181 (USSR) SOV/137-57-1-1370

AUTHOR: Butakov, D. K.

TITLE: Special Properties of the Structure of Cast High-carbon Steel (Osobennosti struktury vysokouglerodistoy litoy stali)

PERIODICAL: V sb.: Vopr. teorii i praktiki liteyn. proiz-va. Moscow-Sverdlovsk, Mashgiz, 1956, pp 117-124

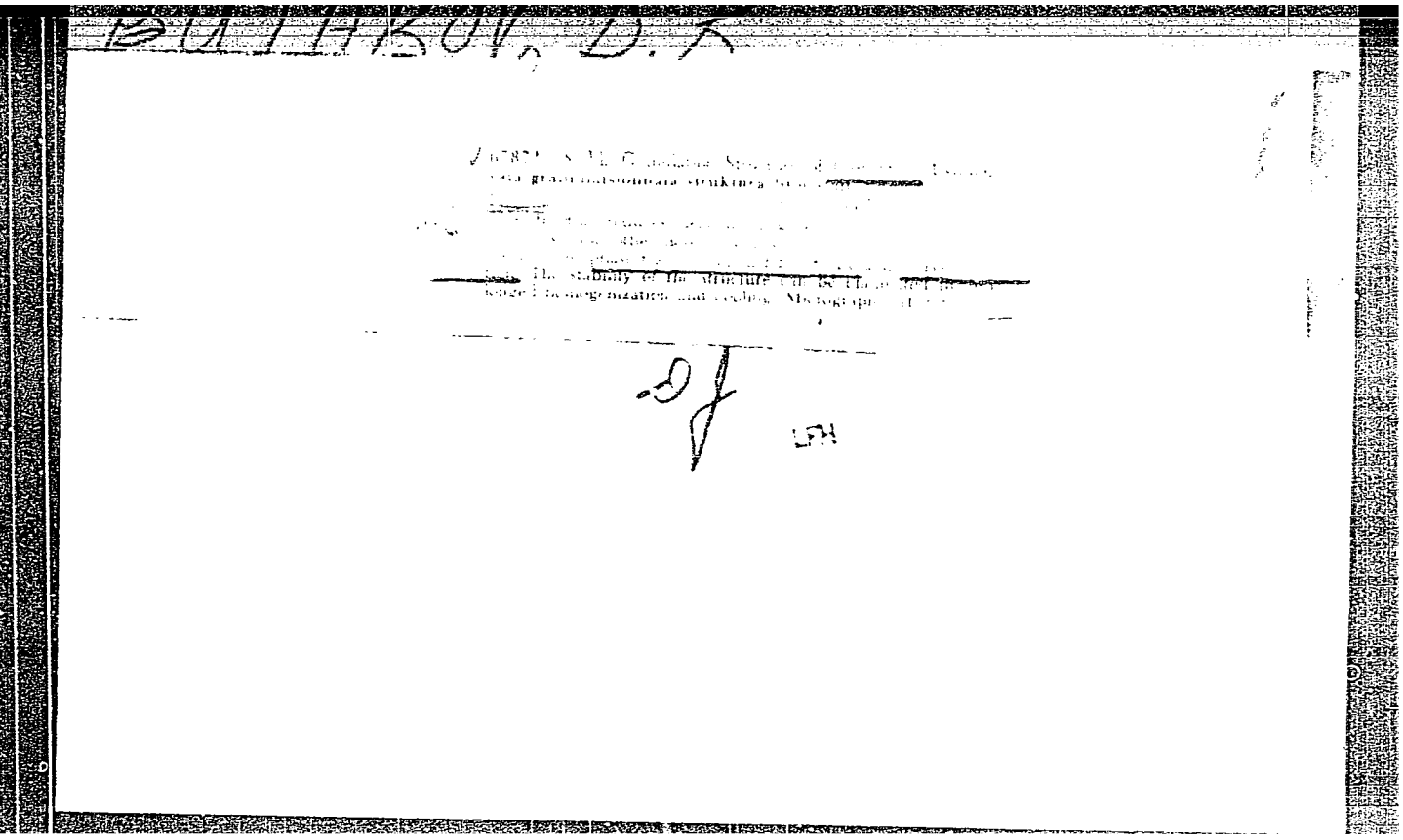
ABSTRACT: The author investigated the composition and macro- and microstructure of basic electric-furnace steel containing (in %): C 0.74, Mn 0.6, Si 0.26, P 0.025, S 0.015, Cr 0.26, and Ni 0.18; the steel was cast in fireclay tubes into ingots 60 mm in diam and 300 mm long. In order to increase the stability of the grain structure 0.2% of Al in wire form was introduced into two melts. In order to investigate the structure, specimens were cut out of the ingots after annealing at 650°C. The authors studied the structure of the fracture of the specimens at normal and elevated temperatures. Specimens to be tested for macrostructure were etched with the Oberhoffer reagent. The structure of all the castings consists of dendritic crystallites of various types oriented towards the interior

Card 1/2

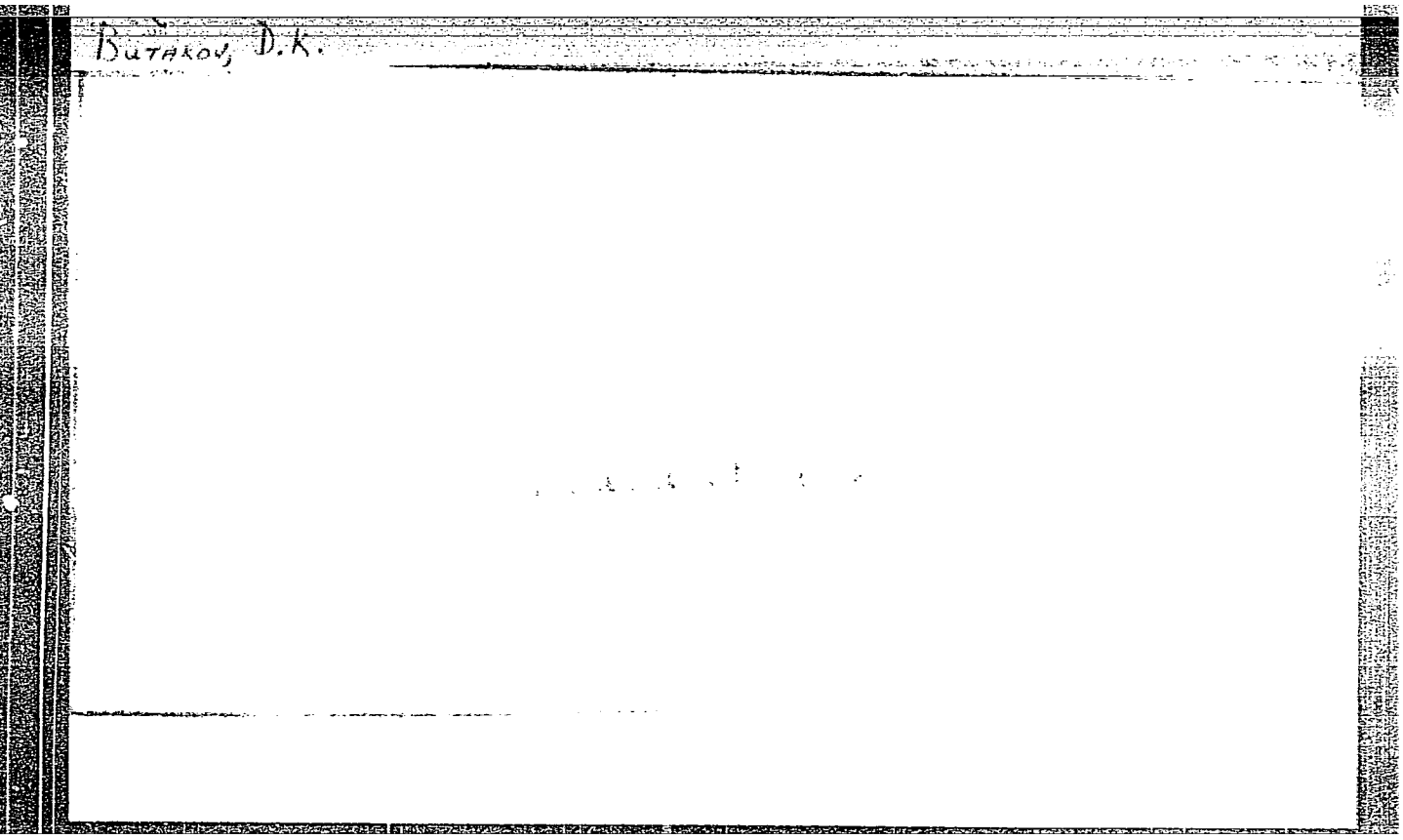
Special Properties of the Structure of Cast High-carbon Steel

along the periphery of the ingots. One of the intermediate stages of the growth of the dendrites is the formation of "planes" which issue from the main axis of the dendrite and consist of axes of the first order directed in two opposite senses along the planes of symmetry of the octahedron. After etching with picric acid all the microsections exhibited a lamellar pearlitic structure. High-temperature annealing (1200°C) with subsequent rapid cooling renders the coarse-grain boundaries impervious to attack by a strong reagent. The results of the investigation confirm the hypothesis of the formation of a stable grain structure through diffusion. See also RZhMet, 1956, Nr 9, abstract 9336.

