MISULOVIN, L.Ya., inzh; MOROZENSKIY, Ye.M., inzh.; GAVENDO, I.Ya., inzh.; FURMAN, R.Kh., inzh.

Equipment for the transmission and reception of information using a multifrequency code. Vest. sviazi 25 no. 11:3-6 N '65. (MIRA 18:12)

1. Gosudarstvennyy elektrotekhnicheskiy zavod (VEF), Riga.

GAVENSKIY, Ya.M.

Towards practical application of chemical studies. Khim. v shkole 10 no.1:41-43 Ja-F '55. (MLRA 8:4)
(Chemistry—Study and teaching)

GAVENSKIY, Ya.M., uchitel' (Baku); GUREVICH, M.M., uchitel' (Baku)

Use of local material in the first lesson of human anatomy and physiology. Biol. v shkole no.5:82-83 S-O '58. (MIRA 11:11)
(ANATOMY, HUMAN--STUDY AND TEACHING)
(PHYSIOLOGY-- STUDY AND TEACHING)

GAVENSKIY, Ya.M., zasluzhennyy uchitel' shkoly Azerbaydzhanskoy SSR

Student participation in the preparation of lessons. Biol. v shkole no.2:82 Mr-Ap '62. (MIRA 15:2)

1. Bakinskiy gorodskoy otdel narodnogo obrazovaniya.
(Biology--Study and teaching)

RABEN, A.S.; GAVERDOVSKAYA, G.K.

Severe bilateral affection of the eye in sarcoidosis (Besnier-Boeck-Schaumann disease). Vest. oft. 73 no. 3:39-41 My-Je '60. (MIRA 14:1)

(GRANULOMA BENIGNUM) (EYE—DISEASES AND DEFECTS)

BRYANTSEVA, M.K., kand.med.nauk; GAVERDOVSKAYA, G.K.

Prophylaxis for injuries and lesions of the eyes of workers in the chemical and metalworking industries. Trudy I-go MMI 32:38-50 '64. (MIRA 18:5)

GAVERDOVSKAYA, G.K.

Prophylaxis for injuries and diseases of the eyes of workers in the "Krasnyi Proletarii" machine-tool plant. Trudy 1-go MMI 32: 51-65 '64. (MIRA 18:5)

GAVERDOVSKAYA, G.K.

Cysticercosis and a secondary iridocyclitis of the eye combined with cysticercosis of the brain. Trudy 1-go MMI 32:229-236 '64.
(MIRA 18:5)

ZOLOTAREV, Ye.Kh.; GAVERDOVSKIY, A.N.

Changes in the attitude of fleas to repellents in relation with the physiological condition of the insects. Zool. zhur. 43 no.8: 1155-1160 '64. (MIRA 17:11)

1. Moskovskiy gosudarstvennyy universitet.

STRAZD, Dz.; GAVERS, A., red.

[We create the technology of the future already today] Nakotnes tehniku radam jau sodien. Riga, Latvijas Valsts izd-ba, 1964. 85 p. [In Latvian]
(MIRA 18:3)

GAVEZ, Dr. Edward

"Repercussion of Morpho- formative Factors in Animal Tuberculosis with Special Reference to Tuberculosis Civiaris Quis." Ass. professor for pathologic anatomy at Vet. Faculty of Univ. of Sarajavo.

SOURCE: Vet, BROJ 5-6-7, p. 539, 1952

GAVEZ, E.

Yugoslavia/Diseases of Farm Animals. Diseases Caused by Bacteria and Fungi. R-1

Abs Jour: Ref Zhur-Biol., No 18, 1958, 83548

Author : Gavez, E.
Institute: Tubercular and Brucellar Epididimoorhitide Etiology with Blastomoidal Phenomena of Leydig Cells. Observations in Swine.

Orig Pub: Veterinaria (Jugosl.), 1957, 6, No 1, 33-45

Abstract: In the zones of atrophied sperm ductules, a transformation of indifferent mesenchymal cells into typical Leydig cells was observed by the author in 2 cases of tubercular orhite in swine; 'e also observed reverse transformation processes here. The author noted analogous hyperplasia phenomena in a case of brucellar orhite in swine.

Card 1/1

25

Country : YUGOSLAVIA
Category : Diseases of Farm Animals.
Diseases Caused by Bacteria and Fungi.
Abs. Jour. : Ref Zhur-Biol., No 21, 1958, 96992

Author : Gavez, E.
Institut. : -
Title : The Histoterritorial Cytology of Hepatic Tuberculosis (Avian Type) in Swine with Special Consideration of Langhans Cells.
Orig Pub. : Veterinaria (Jugosl.), 1957, 6, No 2-3, 360-370

Abstract : The results of the macroscopic and histologic investigation performed on 10 cases of a classic liver tuberculosis in swine caused by an avian type pathologic agent are described. The author considers the histogenesis of giant cells in the tuberculosis of swine as dependent on the site of the tubercular focus: whether it is to be found in the parenchyma of the liver or in the interlobular connective tissue. The attempt is made to revise the already established viewpoint

Card: 1/2

Country : YUGOSLAVIA
Category= : Diseases of Farm Animals. R
Diseases Caused by Bacteria and Fungi.
Abs, Jour, : Ref Zhur-Biol., No 21, 1958, 96992

Author :
Institut. :
Title :

Orig. Pub. :

Abstract : with regard to the histogenesis of giant cells.
-- P. Pirog

Card: 2/2

GAVEZ,E.; SUDARIC,F.; STIPANCEVIC,L.

Tuberculosis (postprimaria?) scroti of the stallion. Tuberkuloza, Beogr. 11 no.4:447-450 O-D '59.

1. Patoloski institut Veterinskog fakulteta,Sarajevo (sef: prof. dr E. Gavez.)
(TUBERCULOSIS MALE GENITAL veterinary)
(HORSES dis.)

GAVEZ, Eduard

Biology of spontaneous tuberculosis in swine. Part I. Bovine tuberculosis. Tuberkuloza, Beogr. 12 no.1:75-92 '60.

1. Patoloski institut Veterinarskog fakulteta Univerziteta u Sarajevu (sef: prof. dr. E. Gavez)
(TUBERCULOSIS veterinary)

GAVEZ, E.

The system, histogenetic problems and environmental outbreak of intrapulmonary epitheliomas. Tuberkuloza no.2/4:154-168 '62.

1. Patoloski institut Veterinarskog fakulteta Univerziteta Sarajevo (sef: prof. dr Eduard Gavez).
(LUNG NEOPLASMS)

5

GAVEZ, Eduard

Pulmonary adenomatoses. The analogy of human and animal changes.
Tuberkuloza 15 no.2:305-315 Ap-Je '63.

1. Patoloski institut Veterinarskog fakulteta Univerziteta Sarajevo - Sef Instituta: prof. dr Eduard Gavez.
(ADENOCARCINOMA, PAPILLARY) (LUNG NEOPLASMS)
(VETERINARY MEDICINE) (PATHOLOGY)

GAVIAR, Vl.

Therapeutist's opinion on indications in favor of a heart operation. Trudy Inst.eksp.i klin.khir.i gemat. AN Gruz.SSR 10:43-51 '62.
(MIRA 16:2)

(HEART—SURGERY)

KAMENSKIY, G.N. [deceased]; GAVICH, I.K.; MYASNIKOVA, N.A.; SEMENOVA, S.M.; RODIONOV, N.V., red.izd-va; TIKHOMIROVA, S.G., tekhn.red.

