SHAPIRO, Z. M.

PHASE I BOOK EXPLOITATION SOV/5186

Akademiya nauk SSSR. Tsentral'naya nauchno-issledovatel'skaya laboratoriya elektricheskoy obrabotki materialov

Problemy elektricheskoy obrabotki materialov (Problems of the Electrical Machining of Materials) Moscow, Izd-vo AN SSSR, 1960. 247 p. Errata slip inserted. 4,200 copies printed. (Series: Its: Trudy)

Sponsoring Agency: Akademiya nauk SSSR. Resp. Ed.: B. R. Lazarenko; Ed. of Publishing House: M. L. Podgoyetskiy; Tech. Ed.: S. P. Golub'.

PURPOSE: This collection of articles is intended for scientists and technicians concerned with the investigation of new ways of applying electrical energy.

COVERAGE: The book contains articles on studies carried out by the staff of the Tsentral'naya nauchno-issledovatel'skaya laboratoriya elektricheskoy obrabotki materialov (Central Scientific Research Laboratory for the Electrical Machining of Materials of the AS USSR) in searching for new applications of electrical energy. The results of these studies include: the dimensional machining of dielectrics and the utilization of electric pulsed discharges in carrying out certain chemical reactions, new information on processes occurring on electrodes and in the interelectrode space during short pulsing, and some new data on the technological processes in metal machining by electric current pulses. Much attention is paid to the analysis of the operation of power-supply sources used in the electrical machining and are welding of metals. No personalities are mentioned. References accompany most

Problems of the Electrical (Cont.) SOV/5186

Kondratenko, V. N. Some Methods of Investigating Power Systems of Spark Installations 132

Kruglov, A. I. Requirements of Generators and Generator Circuits for Electric-Spark Machining of Metals With a Capacitive Energy-Storing Device 152

Shchitova, V. M., Ye. I. Slepushkin, and Z. M. Shaltman. Investigation of Automatic Control Systems and Power Supply Sources During Electrical-Erosion Cutting of Metals by a Disk Electrode 188

Adoyan, A. G., and V. M. Kolesnikov. Investigation of Relaxation-Generator Circuits For the Power Supply of Spark Installations 215

Zolotykh, B. N. Concerning the Computation of the Technological Characteristics of a Dimensional Electric-Spark Machining Process of Current-Carrying Materials 221

Moyzhes, Ai. S., and A. Y. Plakunov. Some Technological Data on the Operation of a Machine Pulse-Generator During the Machining of Special Alloys 233

Lazarenko, B. R. Universal Laboratory Stand 244

AVAILABLE: Library of Congress

Card 6/6

JP/dfk/ec
5-25-61

S/196/61/000/012/026/029
E194/E155

AUTHORS: Shitova, V.M., Slepushkin, V.I., and Shal'man, Z.M.

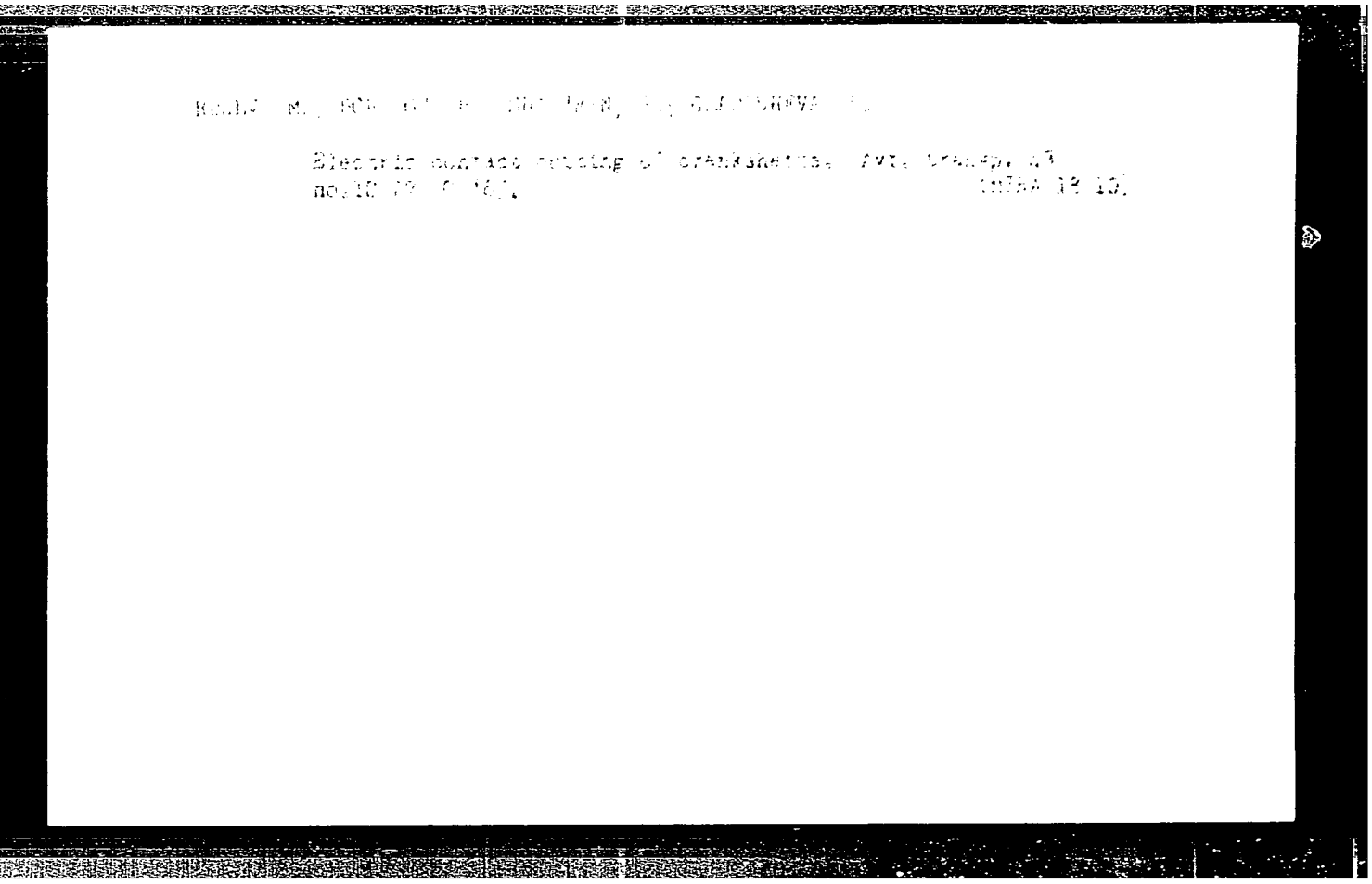
TITLE: An investigation of automatic control systems and sources of supply for electric-spark cutting of metals with a disc electrode