A. F.



BULLARD, D. E.



APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000307720016-5"

BUTAKOV, D.K.

"Concerning Hard Steel Non-Metallic Inclusions in Connection With Smelting Process,"
lecture given at the Fourth Conference on Steelmaking, A.A. Baikov Institute of Metallurgy, Moscow, July 1-6, 1957

Butakov, D.K.

137-1958-2-2485

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 2. p 42 (USSR)

AUTHOR: Butakov, D. K.

TITLE: The Granular Structure of Cast Steel; the Causes and Consequences of its Stability (Granulyatsionnaya struktura litoy stali, prichiny i posledstviya yeye ustoychivosti)

PERIODICAL: V sb.: Fiz.-khim. osnovy proiz-va stali. Moscow, AN SSSR, 1957, pp 718-725. Diskus., pp 781-791

ABSTRACT: The granular structure of cast steel, which occurs as a result of the phase conversion of δ Fe into γ Fe, possesses its own stable form, which is characterized by an intergranular breaking of the cast steel after quenching followed by high-temperature tempering and reduced plastic qualities. The stability of the granular structure is accounted for by the concentration of finely dispersed nonmetallic substances along the boundaries of the primary grains. These substances, which are soluble in γ Fe, are sulfur compounds of Fe and Mn, also a nitride of Al. Such stable granular structure is conducive to various kinds of casting defects and defects in ingots and in forged and rolled products. The castings tend to develop cold cracks and greater brittleness. It is noted that electric steel is more

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The Granular Structure of Cast Steel (cont.)

inclined to form a stable granular structure than is open-hearth steel. The formation of the granular structure depends on the conditions under which the steel is smelted and poured, namely: lengthy exposures under deoxidizing slag, the advection of air into the furnace, the use of Al, excessive deoxidation (in an electric furnace) and low carbon-burning speeds, superheating the metal (in an open-hearth furnace), a low sulfur content, treating the steel in the ladle with solid fluxes and molten synthetic slags, and a reduced speed at which the superheated metal is poured cut down the formation of the stable granular structure. A procedure is recommended for smelting steel in electric furnaces.

V.N.

1. Steel--Structural--Analysis

Card 2/2

Butakov, D. K.

AUTHOR: Butakov, D. K. 126-1-23/40

TITLE: On the problem of sulphide inclusions in cast steel. (K voprosu o sul'fidnykh vklyucheniyakh v litoy stali).

PERIODICAL: Fizika Metallov i Metallovedeniye, 1957, Vol.5, No.1, pp. 154-160 (USSR)

ABSTRACT: Study of the diagram of state of Fe-S alloys with very low sulphur contents shows that in all alloys which are completely solidified in the form of solid solutions with sulphur contents of 0.012 to 0.18%, a liquid phase will again occur during cooling below 1365°C which becomes continuously enriched with sulphur. A sharp change of the solubility of sulphur in iron takes place during phase transformations. The limit solubility of sulphur in δ-iron equals 0.18% at 1365°C, whilst only 0.06% dissolves in γ-iron at the same temperature. With decreasing temperature, for instance at 913°C, the solubility decreases to 0.007%. After transformation of the γ-iron into α-iron, the limit solubility of sulphur increases to 0.02% at 913°C. Manganese reduces appreciably the sulphur content in the solid solutions of iron and there is no doubt that Al, C and other elements also

Card 1/4 influence the solubility of sulphur in the iron but there

On the problem of sulphide inclusions in cast steel. 126-1-23/40

are no experimental data on this problem. The experiments described in this paper have the following limited aims: determination of the type and distribution of sulphur inclusions in cast steel relative to the dendritic and the granulation structures; evaluation of the influence of the sulphur on the stability of the granulation structure. Three experimental melts of Cr-Ni steels were produced in magnesite crucibles of 650 g capacity in high frequency induction furnaces using the same charge. The steel compositions varied between the following limits: 0.81-1.05% Cr, 2.20-2.23% Ni, 0.16-0.45% Si, 0.42-0.50% Mn, 0.025-0.032% P. The carbon content was varied by means of pig-iron additions, whilst the sulphur content was varied by adding ferro-sulphide. The change in the carbon content aimed at obtaining various granulation structures, one steel contained 0.19% C and by slow cooling of the ingot a characteristic development of the structure of the primary austenite grains was obtained. The steels of the two other melts contained 0.33 and 0.31% C respectively and the structure of the primary austenite grains coincided with the structure of the grains of the

Card 2/4

On the problem of sulphide inclusions in cast steel. 126-1-23/40

primary crystallisation. The sulphur contents were 0.045%, 0.140% and 0.014% respectively. Heating of the steel, its crystallisation and cooling of the ingots inside the inductors was controlled by platinum-platinum/rhodium thermocouples inside a quartz sheathing which was submerged into the steel after terminating the melting. During cooling isothermal annealing was effected at the temperatures 1300 to 1250°C for a duration of one hour. For this purpose the inductor was alternately switched on and switched off. Then the ingots were transferred into a muffle furnace which was heated to 1250°C and after equalising the temperature the heat was switched off and the ingots were cooled slowly together with the furnace. The applied regime of cooling ensured obtaining a ferrite-pearlite structure of the steel. The ingots were then cut into two halves along the vertical axis, one half was used for preparing specimens for macro and micro investigations, the other was hardened in oil from 900°C and tempered at 600°C followed by quenching in water. The heat treated parts of the ingots were then fractured by means of an hydraulic press. Bauman patterns and photos of the fracture are

Card 3/4

On the problem of sulphide inclusions in cast steel. 126-1-23/40

reproduced and evaluated. It is concluded that for liquidating the stability of the granulation structures produced by sulphides it is necessary to reduce to the minimum the contents of sulphur in the liquid steel; to reduce the solubility of sulphur in the austenite and to change the physico-chemical properties of the sulphide phase by introducing into the steel elements similar to those of manganese and aluminium and to eliminate "secondary" sulphides from the grain boundaries or bring about their coalescence by means of heat treatment. For the conditions of the here described investigations no stable granulation structure was observed for a sulphur content of 0.014%, whilst a sulphur content of 0.045% proved adequate for the appearance of sections of intergranular disruption in the fracture of the respective specimens.

Card 4/4

There are 6 figures and 14 references, 9 of which are Slavic.

SUBMITTED: November 2, 1956.

ASSOCIATION: Ural Polytechnical Institute imeni S. M. Kirov. (Ural'skiy Politekhnicheskiy Institut imeni S. M. Kirova).

AVAILABLE: Library of Congress.

BUTAKOV, D.K.

