

The Role of Thermal Processes in the Formation of
Bottom Water Masses of the World Ocean

SOV/20-129-6-57/69

formed. The author discusses more in detail the part played by heat balance of the oceanic surface in the range of subpolar and polar hydrological fronts. The interdependence between the hydrological fronts and the heat balance may be explained by the fact that the fronts and the balance are subject to the totality of the hydrometeorological conditions. The influence exercised by the heat balance also depends on the seasons. There are 2 figures.

ASSOCIATION: Institut okeanologii Akademii nauk SSSR (Institute of Oceanology of the Academy of Sciences, USSR)

PRESENTED: July 9, 1959, by A. A. Grigor'yev, Academician

SUBMITTED: June 23, 1959

Card 3/3

BUTORIN, N.V.; MAKSIMOV, I.V., prof., doktor geograf.nauk, otv.red.;
STEPANOV, V.N., doktor geograf.nauk, otv.red.; SHENGER, I.A.,
red.lzd-va; KEL'NER, A.G., tekhn.red.

[Secular variations of the mean level of the Atlantic Ocean and
their relation to atmospheric circulation] Vekovye izmeneniia
srednego urovnia Atlanticheskogo okeana i ikh svias' s tsirkulatsiei
atmosfery. Moskva, Izd-vo Akad.nauk SSSR, 1960. 333 p. (MIRA 13:3)
(Atlantic Ocean--Oceanographic research)

STEPANOV, V.N.

Types of sea-bottom structure in the world ocean. *Biul. Okean.*
kom. no.5:48-53 '60. (MIRA 13:10)
(Ocean bottom)

STEPANOV, V.N.

Principal convergences and divergences of water in the world ocean.
Biul.Okean.kom. no.6:15-22 '60. (MIRA 14:7)
(Ocean currents)

STEPANOV, V.N.

Diagram representing the general circulation of surface waters in the world ocean. Trudy Okean. kom. 10 no.1:69-78 '60. (MIRA 14:6)

1. Institut okeanologii AN SSSR.
(Ocean currents)

STEPANOV, V.N.

Surface heat budget (balance) of the world ocean. *Trudy Okean.*
kom. 10 no.1:79-81 '60. (MIRA 14:6)

1. Institut okeanologii AN SSSR.
(Ocean temperature)

STEPANOV, V.N.

Heat budget of the world ocean. Trudy Inst. okean. 37:3-64
'60. (MIRA 14:8)

(Meterology, Maritime)

STEPANOV, V.N., doktor geogr.nauk, otv.red.; BEZRUKOV, P.L., doktor
geol.-mineral.nauk, red.; LONGINOV, V.V., kand.geograf.nauk, red.;
RADZIKHOVSKAYA, M.A., kand.geograf.nauk, red.; PANFILOVA, S.G.;
kand.geograf.nauk, red.; KOZLYANINOV, M.I., kand.geograf.nauk, red.;
PELEVIN, V.I., red.; TUGARINOV, D.N., red.izd-va; NOVICHKOVA, D.N.,
tekh.n.red.

[Basic geological and hydrological features of the Sea of Japan]
Osnovnye cherty geologii i gidrologii Iaponskogo moria. Moskva,
1961. 223 p. (MIRA 14:3)

1. Akademiya nauk SSSR. Institut okeanologii.
(Japan, Sea of--Submarine geology)
(Japan, Sea of--Hydrology)

STEPANOV, V.N., doktor geograficheskikh nauk, otv. red.; BEREZOVA,
A.S., red.; DOROKHINA, I.N., tekhn. red.

[Oceanological research] Okeanologicheskie issledovaniia;
sbornik statei. X razdel programmy MOG (okeanologiya) Mo-
skva, [In Russian with summaries in English.] No.4. 1961.
110 p. (MIRA 14:5)

1. Akademiya nauk SSSR. Mezhdunarodnyi komitet po pro-
vedeniiu Mezhdunarodnogo geofizicheskogo goda.
(Indian Ocean--Oceanographic research)

STEPANOV, V.N.

Annual variations of the temperature of surface waters in the world ocean and hydrological seasons. Okeanologia 1 no.3:399-406 '61.

Oceanographic work in the Rumanian People's Republic. 554-555 (MIRA 16:11)

1. Institut okeanologii AN SSSR.

S/020/61/136/004/026/026
B016/B075

AUTHORS: Stepanov, V. N. and Shagin, V. A.
TITLE: Kinds of Vertical Variation of Salinity in Sea Water
PERIODICAL: Doklady Akademii nauk SSSR, 1961, Vol. 136, No. 4,
pp. 927-930

TEXT: The present paper deals with the classification of kinds according to which the salinity of sea water varies with the depth. For this purpose, salinity has been measured on points that were rather evenly distributed over the total area of the ocean. By comparing the curves of vertical variation of salinity, the authors have found several similar regions. For each region, they calculated the mean values of salinity (Table 1) and on the strength of these data they have plotted curves (Fig. 1). The authors distinguish a total of 7 kinds of vertical variation of salinity, which are subdivided into 15 groups. B) Polar kind, grouped into: 1) Arctic and 2) Antarctic. The 50-100 m thick surface layer is considerably freshened. Salinity rapidly increases down to a depth of

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Kinds of Vertical Variation of Salinity in
Sea Water

S/020/61/136/004/026/026
B016/B075

from 300-500 m and then remains almost unchanged. V) Subpolar kind, grouped into: 3) North-pacific; 4) Antarctic. Similar to B; the freshening influence of the surface layer, however, extends to greater depths due to the sinking of the water. Salinity increases down to 1,500 - 2,000 m and then remains almost unchanged. G) Temperate subtropical kind, grouped into: 5) Atlantic; 6) Indian; 7) North-pacific; and 8) South-pacific. It appears in tropical and subtropical latitudes. It is characterized by a high salinity on the surface and a freshened intermediate layer. Salinity decreases rapidly with the depth, reaching its minimum near the axis of the mentioned intermediate layer. A secondary, lower maximum of salinity is found at a depth of 2500-3000 m and a secondary minimum on the sea bottom. D) Equatorial-tropical kind, grouped into: 9) Atlantic; 10) Indian; 11) Pacific, differs from G by a highly saliferous layer immediately under the surface. In deeper layers, this kind has several maxima and minima of salinity. Kinds B to D are widely spread in the ocean, and are dependent on the climatic conditions prevailing in the individual latitudinal zones (Fig. 1). The kinds E, Zh, and Z are only locally distributed. E) North-atlantic kind, grouped into:

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Kinds of Vertical Variation of Salinity in
Sea Water

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B016/B075

12) Temperate-tropical; 13) Sub-boreal. It is similar to mode G; however, salinity gradually decreases with the depth and then remains unchanged from a depth of 1000 m down to the bottom of the sea. Zh) Circum-mediterranean kind, grouped into: 14) Atlantic; 15) Indian. The upper as well as the medium depths exhibit high salinity. Z) Indomalayan kind. This is known in the northern part of the Indian Ocean. There, salinity rapidly increases with the depth. There are 2 figures and 1 table.