[Hydrodynamic principles underlying the study of the ground-water regimen and its changes due to the effect of artificial factors; method of finite differences] Gidrodinamicheskie osnovy izucheniia rezhima gruntovykh vod i ego izmenenie pod vliianiem iskusstvennykh faktorov. Moskva, Izd-vo Akad. nauk SSSR, 1960. 190 p. (Akademiia nauk SSSR. Laboratoriia gidrogeologicheskikh problem. Trudy, vol. 26). (MIRA 13:9)

1. Chlen-korrespondent AN SSSR (for Kamenskiy).
(Water, Underground)

KAMENSKIY, G.N. [deceased]; GAVICH, I.K.; SEMENOVA, S.M.

Hydrodynamic characteristics of various types of subterranean water streams. Izv. vys. ucheb. zav.; geol, i razved. 3 no. 10:81-88 O '60. (MIRA 13:12)

1. Moskovskiy geologorazvedochnyy institut imeni S. Ordzhonikidze.
(Water, Underground)

GAVICH, I.K.; SEMENOVA, S.M.

Dynamics of underground waters in G.N.Kamenskii's works. Trudy Lab.gidrogeol.probl. 40:31-50 '62. (MIRA 15:11)
(Water, Underground)

GAVICH, I.K., [illegible]EVA, A.A., SEMENOVA, S.M.; KONDRAT'YEVA, V.N., red.

[Collection of problems on general hydrology] Sbornik zadach po obshchei gidrogeologii. [n.p.] Vysshaia shkola, 1964. 251 p. (MIRA 18:4)

GAVICH, I.K.

Movement of underground waters in a nonuniform layer in the presence of uniform seepage. Izv. vys. ucheb. zav.; geol. i razv. 7 no.5:134-137 My '64. (MIRA 18:3)

1. Moskovskiy geologorazvedochnyy institut im. S. Ordzhonikidze.

GAVLENA, Frantisek

Cultivation of Scenedesmus acuminatus by illumination with lamps submerged in the nutrient media. Biologia (Bratisl) 20 no.1:36-51 '65

1. Laboratoriya rybovodstva v Bratislave.

GAVILEVSKIY, Yu.M.

Evaluation of the immunological state of the population of some northwestern regions in relation to tularemia. Trudy Len. inst. epid. i mikrobiol. 25:334-345 '63.

Materials on the evaluation of serological examinations of farm animals to determine the activity of tularemia foci. Ibid.:346-351 (MIRA 17:1)

1. Iz kafedry epidemiologii Leningradskogo ordena Lenina Instituta usovershenstvovaniya vrachey imeni Kirova i otdela osobo opasnykh infektsiy Leningradskogo instituta epidemiologii i mikrobiologii imeni Pastera.

GAVILOV, V. Z.

25(1) PHASE I BOOK EXPLOITATION SOV/1745

Nauchno-tekhnicheskoye obshchestvo mashinostroitel'noy promyshlennosti. Kiyevskoye oblastnoye upravleniye

Peredovaya tekhnologiya liteynogo proizvodstva (Advanced Technology of Casting Production) Kiyev, Mashgiz, 1958. 152 p. 6,000 copies printed.

Ed.: V. K. Serdyuk; Tech. Ed.: N. V. Rudenskiy; Editorial Board: A.Ya. Artamonov, K. I. Vashchenko (Resp.Ed.), S. Sh. Zaslavskiy, and B. V. Polyak; Chief Ed. (Yuzhnoye Division, Mashgiz): V. K. Serdyuk, Engineer.

PURPOSE: This book is intended for engineering personnel of foundries, and workers of scientific research institutions.

COVERAGE: This book is a collection of articles and papers given by representatives of plants, scientific-research institutes, and vuzes on problems of advanced methods of production and mechanization of the [illegible] at a conference organized by the Kiyev o'blast Board of NTO (Scientific [illegible] Section) of the machine-building industry and the Institute [illegible] Engineering of the Academy of Sciences, Ukrainian SSR. [illegible] in centrifugal pipe precision investment casting, shell [illegible] casting, use of materials preventing scorching, quick [illegible] mixtures [blends], and problems of mechanization and automation [illegible] processes are covered in this book. An article by N. Sh. [illegible] a new cast iron welding method developed by the author with the [illegible] of electrowelder G. A. Pirozhenko, and called "cold electrowelding [illegible] cast iron by means of a metal electrode with an indirect arc action." As the title indicates, the arc acts only indirectly on the welded metal passing between the electrode and the build-up metal. Such welding insures shallow fusion of the cast iron. The formation of a cementite surface layer is either absent or limited to a very thin layer of not more than 0.2 mm., making for easy mechanical working. No personalities are mentioned. There are no references.

[illegible] Production (Cont.) SOV/1745

TABLE OF CONTENTS:

Card 4/6

1. GAVIN, A. A., Eng.

2. USSR (600)

4. Lumbering

7. Calculating lumber turnover of log landings. Les. prom. 12 no. 12 1952.

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

LAVINSON, S. Ya.

1/2

Mathematical Review.
June 1954
Analysis

10-5-54
LL

Lavinson, S. Ya. On some nonlinear extremal problems for bounded analytic functions. Doklady Akad. Nauk SSSR (N.S.) 92, 243–245 (1953). (Russian)

As in a previous note [same Doklady (N.S.) 88, 957–959 (1953); these Rev. 14, 967], G is an $n$ply connected bounded region with boundary Γ consisting of n analytic curves; B^1 consists of functions analytic in G and bounded by 1; $l_k(f)=\int_\Gamma f(x)\omega_k(x)dx$, where $\omega_k(x)$ are analytic on Γ, while on none of the contours forming Γ does any linear combination of ω_k coincide with a function representable in G by its Cauchy integral; A_r is the r-dimensional (convex) set of points $(l_1(f), \cdots, l_r(f))$. From the results of the author's previous note it follows that if $\phi(c_1, \cdots, c_r)$ is a function defined on A_r and such that $\sup|\phi|$ is attained only on the boundary of A_r, then the supremum of $|\phi(l_1(f), \cdots, l_r(f))|$ for f in B^1 is attained for a constant or for a function mapping G on an n-sheeted circle [the possibility of constant extremal functions was overlooked in the previous note]. As a consequence, the same conclusion is obtained for the extremal functions for $\sup\sum_{k=0}^{r}|c_k|^{p_k}$, where c_k are the Taylor coefficients of $f(z)$ about a fixed point of G. Then

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HARMSON, S.Y.

an analogous result is presented for

$$\sup \int_R \left\{ \left| \int_\Gamma f(x)\omega(x,t)dx \right|^p \right\} d\mu,$$

where the set R, measure μ and function ω satisfy suitable hypotheses. A special case of this is that if K is a collection of rectifiable arcs in G, of finite total length, and at positive distance from Γ; the greatest total length of the image of K under functions of B^1 is attained for (and only for) a mapping onto a multi-sheeted unit circle; similarly for area.

R. P. Boas, Jr. (Evanston, Ill.).

GAVLAS, A.

Introducing mechanization in steep and vertical seams. p. 142.
UHLI, Praha, Vol. 5, no. 5, May 1955.

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 4, no. 10, Oct. 1955, Uncl.

GAYLE.

POLAND/Organic Chemistry. Synthetic Organic Chemistry. G

Abs Jour: Ref Zhur-Khimiya, No 21, 1958, 70876.

Author : Ledukhovsky, Borovsky, Ledukhovsky, Gavle, Moravsky.

Inst :

Title : Investigation of Anti-Cancer Compounds in a Series of Acridine Derivatives. I. Derivatives of 1-bromo-7-methoxy acridine.

Orig Pub: Roczn. chem., 1958, 32, No 1, 147-150.