DUBROV, N.F., kand. tekhn. nauk; MIKHAYLOV, O.A., kand. tekhn. nauk; FEL'DMAN, I.A.; DANILOV, A.M.; SOROKIN, P.Ya., kand. tekhn. nauk, starshiy nauchnyy sotrudnik; BUTAKOV, D.K., kand. tekhn. nauk, dots.; SOYFER, V.M.; LATASH, Yu.V., mladshiy nauchnyy sotrudnik; ZAMOTAYEV, S.P.; BEYTEL'MAN, A.I.; SAPKO, A.I.; PETUKHOV, G.K., kand. tekhn. nauk; YEDNERAL, F.P., kand. tekhn. nauk, dots.; LAPOTYSHKIN, N.M., kand. tekhn. nauk, starshiy nauchnyy sotrudnik; ROZIN, R.M.; NOVIK, L.M., kand. tekhn. nauk, starshiy nauchnyy sotrudnik; LAVRENT'YEV, B.A.; SHILYAYEV, B.A.; SHUTKIN, N.I.; GNUCHEV, S.A., kand. tekhn. nauk, starshiy nauchnyy sotrudnik; LYUDEMAN, K.F., doktor-inzh., prof.; GRUZIN, V.G., kand. tekhn. nauk; BARIN, S.Ya.; POLYAKOV, A.Yu., kand. tekhn. nauk; FEDCHENKO, A.I.; AGEYEV, P.Ya., prof., doktor; SAMARIN, A.M.; BOKSHITSKIY, Ya.M., kand. tekhn. nauk; GARNYK, G.A., kand. tekhn. nauk; MARKARYANTS, A.A., kand. tekhn. nauk; KRAMAROV, A.D., prof., doktor tekhn. nauk; TEDER, L.I.; DANILOV, P.M.

Discussions. Biul. TSNIICHM no.18/19:69-105 '57. (MIRA 11:4)

1. Direktor Ural'skogo instituta chernykh metallov (for Dubrov). 2. Direktor TSentral'nogo instituta informatsii chernoy metallurgii (for Mikhaylov). 3. Nachal'nik nauchno-issledovatel'skogo otdela osobogo konstruktorskogo byuro tresta "Elektropech'" (for Fel'dman). 4. Nachal'nik martenovskoy laboratorii Zlatoustovskogo metallurgicheskogo zavoda (for Danilov, A.M.). 5. Laboratoriya protsessov stalevareniya Instituta metallurgii Ural'skogo filiala AN SSSR (for Sorokin).

DUBROV, N.F.---(continued) Card 2.
6. Ural'skiy politekhnicheskiy institut (for Butakov). 7. Starshiy inzhener Bryanskogo mashinostroitel'nogo zavoda (for Soyfer). 8. Institut elektrosvarki im. Patona AN URRS (for Latash). 9. Nachal'nik TSentral'noy zavodskoy laboratorii "Uralmashzavoda" (for Zamotayev). 10. Dnepropetrovskiy metallurgicheskiy institut (for Sapko). 11. Moskovskiy institut stali (for Yedneral). 12. TSentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii (for Gnuchev, Lapotyshkin). 13. Starshiy master Leningradskogo zavoda im. Kirova (for Rosin). 14. Institut metallurgii im. Baykova AN SSSR (for Novik, Polyakov, Garnyk). 15. Nachal'nik tekhnicheskogo otdela zavoda "Bol'shevik" (for Lavrent'yev). 16. Starshiy inzhener tekhnicheskogo otdela Glavspetsstali Ministerstva chernoy metallurgii (for Shilyayev). 17. Zamestitel' nachal'nika tekhnicheskogo otdela zavoda "Elektrostal'" (for Shutkin). 18. Freybergskaya gornaya akademiya, Germanskaya Demokraticheskaya Respublika (for Lyudeman). 19. Zaveduyushchiy laboratoriyey stal'nogo lit'va TSentral'nogo nauchno-issledovatel'skogo instituta tekhnologii i mashinostroyeniya (for Gruzin). 20. Starshiy master elektrostaleplavil'nykh pechey Uralvagonzavoda (for Barin). 21. Zamestitel' nachal'nika elektrostaleplavil'nogo tsekha zavoda "Sibelektrostal'" (for Fedchenko). 22. Zaveduyushchiy kafedroy metallurgii stali i elektrometallurgii chernykh metallov Leningradskogo politekhnicheskogo instituta (for Ageyev). 23. Zamestitel' direktora Instituta metallurgii im. Baykova AN SSSR, chlen-korrespondent AN SSSR (for Samarin).

(Continued on next card)

DUBROV, N.F.---(continued) Card 3.
24. Nachal'nik laboratorii TSentral'nogo nauchno-issledovatel'skogo instituta chernoy metallurgii (for Bokshitskiy). 25. Zaveduyushchiy kafedroy elektrometallurgii Sibirskogo metallurgicheskogo instituta (for Kramarov). 26. Nachal'nik elektrostaleplavil'nogo tsekha Kuznetskogo metallurgicheskogo kombinata (for Tedor). 27. Nachal'nik elektrometallurgicheskoy laboratorii Kuznetskogo metallurgicheskogo kombinata (for Danilov, P.M.).
(Steel--Metallurgy)

BUTAKOV, D. K., MELNIKOV, L. M., and EROYDO, M. Ya.

"Investigation of the Vacuum Treatment of Cast Steel for the Cast-Shapes."

paper presented at Second Symposium on the Application of Vacuum Metallurgy.

Moscow, 1-6 July 1958

SOV/137-58-10-20558

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 10, p 30 (USSR)

AUTHORS: Kurochkin, K.T., Butakov, D.K., Umrikhin, P.V., Baum, B.A.

TITLE: Change in Hydrogen and Nitrogen Contents in the Smelting of High-alloy Chromium-nickel-molybdenum Steel by the Basic Open-hearth Process (Izmeneniye soderzhaniya vodoroda i azota pri vyplavke vysokolegirovannoy khromonikelemolibdenovoy stali osnovnym martenovskim protsessom)

PERIODICAL: Izv. vyssh. uchebn. zavedeniy. Chernaya metallurgiya, 1958, Nr 1, pp 34-40

ABSTRACT: Experimental heats (He) are run in 30, 45, and 65-t open-hearth furnaces. [H] is determined from pre-hardened samples by the method of the Department of Steel Metallurgy of the Urals Polytechnic Institute, while [N] was determined by the method of dissolution. As a rule, [H] rises during the He and, for example, is 3.96 $cm^3/100$ g fusion, on the average, for a 30-t furnace, while it is 4.05 at the onset of pure boil and 7.20 $cm^3/100$ g prior to deoxidation. As the metal temperature rises, [H] in the He and the ladle also increases. The minimum [H] is observed at a slag basicity (CaO %/SiO_2 %) of

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SOV/137-58-10-20558

Change in Hydrogen and Nitrogen Contents (cont.)

3.1-3.5. As [C] rises, [H] diminishes. The [N] diminishes in the course of the He, increases after deoxidation and during pouring, and in a 30-t furnace comes to 0.00327% upon fusion, 0.00258% at the start of pure boil, and 0.00224 and 0.00264% prior to and after deoxidation, respectively.

A.S.

1. Steel--Production 2. Steel--Properties 3. Hydrogen--Effectiveness
4. Nitrogen--Effectiveness

Association — Ural'skiy politekhnicheskiy institut imeni S.M. Kirova

Card 2/2

AUTHOR: Butakov, D. K. 133-58-5-23/31

TITLE: The Influence of Aluminium Nitride on the Quality of Cast Steel (Vliyaniye nitrida alyuminiya na kachestvo litoy stali)

PERIODICAL: Stal', 1958, Nr 5, pp 457-463 (USSR)

ABSTRACT: The work was carried out in order: a) to obtain a direct confirmation of the role of aluminium nitride in brittle fracture of cast steel; b) to explain the influence of the microstructure and fracture of ingots of nitrogen and aluminium separately and c) to establish the influence of cooling velocity, high temperature annealing and forging process on the separation of aluminium nitride. In order to confirm the role of aluminium nitride in the formation of a stable granular structure, a method of vacuo melting in the controlled medium of argon and nitrogen was used. The laboratory apparatus is shown in Figs. 1 and 2. The experimental procedure is described in some detail. The charge was made from pure electrolytic iron (.005% C, .002% S, .006% P, .06% Cu and traces of Si, Mn, Cr and Al). Heat treated ingots (200 g) were cut in half using one half for macro and

Card 1/3

The Influence of Aluminium Nitride on the Quality of Cast Steel

microstructural investigation and the other half for the study of fracture. Some experiments were also carried out in an ordinary high frequency furnace (30 kg) in order to determine the influence of nitrogen dissolved in steel from air. Heats were carried out according to three different procedures, the charges for all heats consisted of the same materials. The first heat was done in the usual manner, the metal of the second and third heats were blown with air for four minutes before tapping, whereupon ferro-titanium was added to the third heat (0.1% Ti). In all heats 0.15% of aluminium was introduced. The composition of metal from the above three heats - Table 1. The structure of fractures from all experimental heats are shown in Figs. 3 to 10. The comparison of results of tests of forgings and castings on impact strength - Table 2. Conclusions:

1. Experiments of smelting steel in vacuo from pure materials confirmed that one of the causes of brittle (intercrystalline) fracture of cast steel is the separation of aluminium nitride along the boundaries of primary austenitic grains.