ASSOCIATION: Institut okeanologii Akademii nauk SSSR (Institute of Oceanology, Academy of Sciences USSR)

PRESENTED: June 20, 1960, by V. V. Shuleykin, Academician

SUBMITTED: June 19, 1960

Card 3/6

STEPANOV, V.N.

Main specific features of the structure of ocean waters. Okeanologiya
2 no.1:26-30 '62. (MIRA 15:2)

1. Institut okeanologii AN SSSR. (Ocean)

NEKRASOVA, V.A.; STEPANOV, V.N.

Types of vertical change of the water temperature in the world
ocean. Dokl. AN SSSR 143 no.3:713-716 Mr '62. (MIRA 15:3)

1. Institut okeanologii AN SSSR. Predstavleno akademikom V.V.
Shuleykinym.

(Ocean temperature)

STEPANOV, V. N.

General Regularities of Structure of the World Ocean Waters

report submitted for the 13th General Assembly IUGG, (Oceanography) Berkeley,
California, 19-31 Aug 63

МАНДРИН, Владимир Васильевич; МЕНДРИН, В.М., доктор геогр. наук, рецензент; ДЕРЯБИНА, Е.А., рецензент; КИКОИН, Ю.К., методист, рецензент; ВАНИЛ'YEVA, O.S., red.

[Stories about the world ocean; a reader. Textbook for teachers] Rasskazy o mirovom okeane; khrestomatiia. Pособie dlia uchitel'ia. Moskva, Uchpedgiz, 1963. 159 p. (MIRA 17:7)

1. Zaveduyushchiy kabinetom geografii Voronezhskogo instituta usovershenstvovaniye uchiteley (for Deryabina).
2. Geograficheskii fakul'tet Odesskogo Gosudarstvennogo universiteta (for Kikoin).

STEPANOV, V.N.

Role of the Pacific and Atlantic waters in the transformation of nature
in the Arctic regions. Probl. Sev. no.7:114-117 '63.

Possibility and expediency of the extermination of the Arctic ice.
Ibid. s118-122 (MIRA 17:2)

STEPANOV, V.N.

Investigation of the world ocean. Geofiz. biul. no.13:29-33 '63.
(MIRA 17:2)

STEPANOV, V.N.

Current hydrogeological research on the world ocean. Vop.
geog. no.62:11-26 '63. (MIRA 17:3)

BULATOV, R.P.; STEFANOV, V.N., doktor geogr. nauk, otv. red.

[Circulation of the waters of the Atlantic Ocean and the adjacent seas; a bibliographic index, 1638-1962]
TSirkuliatsiia vod Atlanticheskogo okeana i priliegaiushchikh morei; bibliograficheskii ukazatel' (1638-1962). Moskva, AN SSSR, 1964. 114 p.

(MIRA 17:11)

STEPANOV, V.N.

Basic types of water structure of the world ocean. Okeanologiya
5 no.5:793-802 '65. (MIRA 18:11)

1. Institut okeanologii AN SSSR.

ACC NR: AR7004104 (N) SOURCE CODE: UR/0169/66/000/012/V022/V022

AUTHOR: Stepanov, V. N.

TITLE: Results of calculation of meridional water circulation in the Atlantic, Indian, and Pacific Oceans

SOURCE: Ref. zh. Geofizika, Abs. 12V130

REF SOURCE: Sb. 2-y Mezhdunar. okeanogr. kongress, 1966. Tezisy dokl. M., Nauka, 1966, 358-359

TOPIC TAGS: ocean current, ocean property, /Atlantic Ocean, Pacific Ocean, Indian Ocean

ABSTRACT: Use is made of the equation of diffusion and advection balance

$$\frac{\partial k}{\partial t} + u \frac{\partial k}{\partial x} + v \frac{\partial k}{\partial y} + w \frac{\partial k}{\partial z} = A_x \frac{\partial^2 k}{\partial x^2} + A_y \frac{\partial^2 k}{\partial y^2}.$$

for calculating the meridional oceanic water circulation. The mean latitudinal values of water temperature and salinity served as initial data (k). The terms

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UDC: 551.465.4

ACC NR: AR7004104

$\frac{dk}{dt}$ and $u \frac{dk}{dx}$, for the changes in the process in time and in the latitudinal current component, are excluded from this equation. The kinematic coefficient of vertical diffusion was assumed to be constant and equal to 10, while coefficients A_x and A_y , which represent horizontal diffusion, were excluded as negligibly small. As a result of these evaluations and allowances, two equations in two unknowns were solved, making it possible to calculate the vertical and meridional current component. An analysis of the results obtained was carried out in accordance with water structure. It was found that within the surface zone a good relationship exists between the vertical and meridional components and the main circulation systems. In the transitional, deep, and bottom zones, the meridional water transport prevails. It resembles earlier concepts based on a qualitative analysis of water temperature and salinity. For vertical motions, the predominance of water downwelling is characteristic except in the region where the transitional, deep, and bottom water confined to the higher latitudes is formed. The meridional component in the surface layer increases from a few centimeters per second in the higher latitudes to 20—50 cm/sec in the low latitudes. In the intermediate layer, values of 1—5 cm/sec predominate. In the surface layer, in most cases the vertical current component changes from 1 to 9 by 10^{-3} cm/sec; in the remaining zones values from 1 to 9 by 10^{-4} cm/sec predominate. An

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ACC NR: AR7004104

analysis of meridional and vertical current components calculated for all standard levels along the entire expansion of the oceans from their northern to their southern limits made it possible to obtain a resulting transport. On the basis of the latter, it was possible to plot charts of vertical circulation in the Atlantic, Indian, and Pacific Oceans in meridional cross-section. [Translation of abstract] [DW]

SUB CODE: 08,12/

ALL PAGES

Card 3/3

STEFANOV, V. N.

STEFANOV, V. N. "The zoogeographic characteristics of the asphodel (Coleopters-Euprestidea), of the Il'men state natural reservation", Nauch.-metod. zapiski (Council of Ministers, RSFSR, Main administration for natural reservations), Issue 11, 1948, p. 242-46.

SG: U-3042, 11 March 53, (Letopis 'Zhurnal 'nykh Statey, No.7 1949).

СТЕПАНОВ, В. П.

Beetles

New species of beetle injurious to the young plants of Siberian acacia in shelterbelts of the Stalingrad Province (Coleoptera, Euprestidae) Zool. zhur. 31 no. 2:272-275 Kr-Ap '52

Monthly List of Russian Accessions, Library of Congress, July 1952 UNCLASSIFIED.

9. Monthly List of Russian Accessions, Library of Congress, _____ 1953, Uncl.

STEPANOV, V.N.

BEETLES

Two species, new to the U.S.S.R., of slender buprestid beetles
of the genus *Agrilus* Curt. from the subgenus *Epinagrilus* V.
Stepanov subgen.n. Zool.zhur.33 no.1:114-119 Ja-F '54.