Abstract: The following new derivatives of 1-bromo-7-methoxy acridine were synthesized: 1-bromo-7-methoxy-9-chloro acridine, 1-bromo-7-methoxy-9-phenoxy acridine, 1-bromo-7-methoxy-9(N,N-dimethyl hydrazino) acridine, 1-bromo-7-methoxy-9-(2'-dimethylamino ethylamino)-acridine, 1-bromo-7-methoxy-9-(3'-

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Card : 2/2

L 6544-66 EWT(1)/FS(v)-3 DD

ACC NR: AP6000777 SOURCE CODE: CZ/0049/65/000/001/0036/0051

AUTHOR: Gavlena, Frantishek--Havlena, Frantisek

ORG: Hydrological Laboratory, Bratislava (Laboratoriya rybovodstva)

TITLE: Growing of Scenedesmus Acuminatus using light of bulbs submerged in the cultural solution

SOURCE: Biologia, no. 1, 1965, 36-51

TOPIC TAGS: algae, primitive plant

ABSTRACT: Neon lights submerged in a solution gave more than 200% higher yields than so-called daylight bulbs. The daylight type bulb causes the growth of larger cells of Scenedesmus A., and the culture contains mainly only 4 and 8 cell cenobites. Such material is suitable for the study of trophism of animals who obtain their food by filtration of water. Aeration by air and CO_2 increases the rate of growth of the algae. CO_2, apart from being used for assimilation, also prevents precipitation of Fe compounds, and of calcium phosphate. Shortage of N slows down the growth. An installation for laboratory cultivation of algae is described.
The author sincerely thanks Prof. N. S. Gayevskaya for direction of the work. Orig. art. has: 5 figures. [JPRS]

SUB CODE: nw 06 / SUBM DATE: 03Jun64 / OTH REF: 003 / SOV REF: 018

Card 1/1

0901 1766

GAVLICHEK, V.A.

Modifications of blood sugar level in various functional states of the cerebral cortex. Zh. vysshei nerv. deiat. 2 no.5:742-752 Sept-Oct 1952. (CIML 23:4)

1. Department of Normal Physiology of First Moscow Medical Institute.

GAVLICHEK, V. A.(Aspirant at the First Moscow Medical Institute)

"Relation between Blood Pressure Level and State of Higher Nervous Activity in Animals" a report prepared at Sukhumi Medico-Biological Station, AMS USSR, 1954.

So: Review of Eastern Medical Sciences, Munich, No.2, 1956.

GAVLICHEK, V., Cand Med Sci —(diss) "Changes in blood pressure level in various biologically negative effects on the higher nervous activity of animals". Moscow, 1958, 16 pp. (First Moscow Order of Lenin Med. Inst. im I.M.Sechenov). 200 copies.

(KL, 38-58, 107).

GAVLICHEK, V.

Electroencephalographic characteristics of the conditioned defensive dominant state. Fiziol.zhur. 44 no.4:305-315 Ap '58. (MIRA 11:4)

1. Kafedra normal'noy fiziologii 1-go Meditsinskogo instituta im. I.M.Sechenova, Moskva.
(ELECTROENCEPHALOGRAPHY,
manifest. in conditioned defensive dominant state (Rus))
(CONDITIONED,
EEG aspects in conditioned defensive dominant state (Rus))

GAVLICHEK, V.

Effect of aminazine on conditioned defense dominant. Fiziol. zhur. 45 no.8:938-947 Ag '59. (MIRA 12:11)

1. From the Department of Physiology, I.M.Setchenov Medical Institute, Moscow.
(CHLORPROMAZINE, pharmacology)
(BEHAVIOR MECHANISMS, pharmacology)
(REFLEX, CONDITIONED, pharmacology)

GAVLICHEK, Viktor Aleksandrovich; NAZAROV, V.V., red.; PETROVA, N.K., tekhn. red.

[Conditioned defensive dominance as a model of hypertensive state of the organism]Uslovnaia oboronitel'naia dominanta kak model' gipertenzivnogo sostoianiia organizma. Moskva, Medgiz, 1962. 154 p. (MIRA 16:1)

(HYPERTENSION) (CONDITIONED RESPONSE)

GAVLIK, Jan, Ing.

Construction of the basalt processing plant in Nova Bana.
Sklar a keramik 12 no. [illegible].

1. Slovenske zavody technickeho skla, Hradistea.

GAVORA, Karol, inz.

Replacement of collecting bars by cables in electrolysis. Energetika Cz 13 no.9:484 S '63.

1. Chemoprojekt, Bratislava.

GAVOZDEA, Ion, ing.

The winter months rationally used. Constr Buc 16 no.731:
1 11 Ja '64.

1. Directorul Trustului Regional de Constructii de Locuinte, Cluj.

GAVRICHENKOV, D., kand.ekonom.nauk

Planning of the work cycle of the grain milling, groats, and mixed feed industry. Muk.-elev. prom. 28 no.2:20-22 F '62. (MIRA 15:3)

1. Moskovskiy tekhnologicheskiy institut pishchevoy promyshlennosti. (Grain)

LUKESH, R.[Lukes, R.][deceased]; GAVLICHKOVA, L.[Havlickova, L.]

The effect of Grignard reagents on the amide group. Part 35: Reaction of 1-methyl-1-azacycloundecane-(2) and 1-methyl-1-azacyclotridecane-(2). Coll Cz Chem 26 no.9:2245-2251 '61.

1. Kafedra organicheskoy khimii, Khimiko-tekhnologicheskiy institut, Praga.

(Grignard reagents) (Amide group)

GAVLIK, J.; RAUS, K.

"New glass machinery in the German Federal Republic." P. 48.

SKLAR A KERAMIK. (Ministerstvo lehkeho prumyslu). Praha, Czechoslovakia, Vol. 9, No. 2, Feb. 1959.

Monthly list of East European Accessions (EEAI), LC, Vol. 8, No. 8, August 1959.
Uncla.

Gavlik M.

CZECHOSLOVAKIA / Microbiology. Medical and Veterinary Microbiology. F-5

Abs Jour: Referat Zh.-Biol., No 6, 25 March, 1957, 22036

Author : Gavlik, Marsa
Inst :
Title : Brucellosis and Its Appearance in the Czecho-Budeevits Region.

Orig Pub: Vnitrni lekarstvi, 1956, 2, No 6, 512-519

Abstract: No abstract.

Card : 1/1 -44-

GAVLOV, S.M.

"Fractional Erythrocyte Sedimentation Reaction During Various Conditions in a Child's Organism." Cand Med Sci, Second Moscow Medical Inst, Moscow, 1953. (RZhBiol, No 8, Dec 54)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (12)

SO: SUM. No. 556 24 Jun 55

41296
S/035/62/000/010/055/128
A001/A101

AUTHOR: Benyukh, V.V, Gavlovskaya, A. A., Konopleva, V. P., Krivutsa, Yu.N., Kruchinenko, V. G., Sandakova, Ye. V., Terent'yeva, A. K.

TITLE: Photographic observations of meteors at the observatory of the Kiyev University in 1957

PERIODICAL: Referativnyy zhurnal, Astronomiya i Geodeziya, no. 10, 1962, 62, abstract 10A459 ("Sb. rabot po Mezhdunar. geofiz. godu. Kiyevsk. un-t", 1961, no. 1, 3 - 15)

TEXT: Double photographic observations of meteors were conducted by means of fixed four-camera (D=100 mm, F=250 mm) installations during all clear moonless nights of the second half of 1957. A shutter rotating at a speed of 1,400 rpm was mounted in front of the cameras at one of the points. 141 meteors were photographed, of which 14 from two points. The results of processing 10 meteors are presented in the article. The photographs were measured with a КИМ -3 (KIM-3) measuring machine. Five meteors were processed on a "Strela" computer, the remaining ones - manually. Photographic photometry of the meteors was carried

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Photographic observations of meteors at the...

out by relating to diurnal stellar trails, and for some of them also by relating to images of artificial meteors. The tables yield the results of determining flight instants (with an accuracy of 2 - 29 min), coordinates of radiants, velocity and braking in the middle section of the visible trajectory, extra--atmospheric velocity, altitude of the start, maximum brightness and end of the visible trail. Stellar magnitudes, masses and corresponding densities of the atmosphere are given for individual points of the trajectory. There are 8 references.