PERIODICAL: Referativnyy zhurnal, Elektrotekhnika i energetika, no.12, 1961, 41, abstract 12K 236. (In the Symposium "Problems of Electrical Machining of Materials", M., AS USSR, 1960, 188-214)

TEXT: A procedure is given for analysing automatic control systems for electric-spark cutting. Results of a study of the automatic control systems are used to develop a procedure for calculating controller parameters. A comparison is made between a number of supply circuits considered as components of automatic control systems. Practical recommendations are given concerning the selection of supply and controller circuits.

[Abstractor's note: Complete translation.]

Card 1/1



SHAL'MIN, S., inzh.; SIRYATSKIY, A., inzh.; SENNIKOV, Yu., inzh.

Stand for assembling reducing gears. Avt. transp. 43 no.12: 30, 35 D '65. (MIRA 18:12)

SHAL'MIYEV, B.Kh. (Kirovabad)

Work of drugstore No. 95. Apt. delo 9 no.6:62-63 N-D '60. (MIRA 13:12)

(KIROVABAD—DRUGSTORES)

SHAL'MIYEV, B.Kh.

Analysis of prescriptions for children in Kirovabad (Azerbaijan S.S.R.). Apt. delo 12 no.6:53-56 N-D '63. (MIRA 17:2)

SHOYKHET, P.A.; SHAL'MIYEV, Sh.Kh.; ATANESYAN, G.Z.

Studying the saline composition of the liquid phase of bottom sediments. Trudy AzNII DN no.10:212-219 '60. (MIRA 14:4)
(Deep-sea deposits)

MALYSHEK, V.T. [deceased]; SHOYKHET, P.A.; GASANOV, M.V.; SHAL'MIYEV, Sh.Kh.

Biogenic formation of higher gaseous hydrocarbons in bottom sediments. Izv. AN Azerb. SSR Ser.geol.-geog.nauk nefti no.1: 63-72 '62. (MIRA 15:5)

(Azerbaijan--Deep-sea deposits)
(Hydrocarbons)

TRIVUS, A.N.; SHAL'MIYEV, Sh. Kh.

Calibrating KhT-2M gas analyzers for one component. Gaz. prom. 8 no.3:9-14 '63 (MIRA 17:7)

TRIVUS, N.A.; SHAL'MIYEV, Sh.Kh.

Analysis of natural gases by means of the KhT-2M chromathermograph.
Azerb. khim. zhur. no.5:91-95 '64. (MIRA 18:3)

M L V , K. V.

Shi[illegible]ova, K. V., The temperature dependence of the emission spectra of sublimate of phosphorus, KI-Tl. [illegible] 753

The influence of temperature on the spectral distribution of photoluminescence of fine crystalline films of KI-Tl is studied. The temperature dependence of the spectrum of luminescence of sublimate-phosphorus KI-Tl makes it possible to explain the emission changes of the monocrystal KI-Tl, observed when the temperature is changed.

Siberian Physico-Technical Inst. at the Tomsk State Univ.
April 1 , 1949

SO: Journal of Experimental and Theoretical Physics, (USSR) 19, No. 8 (1949)

DMITRIYEVA, Z.A., SHAIMOVA, L.B.(Dnepropetrovsk)

Gneral system of measures for controlling acute intestinal diseases; work practices. Fel'd i akush. 23 no.5:30-32 My '58 (MIRA 11:6)
(INTESTINES--DISEASES)

SHAL'NEV, B.I.

Effect of a single introduction of radioactive sodium-24 into the body on the higher nervous activity in dogs. Zhur.vys.nerv.deiat 14 no.1:61-67 Ja-F '64. (MIRA 17:6)

1. Gruppa individual'nykh rabot akademika A.D.Speranskogo [deceased] AN SSSR i Radiobiologichskaya laboratoriya pri kafedre rentgenologii i radiologii 1-go Moskovskogo meditsinskogo instituta im. I.M.Sechenova.

SHAL'NEV, B.I.

Changes in the conditioned response activity in dogs under the effect of small doses of radioactive sodium-24 following a preliminary introduction of alcohol. Zhur. vys. nerv. deiat. 15 no.3: 445-452 My-Je '65. (MIRA 18:6)

1. Radiobiologicheskaya laboratoriya I Moskovskogo meditsinskogo instituta im. I.M. Sechenova.

USSR/Engineering
Hydraulics
Cavitation

Aug 48

"Criterion Governing the Emergence of Disruptive Cavitations in Cylinders," K. K. Shal'nev, All-Union Sci Res Inst of Hydraulic Mach Constr, 4 pp

"Dok Ak Nauk SSSR" Vol LXI, No 5 - pp. 799-802

Gives results of investigating the criteria for the emergence of a collapsing cavitation which develops in the region of disruptive flow around a cylinder.