(MLRA 7:2)

1. Glavnoye upravleniye po zapovednikam i okhotnich'yemu
khozyaystvu Ministerstva sel'skogo khozyaystva SSSR. (Beetles)

STEPANOV, I. I.

New species of buprestids (Coleoptera, Buprestidae) in the
U.S.S.R. from pistachios (*Pistacia vera* L.) of Turkmenia.
Zool.shur.33 no.6:1307-1311 N-D '54. (MIRA 8:2)

1. Upravleniye po zapovednikam Ministerstva sel'skogo khozyay-
stva SSSR.
(Pistachio--Diseases and pests)(Turkmenistan--Bupre-
stidae)

STEPANOV, V.N.

Material on the metallic wood borers of Tajikistan and adjacent regions of Central Asia (Coleoptera, Buprestidae).
Report No.1. Trudy AN Tadzh.SSR 89:111-121 '58.

(MIRA 13:5)

1. Glavnoye upravleniye po zapovednikam pri Ministerstve
sel'skogo khozyaystva SSSR.
(Soviet Central Asia--Buprestidae)

STEPANOV, V.N.

Two new species of wood borers of the genus *Sphenoptera* from southern Tajikistan. Trudy AN Tadzh.SSR 115:57-61 '59.

(MIRA 15:5)

1. Upravleniye po delam zapovednikov pri Sovete Ministrov SSSR.
(Tajikistan—Borers (Insects))

*STEPANOV, V. N.

"The Minimal Temperatures for Germination of Seeds and the Appearance of Sprouts of Field Cultures," Sov. Agron. No. 1, 1948, Cand. Agr. Sci.

STEPANOV, V. N.

Meteorological Abst.

Vol. 4 No. 3

March 1953

Part 2

Bibliography on Frost
and Frost Forecasting

4C-781 ✓ 551.524.37:632.11
Stepanov, V. N., Kharakteristika sel'skokhoziaistvennykh kultur po ustoičivosti ikh k zamorozkam. [Characteristics of crops with respect to their frost resistance.] *Sovetskaja Agronomija*, 6(4):82-87, April, 1948. table. Microfilm. DLC—Author investigates the problem of plant damage caused by frost and determines, for various types of crops, the critical temperatures at which their normal growing is impossible or the plants are killed. *Subject Headings*: 1. Frost resistance of plants 2. Frost damage to crops.

С. И. В. И.

"On initial measurements for the appearance of crystals of field crops", *Voprosy*
(Iosk. s.-iz. akad. L. Timiryazeva), Issue 4, 1948, (in index: 1949), p. 28-35.

SO: U-411, 17 July 1953, (Letopis' Zhurnal'nykh Statey, No. 20, 1949).

1. STEPANOV, V. N. PROF.

2. USSR (600)

4. Grasses

7. Biological peculiarities of tillering in cereal grasses. Sov.agron. 10
no. 12, 52

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

STEPANOV, Vladimir Nikolayevich, professor, doktor sel'skokhozyaystvennykh nauk; KATSELS'ON, S.M., redaktor; GUBIN, M.I., tekhnicheskiy redaktor

[Progress of Soviet plant science] Dostizhenia sovetskogo rasteni-
vodstva. Moskva, Izd-vo "Znanie," 1957. 39 p. (Vsesoiuznoe obshche-
stvo po rasprostraneniю politicheskikh i nauchnykh znaniy. Ser.5,
no.17) (MLRA 10:9)

(Field crops)

USSR/Cultivated Plants - General Problems

M

Abs Jour : Ref Zhur Biol., No 12, 1958, 53502

Author : Stepanov, V.N.

Inst : Timiryazev Agricultural Academy

Title : Biological Classification of Agricultural Plants in
Field Cultures

Orig Pub : Izv. Timiryazevsk. s.-kh. akad., 1957, No 2, 5-29

Abstract : The basis of the classification is the principle of the
ecologico-genetic grouping of plants which permits uni-
fication of similar climato-ecological groups by their
adaptability to environmental factors (heat and light).
With regard to the common heat requirements during the
vegetation period, 7 groups of each were distinguished
for the plants of the moderate and southern latitudes
with intervals of 400°. The most important biological

Card 1/2

STEPANOV, V.N., doktor sel'skokhozyaystvennykh nauk, prof.

~~Characteristics of the development of perennial grasses [with
summary in English]. Izv. TSChA no.2:7-20 '58. (MIRA 11:6)
(Grasses)~~

STEPANOV, Vladimir Nikolayevich; KATSNEL'SON, S.M., red.; AFROSHCHENKO,
L.Ye., tekhn.red.

[Grain production is the basis of all agriculture] Prois-
vedstvo zerna - osnova vsego sel'skogo khoziaistva. Moskva,
Izd-vo "Znanie," 1959. 31 p. (Vsesoiuznoe obshchestvo po
rasprostraneniuiu politicheskikh i nauchnykh snanii. Ser.5,
Sel'skoe khoziaistvo, no.18) (MIRA 12:7)
(Grain)

STEPANOV, V.N., red.

[Plant growing] Rasteniyevodstvo. Moskva, Gos.izd-vo sel'-
khoz lit-ry, 1959. 426 p. (MIRA 16:1)
(Field crops)

STEPANOV, V. N.,

"About the Principles of Bioclimatic Classification of Agricultural Plants"

Report submitted but not presented at the 2nd International Congress of Bioclimatology and Biometeorology, London, 4-10 Sep 1960.

Member of the Academy of Agricultural Sciences, Moscow.

STEPANOV, V.N., doktor sel'skokhozyaystvennykh nauk, prof.; NASONOVA, K. Ye.,
nauchnyy sotrudnik; KURELENOK, V.I., nachnyy sotrudnik

Productivity of crop rotations specializing in grain and potatoes
in central regions of the non-Chernozem zone. Izv. TSKhA
no.3: 49-64 '60. (MIRA 14:4)
(Rotation of crops)

STEPANOV, Vladimir Nikolayevich, prof.; GLAZUNOVA, N.I., red.; NAZAROVA,
A.S., tekhn. red.

[Recent developments in plant breeding] Novoe v rastenievodstve.
Moskva, Izd-vo "Znanie," 1961. 39 p. (Narodnyi universitet kul'-
tury: Sel'sko-khoziaistvennyi fakul'tet, no.9) (MIRA 14:10)
(Plant breeding)

STEPANOV, V.N., doktor sel'skokhozyaystvennykh nauk, prof.; BOLOEOLOVA,
V.M., kand.sel'skokhozyaystvennykh nauk; LISOVA, A.V., nauchnyy
sotrudnik; VASIL'YEVA, D.V., nauchnyy sotrudnik

Productivity of crop rotations specializing in grain and potatoes
in the central regions of non-Chernozem zones; second report.
Izv. TSKHA no.3:7-22 '61. (MIRA 14:9)
(Grain) (Potatoes) (Rotation of crops)

STEPANOV, V.N., prof., doktor sel'skokhozyaystvennykh nauk

Corn fields in July. IUn. nat. no.7:13 J1 '61. (MIRA 14:7)
(Corn (Maize))

STEPANOV, V.H., prof.