P. Babadzhanov

[Abstracter's note: Complete translation]

Card 2/2

S/269/63/000/001/021/032
A001/A101

AUTHORS: Sandakova, Ye. V., Gavlovskaya, A. N.

TITLE: Reduction of stellar magnitudes of meteors to the international system

PERIODICAL: Referativnyy zhurnal, Astronomiya, no. 1, 1963, 74 - 75, abstract 1.51.507 ("Byul. Komis. po kometam i meteoram Astron. soveta AN SSSR", 1961, no. 6, 32 - 34)

TEXT: The authors attempt to find a reduction of meteoric stellar magnitudes, determined in Kiyev, to the international visual system. The relative distribution of spectral sensitivity of the employed system, objective-film, was investigated on the basis of the cloudy sky spectrum; the investigation has shown that the sensitivity maximum lies in the region λ 5600, i.e., it is near the maximum of the international visual system. Effective wavelengths of radiation from stars of different spectral types were also determined in the proper photometric system. If the color index of meteors is known, their effective wavelength can be determined. Reductions of the obtained stellar magnitudes to the international system should be exprssed in terms of stellar magnitudes. For this purpose,

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S/269/63/000/001/027/032
A001/A101

Reduction of stellar magnitudes of...

a photograph of the starry sky was obtained by means of a meteor patrol; it contains stars of Sears's catalogue where photovisual magnitudes of stars are given in the international system. For these stars, stellar magnitudes were calculated in the proper system, determined by the same method as stellar magnitude of meteors. Expressions for reducing Kiyev photovisual stellar magnitudes to the international system were derived by the root-mean-square method for each of the groups of stellar magnitudes ($5\text{-}6^m$, $6\text{-}7^m$, $7\text{-}8^m$): $\Delta m = a + bCI$, where a, b are coefficients, CI is color index of a star. There are 6 references.

S. Mayeva

[Abstracter's note: Complete translation]

Card 2/2

S/169/62/000/011/064/077
D228/D307

AUTHORS: Sandakova, Ye.V. and Gavlovskaya, A.N.

TITLE: Reducing stellar meteor magnitudes to an international system

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 11, 1962, 7, abstract 11G40 (Byul. Komis. po kometam i meteoram Astron. soveta AN SSSR, no. 6, 1961, 32-34)

TEXT: The photometric processing of IGY meteor data at the Astronomicheskaya observatoriya Kiyevskogo gosudarstvennogo universiteta (Astronomic Observatory, Kiev State University) is described.

[Abstracter's note: Complete translation]

Card 1/1

GAVOR, M.

Removable casing of vertical binwalls at the construction site of a coal-washing plant. p. 341.

INZENYRSKE, STAVBY. (Ministerstvo stavebnictvi) Praha, Czechoslovakia.
Vol. 7, no. 9, Sept. 1959.

Monthly List of East European Accessions (EEAI) LC Vol. 8, no. 11, Nov. 1959
Uncl.

SUCHANEK, Jan, inz.; GAVOR, Milan, inz.

Reinforced concrete head frame. Inz stavby 9 no.10:369-373 O '61.

1. Banske projekty, Ostrava (for Suchanek) 2. Vystavba Ostravsko-karvinskych dolu (for Gavor).

GAVOR, N.I. (Minsk)

Hospitalization of patients in cities of the White Russian Republic during 1958. Sov.zdrav. 19 no.10:69-72 '60. (MIRA 14:1)

1. Iz Otdela meditsinskoy statistiki Ministerstva zdravookhraneniya BSSR.
(WHITE RUSSIA—PUBLIC HEALTH—STATISTICS)

Gavora, Gustáv

CZECH Gavora, Gustáv: Výroba železa. Bratislava: Práca. 1951. 84 pp.

Gavora, Gustav; The Manufacture of Iron. Bratislava: Praca. 1951. 84 pp.

GAVORA, Karol, inz.

Calculation of the loss in flat conductors. Energetika Cz 12 no.6:322-324 Je '62.

1. Chemoprojekt, Bratislava.

LANTOS, Gyorgy, dr.; GAVORA, Jeno

Railroads and tourism. Vasut 14 no.10:1-2 O '64.

GAVORA, Karol, inz.

Errors in calculating electric lighting. Elektrotechnik 18 no.3:65-66 Mr '63.

1. Chemoprojekt, Bratislava.

GAVOZDEA, Ion, ing.

For August 23, very important achievements! Constr Buc 16 no.754:1 20 J '64.

1. Director of the Regional Trusts for Housing Construction, Cluj.

GAVOZDEA, Ion, ing.; GHERMAN, Victor, ing.; CHIOVEANU, M., ing.; GHINDOC, Eleodor, ing.; MIHUL, Boris, ing.; HULUBEI, Emil, ing.

Ways of productivity. Constr Buc 17 no.7924 13 Mr '65.

1. Director, Regional Trust for Constructions, Cluj (for Gavozdea). 2. Director, Group No.3 of Construction Sites, Roman, Regional Trust for Construction, Bacau (for Gherman). 3. Chief Engineer, Enterprise No.4 of Constructions and Assembling (General Directorate of Construction and Assembling) Bucharest (for Chioveanu). 4. Enterprise for Industrial Constructions and Assembling, Brasov (for Ghindoc). 5. Chief Engineer, Construction and Assembling Trust No.5, Brasov (for Mihul). 6. Chief Engineer, Hydrotechnical and Municipal Construction Trust, Constanta (for Hulubei).

GAVRA, D. L.

Osnovy nomografii s primerami iz mashinostroeniia. Moskva, Mashgiz, 1949. 142 p. diagrs.

Fundamentals of nomography with examples from machine building.

DLC: QA60.G35

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

GAVRA, Dmitriy Lazarevich; GORSHKOV, D.S., doktor fiz.-mat. nauk, retsenzent; VUL'F, A.M., doktor tekhn. nauk, red.; YURKEVICH, M.P., inzh., red. izd-va; PETERSON, M.M., tekhn. red.

[Fundamentals of nomography with examples in mechanical engineering]Osnovy nomografii s primerami iz mashinostroeniia. Izd.2. Moskva, Mashgiz, 1962. 162 p. (MIRA 15:10)
(Nomography (Mathematics)) (Mechanical engineering)

GAVRA, T.D.

ARTYM, A.D.; GAVRA, T.D.

New method of suppressing dynatron oscillations in powerful modulators. Trudy LPI no.181:124-130 '55. (MLRA 10:1)
(Radio frequency modulation)

GAVRA, T.D.; BIRYUKOV, V.I.

Frequency stability of a low-frequency oscillator equipped with junction triodes. Poluprov.prib. i ikh prim. no.3:253-270 '58. (MIRA 12:4)
(Oscillators, Transistor)

SLAVSKIY, G.N.; BOGOMOLOV, V.N.; GAVRA, T.D.; SERENKOV, Yu.I.

Possibilities for using semiconductors in radio electronics.
Trudy LPI no.194:195-209 ' 58. (MIRA 11:11)
(Semiconductors)

9,2563

S/194/61/000/009/052/053
D271/D302

AUTHOR: Gavra, T.D. and Sokolov, O.T.