[redacted]

24/49T33

Translation D 177067, 29 Nov 54

USSR/Physics
Sounds
Testing Procedure

Jul 49

"Cavitation Erosion by Sound Wave Irradiation," K. K. Shal'nev, All-Union Sci Res Inst of Hydro-Mech Constr, 3½ pp

"Dok Ak Nauk SSSR" Vol LXVII, No 1

PA 54/49T108

Degree of erosive action in wave capitation depends on reciprocal positions of the surface of the specimen and the surface excited by wave capitation. During contact of a solid body with disintegrating bubbles, wave capitation does not occur. Collisions between fluids and

54/49T108

USSR/Physics (Contd)

Jul 49

solids cannot cause erosion since this is explained by vibration method. Capitation method can be used to test materials for resistance to such erosion under stated conditions. Submitted by Acad A. I. Nekrasov 4 May 49.

54/49T108

SHAL'NEV, K. K.

Appl. Mech. Rev.

Hydraulics; Cavitation; Transport

1867. K. A. Shalnev. On the hydrodynamic pressure on a rotating blade in connection with cavitation calculation (in Russian). Doklady Akad. Nauk SSSR 67, 439–442 (July 1949)

A thorough analysis of forces experienced by a fluid particle streaming along a rotating blade leads to the conclusion that pressure distribution over such a wing differs from corresponding pressure distribution for a fixed wing. This difference is mainly due to a centrifugal force $d\omega^2 R$ (ω is angular velocity) and depends upon pressure coefficient $p' = 1 - W'^2/W'^2_0$, where W' is the local velocity, W'_0 velocity of entrance of liquid. For high negative values of p', neglect of centrifugal effect leads to an underestimation of slit cavitation. Besides, under this condition, development of cavitation on full size machine and on model are not identical.

Georg P. Weinblum, USA

Basic

1950

SHAL'NEV, K.K.

"Fissure Cavitation as a Possible Cause for Errosion of the Hydro-Power Equipment of Turbine and Pump Installations." Thesis for degree of Cand. Technical Sci. Sub 29 Jun 50, Moscow Order of Lenin Power Engineering Inst. imeni V.M. Molotov

Summary 71, 4 Sep 52, Dissertations Presented for Degrees in Science and Engineering in Moscow in 1950, From Vechernyaya Moskva, Jan-Dec 1950.

USSR/Physics - Cavitation 1 Jun 50
New Techniques
Hydrodynamics

PA 165T100

"Cavitation Quality of Water Tunnels" K. K. Shal'nev, All-Union Sci Res Inst of Hydro-Mach Const "Dok Ak Nauk SSSR" Vol LXXII, No 4, pp 645-648

Cavitation quality (cavi-quality) of a water tunnel is term for following relation: $K = (p_\infty - p_n)/\rho q_\infty$. Here $q_\infty = v_\infty^2/2g$; p_∞, v_∞ are pressure, and velocity in working cross section M_∞ - M_∞ of test chamber on axis of water tunnel in absence of

165T100

USSR/Physics - Cavitation (Contd) 1 Jun 50

model; and p_n is vapor pressure of water. Includes detailed schematic drawings of two water tunnels designed by Shal'nev. Submitted 27 Mar 50 by Acad A. I. Nekrasov.

165T100

SHAL'NEV, K. K.

SHAL'NEV, K. K.

"Detection of Pump Cavitation by Means of Pressure Oscillograph," All-Union Sci.Res.Inst. of Hydraulic Machine Building, Inzh. Sbornik, No.9, pp 27-44, 1951

Gives metjods and results of research oncavitation of high-powered pump in operation be means of oscillographing the hydromechanical pressures acting on impeller chamber walls. By comparing pressure distribution measured in these expts with pressure curves obtained in tests using models of apertures (space between blade tip and chamber walls) in a small hydrodynamic tube under various stages of aperture cavitation, it was proposed to determine the presence and condition of aperture cavitation and cavitation on the end face profile of the pump blade. Concludes that by above method can establish picture of relative flow through impeller framework on its outside diameter and condition of cavitation and blade profile cavitation cannot be cause of pump chamber wall erosion.
Submitted 8 Jul 50 257T52

[illegible]

[illegible]. Cavitation of surface irregularities. P. 400

All-Union Scient. Res. Inst. of Hydro-Mech. Construction, June 1, 1950

SO: Journal of Technical Physics, 21, No. 2 (Feb. 1951)

J. 17

H. Hydraulics; Cavitation

1702. Shal'nev, K. K., Cavitation due to roughnesses of a surface and the resultant erosion (in Russian), *Izdatel'stvo Akad Nauk SSSR (N.S.)* 78, 1, 33-36, May 1951.

Author reports on experiments on cavitation behind unevennesses in the form of a triangle, segment, or step with heights from 0.012 to 0.24 in. in small channels and gaps [see AMR 4, Rev. 1189]. Cavities originate on vortex axis behind unevenness at time intervals between 114 and 300 × 10^{-5} second, as in separating flow cavitation behind smooth bodies. In gaps, danger of erosion depends on the relative height of unevenness in regard to thickness and velocity distribution of the boundary layer. In the beginning phase, the Strouhal number remains nearly constant (0.21) for greater heights and falls off with them. Erosion becomes very pronounced if unevennesses protrude through boundary layer into free stream. — Anton Kuhelj, Yugoslavia

SHAL'NEV, K. K.

"Cavitation of the Terminal Elements of the Impeller of Axial Hydraulic Machines," Inzh. Sbor., No.11, pp 3-34, 1952. All-Union Sci.Res. Inst. of Hydraulic Machine Bldg.