Corn fields in September. IUn. nat. no.9:12 S '61. (MIRA 14:8)
(Corn (Maize))

STEPANOV, Vladimir Nikolayevich, doktor sel'khoz. nauk, prof.;
LEONOVA, T.S., red.; NAZAROVA, A.S., tekhn. red.

[Key to the solution of the protein problem] Kluch k re-
sheniu belkovoï problemy. Moskva, Izd-vo "Znanie," 1962.
47 p. (Novoe v zhizni, nauke, tekhnike. V Serii: Sel'skoe
khoziaistvo, no.2) (MIRA 15:4)

(Proteins)

STEPANOV, V.N., doktor sel'skokhozyaystvennykh nauk, prof. ;
LETUNOVSKIY, V.I., aspirant

Simultaneous sowing of corn with pulse crops. Izv. TSKHA
no.2:19-30 '62. (MIRA 15:9)
(Legumes) (Corn (Maize))

STEPANOV, Vladimir Nikolayevich, prof.

Giant peas. IUn.nat. no.4:18-19 Ap '62.
(Peas)

(MIRA 15:4)

STEPANOV, V.N., prof., doktor sel'skokhoz. nauk; GOLINOVA, N.K., nauchnyy sotrudnik; SOLOV'YEVA, Z.M., nauchnyy sotrudnik

Yield capacity and productivity of farm crops during crop rotations of various combinations in central regions of the non-Chernozem belt. Izv. TSKHA no.5:106-121 '64. (MIRA 18:5)

1. Kafedra rasteniyevodstva Moskovskoy ordena Lenina sel'skokho-zyaystvennoy akademii imeni Timiryazeva.

GRUSHKA, Yaroslav [Hruska, Jaroslav, deceased]. Primal
uchastiye STEPANOV, V.N., prof.; UMNOV, M.P.[translator];
FOL'KMAN, Ye.N., red.

[A monograph about corn. Translated from the Czech] Mono-
grafiia o kukuruze. Moskva, Kolos, 1965. 750 p.
(MIRA 18:7)

ROGALI-LEVITSKIY, Mikhail Viktorovich, kand. tekhn. nauk, dots.;
STEFANOV, Vladimir Nikolayevich, prof.; TAYTS, Aleksandr
Arkad'yevich, kand. tekhn. nauk, dots.; GORCHAKOVA, O.D.,
red.

[Electric power plants and transformer substations] Elektri-
cheskie stantsii i transformatornye podstantsii. Moskva,
Transport, 1965. 367 p. (MIRA 18:8)

STEPANOV, V.N., prof. doktor sel'skokhoz. nauk; IMENDAYEVA, L.V., aspirantka.

Utilizat'on by plants of nutrients stored in seeds. Izv.
RSKHA' no 1:82-91 '65 (MIRA 19:1)

1. Kafedra rasteniyevodstva Moskovskoy sel'skokhozyaystvennoy
ordena Lenina akademii imeni Timiryazeva.

STEPANOV, V.N., prof., doktor sel'skokhoz. nauk; MOZHAYEVA, K.A.
aspirantka

Effect of the quality of planting stock on the formation of
crop and the productivity of photosynthesis in potatoes.
Izv. TSKHA no. 1:92-99 '65 (MIRA 19:1)

1. Kafedra rasteniyevodstva Moskovskoy sel'skokhozyaystven-
noy ordena Lenina akademii imeni Timiryazeva.

STEFANOVA, V.N.

Congenital bilateral absence of the seminal ducts, a rare cause of male sterility. Urologiia. no.5:54-55 '64. (MIPA 18:2)

I. Urologicheskaya klinika (zav. - doktor med. nauk I.P. Igumnik [deceased]) Tsentral'nogo instituta usovershenstvovaniya vrachey, Moskva.

STEPANOV, V.H. (Moskva)

Surgical restoration of the patency of the seminal ducts;
an experimental study. Urologiia no.4:29-34 '64.

(MIRA 19:1)

ANDRIANOV, V.N.; BUTZKO, I.A.; VENIKOV, V.A.; DEMIN, A.V.; GORODSKIY, D.A.;
GRUDINSKIY, P.G.; ZAKHARIN, A.G.; KRASNOV, V.S.; LEVIN, M.S.; LISTOV,
P.N.; MARKOVICH, I.M.; MEL'NIKOV, N.A.; NAZAROV, G.I.; RAZEVIG, D.V.;
SMIRNOV, B.V.; STEPANOV, V.N.; SYROMYATNIKOV, I.A.; FEDOSEYEV, A.M.;
YAKOBS, A.I.

Doctor of technical sciences, Professor Lev Efimovich Ebin, 1905-; on
his 60th birthday. Elektrichestvo no.6:91 Je '65.

(MIRA 18:7)

SOURCE CODE: UR/0281/66/000/003/0019/0027

ACC NR: AP6029598

AUTHOR: Stepanova, V. G. (Moscow); Tolstov, Yu. G. (Moscow)

ORG: none

TITLE: Three-phase-bridge inverter driven from the line with series-parallel capacitors in the converter circuit

SOURCE: AN SSSR. Izvestiya. Energetika i transport, no. 3, 1966, 19-27

TOPIC TAGS: electric capacitor, electronic circuit

ABSTRACT: The article describes a three-phase-bridge inverter with a combination of series and parallel capacitors connected directly to the terminals of the converter circuit. Such an arrangement offers the advantages of stability and of "instantaneous" current commutation, in addition to compensating for the reactive power in the transformer circuit. Voltage and current relations for the fundamental as well as for the harmonics are derived on basis of an equivalent circuit diagram showing the capacitors in the rectifier loops of the three phases. Also the operational characteristics are analyzed, especially stability, regulation and commutation; the performance with and without series capacitors is compared. Certain design aspects are discussed, namely the proper choice of reactances: i.e. the relative sizes of series and parallel capacitors, with emphasis on the advantages of having them connected in the rectifier loops. The last part of this article presents and

UDC: 621.314.58

0917

2493

Cord 1/2

STEPANOV, V.O.

Experimental investigation of the motion of ships in canals
at supercritical speeds. Visti Inst. gidrol. i gidr. AN
URSR 17:3-22 '60. (MIRA 14:8)
(Ships—Hydrodynamics)

RUSAKOV, Sergey Vasil'yevich; PYSHKIN , B.A., prof., red.; STEPANOV,
V.O., nauchnyy red.; DAKHNO, Yu.B., tekhn. red.

[Design, construction and operation of protective structures
at the Kakhovka Reservoir] Dosvid proektsuvannia, budivnytstva
ta ekspluatatsii zakhysnykh sporud Kakhovs'koho vodoskhovy-
shcha. Pid red. B.A.Pyshkina. Kyiv, Vyd-vo Akad.nauk URSR,
1962. 67 p. (MIRA 16:3)

1. Chlen-korrespondent Akademii nauk Ukr.SSR (for Pyshkin).
(Kakhovka Reservoir--Shore protection)

ACCESSION NR: AT4028736

S/3083/63/022/000/0086/0101

AUTHOR Stepanov, V. O. (Stepanov, V. A.)