The Influence of Aluminium Nitride on the Quality of Cast Steel

2. For the removal of delatorious effects of the separation of aluminium nitride it is necessary to limit the content of nitrogen and aluminium in steel, mainly by using a correct slag practice at which a good isolation of metal from the furnace atmosphere can be obtained they should have a low gas permeability.
3. Rapid cooling and homogenation of cast steel as well as its forging and rolling decrease considerably the delatorious effects of separation of aluminium nitride.
There are 2 tables, 10 figures and 8 references, 5 of which are Soviet, 3 English.

ASSOCIATION: Ural'skiy politekhnicheskiy institut
(Ural Polytechnical Institute)

Butakov. D.K

128-58-6-7/17

AUTHOR: Butakov, D.K., Candidate of Technical Sciences

TITLE: Intergranular Cracks in Steel Castings (Mezhzernistyye treshchiny v stal'nykh otlivkakh)

PERIODICAL: Liteynoye Proizvodstvo, 1958, Nr 6, pp 20-22 (USSR)

ABSTRACT: Technical literature and foundry practice specify cracks formed in solidifying metal as "hot" and "cold". The latter, often called "thermal cracks", is possible at relatively high temperatures. The author considers it advisable to extend the classification of cracks and make it more precise. He analyzes the types of inner cracks, outer cracks, and flakes in steel, and suggests - the classification of cracks (as shown in chart, p 20), according to cause of formation and their structure. As an example of crack causes, is an experiment on steel de-oxidized by aluminum in such quantity (0.15% of the weight of the castings) as to assure the formation of cracks. After deep-etching of the microsections, there were revealed non-metallic inclusions located like strings of pearls in the fields of ferrite crystallized along the borders of steel grains (Figure 3). The inclusions proved to be aluminum

Card 1/2

Intergranular Cracks in Steel Castings 128-58-6-7/17

nitrides. There are 9 photographs, 1 table and 7 references, 6 of which are Soviet, and 1 English.

AVAILABLE: Library of Congress

Card 2/2 1. Steel castings-Defects 2. Steel castings-Fracture

BUTAKOV, D.K., dots., kand.tekhn.nauk

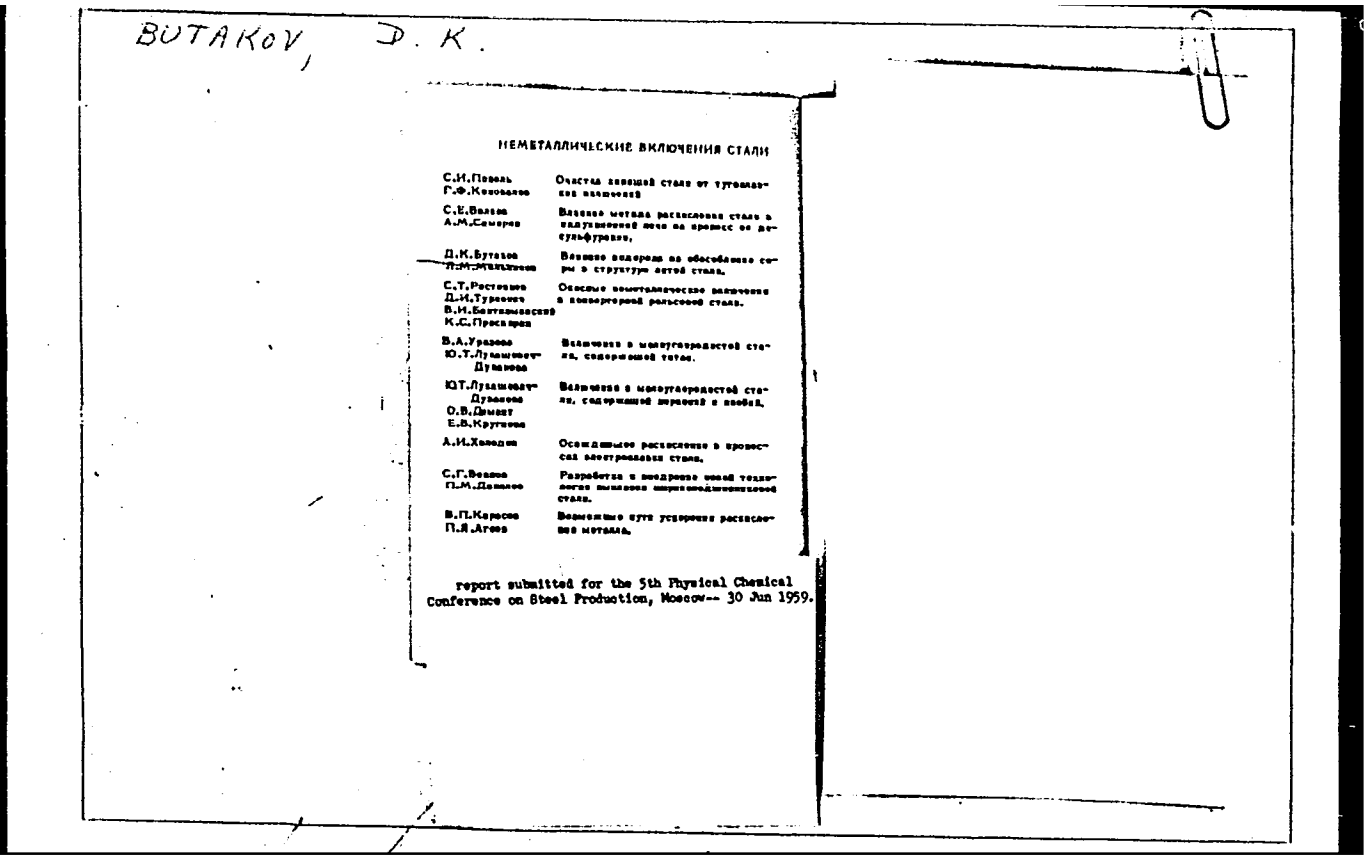
Columnar structure and its effect on the mechanical properties of cast steel. Izv.vys.ucheb.zav.; chern.met. no.10:43-49 O '58.
(MIRA 11:12)

1. Ural'skiy politekhnicheskiy institut.
(Steel--Metallorgraphy) (Steel castings--Testing)

BUTAKOV, D.K.

Nonmetallic inclusions as cause of intergranular failure of castings. Trudy Ural.politekh.inst. 73:187-197 '58. (MIRA 12:8)

(Steel castings--Defects)



BUTAKOV, D. K.

НЕМЕТАЛЛИЧЕСКИЕ ВКЛЮЧЕНИЯ СТАЛИ

С.И.Попель Г.Ф.Комаров	Очистка жидкой стали от тугоплавких включений
С.Е.Вялов А.М.Самарин	Влияние метода раскисления стали в вакуумированной печи на процесс ее десульфурации.
Д.К.Бутаков Л.М.Мильман	Влияние водорода на обособление серы в структуре литой стали.
С.Т.Ростовцев Д.И.Туровцев В.И.Бахтинов К.С.Прокаров	Основные неметаллические включения в мартеновской рельсовой стали.
В.А.Уразов Ю.Т.Лукашевич-Дуванова	Включения в малоуглеродистой стали, содержащей титан.
Ю.Т.Лукашевич-Дуванова О.В.Дымент Е.В.Крутикова	Включения в малоуглеродистой стали, содержащей марганец и кобальт.
А.И.Хомяков	Осаждающее раскисление в процессе электроплавки стали.
С.Г.Волков П.М.Домнин	Разработка и внедрение новой технологии выплавки марганецсодержащей стали.
В.П.Карасев П.Я.Агеев	Возможные пути ускорения раскисления металла.

report submitted for the 5th Physical Chemical Conference on Steel Production, Moscow-- 30 Jun 1959.