Gives formulas for critical values of coeffs of cavitation of axial hydraulic machine, Discusses pertinent flow schemes and calcn of cavitation coeffs. Concludes that safe values of coefficients of cavitation of turbine plant in respect to cavitation of t terminal elements are dependent slightly on pressure head and diameter of turbine, but are strongly influenced by turbine speed nd average min pressure. To prevent aperture face-end cavitation and cavitation due to rough chamber wall surface, recommends specific aperture-type and clean finishing of surface of impeller chamber wall.
Submitted 5 Feb 51.

257T61

3. [redacted]

4. USSR (600)

5. Cavitation

7. Resistance of rocks to erosion by cavitation. Inzh. sbor. no. 12. 1952.

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

Shal'nev, K.K.

2

USSR.

15/117(OT/1143) 532.528

Cavitation of Edge Profiles of Blade Tips

Inzh.Sbornik
14
1953
U.S.S.R.

K.K. Shal'nev

Experiments with models of tip profiles and models of gaps in a small water tunnel and hydraulic flume, to explain the influence of the shape of the profile of the tip edges of the blades on the danger of the appearance of gap cavitation, are described. (Bibl.4)

(A.R.E/S.T.A. Transl.,(17),11pp)

SHAL'NEV, K. K.
USSR

3147 AEC-tr-2095

EFFECT OF SLOT-STREAMS ON INTENSITY OF CAVITATION CORROSION. K. K. Shal'nev. Translated by E. R. Hope from Doklady Akad. Nauk 91, 1043-5(1963). 6p. (AEC-tr-2095)

62

The slot stream flowing through a gap between a channel wall and the end of a model, under the influence of the different pressures on the front and hind sides of the model, may serve as a means of hydraulic protection from the corroding action of the cavitation developed on the model. The conditions for development of the anticorrosive protective action of the slot stream are that the slot does not clog up, and that its height is equal to $^1/_{35}$th to $^1/_{11}$th of the thickness of the cavitation layer. Cavitation damage to the rotor-chamber walls of axial-flow turbines and pumps, as actually encountered in practice, cannot be explained by the direct action of the cavitations developed on the rotor blades. According to the present research, the slot stream through the clearance gap between the blades and the chamber walls should protect the walls from the corroding action of cavitation on the blades of hydraulic machinery. (auth)

Inst. of Mechanics, AS USSR

Translation 3-177066, 29 Nov 54

USSR/Engineering - Hydraulics FD-1116

Card 1/1 Pub. 41-10/13

Author : Shal'nev, K. K., Moscow

Title : Structure of the region of cavitation

Periodical : Izv. AN SSSR. Otd. tekh. nauk 5, 119-146, May 1954

Abstract : Reviews data from previous investigations of the structure of cavitation of the constructional elements and presents results of author's own investigations on the structure of the region of destructive cavitation behind a circular profile. Includes in the structure of the region of cavitation the geometrical forms of the region of cavitation, visually observable, and the physical, kinematic formation of the region of cavitation, studied by motion picture photography. Diagrams, graphs, motion picture frames, Thirty-three references (in German, English, Russian, and French).

Institution : All-Union Scientific Research Institute of Hydraulic Machine Building.

Submitted : June 21, 1954

USSR/Engineering - Hydromechanics FD-1131

Card 1/1 Pub. 41-12/17

Author : Shal'nev, K. K., Moscow

Title : Pressure and erosion in region of tear off cavitation of a circular profile

Periodical : Izv. AN SSSR. Otd. tekh. nauk 6, 111-120, Jun 1954

Abstract : Gives results of experiments on pressure variation in region of tear off cavitation behind a circular profile and experiments with erosion developing behind the profile model on the wall adjacent to its face. Graphs; diagrams; tables; oscillograms; photographs. Twenty-three references.

Institution : All-Union Scientific Research Institute of Hydraulic Machine Building

Submitted : July 9, 1954

SHAINEV-K.K

2659. Makeev, G. S., and Shal'nev, K. K., Hydraulic protection of turbines from cavitation erosion (in Russian), *Izv. Akad. Nauk SSSR Otd. tekh. Nauk* no. 11, 87–104, Nov. 1954.

This is a very interesting paper; it describes experiments performed on full-size turbines. Results of laboratory experiments obtained by K. K. Shal'nev, which show that intensity of cavitation depends on shape of profiles of peripheral edge of propeller turbine blades, were applied in practice.

Rounded off inlet edge of blades' peripheral edge reduces cavitation, and consequently less erosion was observed on the throat ring. Although no data are given, authors claim that this simple and small change is very effective in preserving turbine blades.

W. B. Palijenko, Canada

2

SHAL'NEV, K.K.

Observation of cavitation erosion in high-power turbines and pumps. Inzh.sbor. 18:3-30 '54. (MLRA 7:5)
(Cavitation)(Turbines) (Pumping machinery)

SHALNEV, K. K.

USSR

3128 AEC-tr-2096

SHAPES OF THE CAVITATION REGION ON A TRANSVERSE FOIL IN A NORMALLY INCIDENT STREAM. K. K. Shal'nev. Translated by E. R. Hope from Doklady Akad. Nauk 94, 1017-22(1954) 7p. (AEC-tr-2096)

The conditions of formation of cavitation behind a foil placed normally to the flow axis are identical with the conditions of cavitation back of a circular profile. In a plane-parallel stream with a positive gradient or pressure, the shape of the cavitation hollow agrees only in the initial stages with the theoretical notion that the boundary of the cavitation region has a unidirectional curvature, and in the more developed stages, only in that part of the boundary line closest to the foil. In the extremely developed cavitation stages, the fact that the part of the surface which closes off the cavitation hollow breaks up into cavitating streams rules out the possibility of a counterflow of the boundary stream toward the hind side of the foil. In the cavitation region the mean pressure is not the same at all points; it depends on the structure of this region and, consequently, on the stage of cavitation. The pressure in the cavitation region is equal to the vapor pressure of water only in the gaseous zone of that region. (auth)

62

Translation 2524467, 30 Dec 54

Shal'nev, K. K.