TITLE: Interaction of oblique waves with the walls of a channel and the hull of a vessel with the latter traveling at supercritical speeds

SOURCE: AN UkrRSR. Insty*tut gidrologiyi i gidrotekhniky*. Visti, v. 22(29), 1963. Gidromekhanika sudna (Ship hydromechanics), 86-101

TOPIC TAGS: hydrodynamics, ship, wave hull interaction, hydromechanics, wave channel interaction, oblique wave, wave, ship movement, hydraulic theory, ship hull design

ABSTRACT: The movement of a vessel in a channel at supercritical speeds involves a number of peculiarities which are not found in movement at subcritical speeds. These peculiarities are analyzed in detail by means of the unidimensional hydraulic theory (G. I. Sukhomel, V. M. Zass, L. I. Yankovskiy, Issledovaniye dvizheniya sudov po organichenny*m farvateram, Izd-vo AN USSR, 1956). However, the introduction of the reflection and interaction of oblique waves with the hull of the vessel can significantly augment existing

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ACCESSION NR: AT4028736

explanations. An analysis of the "shallow water" theory, as well as the essential nature of the analogy between gas dynamics and hydrodynamics, has made it possible to establish the limits of its applicability to an instance in which a vessel is moving in a channel at supercritical speeds. In this article, techniques are given for plotting the reflection lines of oblique waves between the hull of the vessel and the walls of the channel. Types of reflection are considered which produce either small perturbations or waves of finite height. In the first case, expressions are derived from the law of geometrical optics; in the second, the use of jump polars is recommended for the plotting of the reflection lines. During experiments conducted at speeds close to that corresponding to the minimum of the resistance curve, nonlinear reflection of oblique waves was detected. It is proposed that the problem of such reflections under specific conditions should also be solved with the help of a jump polar diagram by means of the methods of gas dynamics. Consideration of the dynamics of the action of oblique waves on the hull of the vessel has made it possible to refine and augment available explanations dealing with: (a) the reduction of the resistance of the vessel when moving at supercritical speeds in narrow channels in comparison with wider channels; (b) the fact of the presence of repulsive forces at these speeds in the event that the vessel

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Card

ACCESSION NR: AT4028736

approaches the channel wall; (c) the instability of ship movement at speeds corresponding to the descending leg of the resistance curve. In addition, on the basis of an analysis of the effect of the tapering angle of nose waterlines on resistance, approximate methods for its determination are given, as well as recommendations for the waterline design of vessels moving in channels at supercritical speeds. Orig. art. has: 9 figures and 15 formulas.

ASSOCIATION: Insty*tut gidrologiyi i gidrotekhniky* AN UkrRSR. (Institute of Hydrology and Hydrotechnology, AN UkrRSR)

SUBMITTED: 00

DATE ACQ: 16 Apr64

ENCL: 00

SUB CODE: ME

NO REF SOV: 011

OTHER: 000

Card 3/3

L 6994-55 EWT(d)/EWT(m)/EWP(z) AFWL/ASD(f)/SSD/AEDC(c)/AFSTW/AFGC(a)/ASD(p)-3
EF

ACCESSION NR: AP4023367

S/0198/64/010/002/0173/0180

AUTHOR: Panchenkov, A. M. (Panchenkov, A. N.)(Kiev); Stepanov, V. O. (Stepanov, V. A.)
(Kiev) B

TITLE: A method for computing the load distribution over the span of a hydrofoil

SOURCE: Prykladna mekhanika, v. 10, no. 2, 1964, 173-180

TOPIC TAGS: hydrodynamics, hydrofoil, load distribution, hydrofoil loading, lift

ABSTRACT: The problem of the load distribution along the span of a hydrofoil is reduced to the solution of a basic, singular, integro-differential equation by an iteration method with a very small number of approximations. An airfoil with elliptical distribution of circulation in an infinite flow is investigated and a closed solution is obtained with the assumption that this circulation exists under a free surface. Practical formulas for determining the hydromechanical coefficients of the hydrofoil are presented. "The authors express their gratitude to Engineers A. I. Yukhy*menko and A. V. Miodushevs'ka, who carried out all of the difficult numerical computations." Orig. art. has: 1 table, 1 figure and 19 formulas.

Card 1/2

L 6994-65

ACCESSION NR: AP4023367

ASSOCIATION: Insty*tut mekhaniky* AN URSR (Institute of Mechanics, AN URSR)

SUBMITTED: 07Dec62

ENCL: 00

SUB CODE: AS, ME

NO REF SOV: 003

OTHER: 001

Card 2/2

VARZUGIN, V.M.; STEPANOV, V.P.

Manufacture of cross-line screens on photomechanical films.
Geod.i kart. no.2:43-48 F '60. (MIRA 13:6)
(Map printing)
(Photomechanical processes)

ALIYEV, T.M.; LEYTMAN, Yu.S.; MAMEDOV, F.I.; STEPANOV, V.P.

Determination of the tar content of fuel oils. Khim.i tekhn.topl.
i masel 6 no.12:15-18 D '61. (MIRA 15:1)

1. NIPINeftekhimavtomat.

(Petroleum as fuel)

(Tar)

S/049/60/000/02/010/022
E131/E459

AUTHORS: Salikhov, A.G. and Stepanov, V.P.

TITLE: Density and Gravitational Effect of Paleozoic Rocks in the Tartar Republic

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya geofizicheskaya, 1960, Nr 2, pp 271-277 + 1 plate (USSR)

ABSTRACT: The results of an investigation carried out in the Bondyuzh and Yelabuzh regions of the Tartar ASSR are described. The data of the gravitational effect caused by the variation in densities are given. The densities of paleozoic rocks (σ) are tabulated in Table 1 and shown in the cross-sectional diagram, Fig 1. The distribution of the densities for the two regions is illustrated in Fig 2 and 3. Fig 4 illustrates the mechanism of formation of the structures with the various densities. The effect of the relief on the anomalous gravitational field was calculated from the formula

$$\Delta g = 2\pi k \Delta \sigma H$$

and more exactly from the formula given at the bottom of p 276 for some localities. The results thus obtained

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S/049/60/000/02/010/022
E131/E459

Density and Gravitational Effect of Paleozoic Rocks in the
Tartar Republic

are given in Table 2. There are 4 figures, 2 tables ✓
and 4 Soviet references.

ASSOCIATION: Kazanskiy filial AN SSSR Kazanskaya ekspeditsiya
tresta „Tatneftegeofizika“ (Kazan Branch of the Academy
of Sciences USSR, Kazan Expedition of the Combine
„Tatneftegeofizika“)

SUBMITTED: July 22, 1958

Card 2/2

STEPANOV, V.P.