TITLE: High stability junction transistor oscillator

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 9, 1961, 5-6, abstract 9 K32 (Nauchno-tekhn. inform. byul. Leningr. politekhn. in-t, 1960, no. 9, 36-42)

B

TEXT: Operation of a quartz crystal transistor oscillator is studied, with the crystal excited in fundamental frequency and in the third harmonic. An equivalent circuit is derived of the oscillator with the crystal in the feedback path. The matrix method is used in the theoretical analysis. An expression is given for detuning the piezo-resonator; an ideal feedback transformer is here assumed. Great attention is paid to the influence of de-stabilizing factors such as: a) operational instability and b) temperature instability. Theoretical derivation of a number of coefficients is

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S/194/61/000/009/052/053
D271/D302

associated with great difficulties because of the complex dependence of transistor parameters on the operational conditions and temperature. These problems (as applied to a series of transistors) are examined experimentally (at the frequency of 1000 kc/s). Experimentally determined dependence of frequency on collector voltage, emitter current, temperature, etc. is shown. 24-hour and short term frequency stability are considered. With optimal choice of circuit components, the scatter of transistor parameters has little effect on the frequency stability; frequency change when one transistor was substituted for another of the same series did not exceed 1.5 - 2 c/s; when transistors of different series were substituted, frequency change did not exceed 3 - 4 c/s. Stability is enhanced when quartz crystal is excited on harmonics. 4 references. [Abstracter's note: Complete translation]

V/B

28228
S/194/61/000/005/072/078
D201/D303

9,2560 (1139,1159,1161)

AUTHORS: Gavra, T.D. and Sokolov, O.T.

TITLE: The choice of operation of a transistor oscillator

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 5, 1961, 6, abstract 5 K31 (Nauchno tekhn. inform. byul. Leningr. politekhn. in-t, 1960, no. 3, 94-99)

TEXT: The problem is considered of choosing the operation of transistor oscillations and of their application at frequencies below the cut-off frequencies (f_α and f_β). The results of experimental studies are given, carried out with crystal oscillators of various types, in common emitter and common base connections. The de-stabilizing factors were found to be: Changes in the d.c. emitter current, changes with respect to earth of the d.c. potential of the collector and circuit capacitances. The experimental data are given in the form of graphs. The supposition has been proved that certain res-

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28228
S/194/61/000/005/072/078
D201/D303

The choice of operation...

ults may be applied to the non-crystal oscillators, multipliers and to other types of transistor devices. 2 references. [Abstracter's note: Complete translation]

Card 2/2

S/108/62/017/012/009/010
D413/D308

9.2.161

AUTHORS: Gavra, T.D. and Pruzhanskiy, M.M., Members of the Society (see Association)

TITLE: Investigation of double- and plano- convex quartz piezoelectric resonators excited at the fundamental and odd harmonics

PERIODICAL: Radiotekhnika, v.17, no.12, 1962, 60-68

TEXT: Although AT-cut double- and plano-convex quartz resonators are now being widely used for high-stability reference oscillators, since they can be made with higher Q than plane-parallel ones, no systematic study of their properties has yet been published and the value of harmonic excitation remains an open question. The authors have made up and tested five basic types of resonator cut to a 1 Mc/s fundamental, and give in table form the equivalent parameters of several samples (oscillation frequency, resistance, characteristic impedance, inductance and Q) at the fundamental and

Card 1/2

3rd, 5th and 7th harmonics. They also give spectrograms for three of the types. Detailed conclusions are drawn about the behavior of the various resonators, their suitability for use in various applications (in particular, the possiblity of using plano-convex resonators excited at the third harmonic in oscillators without tuned circuits), and the directions in which development is needed. The treatment is empirical, and the authors regret the lack of any suitable theory for the oscillation of these resonators. They thank V.A. Romanov and M.D. Katsenel'son for co-operation. There are 1 figure and 3 tables.

ASSOCIATION: Nauchno-tekhnicheskoye obshchestvo radiotekhniki i elektrosvyazi im. A.S. Popova (Scientific and Technical Society of Radio Engineering and Electrical Communications imeni A.S. Popov) [Abstractor's note: Name of association was taken from first page of journal.]

SUBMITTED: March 12, 1962

GAVRA, T. D.,

"Highly Stable Quartz Self Oscillators Using Transistors" Dissertation for the Degree of Candidate of Sciences, Leningrad Electrotechnic Inst. of Communication im. M. A. Bonch-Bruyevich. Defense held on 11 October 1962.

A procedure was developed for the investigation of self oscillators using transistors. The specific features of their operation as compared with circuits using vaccum tubes are described, the optimal circuits are determined for opeartion of the quartz crystal at the fundamental frequency and at the mechanical harmonics.

Izv Vysshikh ucheb. zaved. MViSSO SSSR po razdelu Radiotekhnika, vol. 6, No. 1, 1963 p. 98-102 (original checked--Cand. of Sciences as in original.)

L 27678-66 EWA(h)/EWT(l)/EWT(m)/EWP(e) WH
ACC NR: AT6004854 SOURCE CODE: UR/2563/65/000/255/0038/0046

33
B+1

AUTHOR: Gavra, T. D.

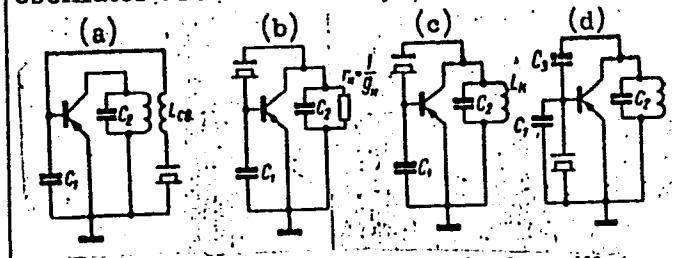
ORG: none

TITLE: High-stability quartz transistorized self-excited oscillators

SOURCE: Leningrad. Politekhnicheskiy institut. Trudy, no. 255, 1965. Radioelektronika (Radio electronics), 38-46

TOPIC TAGS: crystal oscillator, transistorized oscillator, frequency stability

ABSTRACT: Frequency-destabilizing factors acting in a self-excited crystal oscillator are theoretically investigated by a quasilinear method; the oscillator equations are solved by successive approximations; the oscillator is regarded as a combination of active and passive two-terminal networks. Four circuits (see figure) are considered; of them, circuit "b" is the most conducive to frequency stability. It is found that the



Principal circuits of self-excited oscillators

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L 27678-66

ACC NR: AT6004854 0

frequency instability is largely dependent on the imaginary component of the transistor forward transadmittance b_{21} (C_{in}). Equivalent electric parameters of two types of AT-cut quartz resonators (biconvex for 1 Mc, planoconvex for 5 Mc) were measured by the method of Q-meter. It is recommended that the planoconvex plates be so proportioned that their 3rd harmonic correspond to the nominal frequency and that their optimal parameters correspond to the working frequency. Investigation of a large lot of Mc biconvex resonators showed that, after 2 months of operation, with an applied amplitude of 40—300 mv, only 30% of them had a frequency drift 5×10^{-8} or less per month. It was also found that the planoconvex harmonic resonators suffer less aging than the biconvex operating at the fundamental frequency. With a quartz $Q = 2 \times 10^6$, the lowest instability of the oscillator (circuit "b") instability was $(1-2) \times 10^{-8}$; single- and three-stage oscillators showed the same stability. Orig. art. has: 4 figures and 16 formulas.

SUB CODE: 09 / SUBM DATE: none / ORIG REF: 003

Card 2/2 CC

L 21655-66 EWT(m)/EWP(t) JD

ACC NR: AR6011593 SOURCE CODE: UR/0137/65/000/012/B019/B019

AUTHOR: Gavranek, B.; Gladkiy, D.; Leybenzon, S.; Onishchenko, Ye.; Shakhmeyster, B.; Chalyy, V.