USSR.

~~3146~~ AEC-tr-2097

RESISTANCE OF METALS TO CAVITATION CORROSION IN FRESH WATER AND SEA WATER. K. K. Shal'nev. Translated by E. R. Hope from Doklady Akad. Nauk 98, 329-32(1954) 8p. (AEC-tr-2097)

A comparison was made of the resistance of metals to cavitation corrosion in fresh water and sea water. The resistance of metals to corrosion was determined by the vibrator method with magnetostriction apparatus. The mechanical properties and resistance to cavitation corrosion of brass, bronze, and gray cast iron are tabulated. (J.E.D.)

Translation 2524467 30 Dec 54

SHAL'NEV, K. K.

USSR/Physics - Hydromechanics

Card : 1/1 Pub. 22 - 8/48

Authors : Shal'nev, K. K.

Title : Kinematical structure of the peel-off cavitiation of a circular profile

Periodical : Dok. AN SSSR 97/5, 785 - 788, August 11, 1954

Abstract : Results of studying the peel-off cavitation, formed in streamlining round profile bodies by gasous and liquid substances, are described. The study was carried out with the help of a high-speed moving picture camera installed in the small water tunnel of the All-Union Research Institute of Hydrodynamic Machine Constructions. Fourteen references (1926-1951). Table; graphs; illustrations.

Institution : All-Union Research Inst. of Hydrodyn. Mach. Const.

Presented by : Academician A. I. Nekrasov, May 22, 1954

SHAL'NEV, K.K.

9627
CONDITIONS OF CAVITATION EROSION. K. K. Shal'nev. (Condensation of a report presented before the Symposium on Cavitation in Hydrodynamics, Sept. 1955, National Physical Laboratory, Teddington, England). Izvest. Akad. Nauk S.S.S.R. Otdel. Tekh. Nauk No. 1, 3-20(1956) Jan. (In Russian)

One of the most damaging effects of hydraulic equipment cavitation is the premature wear of the equipment caused by cavitation erosion. Many efforts and attempts to determine the mechanism of cavitation erosion phenomena did not produce any effective results. The absence of data of experimental observation of interaction of interaction between cavitation and cavitation-induced erosion makes the investigation of this problem difficult. Results are described of experimental studies of the intensive action of cavitation erosion taking place behind a round profile of a model. (tr-auth)

SHAL'NEV, K. K.

V MN 14899* Hydraulic Method of Protecting Turbines From Cavitation Erosion. Gidravlicheskii metod zashchity turbin ot kavitatsionnoi erozii. (Russian.) K. K. Shal'nev. *Vestnik akademii nauk SSSR*. v. 25, no. 8. Aug. 1955. p. 50-52.

Technological methods of protection involve use of high-alloy metals in the building or repair of turbines and turbine parts. However, the hydraulic methods produce better design and smoother, stream-lined parts. Diagrams.

SHAL'NEV, K.K. (Moskva)

Cavitation in hydrodynamics. Izv.AN SSSR Otd.tekh.nauk no.8:72-116 Ag '56. (Cavitation) (MLRA 9:9)

[redacted]NEV, K.K. (Moskva).

Three-dimensional flow past the runner of axial pumps observed on experiments under natural conditions. Izv. AN SSSR. Otd. tekh. nauk no.3:82-98 Mr '57. (MLRA 10:6)
(Pumping machinery--Testing)

AUTHOR: Shal'nev, K. K. (Moscow). 24-5-20/25

TITLE: Vacuum jet degassing meter for water. (Struyno-vakuumnyy degazometr vody).

PERIODICAL: "Izvestiya Akademii Nauk, Otdeleniye Tekhnicheskikh Nauk" (Bulletin of the Ac.Sc., Technical Sciences Section), 1957, No.5, pp.129-133 (U.S.S.R.)

ABSTRACT: The quantity of air dissolved in the water may have a considerable influence on the results obtained in cavitation tests. So far inadequate attention has been paid to this problem. In this paper an instrument is described which enables rapid measuring of the quantity of air in the water and to automate the work with such an instrument. The instrument was designed and constructed in the Hydraulic Turbines Laboratory of VIGM and the Institute of Mechanics, Ac.Sc. U.S.S.R. (Institut Mekhaniki AN SSSR). The basic principle is the same as that of the instrument designed by the Mechanical Engineering Research Laboratory and described by Williams, E.E. (1). The Russian built meter differs from that described by Williams by certain design details and also in the fact that the water is degassed in the vacuum space simultaneously in several jets and not in a single jet. Figs. 1 and 2 are sketches of the instrument,

Card 1/2

Vacuum jet degassing meter for water. (Cont.) 24-5-20/25

Fig.3 gives a calibration curve.
There are 3 figures, 8 references, 1 of which is Slavic.

SUBMITTED: February 11, 1957.

AVAILABLE:

Card 2/2

AUTHOR Shal'nev, K.K., (Moscow), PA 3075

TITLE Three Dimensional Flow after the Rotor of an Axial Pump, after Experiments in Nature.
(Prostranstvennoye techeniye za rabochim kolesom osevogo nasosa po opytam v nature - Russian)

PERIODICAL Izvestiia Akad. Nauk SSSR, Otdel. Tekhn., 1957, Vol 21, Nr 3, pp 82-96, (U.S.S.R.)