Tectonic pattern of the bedrock in Kirov Province and the southeastern
Mari A.S.S.R. Geol. nefti i gaza 4 no.9:39-41 S '60.
(MIRA 13:8)

1. Trest; Tatneftegeogizika.
(Kirov Province--Geology, Structural)
(Mari A.S.S.R.--Geology, Structural)

STEPANOV, V.P.; YEVRANOV, N.S.; ANDREYEV, V.B.

Some results of surface magnetometric work in the Tatar A.S.S.R.
Geol. nefti i gaza 5 no.11:56-59 N '61. (MIRA 14:11)

1. Kazanskaya ekspeditsiya tresta Tatneftegeofizika.
(Tatar A.S.S.R.--Magnetic prospecting)

STEPANOV, V.P., inzh.

Productive capacity of a ship repair enterprise, Sudostroenie
27 no.2:51-52 F '61. (MIRA 16:7)

(Ships--Maintenance and repair)

STEPANOV, V.P., inzh.

Construction of the hydraulic and power center on the Niagara
River in the USA (from "Niagara Power Project Data and Statics").
Energokhoz. za rub. no.2:46-47 Mr-Ap '59. (MIRA 12:5)
(Niagara River--Hydraulic engineering)

STEPANOV, V.P., inzh.

Experience in operating electrohydraulic speed controllers
of hydraulic turbines. Elek. sta. 35 no.2:41-44 F '64.
(MIRA 17:6)

STEPANOV, V.P., inzh.

Keeping oil out of the windings of hydrogenerators. Energetik
8 no.9:13-14 S '60. (MIRA 14:9)
(Turbogenerators)

ASMAKOV, D.N., kand.tekhn.nauk, inzhener-polkovnik; STEPANOV, V.P.,
inzhener-kapitan

Computing amplifiers. Vest.protivovozd.obor. no.3:20-24, Mr '61.
(MIRA 14:7)

(Amplifiers (Electronics))

ALIYEV, T.M.; STEPANOV, V.F.

Dynamic a.c.potentiometer. Izv.tekh. no.10:34-39 0 '61.
(MIRA 14:11)

(Potentiometer)

S/146/62/005/003/005/014
D234/D303

AUTHORS: Aliyev, T.M. and Stepanov, V.P.
TITLE: A device for displaying the vectors of alternating current
PERIODICAL: Investiya vysshikh uchebnykh zavedeniy, Priboro-
stroyeniye, v. 5, no. 3, 1962, 37-42

TEXT: The authors describe a device for obtaining the a.c. vectors on an oscillograph screen in the form of straight line segments whose length and position with respect to the coordinate axes depend respectively on the magnitude and phase of the voltages which are being measured. The voltage is amplitude modulated with a frequency considerably lower than that of the voltage itself, then divided into two components equal in magnitude and displaced by 90° in phase; these are fed to the vertical and horizontal plates of an oscillograph. The ray of the latter moves in a spiral and its maximum displacement is determined by the amplitude of the primary voltage. A negative displacement is fed to the control grid of the X-ray tube,
Card 1/2

A device for displaying the vectors ... S/146/62/005/005/014
D234/D303

making the ray appear at certain instants only, when short positive pulses are given from a special unit. The pulses follow with a frequency equal to that of the primary voltage and have a stable phase. The screen is then illuminated after every turn of the spiral, and the illuminated points are sufficiently close to each other to give a straight line. V.V. Shteyn is mentioned for his contributions. There are 5 figures.

ASSOCIATION: Azerbaydzhanskiy institut nefti i khimii im. M. Azizbekova (Institute of Petroleum and Chemistry of Azerbayzhan im. M. Azizbekov)

SUBMITTED: September 11, 1961

Card 2/2

PHASE I BOOK EXPLOITATION

SOV/4944

Kamnev, P.V., Candidate of Technical Sciences, Docent, Ed.

Peredovoy opyt kovki (Advanced Experience in Forging) [Leningrad] Lenizdat, 1959. 246 p. 5,000 copies printed.

Ed.: Ye.V. Yemel'yanova; Tech. Ed.: I.M. Tikhonova.

PURPOSE: This collection of articles is intended for workers and engineers in die-forging shops and for personnel of affiliated branches in the machine industry.

COVERAGE: The articles deal with the advanced experience of a number of Leningrad plants in mechanizing and improving production methods in die forging. Recommendations are made concerning the specialization of forging shops, and the further development of open-die forging processes. Articles by operators-innovators in forging shops of the Novo-Kramatorskiy (New Kramatorsk) and Ural'skiy (Ural) machinery plants are included. The collection contains some of the papers which were discussed during the conference in June 1958 (P.V. Kamnev, Chairman) on open-die forging, called by the regional section for the pressworking of metals of the Leningradskoye Pravleniye nauchno-tekhnicheskogo obshchestva mashinostroitel'noy promyshlennosti (Leningrad

~~Card-1/4~~

Advanced Experience in Forging

SOV/4944

Administration of the Scientific and Technical Society of the Machine Industry) and the Leningradskiy Dom nauchno-tehnicheskoy propagandy (Leningrad House of Scientific and Technical Propaganda). The foreword includes a list of the participants who submitted papers to the aforementioned conference. There are no references.

TABLE OF CONTENTS:

Foreword

Kamnev, P.V. Candidate of Technical Sciences, Docent. The Method of Grouping in the Manufacture of Forgings as a Basis for Specializing the Forging Shops 13

Lizunova, T.A., V.P. Stepanov, and K.Ya. Shenin, Engineers. Heating the Large Ingots and Blanks of High-Alloy Steels and Alloys 43

Medvinskiy, V.G., Chief Process Engineer, Die-Pressing Shop. Making Forgings From Oblong-Form Ingots 52

Card-2/4

DZUGUTOV, M.Ya.; STEPANOV, V.P.

State of stress in cylindrical stock in open-die upsetting
with flat-face hammers. Kuz.-shtan. proizvod. 1 no.8:1-4 Ag '59.
(MIRA 12:12)

(Forging)

S/182/60/000/003/002/007
A161/A029

AUTHORS: Dzugutov, M.Ya.; Vinogradov, Yu.V.; Stepanov, V.P.