A. T., Kol. V. K.

MINAYEV, Anatoliy Nikolayevich, kand.tekhn.nauk; SHIPILIN, Boris Il'ich, inzh.; TELEGIN, A.S., kand.tekhn.nauk; LEVCHENKO, P.V., kand. tekhn.nauk; SOKOLOV, K.N., kand.tekhn.nauk; SHAVEL'ZON, M.V., inzhener; MINAYEV, A.N., kand.tekhn.nauk; YAROSHENKO, Yu.G., kand.tekhn.nauk; GORSHKOV, A.A., doktor tekhn.nauk, retsenzent; DUBITSKIY, G.M., kand.tekhn.nauk, obshchiy red.; BUTAKOV, D.K., kand.tekhn.nauk, red.; KSENOFONTOV, B.M., kand. tekhn.nauk, red.; PORUCHIKOV, Yu.P., kand.tekhn.nauk, red.; DUGINA, N.A., tekhn.red.

[Cupola furnaces and drying chambers] Liteinye pechi i sushila. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1959. 472 p. (MIRA 12:6)

1. Kafedra liteynogo proizvodstva Ural'skogo politekhnicheskogo instituta (for Gorshkov, Telegin). 2. Chlen-korrespondent AN USSR (for Gorshkov).

(Foundry machinery and supplies)

KUROCHKIN, K.T., kand.tekhn.nauk, dots.; UMRIKHIN, P.V., doktor tekhn. nauk, prof.; BOGATENKOV, V.F., inzh.; BUTAKOV, D.K., kand. tekhn.nauk, dots.; BAUM, B.A., inzh.

Answer to N.S.Mikhailets. Izv.vys.ucheb.zav.; chern.met. 2 no.7:147-151 Jl '59. (MIRA 13:2)

1. Ural'skiy politekhnicheskiy institut.
(Metals--Hydrogen content)

BUTAKOV, D.K., kand.tekhn.nauk

Structure and fracture of cast steel. Trudy Ural.politekh.inst. no.89:140-150 '59. (MIRA 12:8)
(Steel castings--Testing) (Steel--Metallography)

BUTAKOV, D.K., kand.tekhn.nauk

Investigating causes of brittle failure in castings. Trudy Ural.politekh.inst. no.89:151-153 '59. (MIRA 12:8)
(Steel--Brittleness) (Steel castings--Testing)

BUTAKOV, D.K., dotsent, kand.tekhn.nauk

Improving the quality of castings by treating the steel with solid fluxes. Trudy Ural. politekh.inst. no.91:56-67 '60. (MIRA 14:2)
(Steel--Metallurgy) (Steel castings)

BUTAKOV, D.K., dotsent, kand.tekhn.nauk

Improving the quality of castings by treating the steel in the ladle by liquid synthetic slags. Trudy Ural. politekh.inst. no.91:68-83 '60. (MIRA 14:2)

(Steel--Metallurgy) (Steel castings)

BUTAKOV, D. K.

SJ

PHASE I BOOK EXPLOITATION SOV/5556

Moscow. Institut stali.

Novoye v teorii i praktike proizvodstva martenovskoy stali (New [Developments] in the Theory and Practice of Open-Hearth Steelmaking) Moscow, Metallurgizdat, 1961. 439 p. (Series: Trudy Mezhvuzovskogo nauchnogo soveshchaniya) 2,150 copies printed.

Sponsoring Agency: Ministerstvo vysshego i srednego spetsial'nogo obrazovaniya RSFSR. Moskovskiy institut stali imeni I. V. Stalina.

Eds.: M. A. Glinkov, Professor, Doctor of Technical Sciences, V. V. Kondakov, Professor, Doctor of Technical Sciences, V. A. Kudrin, Docent, Candidate of Technical Sciences, G. N. Oyks, Professor, Doctor of Technical Sciences, and V. I. Yavoyskiy, Professor, Doctor of Technical Sciences; Ed.: Ye. A. Borko; Ed. of Publishing House: N. D. Gromov; Tech. Ed.: A. I. Karasev.

PURPOSE: This collection of articles is intended for members of scientific institutions, faculty members of schools of higher education, engineers concerned with metallurgical processes and physical chemistry, and students specializing in these fields.

Card 1/14

New [Developments] in the Theory (Cont.) SOV/5556

COVERAGE: The collection contains papers reviewing the development of open-hearth steelmaking theory and practice. The papers, written by staff members of schools of higher education, scientific research institutes, and main laboratories of metallurgical plants, were presented and discussed at the Scientific Conference of Schools of Higher Education. The following topics are considered: the kinetics and mechanism of carbon oxidation; the process of slag formation in open-hearth furnaces using in the charge either ore-lime briquets or composite flux (the product of calcining the mixture of lime with bauxite); the behavior of hydrogen in the open-hearth bath; metal desulfurization processes; the control of the open-hearth thermal melting regime and its automation; heat-engineering problems in large-capacity furnaces; aerodynamic properties of fuel gases and their flow in the furnace combustion chamber; and the improvement of high-alloy steel quality through the utilization of vacuum and natural gases. The following persons took part in the discussion of the papers at the Conference: S.I. Filippov, V.A. Kudrin, M.A. Glinkov, B.P. Nam, V.I. Yavoyskiy, G.N. Oyks and Ye. V. Chelishchev (Moscow Steel Institute); Ye. A. Kazachkov and A. S. Kharitonov (Zhdanov Metallurgical Institute); N.S. Mikhaylets (Institute of Chemical Metallurgy of the Siberian Branch of the Academy of Sciences USSR); A.I. Stroganov and D. Ya. Povolotskiy (Chelyabinsk Polytechnic Institute); P.V. Umrikhin (Ural Polytechnic Institute); I.I. Fomin (the Moscow "Serp i molot" Metallurgical Plant); V.A. Fuklev (Central Asian Polytechnic Institute).

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and M.I. Beylinov (Night School of the Dneprodzerzhinsk Metallurgical Institute). References follow some of the articles. There are 268 references, mostly Soviet.

TABLE OF CONTENTS:

BUTAKOV, D.K.

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PHASE I BOOK EXPLOITATION SOV/5411

Konferentsiya po fiziko-khimicheskim osnovam proizvodstva stali. 5th, Moscow, 1959.

Fiziko-khimicheskiye osnovy proizvodstva stali; trudy konferentsii (Physicochemical Bases of Steel Making; Transactions of the Fifth Conference on the Physicochemical Bases of Steelmaking) Moscow, Metallurgizdat, 1961. 512 p. Errata slip inserted. 3,700 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut metallurgii imeni A. A. Baykova.

Responsible Ed.: A. M. Samarin, Corresponding Member, Academy of Sciences USSR; Ed. of Publishing House: Ya. D. Rozentsveyg. Tech. Ed.: V. V. Mikhaylova.

Card 1/16

Physicochemical Bases of (Cont.) SOV/5411

PURPOSE: This collection of articles is intended for engineers and technicians of metallurgical and machine-building plants, senior students of schools of higher education, staff members of design bureaus and planning institutes, and scientific research workers.

COVERAGE: The collection contains reports presented at the fifth annual convention devoted to the review of the physicochemical bases of the steelmaking process. These reports deal with problems of the mechanism and kinetics of reactions taking place in the molten metal in steelmaking furnaces. The following are also discussed: problems involved in the production of alloyed steel, the structure of the ingot, the mechanism of solidification, and the converter steelmaking process. The articles contain conclusions drawn from the results of experimental studies, and are accompanied by references of which most are Soviet.

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S/137/61/000/011/031/123
A060/A101

AUTHORS: Butakov, D.K., Mel'nikov, L.M.