ORG: none

68
B

TITLE: Automatic non-contact regulator for controlling the electric cycle of furnaces for flux remelting

SOURCE: Ref. zh. Metallurgiya, Abs. 12B131

REF SOURCE: Elektrotermiya. Nauchn.-tekhn. sb., vyp. 44, 1965, 17-19

TOPIC TAGS: automatic regulation, metal melting, metallurgic furnace, electric relay, power amplifier, electrode, electric transformer, electronic circuit

TRANSLATION: The Zaporozh'ye Affiliate of the Institute of Automation and the Dneprospetsstal' Plant have developed a non-contact regulator for controlling the electric cycle for flux remelting in consumable-electrode furnaces. The regulator maintains working current of electrode with an accuracy of 1.5% of nominal. An input signal proportional to electrode current is received by current transformer and fed to a comparison circuit where it is compared with a voltage which is proportional to the setting of the electrode working current. The difference between these voltages is fed to a semiconductor relay which operates a magnetic power amplifier. This amplifier controls the motor which moves the electrode. A

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UDC: 669:621.365:681.1/.2

2

L 21655-66

ACC NR: AR6011593

schematic diagram of the regulator is given together with an explanation of its operation. The regulator has been in continuous operation at the Dneprospetsstal' plant for a year and a half. During that time, the unit has been used in making more than 1,000 melts which have shown that the regulator is reliable in operation, simple to use, and eliminates metal rejects due to excessive deviations in electrode current during melting. V. Sidorov. [JPRS]

SUB CODE: 09, 13

Card 2/2

GAVRANEK, V.V.; FUKS, M.Ya.; BOL'SHUTKIN, D.N.

X-ray analysis of cavitation erosion in metals. Fiz.met. i metalloved. 1 no.3:494-499 '55. (MLRA 9:6)

1.Khar'kovskiy politekhnicheskiy institut imeni V.I.Lenina.
(Cavitation) (Metallography)

GAVRANEK, V. V.

137-1957-12-25010

Translation from: Referativnyy zhurnal, Metallurgiya, 1957, Nr 12, p 296 (USSR)

AUTHOR: Gavranek, V. V.

TITLE: A Study of Cavitational Erosion of Metallic Materials by Means of a Magnetostriction Vibrator (Izucheniye kavitatsionnoy erozii metallicheskikh materialov na magnitostriktsionnom vibratore)

PERIODICAL: Tr. Khar'kovsk. politekhn. in-ta, 1957, Vol 9, pp 61-70

ABSTRACT: An investigation of the phenomenon of cavitational erosion and of the kinetics of the break-down (BD) of steel employed in the building of turbines, as well as of rolled brass and Cu. The experiments were carried out on a magnetostriction vibrator and employed specimens (S) having the shape of a plug, with a uniform initial weight of 12.5 g. The S was attached to the end of a nickel tube and immersed in water to a depth of 4-6 mm. The tests were performed at the resonant vibrational frequency of S, viz., 7600 cps. The vibrational amplitude was held constant; the double amplitude of the vibrations was 0.065 mm. The tests were carried out in tap water, which, for the purposes of stabilizing its air content, was allowed to settle and was then subjected to vibrations for a period of 20 minutes. The degree of BD of metal was established

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A Study of Cavitational Erosion of Metallic Materials (cont.)

from the loss of weight of the S at definite time intervals. The macrostructure of S's was studied after they were subjected to erosional BD. It is shown that the development of cavitational erosion is characterized by four stages: an incubational period, a period of growing BD, a period of intensive and uniform BD, and a period of subsiding BD. The third period in particular reflects most objectively the erosional stability (ES) of materials. It is pointed out that the ES depends not only on the solid metal, but also on other properties which are tied to the structure of materials. It was established that cavitational erosion is selective in nature, and that it is highly sensitive to non-uniformities in the structure of metals. In order to increase the ES of 1Kh13 steel, it is recommended that it be subjected to nitriding.

L. G.

1. Metals-Erosion-Effects of cavitation 2. Magnetostriction-Applications 3. Vibrating mechanisms-Applications

GAVRANEK, V. V.

137-58-1-1587

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 1, p 214 (USSR)

AUTHORS: Volobuyev, I. V., Gavranek, V. V.

TITLE: Effect of Niobium on Temper Brittleness of Manganese Steel (Vliyaniye niobiya na otpusknuyu khrupkost' margantsovistoy stali)

PERIODICAL: Tr. Khar'kovsk. politekhn. in-ta, 1957, Vol 9, pp 113-122

ABSTRACT: Steels containing 0.4-0.5% C and 1.8-2% Mn which are subject to temper brittleness (TB), were investigated. Nb, in quantities up to 0.82%, was introduced into the steel for the purpose of reducing the TB. The steels were smelted at atmospheric pressure and in a vacuum, annealed at 900°C for 6 hours, oil hardened from 850-880°, and tempered at 350-600° with 2 hours holding and various rates of cooling. Measurements of hardness, a_k, and resistivity of the specimens were made. It was established that Nb diminishes the TB of Mn steel starting at a 0.2% content. The optimum amount of Nb is 0.25%. As the Nb content of steel smelted by the usual method rises over 0.48%, the a_k diminishes. The a_k of steel smelted in vacuum is more intensively affected by Nb, and its TB diminishes starting at 0.1%

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137-58-1-1587

Effect of Niobium on Temper Brittleness of Manganese Steel

Nb. In this case, an increase in the Nb content does not have an unfavorable effect on the TB. Introduction of 0.20-0.48% Nb results in an increase in the a_k of Mn steel at sub-freezing temperatures, while the a_k diminishes as Nb is further increased. The employment of Nb for alloying medium manganese steels is proposed, as is the development of fine granular grades of steel not sensitive to TB.

L. M.

1. Manganese steel--Brittleness 2. Manganese steel--Tempering 3. Niobium --Effects

Card 2/2

GAVRANEK, V. V.

137-58-1-1737

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 1, p 236 (USSR)

AUTHORS: Balter, M. A., Gavranek, V. V.

TITLE: An Investigation of the Structure and Properties of Carburized Steel Subject to Cold Treatment (Issledovaniye struktury i svoystv tsementovannoy stali, obrabotannoy kholodom)

PERIODICAL: Tr. Khar'kovskogo politekhn. in-ta, 1957, Vol 9, pp 123-140

ABSTRACT: An investigation is made of the effect of the cold-treatment temperature (CT) and preliminary heat treatment on the conversion of retained austenite (RA) in the carburized layer and on the mechanical properties of 18KhNVA and 20Kh2N4A steels subjected to cementation in a solid carburizer at 920° to a depth of 1.5-1.8 mm. The most significant conversion of RA was observed at -110°C. Further reduction in temperature caused virtually no change in the amount of RA. The degree of decomposition of steel under CT diminished as the amount of RA declined. The effect of CT on the strength and ductility of steel was studied by testing carburized specimens for static flexure, for a_k, fatigue strength, and resistance to wear. It was found that although CT does induce transformation of considerable amounts of RA, it does not impart

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An Investigation of the Structure and Properties (cont.)

optimal mechanical properties to steel. An improvement in the mechanical properties is attained by performing preliminary high-temperature tempering at 650° before hardening, so as to facilitate the formation of a uniform structure of fine spicular martensite with uniformly distributed dispersed areas of austenite, creating minimum tensile stresses in the carburized layer The structure and origin of the martensite also has a major effect on the mechanical properties of the steel, as does the amount of RA An increase in hardness with CT as a result of RA conversion does not always result in an improvement in the properties of greatest importance for practical purposes, namely resistance to wear and fatigue strength.