TITLE: The Effect of the Deformation Degree on the Results of Ultrasound
Inspection in Forgings From High-Alloy Heat-Resistant Steel and
Alloys ₁₄ ₁₆ ₁₄

PERIODICAL: Kuznechno-shtampovochnoye proizvodstvo, 1960, No. 3, pp. 10 - 13

TEXT: Non-uniform grain size in heat-resistant steel forgings with spots of large-grain structure causes difficulties in ultrasound defectoscopy, i.e., the bottom signal disappears partly or completely in large-grain zones, or false defect pulses are obtained. It was revealed that the forging technology used at the plant gave practically no large-grain zones, but the remaining zones of the initial cast structure caused the same trouble. To determine the effect of summary deformation and of the forging dimensions on the results of ultrasound inspection, an investigation has been undertaken with forgings from alloys 3M4376 (EI437B) and 3M481 (EI481) in cylindrical and washer shape. The forgings were prepared on a 4,000-ton press from an octagonal 2,100 kg ingot. The deformation coefficient is determined at the "Elektrostal" works (there exists no general

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S/182/60/000/003/002/007
A161/A029

The Effect of the Deformation Degree on the Results of Ultrasound Inspection in Forgings From High-Alloy Heat-Resistant Steel and Alloys

opinion on the determination method of this coefficient) as the relation of the final billet length to the initial length in the drawing operation, or as relation of the initial billet height to the final (or of the final and initial cross section area) in swaging. Explanation is given (in Table 1) how the total deformation coefficient is calculated for the case of alternating drawing and swaging operations. Ultrasound defectoscopes УЗД7И (UZD7N), 86ИМ (86IM), Б47И (B47I) and others were used, with frequencies of 1.4 - 2.5 megacycles; transformer oil or spindle oil was employed as medium. It was concluded after experiments and comparison of practical production data that the inspection results depend on the deformation degree by forging and on the forging dimensions in the sound direction. As may be seen from Tables 2 and 3, the deformation coefficient 7 or lower did not give a complete ultrasound inspection in forgings of EI481 steel of 155 mm height because of the presence of not recrystallized cast structure, and the same happened with EI437B steel forgings of 215 mm height and 8.16 deformation coefficient, but the coefficient 11 in the first case and 13.3 in the second was sufficient. It was stated that heat treatment of forgings

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S/182/60/000/003/002/007
A161/A029

The Effect of the Deformation Degree on the Results of Ultrasound Inspection in Forgings From High-Alloy Heat-Resistant Steel and Alloys

with incompletely recrystallized structure and incomplete ultrasound permeability is needed to complete recrystallization. It consists in heating slightly over the temperature of beginning recrystallization soaking in this temperature and cooling. Heating to a higher temperature leads to a more complete and rapid recrystallization process, but can cause the beginning of the collective recrystallization process that could again impair the inspection. Summarizing, the following conclusions are drawn: 1) The total deformation magnitude has a decisive effect, and the accuracy of the results grows with a growing (to a certain limit) deformation coefficient. 2) The inspection accuracy drops with increasing dimensions of forgings in the direction of sound (with equal deformation coefficient). 3) The nature of alloy, or steel, also has an effect. 4) Special heat treatment of forgings that could not be "sounded" at all or partly in the state after forging, usually improves the "soundability" due to more complete recrystallization. There are 2 photographs and 6 tables.

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18 7100
 11/6/1960
 B1/RQ/NOV/003/003/051
 5604

TITLE: Investigation of the Recrystallization of Cast
 Magnesium-Aluminum Alloy
 AUTHOR: I. V. Alexandrov, N. S. Gerasimov, and
 V. A. Kiselev
 SOURCE: Metallurgiya, 1960, No. 5, pp. 70-79
 ABSTRACT: The authors describe their investigation of the
 recrystallization of cast magnesium-aluminum alloy (Mg-10%Al) without plastic deformation. The work was carried out under conditions for
 the cast alloy is shown in the top left
 portion of Fig. 1 while that after 10% linear compression (as
 described by Kiselev, Ref. 1) is shown in the top right.
 Differences in grain size under different conditions are illus-
 trated by the lower sections of Fig. 1. For the main
 investigation the authors used a production ingot of the alloy to
 make disks (some of larger than in the original use of linear
 deformation (Ref. 1) which were deformed at 1000, 1100, 1200 and
 1300°C.)

1300°C to 0.5-1.0%. After air cooling, the deformed specimens
 were cut vertically into four parts, one of which was etched at
 the deformation temperature for 2 hours, another at 1200°C for
 5 hours. Polished sections were etched from cast. Results are
 presented as graphs of average grain size against degree of
 deformation and temperature. Figs 2, 3 and 4 relate, respectively,
 to deformation without annealing, deformation with annealing at
 the same temperature, and deformation with annealing at 1200°C.
 Complete recrystallization regions with a width of deforma-
 tion and with welded defects are indicated. Fig. 5
 illustrates microstructures of undeformed and deformed specimens.
 At high degrees of deformation defects formed at lower degrees are
 eliminated. New grains appear and grow at all stages of the
 deformation. An investigation was also made of the influence of
 plastic deformation on the grain size of the specimens of
 magnesium-aluminum alloy (Mg-10%Al) after 2 hours of annealing at
 1200°C. The results are shown in Fig. 6. It is seen that the
 test pieces were made from discs pressed from the alloy at 1200°C
 (cooling to 750-800°C in 10-15 min., then in air).

Structure was deformed without (Table 1) and with (Table 2)
 deformation. Under certain conditions the heat treatment
 of the alloy are improved as a result of the
 presence of serrations at grain boundaries (Fig. 6).
 The work was directed by I. V. Alexandrov.
 There are 6 figures, 2 tables and 12 Soviet references.
 SCHEMATIC: June 1, 1960
 Card 3/3

381111.11.11

34519

9/659/61/007/000/006/044
D217/D103

18.11.50

AUTHORS:

Rastegayev, M.V., Danil'chenko, A.N., Dzigitov, K.Ta.,
Rychkova, Z.S., Mezis, V.Ya., Vinogradov, Yu.V., and
Stepanov, V.P.

TITLE:

Recrystallization of cast, deformation-resistant
alloys of the nichrome type

SOURCE:

Akademiya nauk SSSR. Institut metallurgi. Issledova-
niya po zharoprochnym splavam, v. 7, 1961, 47 - 57

TEXT: The work was carried out under the supervision of I.M. Fav-
lova. The recrystallization of nichrome-type alloys has been stu-
died very little, since their low plasticity in the cast state ma-
kes experimenting difficult. Therefore, a new method of hot working
had to be developed, rendering upsetting without rupturing possible.
This method, in which uniform upsetting is achieved, consists of
making shallow flat grooves (0.5 - 0.8 mm) with rims of 0.5 mm
width, in the end faces of a cylindrical specimens (20 mm long and
20 mm diameter). The grooves are filled with moistened asbestos or

Card 1/3

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S/659/61/007/000/006/044
D217/D303

Recrystallization of cast, ...

water glass, acting as lubricants during high temperature deformation under a drop hammer or press. This enables the contact friction to be decreased to a minimum and thereby permits deformation under conditions of linear compression. The results of investigations of recrystallization processes occurring in metallic alloys on hot working by pressure, are usually presented in the form of space diagrams of recrystallization of the second order within the coordinates "temperature, grain size and degree of deformation". However, these diagrams do not represent the entire recrystallization process which includes the old crystals to a certain extent, as well as any possible intercrystalline failures and their weldability. Therefore, the regions of full and incomplete recrystallization, as well as regions of failure and weldability between the crystals, should be indicated. A nichrome type alloy ingot, made under production conditions, was used in the investigation. Since the maximum transverse diameter of the dendritic crystals of the ingot attains 10 - 13 mm, the dimensions of the specimens were increased to 30 mm diameter and 40 mm length, as against 20 x 20 mm used in the uniform upsetting method. The dimensions of the end fa-

X

Card 2/3

3

S/659/61/007/000/006/C44
D217/D303

Recrystallization of cast, ...

ce grooves were increased proportionately to the new specimen dimensions. The specimen axes coincided with the longitudinal direction of the ingot. Three-dimensional recrystallization diagrams were constructed for cast nichrome type alloys by the "uniform" upsetting method, and also for cases in which the soaking time during annealing of the not deformed metal had to be allowed for. The regions of complete recrystallization of a sound or defective structure, as well as regions of complete recrystallization of structures with welded-in defects were labelled. In all stages of hot deformation of nichrome-type alloys (in the cast or preliminarily recrystallized state) recrystallization (appearance and growth of new grains) was observed to take place. It was found that under certain conditions of hot working and appropriate cooling of forgings, a complex intercrystalline cohesion structure could be obtained in nichrome-type alloys which effectively increased their high temperature resistance. There are 6 figures, 3 tables and 12 Soviet-bloc references.