Received 6/1957 Reviewed 7/1957

ABSTRACT The results of investigations made in the area between the impeller wheel and the exhaust impeller wheel are given. Since the number of experiments is small the method here described cannot be recommended without improvement. The data obtained, however, give a more complete picture than the theoretic calculations. After the description of the pump and the measuring method the following points are established. 1) The measurements must be carried out at a sufficient distance from the exhaust end of the turbine so that there is no influence felt from the slowing down zones. Of course this is often hard to accomplish in practice. 2) The measurements must be carried out with velocity transmitters of little inertia (electrical) 3) The flow follows in proximity to the chamber walls in consequence of the more limited circulation of the exhaust apparatus of the wall deflection. 4) In the alignad cylindrical cross sections the flow has a substantial slope which increases against the walls of the case and the impeller wheel chamber. The slope angles are substantially different from the projected

Card 1/2

PA - 2075

Three Dimensional Flow after the [illegible] periments in Nature.

angles in most measurement places of the cross section 5; the absolute velocity of the flow proceeding from the impeller wheel is irregularly distributed along the measuring ring, whereby the velocity on the case walls is higher, which is due to the reduction of pressure on the case 6) It can be assumed that between the actual discharge of the pump and the velocity (found by measurements) after the impeller wheel, there is an exact dependence which can be determined by rule.
(With 19 illustrations, 5 tables and 4 Slavic references)

ASSOCIATION
PRESENTED BY
SUBMITTED 16.7.1956.
AVAILABLE Library of Congress.
Card 2/2

SHALNEV, K. K.

PHASE I BOOK EXPLOITATION 1065

Vsesoyuznyy nauchno-issledovatel'skiy institut gidromashinostroyeniya

Issledovaniya i raschety gidroturbin i regulyatorov (Investigation and Design of Hydraulic Turbines and Regulators) Moscow, Mashgiz, 1958. 129 p. (Series: Its: Trudy, vyp. 21) 4,000 copies printed.

Ed.: Kvyatkovskiy, V.S., Doctor of Technical Sciences, Professor; Ed. of Publishing House: Prokof'yeva, L.G.; Tech. Eds: Shikin, S.T. and Gerasimova, Ye.S.; Managing Ed. for Literature on Machine Building and Instrument Construction (Mashgiz): Pokrovskiy, N.V., Engineer.

PURPOSE: This book is intended for engineers, technical workers, and graduate students and also for upperclassmen of vuzes and tekhnikums studying problems of hydraulic turbine building.

COVERAGE: This is a collection of articles dealing with investigations of hydraulic turbines and regulators and their design. The following subjects are covered: results of model testing of im-

Card 1/3

pulse and reaction (axial) hydraulic turbines, theoretical investigations and calculations on hydraulics of rotors of axial and radial-axial (mixed flow) hydraulic turbines, characteristics of cavitational and starting regimes of axial hydraulic turbines, and analysis and calculations of dynamics of speed regulators of hydraulic turbines.

TABLE OF CONTENTS:

Voytashevskiy, D.A., Candidate of Technical Sciences. Mean Velocities of Flow in Axial Hydraulic Turbines 3

Ivanov, V.I., Candidate of Technical Sciences. Analysis of Flows in Axial Hydraulic Turbines Under Starting Conditions 19

Kvyatkovskiy, V.S., Doctor of Technical Sciences, Professor. Design of Rotor Blades of Radial-axial [Mixed Flow] Hydraulic Turbines 39

Investigation and Design (Cont.) 1065

Shal'nev, K.K. Effect of the Shape of Blade-end Edges on Cavitation and Performance of a Hydraulic Turbine

Shchipulin, I.F., Candidate of Technical Sciences. Analysis of Performance Characteristics of a Hydraulic Turbine With Inclined Nozzle Based on the Flow Energy Balance 76

Shchipulin, I.F., Candidate of Technical Sciences. Efficiency-power Characteristics of the Impulse [Pelton] Turbine Model 96

Popov, D.N., Candidate of Technical Sciences. Effect of the Characteristics of a Servomotor on Hydraulic Turbine Speed-regulation Regimes 110

AVAILABLE: Library of Congress

GO/mfd
1-28-59

Card 3/3

Shal'nev, K. K.

AUTHOR: Shal'nev, K. K. (Moscow).

TITLE: Hydromechanical aspects of cavitation erosion. (Gidromekhanicheskiye aspekty kavitatsionnoy erozii).

24-1-7/26

PERIODICAL: Izvestiya Akademii Nauk, Otdeleniye Tekhnicheskikh Nauk, 1958, No.1, pp.52-62 + 2 plates (USSR)

ABSTRACT: In this paper the results are given of experimental investigations of certain aspects of the mechanism of cavitation erosion which attracted little attention of other investigators, namely, the influence on the erosion intensity of the following: size of cavitation regions, the stage of development of cavitation, the flow speed and the Reynolds number. The author uses a special cavitation terminology. The "cavitation region" designating the part of the liquid space where there is a growth of the nuclei into cavitation bubbles and development and destruction of cavities; "cavitation bubbles" - elementary discontinuities filled with gas and vapour; "nuclei" - nuclei of bubbles distinguished by their microscopic dimensions; "cavitation cavern" - accumulation of bubbles into a compact mass; "cavitation erosion" - surface damage of solid materials caused by cavitation; "erosion pittings" - recesses at