TITLE: Improving steel quality by treating it in the ladles with solid fluxes and liquid slags

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 11, 1961, 62-63, abstract 11V364 (V sb. "Novoye v teorii i praktike proiz-va martenovsk.stali", Moscow, Metallurgizdat, 1961, 180-192, Discussion 193 - 201)

TEXT: The results are cited of the treatment of alloy steel for castings, using solid fluxes and slags. Carefully dried solid fluxes and slags were fed to the stream in one of the two ladles into which the metal was poured from the same furnace. The metal of the second ladle was reduced according to the usual method. Broken glass in the quantity of 0.9 and 2.4% by weight served as the acid flux. The basic flux was in the form of special slag, 2.1% by weight of the metal, or a mixture of ground materials (44% lime, 26% fluorspar, and 30% calcinated soda) in the quantity of 0.6% by weight of the metal. It was established that the non-metallic impurity and gas content in the steel varies as a function of the quantity of the metals used for the treatment and also of their preparation. Too great

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additions of solid materials into the ladle cool the metal thus increasing the nonmetallic impurity content. The admixture of solid materials into the ladle between the limits 0,6 - 1.0% by weight of the metal lowers the H content in the steel and improves the structure of the castings. The increase in the H content observed in a number of cases is explained by the adsorption of atmospheric moisture upon the surface of the lumps of added materials. The macrostructure of the steel castings treated with solid fluxes and slags becomes much finer and the zone of acicular dendritic cristals disappears altogether, however without an improvement of the mechanical characteristics of the steel. It is recommended that the method of treating the steel in the ladles with solid fluxes and slags be used to simplify the heat-treatment of castings made of alloy steel.

I. Polyak

[Abstracter's note: Complete translation]

S/148/62/000/008/007/009
E071/E483

AUTHORS: Butakov, D.K., Pan'shin, I.F., Startsev, V.A., Bershteyn, L.I.

TITLE: On the problem of intergranular cracking in steel castings

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Chernaya metallurgiya, no.8, 1962, 143-149

TEXT: The object of the present investigation was to establish the origin and significance of bright shiny areas observed on dull-grey fracture surfaces of test pieces, examined in the course of routine quality control of Cr-Ni-Mo steel castings. Examination of fracture surfaces of various test pieces, metallographic examination of micro- and macro-structure, and magnetic crack-detection tests made it possible to distinguish between two types of shiny zones: one representing the surface of shrinkage cavities, the other corresponding to regions where microscopic, intergranular cracks were present in the casting. The effect of the casting temperature, pouring rate, rate of cooling (as determined by the time interval during which the

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BUTAKOV, Dmitriy Konstantinovich; SAZONOV, B.G., kand. tekhn. nauk, retsenzent; GOL'DSHTEYN, M.I., kand. tekhn.nauk, red.; DUGINA, N.A., tekhn. red.

[Technological principles of improving the quality of alloyed steel for castings] Tekhnologicheskie osnovy povysheniia kachestva legirovannoi stali dlia otlivok. Moskva, Mashgiz, 1963. 191 p. (MIRA 16:5)
(Founding—Quality control)
(Steel alloys—Metallurgy)

MEL'NIKOV, L.M.; MEDVEDEVA, G.A.; OLERSKAYA, S.M.; KORCHEMKINA, A.S.; BUTAKOV, D.K.; UKSUSNIKOVA, A.A.

Determining the composition of sulfides in steels alloyed with nickel and manganese. Zav. lab. 31 no.2:142-146 '65. (MIRA 18:7)

1. Ural'skiy politekhnicheskiy institut im. S.M.Kirova.

TSELIKOV, V.K., dotsent; Prinimali uchastiye: [illegible], student; BUTAKOV, E.L., student; ANTIPOV, V.V., student

Increasing the operational durability of hydraulic coal dredger parts. Izv. vys. ucheb. zav.; gor. zhur. 7 no.10:101-105 '64. (MIRA 18:1)

1. Moskovskiy institut radioelektroniki i gornoy elektromekhaniki. Rekomendovana kafedroy tekhnologii gornogo mashinostroyeniya i priborostroyeniya.

BUTAKOV, G.P.

AUTHOR: Butakov, G.P. 132-12-6/12

TITLE: Electric Well-Logging at Prospecting and Test Drilling Operations in the Irkutsk Coal Basin (Elektrokarotazh pri poiskovom i razvedochnom burenii v Irkutskom uglenosnom basseyne)

PERIODICAL: Razvedka i okhrana nedr, 1957, Vol. 23, # 12, p 36-44 (USSR)

ABSTRACT: In 1951, electric well-logging was taken up by the geologic prospecting teams of the Ministry of Geology and Conservation of Natural Resources on a large scale in the Irkutsk coal basin. Special emphasis was put on the Karantsayskoye and Novometelkinskoye deposits; less prospecting was carried out in the Aransakhoyskoye, Azeyskoye, Ishinskoye, Bazoyskoye, Karmagayskoye, Priangarskoye, Maksimovskoye, Kartagonskoye, and Prionotskoye prospecting areas. The geologic structure of the Irkutsk basin is composed of sediments of the Tertiary, Mesozoic and Paleozoic periods. The magnitudes of Jurassic deposits vary between 0 and 500-600 m. Paleozoic deposits occuring as substrata of Jurassic coal layers consist of carbonate rocks of the Middle Cambrian period (Aransakhoyskoye, Cheremkhovskoye and Novometelkinskoye deposits) siltstones, argillites and sandstones of the Lower Silurian period (Karantsayskoye deposit). Exposed rock formations of the Middle Cambrian period are found in the Novo-

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Electric Well-Logging at Prospecting and Test Drilling Operations in the Irkutsk Coal Basin

metelkinskoye, Cheremkhovskoye, Aransakhoyskoye and Bazoyskoye areas. Standard complex electric well-logging research of all explored deposits and prospected areas contain curves of apparent resistance of consecutive and inverse one-pole and double-pole gradient probes of dimensions 1.2 or 3 m, depending on local conditions, natural and generated potentials. The use of inverse gradient probes of equal dimensions as consecutive probes are based on the fact that the majority of coal seams extend over distances commensurable with the dimensions of standard gradient probes and the values of apparent resistance, obtained by a consecutive gradient probe, are often considerably distorted by the screening effect. In 1952-1953, control measurements were conducted at the Ishinskoye deposits by taking down the diagrams by the semi-automatic method with the automatic well-logging station "AKC-Д-50" . These measurements coincided in all details with the curves of apparent resistance. At wells, where lateral electric logging was carried out, the specific resistance of the drilling solution of the entire drill hole was measured. The layers of different deposits can be classified into 2 groups ac-

Electric Well-Logging at Prospecting and Test Drilling Operations in the Irkutsk Coal Basin

cording to the characteristics of the curves of apparent resistance, depending on the magnitude of the stratum. The magnitude of thick layers are determined by the formula: $h = (H_n - H_k) + Zo$ where H_n - depth of the basis of the layer in m,

H_k - depth of the clearly defined minimum of curve of the standard gradient probe in m,

Zo - dimensions of standard gradient probe in m,

whereby the depth of basis of the layer is established by the maximum curve of apparent resistance, indicated by the consecutive gradient probe, or by the curve of the consecutive and inverse gradient probes. In this instance the basis of the layer corresponds with the maximum curve P_k of the consecutive gradient probe, but the top - with the maximum of the curve P_k of the inverse gradient probe (Fig. 1 and 2). Geophysical interpretation of thick coal strata as to quality and quantity present no difficulties. In contrast to this, interpretation of well-logging data of small and especially of strata of medium thickness are difficult. Depending on the types of rock formations, the following typical stratifications of coal layers of small and medium

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Electric Well-Logging at Prospecting and Test Drilling Operations in the Irkutsk Coal Basin

thickness are possible:

1. Coal embedded in rocks of low specific resistance.
2. Coal embedded in rocks of high and low specific resistance.
3. Coal embedded in rocks of high specific resistance.

The least difficulties are experienced when determining the quality at low resistance, as a result of minimum screening effects of the cover and the base. (Fig. 3 and 4). Most difficult is a correct interpretation of layers embedded in rocks of high specific resistance (Fig. 5). In the event of varying permeability prevailing in the sandstone with increased permeability, the problem can be solved with the aid of curves P_k by means of comparing the values of apparent resistance read off from the curves of gradient and potential probes. The cross sections of all layers of the basin contain sandstones of a very hard texture, difficult to distinguish from coal layers. By analyzing diagrams of electric well logging, the following distinguishing characteristics were established:

1. The values of apparent resistance registered with potential probes at layers of hard sandstone are, in the majority of cases, higher than those registered with gradient probes. With

Electric Well-Logging at Prospecting and Test Drilling Operations in the Irkutsk Coal Basin

a few exceptions caused by screening effects, this relation is generally reversed at coal layers.