Card 3/3

人

KOROVALOV, Ye.G.; STEPANOV, V.P.

Equipment for the investigation of oblique-angle cutting by the
optical-polarization method. Sbor. nauch. trud. Fiz.-tekh.inst.
AN BSSR no.7:190-198 '61. (MIRA 15:7)
(Metal cutting--Testing)

S/133/62/000/005/011/015
AC54/A127

AUTHORS: Stepanov, V. P., Pridantsev, M. V., Dzugutov, M. Ya.

TITLE: Extra-axial nonhomogeneity of 787 (EI787) steel

PERIODICAL: Stal', no. 6, 1962, 544 - 547

TEXT: It is generally accepted that the tendency to spotty liquation decreases upon raising the nickel content of the alloy. However, the investigations of heat resistant alloys with a nickel content - in some cases as high as 30-40% - [ЭИ696 (EI696), ЭИ787 (EI787)] or produced on a nickel basis [ЭИ435 (EI435), ЭИ437 (EI437), ЭИ765 (EI765), etc.] showed that these alloys are not without this defect. As spotty liquation was found to be pronounced in the EI787 grade, tests were made covering the character of spotty liquation, its effect on the plasticity of the steel and the factors which affect the development of this defect. The steel tested had the following composition (in %): C < 0.08, Si < 0.60, Mn < 0.60, S < 0.010, P < 0.020, W < 2.0 - 4.0, Cr 13.0 - 16.0, Ni 33.0 - 37.0, Ti 2.4 - 3.2, Al 0.7 - 1.7, B 0.03. Structural analyses were made on longitudinal and transverse templates, cut from ingots and forgings. It

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S/133/62/COC/CC6/011/015
A054/A127

Extra-axial nonhomogeneity of...

was found that spotty liquation developed in zones of increased pickling tendency, containing an excess compound of eutectic character, arranged in the cast or reheated and deformed metal in the form of nets around the micrograins. An increase in the ingot weight and a reduction of the crystallization rate promoted the development of spotty liquation. In ingots weighing 450 kg the number of spots covering 1 dm² of the ingot surface amounted to 3, in 2,100-kg ingots to 11. When pouring 50-kg ingots in two different molds (a conventional, cold cast iron mold and a ceramic mold heated to 700°C), at rates of 3 - 5 and 25 - 30 minutes respectively, no spotty liquation was found in the first ingot, whereas it was well-developed in the second. The effect of spotty liquation on the mechanical properties of steel and mainly on its deformability was studied on specimens subjected to the following heat treatment: heating to 1,180°C, holding time 8 hours; heating to 1,050°C, holding time 4 hours; heating to 750°C, holding time 16 hours; (after each heating cycle air-cooling). In the heat-treated specimens spotty liquation did not affect the heat resistance of the ingots, but decreased their strength and ductility at room temperature, mainly in the transverse specimens (in the latter, the ductility decreased by a factor of 2 - 3). This must be put down to the distribution of the eutectic element. The mechanical properties were

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STEPANOV, V. P., inzh.

Electric lighting control networks. *Energetik* 10 no.8:26-28
Ag '62. (MIRA 15:10)

(Electric lighting) (Electric networks)

GLUSKIN, A.Ya., kand. tekhn. nauk; STEPANOV, V.F., inzh.;
BORDACHENKOV, A.M., inzh.

Static voltampere characteristics of a slide contact. Vest.
elektroprom. 34 no.7:44-47 JI '63. (MIRA 16:8)

GLUSKIN, A.Ya., kand.tekhn.nauk; BORDACHENKOV, A.M. , inzh.; STEPANOV,
V.P., inzh.

Performance of the brush contact of electrical machines at in-
creased current densities. Elektrotehnika 34 no.9:20-25 S '63.
(MIRA 16:11)

STERANOV, V.P. (Moscow)

"Study of stress-strain relations in fluid-saturated porous media; the simplest problems of wave reflection"

Report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow 29 Jan - 5 Feb 64.

ACCESSION NR: AP4019806

S/0279/64/000/001/0045/0047

AUTHOR: Fridantsev, M. V. (Moscow); Stepanov, V. P. (Moscow); Topilin, V. V. (Moscow); Kiyuyev, M. M. (Moscow)

TITLE: Effect of electroslag melting on the macrostructure of alloy KhN35VTYu

SOURCE: AN SSSR. Izv. Metallurgiya i gornoye delo, no. 1, 1964, 45-47

TOPIC TAGS: alloy KhN35VTYu, alloy macrostructure, spotted liquation, electroslag melting, slag ANF-6, slag AN291

ABSTRACT: This economical multi-component alloy on an Fe-Cr-Ni base, designated for use under extensive stress at high temperatures and representing an excellent substitute for similar Cr-Ni based systems, is limited in its applications by a tendency to spotty liquation. The authors investigated the effects of chemical composition and the quantity of slag ANF-6 (30-40% Al₂O₃, 60-70% CaF₂) or AN291 (39-43% Al₂O₃, 16-20% CaF₂, 22-26% CaO, 14-20% MgO), as well as of electrical current factors and electromagnetic stirring of the slag and metallic baths, on the macrostructure and surface quality of 1200-kg ingots of this alloy obtained by smelting cast or forged electrodes (200 mm) on the P-951 apparatus in a 425-mm diameter crystallizer. It is concluded that ingots of such size can be obtained free of spotty liquation when the build-up rate is held to 165-200 kg/hr (61 v, Card 1/2

ACCESSION NR: AP4019806

5.5-6.5 ka). The slow build-up rate is the decisive factor in obtaining ingots with satisfactory macrostructure. "Ye. V. Voynovskiy, N. P. Druzhinina, N. K. Kernich, M. I. Pichugina, L. F. Cherny'sheva and A. F. Raskova also participated in this study". Orig. art. has: 6 illustrations and 1 table.

ASSOCIATION: none

SUBMITTED: 26Jul63

DATE ACQ: 31Mar64

ENCL: 00

SUB CODE: ML

NO REF SOV: 004

OTHER: 001

Card 2/2