Ya. P

1. Steel—Carbon—Properties 2. Steel—Test methods 3. Steel—Test results

Card 2/2

GAV

137-58-1-1236

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 1, p 166 (USSR)

AUTHORS: Gavranek, V. V., Bol'shutkin, D. N.

TITLE: Surface Hardening as a Means of Improving the Cavitation Resistance of Metals (Povysheniye kavitatsionnoy stoykosti metallov s pomoshch'yu uprochneniya poverkhnosti)

PERIODICAL: Tr. Khar'kovsk. politekhn. in-ta, 1957, Vol 9, pp 169-177

ABSTRACT: Study of the cavitation resistance of 1Kh13 and EI10 steels to machining of the surface layer has established that electric spark machining of the surface by chromium, stellite, and pobedite does not increase cavitation resistance. The chemical and heat treatment of nitriding substantially increases erosion strength, particularly when the hardened layer consists of the α phase and is of maximum thickness.

M. Sh.

1. Metals--Cavitation--Resistance 2. Metals--Hardening

Card 1/1

GAVRANEK, V.V.

137-58-2-3424

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 2, p 163 (USSR)

AUTHORS: El'kina, T. P., Gavranek, V. V., Sevruk, B. A., Volobuyev, I. V.

TITLE: Isothermic and Interrupted Quench of Parts Undergoing Gas Cyaniding (Primeneniye izotermicheskoy i stupenchatoy zakalki k detalyam, proshedshim gazovoye tsianirovaniye)

PERIODICAL: Tr. Khar'kovsk. politekhnich. in-ta, 1957, Vol 11, pp 79-81

ABSTRACT: The object of the work was to employ isothermic (I) and interrupted quench (S) to eliminate rejects due to changes in the dimensions of a tractor starter-dog arm made of Nr 20 steel. A bath of the following composition was employed for I and S: 45 percent $NaNO_2$ and 55 percent KNO_3, with an m. p. of about 150°C. Eighteen different regimes were tested to select the I and S regime. The results of the quench are adduced as to hardness, warping, and microstructure. It was found that the S of cyanided parts (and the I of martensite) provides them with the required degree of hardness and diminishes warping to tolerable levels. The proposed S for a cyaniding regime is a) gas cyaniding at 850±10°; b) immediate quench in a salt bath at 210±10° and holding there for 10-15 min, followed by cooling in water or oil. A. B.

Card 1/1

1. Steel--Hardening 2. Steel--Heat treatment

GAVRANEK, V V

AUTHOR: Ginzburg, Z. L. 129-58-5-15/17

TITLE: Scientific-Technical Conference on Metallography and Heat Treatment, Khar'kov (Nauchno-tekhnicheskaya konferentsiya po metallovedeniyu i termicheskoy obrabotke, Khar'kov)

PERIODICAL: Metallovedeniye i Obrabotka Metallov, 1958, Nr 5, pp 53-57 (USSR)

ABSTRACT: The conference was organised by the Khar'kov Directorate of the Scientific-Technical Society of the Engineering Industry jointly with the Sovnarkhoz to celebrate the 40th anniversary of the October Revolution. About 200 research workers, engineers and technicians participated. Candidate of Technical Sciences V.V.Gavranek read a paper on the achievements of Soviet science and engineering in the field of metals technology and heat treatment during the forty years of Soviet rule. Doctor of Technical Sciences, Professor P. P. Petrosyan, Khar'kov Institute of Railway Engineers, read the paper "On the Mechanism of Transformation of Super-cooled Austenite". He expressed the view that all the transformations of super-cooled austenite in the temperature range

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GAVRANEK, V.V

129-58-5-15/17

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deoxidation with aluminium it drops by about 50%. The boron is absorbed non-uniformly by the metal. The results of spectral and chemical analyses have shown that the boron contents in the reference specimens and in components varied between wide limits (0.0016-0.005%). Machining of experimental components containing additions of boron did not cause any difficulty.

Engineer Yu. L. Revis (Giprotraktorsel'khozmash) reported on the organisation of heat treatment operations in machining flow production lines and gave examples in which equipment for through heat treatment was installed in such lines for mass producing components (H.F. heating for case hardening, hardening of components of simple shape, hardening of gears). He gave characteristics of the conditions of hardening of the teeth of the gears and also elucidated the prospects of organising the heat treatment operations in complex lines for manufacturing components using gas flame heating and using automatic control of the temperature and the composition of the gaseous medium.

Card 2/20 Candidate of Technical Sciences V. V. Gavranek (KhPI) reported on the investigations of cavitation erosion by

Scientific-Technical Conference on Metallography and Heat Treatment, Khar'kov

means of a magnetostriction vibrator. The investigations were carried out on 1Kh13 steel, brass and copper. A very clear conception on the process of cavitation failure is provided by the kinetic curves which characterize the loss in weight as a function of the test duration. The existence of four periods was established for the cavitation erosion, namely, the incubation period, the period of intensive uniform failure and the period of the damped disruption. He proposes evaluation of the erosion stability of metals on the basis of the third period during which the speed of disruption is constant and depends on the structure and the properties of the material. Cast steels (chromium, stainless and copper containing steels) which are widely used for blades of hydraulic turbines have an erosion stability about 10 to 20% lower than that of the rolled stainless steel 1Kh13. The stainless austenitic steels 1Kh18N9T and EI123 and also the pearlitic steel EI10 have an erosion stability which is twice as high as the steel 1Kh13. The chemical-heat treatment of the surface of steel improves its erosion stability. Thus, nitriding of the steel 1Kh13 improves the erosion stability fivefold, whilst alitizing of

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Scientific-Technical Conference on Metallography and Heat Treatment, Khar'kov

Steel 20 increases the erosion stability fourfold. Investigation of aluminium bronzes of various chemical compositions in various states has shown that aluminium bronzes of compositions approaching the eutectoidal one have a high erosion stability. Bronzes containing 12.5% Al have an erosion stability seven times as high as that of Steel 1Kh13. Hardening of aluminium bronzes containing 10 to 13% aluminium brings about a sharp increase of their erosion stability. Hardened bronze containing 10% aluminium has a erosion stability about four times as high and one containing 12,5% aluminium has an erosion stability about 29 times as high as that of steel 1Kh13. Aluminium bronzes containing 10 to 13% Al deposited by welding (as facings) on Steel 20 GSL has a erosion stability which is several times as high as that of Steel 1Kh13. The grain size and the dispersion of the structure influence the erosion stability of the alloys. Cavitation erosion has a selective character and affects strongly the structure of the material, which can clearly be seen when testing cast alloys. At the initial stages, cavitation

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Scientific-Technical Conference on Metallography and Heat Treatment, Khar'kov

erosion reveals the grain and also the finer structure. Only for alloys of a single type and a single structural group can hardness be applied as a factor which has a decisive influence on the erosion stability.

In his paper "On the Mechanism of Cavitation Erosion of Metals" Engineer D. I. Bal'shutkin (KhPI) reported on X-ray investigations of certain phenomena accompanying cavitation erosion of metals. The dimension of the blocks of the mosaic structure at the initial stage of the investigations decreases by about 50% and then becomes stabilised. Distortions of the lattice reached a magnitude of $3 \cdot 10^{-4}$ at the initial stage of the investigations and then were no longer detected ("caught"). It is assumed on the basis of the obtained results that the erosion of metals under conditions of cavitation proceeds according to the scheme of impact brittle fracture. It was established that cavitation fracture of aluminium monocrystallites are accompanied by intensive breaking up into fragments so that after 45 secs of cavitation effects the surface of a single crystal specimen becomes polycrystalline to a depth of

Card 12/20

S/123/59/000/008/029/043
A004/A002

Translation from: Referativnyy zhurnal, Mashinostroyeniye, 1959, No. 8, p. 113, # 29418

AUTHORS: Gavranek, V. V., Fuks, M. Ya., Bol'shutkin, D. I.