Card 1/5

Hydromechanical aspects of cavitation erosion. 24-1-7/26

published by Parsons, C.H. and Cook, S.T. (Ref.8), Schroter, H. (Refs.11-13), Hahn, W. (Ref.10), Mousson, J. M. (Ref.14), and his own earlier results (Refs.15-17). Some of the data giving the cross sections of the working chambers used by various authors are entered in Table 1, p.54. The most important conclusion derived from the review of the methods used for investigating the resistance to cavitation erosion of metals is that there is a tendency to use a discontinuous type of cavitation which is observed in the vortex range of bodies with an unfavourable flow. This is not accidental and in earlier work (Ref.17) the author showed that in practice active components of hydraulic machinery are damaged only if they are badly streamlined. In this paper experiments are described which were carried out in two hydrodynamic tubes (A and B) which were geometrically similar. The active cross section was varied by displacing two opposing covers of the chamber; the flow speed and the flow pressure were regulated independently. The cavitation erosion was studied on lead plates of 3 mm thickness in the test rig A and of 8 mm thickness in the test rig B. The specimens were fixed in a recess of the wall of the chamber as shown in Fig.1f. In the

Card 3/5

Reynolds number (Fig.7). It can be seen from the graph, Fig.7, that for flow speeds of 7 and 9 m/sec the measuring points deviate from their expected values (they are not located on a straight line in the graph) and this is attributed to the fact that the wear of the specimens was not due to cavitation but to corrosion and abrasion by the stream of the flow.
There are 10 figures, 3 tables and 24 references - 6, Russian, 11 English, 7 German.

SUBMITTED: March 11, 1957.

AVAILABLE: Library of Congress.

Card 5/5

SHAL'NEV, K.K.

Effect of the shape of the outlet edge of blades on the cavitation and performance of hydraulic turbines. Trudy VIGM no.21:57-75 '58. (MIRA 11:11)

(Hydraulic turbines--Blades)

26.2141
26.2120

32232
S/196/61/000/011/016/042
E194/E155

AUTHOR: Shalnev, K.K.

TITLE: The influence of pressure gradient in a flow on the development of a cavitation zone

PERIODICAL: Referativnyy zhurnal, Elektrotekhnika i energetika, no.11, 1961, 22, abstract 11D 105. (Zh. prikl. mekhan. i tekhn. fiz., no.1, 1961, 106-108)

TEXT: Data are given of investigations to find how the pressure gradient in the flow affects the development of a cavitation zone when models are tested in a hydrodynamic tunnel. Tests were made on a model of circular outline with two variants of pressure gradient, positive and negative. During the test the rate of flow was constant and the pressure was controlled so as to cover the widest possible range of cavitation. Measurements were made of the lengths of the cavitation zone as ratios of the model diameter, and of pressure and temperature. Visual observations were made and noise was recorded. Results are given as values of the above mentioned ratios against cavitation

Card 1/2

The influence of pressure gradient ...

coefficient. The noise-level observed in the test is written against each of these values. The test results show that there is no breakaway stage of cavitation in pumps, whilst in turbines where there is a tendency to negative pressure-gradient in the flow, cavitation on the blades may pass through the breakaway stage.
4 literature references.

[Abstractor's note: Complete translation.]

Card 2/2

The "energetics" parameter ...

where Δc_c is the element of the model's cavitation resistance and $q_\infty = v_\infty^2/2g$. Erosion tests were carried out by the author in the water tunnel of the Institut mekhaniki (Mechanics Institute) in geometrically similar working chambers ranging in cross-section from 6 x 25 mm^2 to 12 x 50 mm^2 with stream velocities 7 to 26 m/sec on models of d = 6 and 12 mm, and for Reynolds number R = 40 x 10^3 to 400 x 10^3. Standard specimens used were made from rolled lead. The value of specific volume of erosion was found to be about 60 μ^3/kgm. In the light of the above definitions of the energetics parameter, the author formulates the scale effect of cavitation erosion. Using suffixes m and n for model and prototype respectively, and L as the linear scale, a formula is obtained

$$\Delta V_n = \Delta V_m L^3 V^5, \qquad V = \frac{v_{\infty n}}{v_{\infty m}} \tag{3}$$

always assuming that the liquid properties are the same and the models are geometrically similar. In special cases where $d_n = d_m$ and $h_n = h_m$, $\Delta V_n = \Delta V_m V^5$; similarly should the average stream velocities be identical for both prototype and model,

The "energetics" parameter ...

$\Delta V_n = \Delta V_m L^3$. The author's test data on erosion of lead specimens is used to verify the above equations. Fig.6 shows a graph of ΔV in mm^3/hour plotted against v_∞ in m/sec on a logarithmic scale. The straight lines ΔV_6 and ΔV_{12} indicate a theoretical dependence $\Delta V_6 = A_6 v_\infty^\alpha$ for $d = 6$ mm and $\Delta V_{12} = A_{12} v_\infty^\alpha$ for $d = 12$ mm, where $\alpha = 5$ while constants A_6 and A_{12} are equal to the erosion volume for an average stream velocity of 1 m/sec, corresponding to two model variants. The values $A_6 = 10^{-7}$ mm^3/hr and $A_{12} = 8 \times 10^{-7}$ mm^3/hr show that in order to destroy by cavitation erosion 1 mm^3 of lead at $v_\infty = 1$ m/sec, 150 to 1200 years of uninterrupted cavitation are required. For metals normally used in hydro-machine construction, this time should be increased several hundred times. From this, it follows that for each material it should be possible to select some nominal stream velocity which would reduce the erosion volume to practically nothing. The scale effect can be determined by equating the coefficients A_6 and A_{12}. Their ratio, for v_∞ = constant, is equal to $A_{12}/A_6 = 8 = L^3$. The average value of the ratio $\Delta V_{12}/\Delta V_6$ for four different velocities is 7.9 which is approximately equal to L^3. Tests carried out by S.K.Kerr and

The "energetics" parameter ...