2. In several instances it is necessary to take the electrochemical activity into consideration, which is considerably higher at coal layers of the Novometelkinskoye, Karantsayskoye and Aransakhoyskoye deposits than at hard sandstone formations.

3. At interpretation, the shape of the curves of apparent resistance of gradient probes is of great assistance. The shape of curves of coal layers is identical with the shape of the theoretical curve. As a result of examinations conducted during 1954-1955, 158 coal layers were discovered and 196 coal seams were reclassified as exploitable or essentially increased as to thickness. The total magnitude of coal seams was increased during this period by 321.75 m. Experiences gained pertaining to work methods and interpretation of electric well-logging gave rise to the question of introducing coreless drilling in the Irkutsk coal basin. Savings in operational cost of more than 30 % can be effected.

Card 5/6 There are 1 table, 7 diagrams, and 2 Slavic references.

132-12-6/12

Electric Well-Logging at Prospecting and Test Drilling Operations in the Irkutsk Coal Basin

ASSOCIATION: Irkutsk Geologic Administration (Irkutskoye geologicheskoye upravleniye)

AVAILABLE: Library of Congress

Card 6/6

BUTAKOV, G.S.

1. BUTAKOV, G.S.

2. USSR (600)

4. Geology, structural - Sverdlovsk Province

7. Report on the activity of the North Krasnoufimsk gravi-magnetic party No. 9/44 in the Achit, Krasnoufimsk, Machazh, and Sazhino Districts of the Sverdlovsk Province. (Abstract) Izv. Glav. upr. geol. fon. no. 3, 1947

9. Monthly List of Russian Accessions, Library of Congress, March 1953, Unclassified

BUTAKOV, G.S.

Considerations concerning torsion balance measurements. Razved.i prom.geofiz.no.17:67-71 '57. (MIRA 10:12)
(Torsion balance)

BUTAKOV, G.S.

Barometric leveling in regional gravity surveys. Trudy SNIIGGiS no.1:166-167 '59. (MIRA 15:4)
(West Siberian Plain--Gravity) (Barometric hypsometry)

BUTAKOV, G.S.

Working up materials of barometric hypsometry by the method of baric zeros. Razved.i prom.geofiz. no.33:69-84 '59. (MIRA 13:4)

(Barometric hypsometry)

BUTAKOV, G.S.

Reduction of directly measured gravity velocities. Geofiz.sbor. no.2: 28-32 '62. (MIRA 16:3)

1. Kiyevskaya geofizicheskaya razvedochnaya ekspeditsiya.
(Gravimetry)

BUTAKOV, G.S.

Methodology of geophysical surveys. Geofiz. sbor. no. 5:79-84 '63. (MIRA 17:5)

1. Kiyevskaya geofizicheskaya razvedochnaya ekspeditsiya.

BUTAKOV, G.V.

The unidirectional condenser microphone 19A-1. Trudy NIKFI no.12: 111-116 '57. (MIRA 11:5)
(Microphone)

BUTAKOV, G.V.

The distant switching of directional characteristics in a condenser microphone. Trudy NIKFI no.12:125-135 '57. (MIRA 11:5)
(Microphone)

BUTAKOV, G.V., Cand Tech Sci -- (diss) "Study of properties of the electrostatic sound receivers." Mos, 1958 13 pp (Min of Culture USSR, All-Union Sci Res (Motion Pictures and Photography) Inst NIKFI) 130 copies (KL, 24-58, 118)

BUTAKOV, G. V.

"Several Studies of Mechanical Accoustic Systems of Electrostatic Sound Pick-ups."

paper presented at the 4th All-Union Conf. on Acoustics, Moscow, 26 -May - 2 Jun 58.

S/194/61/000/007/077/079
D201/D305

AUTHOR: Butakov, G.V.

TITLE: Experimental study of a combined condenser microphone inset

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 7, 1961, 57, abstract 7 K383 (Tr. Vses. n.-i. kinofotoin-ta, 1960, no. 34, 69-77)

TEXT: To ascertain the causes of dissipation of the characteristics of combined condenser microphones in their mass production at factories, investigations have been carried out on the influence of different structural elements of such microphones on their characteristics of sensitivity and directivity. The investigations were carried out on a unidirectional combined microphone, the case of which has 2 diaphragms, made of metallized film and fixed onto the sides of a fixed electrode having several dummy and through-holes. A set of such insets was prepared, each having a different gap between the diaphragm and the fixed electrode and

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Experimental study...

different diameters of the fixed electrode holes and thickness of the fixed electrode itself. The frequency characteristics of the microphone sensitivity were recorded with the microphone used as: Pressure detector, pressure gradient detector and the combined detector. Measurements were made in an anechoic room at a distance of 40 cm from the source. The characteristics obtained were compared with those obtained in the same condition with a standard case. The results obtained characterize the dissipation of the sensitivity and directivity characteristics of the microphone with gaps between the diaphragm and the fixed electrode varying within 40 $\pm$ 10 microns; diameters of dummy holes 0.8 $\pm$ 0.4 mm, their depths 4 $\pm$ 1 mm and the thickness of the fixed electrode varying within 5 $\pm$ 1 mm. The characteristics of microphone insets with the through-holes only (30 holes 0.8 mm dia.) of microphone insets with dummy holes only were also studied, and finally of those made with a smooth surface of fixed electrode. The results obtained are used for improving the construction of microphone insets of combined microphones. [Abstracter's note: Complete translation]

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S/194/61/000/007/078/079
D201/D305

AUTHOR: Butakov, G.V.

TITLE: The inset of the condenser microphone KM-58 (19-A-5)

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 7, 1961, 58, abstract 7 K384 (Tr. Vses. n.-i. kinofotoin-ta, 1960, no. 34, 78-84)

TEXT: The principle is described of the operation and the construction details are given of a new inset of a combined condenser microphone KM-58 described earlier by the author in the journal "Tekhnika, Kino i televideniye" (see RZhE, 1960, no. 11, 610283). To avoid difficulties in the mass-production of condenser microphones with symmetrically placed membranes, only one membrane is used in the new inset and the other side of the fixed electrode is covered, at a small distance, by a thin plastic sheet. The fixed electrode has through-holes, which permits using the attached membrane for both the sound and pressure detection. The matching of the inset sound sensitivity to the pressure gradient, needed for the required

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The inset of the condenser...

directivity and a large ratio of the front-to-end sensitivity of the microphone is accomplished in the new inset by the change of the gap between the fixed electrode and the plastic sheet covering the holes. The equivalent el. circuit of the inset is given together with the necessary formulae for designing the acoustic resistance of the gap between the fixed electrode and the plastic plate. Microphones KM-58 with new insets have a relatively high sensitivity (2 mV/bar) and a uniform wide range frequency response. The frequency response of the microphone rises by 5 db at the high-frequency end of 8-13 kc/s. In the mid- and low-frequency range, the new inset makes it possible to increase the ratio of the front to back sensitivity by 26-30 db. This ratio decreases slightly at the extreme ends of the operating frequency range. No details of this problem are given in the article. [Abstracter's note: Complete translation]

Card 2/2

BUTAKOV, I. N.

PA 12/49T45

USSR/Engineering Jul 48
Heating, Electrical Units
Efficiency, Industrial

"The Problem of the Coefficient of Efficiency for Electric Central Heating Plants," I. N. Butakov, 3½ pp

"Iz Ak Nauk SSSR, Otdel Tekh Nauk" No 7

Criticism of V. I. Veyt's article. (See 27T52).

[redacted] 12/49T45

BUTAKOV, I. N.

42245. BUTAKOV, I. N. O protivodavlencheskikh lokomobilyakh.- V ogl: Butakov N. N. Trudy Tomskogo elektromekhan. In-ta inzh. zh.-d. transprota, T. XIII, 1948, s. 3-9

So: Letopis' Zhurnal'nykh Statey, Vol. 47, 1948.

BUTAKOV, I. N., PROF.