TITLE: X-Ray Investigation of Cavitation Erosion of Metals

PERIODICAL: Tr. Khar'kovsk. politekhn. in-ta, 1958, Vol. 14, pp. 161-168

TEXT: By X-ray examination, using different methods, the authors investigated the cavitation strength of IX13 grade steel after oil-hardening at 1,000°C and tempering at 680°C. It was found that during the first period of cavitation action a breaking up of the crystals is taking place, while during continued testing the crystal size is stabilized. During the same period, the magnitude of stress of the second kind grows and again returns to its initial value. Those crystallites, located at the surface, are subjected to destruction which are less favorable oriented in relation to the effective stresses from cavitation. The indicated selective destruction is extinguished in the course of time, since the appearing surface relief promotes the destruction of

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S/123/59/000/008/029/043
A004/A002

X-Ray Investigation of Cavitation Erosion of Metals

crystallites already independently from orientation. Probably it is possible to increase the erosion resistance in the initial period of destruction by preliminarily producing a favorable structure in the surface layer of metal (e. g. by cold rolling). It is presumed that cavitation destruction of metals is not taking place owing to plastic deformation, accompanied by a distortion of the crystal lattice, but is similar to the process of impact brittle failure. Crystallites emerging at the surface are eliminated by way of "breaking off", where the following layer of crystallites is laid bare, which are also involved in the effective zone of impact stresses. There are 4 figures and 8 references.

F. M. A.

Translator's note: This is the full translation of the original Russian abstract.

Card 2/2

SOV/129-59-2-6/16

AUTHORS: Volobuyev, I.V. and Gavranek, V.V., Candidates of Technical Sciences

TITLE: Influence of Niobium on the Temper Brittleness of Manganese Steel (Vliyaniye niobiya na otpusknuyu khrupkost' margantsovistoy stali)

PERIODICAL: Metallovedeniye i Termicheskaya Obrabotke Metallov, 1959, Nr 2, pp 28 - 33 (USSR)

ABSTRACT: Results published on the influence of niobium on manganese steel are contradictory (Refs 1-5). Also, no literary data are available on the influence of niobium on the type II temper brittleness. The steel used in the experiments was produced in a high-frequency furnace under atmospheric pressure and also in vacuum. The chemical composition of some of the steels used in the experiments are entered in Tables 1 and 2. In these, the manganese content was 1.62-2.62, the niobium contents were between 0.00 and 1.30%. The chemical composition of the steels produced in vacuum (first group) differs somewhat from that of the steel produced at atmospheric pressure (second group), particularly as regards the phosphor content. Ingots from

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both groups were forged into rods of square cross-section, from which standard impact specimens were produced. For hardening, the specimens were heated in a salt bath to 850 °C (first group) and 880 °C (second group) for 20 min and, following that, they were quenched in oil. The hardened specimens were tempered for two hours at various temperatures between 350 and 600 °C and then one batch was cooled in the furnace and an equal batch was cooled in water. After this heat treatment, they were subjected to impact bending tests. The results of these tests were used for determining the coefficients of susceptibility to temper brittleness (Tables 3-4). To obtain a more complete picture of the influence of niobium, impact tests were also carried out at low temperatures, i.e. 0, -40 and -80 °C on specimens quenched from 850 °C and tempered at 600 °C for 2 hours. Electron microscope investigations have shown that all the steel specimens cooled in water after tempering have a smaller surface of division of the phases than the specimens cooled in the furnace after tempering. This is attributed to the fact that more

 carbide particles can be rejected in specimens cooled in

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the furnace than in specimens cooled in water. The difference in the total size of the surface of division of the phases in specimens cooled in water and those cooled in the furnace is great for steel without niobium (which is sensitive to temper brittleness). However, for equal steels with niobium, which are not sensitive to temper brittleness, this difference is considerably smaller. The authors believe that for evaluating correctly the influence of small additions of alloying elements on the temper brittleness, it is necessary to know whether a particular alloying addition is horophilic or horophobous in the system of a given steel. Relative to nickel, niobium is horophilic and therefore it hardly reduces the temper brittleness of chromium-nickel steels and of other nickel-containing steels. However, in iron with a low manganese content, niobium is horophobous and this is the probable reason why it reduces the temper brittleness of manganese steel.

On the basis of the obtained results, the following

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1) Introduction of niobium into a medium alloyed manganese steel reduces sharply the susceptibility to temper brittleness. For such steel, the optimum niobium content is 0.25%.
2) In the case of a niobium content of 0.20-0.48%, niobium increases the impact strength of the manganese steel at sub-zero temperatures.
3) In manganese steels containing 0.4-0.5% C which are prone to temper brittleness, the boundaries of the previous austenitic grain can be detected by double etching with acid; along these boundaries carbides are distributed. In steels with lower C contents, practically no carbides exist along the boundaries but in such steels there is an increased concentration of the solid solution. Manganese steels containing niobium are not prone to temper brittleness and in such steels the boundaries of the previous austenite cannot be detected.
4) Introduction of niobium into medium manganese steel enables extending the field of application of such steels.

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There are 6 figures, 4 tables and 10 Soviet references.

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AUTHOR: Gavranek, V.V.

TITLE: Investigation of cavitation erosion of aluminium bronzes by means of a magnetostriction vibrator

SOURCE: Khar'kov. Politekhnicheskiy institut. Trudy. v.21, no.4, 1959. Seriya metallurgicheskaya. 3-16

TEXT: Specimens, 18 mm diameter and 15 mm long, having an initial weight of 12.5 g, were secured to one end of a nickel tube and immersed in water to a depth of 4 to 6 mm. Longitudinal oscillations, induced in the nickel tube by means of an alternating electromagnetic field, caused the test specimens to oscillate in harmony with the nickel tube, as a result of which the end face of the specimens eroded. The intensity of destruction depends on the amplitude of oscillation of the specimen which reaches a maximum value on attaining resonance, i.e. when the natural frequency of oscillation of the nickel tube coincides with the excitation frequency. In the author's experiments, the resonance frequency was 7600 cycles/sec, the amplitude being kept constant at 0.065 mm. The experiments were carried out in de-aerated tap water at a constant temperature. The degree of

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destruction of materials was determined by the weight loss of specimens after pre-determined periods of time. The erosion resistance of the third period of destruction was determined; this enabled the rate of erosion and the coefficient of erosion resistance to be calculated. The following materials were tested: aluminium bronzes of various aluminium contents, both as cast and after various heat treatments; rolled copper of different tempers and aluminium bronzes of various compositions fused onto steel 20ГС-Л (20GS-L). Steel 1Х13 (1Kh13) was used as reference material. Earlier conclusions by the same author (Ref.5: Tr. Khar'k. politekhn. in-ta, 1959, v.XV, no.3, seriya metallurgich.) with respect to the kinetics of cavitation erosion, particularly the existence of 4 stages in the development of destruction, were confirmed. An increase in Al content leads to an increase in the erosion resistance of cast and annealed Al bronzes. Bronzes containing more than 7% Al possess a higher erosion resistance than heat treated steel 1Kh13. Among the cast and annealed Al bronzes, those close to eutectic composition exhibited the greatest resistance to erosion. Quenching Al bronzes containing 10 to 13% Al abruptly increases their erosion resistance. Al bronzes of

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