PA 32/49T11

USSR/Electricity Jun 48
Power Plants - Electric
Fuel Consumption

"Consumption of Fuel in a Power System on Switching in the Current of a Hydroelectric Station," Prof I. N. Butakov, Hon Worker in Sci and Techniques, Dr Tech Sci, $2\frac{1}{2}$ pp

"Elek Stants" Vol XIX, No 6

Derives various formulas for use in subject calculation.

32/49T11

BUTAKOV, I.N.

25678, Butakov, I.N. Koefitsient poleznogo deystviya teplosiloboy ustanovki and energosistemy. Izvestiya Tomskogo politekhn in-ta im. Kirova, T. LXVI, vyp 2, 1948 , 5. 3-45- Bibliogr: 20 nazv

SO: Letopis' Zhurnal'nykh Statey, Vol. 34, Moskva, 1949

BUTAKOV, I.N.

25677

K Vyboru Tochek otbora. para pri regeneratsii v Teploeilovykh ustanovkakh. Izvestiya Tomskogo Politekhn. in-ta im Kirova, T. LXVI, VYP 2, 1948, s. 47-49.

SO: LETOPIS' No. 34

BUTAKOV, I. N.

25921. KPD statsionarnoy chasti pri utilizatsii tepla vlhhlopnogo para parovozov. Izvestiya Tomskogo politekhn. in-ta im. Kirova, t. LXVI, vyp. 2, 1948, s 51-56.

SO: Knizhnaya Letopis', Vol. 1, 1955

Butakov, I. N.

Subject : USSR/Power AID P - 4050

Card 1/1 Pub. 26 - 8/33

Author : Butakov, I. N., Prof.

Title : Determining efficiency of heat and power plants on a scientific basis.

Periodical : Elek. sta., 12, 25-30, 1955

Abstract : A theoretical discussion on operational efficiency of power plants and on achieving greater fuel economy.

Institution : None

Submitted : No date

BUTAKOV, I.N., professor.

On the advisability of reducing specialized training in technical colleges based on the example of heat power engineering. Elek.sta. 28 no.4:34-35 Ap '57. (MLRA 10:5)
(Technical education)

BUTAKOV, I.N.

Development of Siberian power engineering. Izv. TPI 89:3-7 '57.
(Siberia--Power engineering) (MIRA 10:12)

BUTAKOV, I.N.

Answer to A.S. Gorshkov's article "I.N. Butakov's error in plotting power balance and calculating indices for power production." Izv. TPI 89:136-138 '57. (MIRA 10:12)
(Power engineering) (Gorshkov, A.S.)

BUTAKOV, I.N., doktor tekhn. nauk, prof.

District heating of cities as related to the present development of power engineering. Izv. vys. ucheb. zav.: energ. no. 1:86-91 Ja '58. (MIRA 11:7)

1. Tomskiy ordena Trudovogo Krasnogo Znameni politekhnicheskiy institut imeni S.M.Kirova.
(Heating from central stations)
(Steam power plants)

Butakov, I.N

AUTHOR: Butakov, I.N. (Dr.Tech.Sci.) 95-3-12/26

TITLE: Some questions of technical policy in thermal power stations. (Nekotoryye voprosy tekhnicheskoy politiki v oblasti teplovykh elektrostantsiy.)

PERIODICAL: Teploenergetika, 1958, No.3. pp. 44-46 (USSR)

ABSTRACT: The journal Teploenergetika No.5. 1957, published an article by M.A. Styrikovich entitled 'Some questions of the development of thermal engineering in the USSR'. The main idea of this article is not new and the present author published in 1954 a book in which an expression was given for the simplified cost per kilowatt hour for a condensing station. Every step that increases the economic efficiency of the condensing power station must be examined from the standpoint of additional capital investment, moreover, additional investments usually give a diminishing return in efficiency and in the limit there is a maximum efficiency approaching unity, the realisation of which calls for infinite expenditure. This is schematically represented by the curve of Fig.1. To determine the minimum cost per kilowatt hour it is necessary to find the differential coefficient of the expression for the cost and to equate it to zero. An expression is derived for the relationship between the economic efficiency of the station, the cost of fuel and the load factor. Information about cost and length of haul of various fuels including

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Some questions of technical policy in thermal power stations. 96-3-12/26

natural gas, is tabulated. Natural gas is particularly advantageous because it does away with the need for a fuel store, ash handling equipment and a good deal of staff housing. The influence of expected rise in industrial output on the permissible cost per kilowatt is considered. It is also important to take into account the effect of the duration of the construction period on the permissible cost per kilowatt. The time required to construct a thermal electric power station in the USSR is 20 - 30 months. The time required to construct a hydro-electric power station is considerably longer than this, so that considerable capital may be tied up unproductively for a long time. This point is sometimes not properly allowed for. There are 2 figures, 1 table, 1 literature reference (Russian)

ASSOCIATION: Tomsk Polytechnical Institute. (Tomskiy Politekhnicheskiy Institut).

AVAILABLE: Library of Congress.

Card 2/2

BUTAKOV, I.N., doktor tekhn. nauk, prof.

Applying the heat-balance method to a special case in rural power engineering. Izv. vys. ucheb. zav.; energ. no.5:72-75 Ap '58.
(MIRA 11:6)

1. Tomskiy ordena Trudovogo Krasnogo Znameni politekhnicheskiy institut imeni S.M. Kirova.
(Power engineering)

BUTAKOV, I.N., doktor tekhn.nauk, prof.

Economic aspects in course work on boiler units in heat power engineering. Izv.vys.ucheb.zav.; energ. no.5:91-93 My '58.
(MIRA 11:8)

1.Tomskiy ordena Trudovogo Krasnogo Znameni politekhnicheskiy institut imeni S.M. Kirova.
(Power engineering--Study and teaching)

AUTHOR: Butakov, I.N., Doctor of Technical Sciences, Professor

SOV/143-58-10-23/24

TITLE: Letters to the Editorial Board

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Energetika, 1958, Nr 10, p 151 (USSR)

ABSTRACT: The author states in a letter to the editorial board of this periodical that he committed an error in the numerical example at the end of his article, published in Energetika, 1958, Nr 5. The numerical formula in the example for the permissible costs of installed megacalories should be written:

$$\frac{S_{KOT}}{Q_{K \cdot Y}} = \frac{6000 \cdot 14.3 \cdot 0.0156 \cdot 8.1}{0.13} = 84{,}000 \text{ rubles/megacalory}$$

In this way, the permissible cost of installed megacalories, determined by the author's approximated formulae, is close to the average date achieved by the TEP.

Card 1/1

BUTAKOV, I.N., doktor tekhn. nauk prof.

Regarding the article of the lecturer. M.P. Chuvilkin.
Izv. vys. ucheb. zav.; energ. 2 no.7:134-135 Jl '59.
(MIRA 13:1)

1.Tomskiy ordena Trudovogo Krasnogo Znameni politekhnicheskiy institut im. S.M. Kirova.
(Heating from central stations)

BUTAKOV, I.N., prof. doktor tekhn. nauk; BRAGIN, V.A., kand. tekhn. nauk

Heat balance method used for the determination of the efficiency of a heat and electric power plant with superimposed turbines. Izv. vys. ucheb. zav.; energ. 2 no.10:50-52 O '59. (MIRA 13:3)

1.Tomskiy ordena Trudovogo Krasnogo Znameni politekhnicheskiy institut imeni S.M. Kirova. Predstavlena kafedroy teploenergeticheskikh ustanovok.

(Steam turbines) (Electric power plants)

BUTAKOV, I.N.

Heat balance method in solving problems in heat power engineering.
Izv.Sib.otd.AN SSSR no.5:131-134 '59. (MIRA 12:10)

1. Tomskiy politekhnicheskiy institut.
(Heat engineering)

BUTAKOV, I.N., doktor tekhn.nauk, prof.; ANDRYUSHCHENKO, A.I., doktor tekhn.nauk, prof.; KRACHKOVSKIY, N.N., kand.tekhn.nauk

In reference to the discussion on optimum steam parameters and characteristics of heat-transfer equipment. Energomashinostroenie 5 no.3: 19-22 Mr '59. (MIRA 12:3)
(Heat engineering)