K. Rosenberg on turbines in Norway are essentially in agreement with the present author's findings. Experiments conducted by R.T.Knapp in America show some discrepancies; these, however, can be explained by the different techniques used in the two series of tests. V.V.Gavranek and V.A.Konstantinov are mentioned for their contributions in this field. There are 6 figures, 2 tables and 20 references. 5 Soviet-bloc and 15 non-Soviet-bloc. The four most recent references to English language publications read as follows: Ref.6: Knapp R.T. Trans. ASME, 1955, v.77, no.7; Ref.7: Plesset M.S. and Ellis A.T., Trans. ASME, 1955, v.77, no.7; Ref.14: Silbermann. J. Fluid. Mech., 1959, v.5, no.3; Ref.18: Kerr S.K. and Rosenberg K. Trans. ASME, 1958, v.80, no.6.

SUBMITTED: May 9, 1961

Card 4/5

31245
S/207/61/000/005/004/015
D237/D303

26.2120

AUTHORS: Kotenev, I.V., and Shal'nev, K.K. (Moscow)

TITLE: Influence of constructional changes of a radial-axial hydroturbine on its cavitation

PERIODICAL: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 5, 1961, 26 - 38

TEXT: This is a report on the experimental work done on the turbines PO (RO)-82, and the author's aim was to investigate the variation of cavitation characteristics of the rotor with constructional changes. The work was performed at the Hydro-Turbine Laboratories of the Vsesoyuznyy nauchno-issledovatel'skiy institut gidromashynostroyeniya (All-Union Scientific Research Institute of Hydraulic Machinery). Cavitation zones were photographed and basic magnitudes describing the work of the turbine were reduced to the head H = 1m and diameter of the rotor D = 1 m. The results were presented as: 1) Photographs of zones of cavitation, 2) Tables, 3) Universal characteristics, 4) Comparison graphs. The following con-

Card 1/

Influence of constructional ...

clusions were reached: In the case of the rotor with a non-perforated hub, the main cavitation will be that of the hub in places badly machined (uneven surface), while in case of a perforated hub (perforations leading to the outlet), the most dangerous will be the cavitation of the mouths of the openings. When the outflow is normal, the cavitation zones break up into separate bubbles, but in the case of rotating outflow, the zones coalesce into vortices which approach the axis of rotation of fluid in the outflow tube and follow a spiral path around the axis. The authors recommend that in order to avoid or minimize the adverse effects of cavitation on the performance of the turbine, (a) the hub finish should be better, (b) perforated hub should be avoided or if that is unavoidable, then the ratio of the surface of cross-section of the space between the driving wheel and inner diameter of the rotor to the surface of the openings which is equal to or greater than unity, should be avoided, (c) low placing of the outflow tube should be preferred, and an investigation of the stability of cavitational vortices in such a tube should be advantageous. Yu.N. Solov'yev and V.A. Yartsev are mentioned for their help in conducting the experi-

Card 2/3

31245
S/207/61/000/005/004/015
D237/D303

Influence of constructional ...

ment. There are 18 figures and 7 references: 6 Soviet-bloc and 1 non-Soviet-bloc.

SUBMITTED: July 8, 1961

X

Card 3/3

2547
S/020/61/139/001/006/018
B104/B215

15 8511

AUTHOR: Shalnev K. K.

TITLE: Resistivity of polymeric plastics to cavitation erosion

PERIODICAL: Akademiya nauk SSSR.Doklady, v. 139, no. 1, 1961, 60 - 62

TEXT: The author states in his introduction that while there are data available on the resistivity of metals to cavitation erosion, such data are however lacking for polymeric plastics. The experiments described here were carried out at the hydrodynamic tube No. 1 of the Institute of Mechanics of the Academy of Sciences USSR in a working chamber of [illegible] mm [illegible]. The low velocity in the longitudinal direction of the chamber amounted to [illegible] m/sec. The cavitation band had a length of $\lambda = l_y/d$, where d stands for the diameter of the circular cross-section model. Water temperatures varied between 5 and 28°C. The cavitation length was kept [illegible] by pressure regulation. The following materials were examined: plexiglass, polystyrene, fluoroplast-3, fluoroplast-4, aluminum plate, the [illegible] (EI-435B) nickel alloy, and rod-shaped bronze.

Card 1/4

Resistivity of polymeric plastics to

The mechanical properties of these materials are indicated in Table 2. Results are shown in Fig. 2 and The results are summarized as follows: 1) Among the polymers investigated fluoroplast 3 and fluoroplast-4 exhibit the highest resistivity to ... The resistivity of these polymers exceeds that of tested metals. 2) Finer structure and higher homogeneity of the polymers account for this result. 3) It can thus be concluded that such polymers as are characterized by higher hardness and higher impact resistance have a higher resistivity to ... 4) Homogeneity of structure and high impact resistance are the main features which render a material resistant to ... There are 3 figures, 3 tables, and 4 references: 3 Soviet and 1 non-Soviet bloc. The reference to the English-language publication reads as follows: J. M. Mousson. Tr. ASME, Vol. no. 3 (1957).

ASSOCIATION: Institut mekhaniki Akademii nauk SSSR (Institute of Mechanics Academy of Sciences USSR)

PRESENTED: January 26, 1961, by P. Ya. Kochina, Academician

SUBMITTED: December 10, 1960

Card 2/6

SHAL'NEV, K.K. (Moskva)

Cavitation of gate slots. Izv.AN SSSR.Otd.tekh.nauk.Mekh.i mashinostr. no.2:57-64 Mr-Ap '62. (MIRA 15:5)
(Cavitation)

KOTENEV, I. V. (Moskva); SHAL'NEV, K. K. (Moskva)

Cavitation near the hub and pressure fluctuations in a turbine draft pipe. PMTF no.2:59-71 Mr-Ap '62. (MIRA 16:1)

(Hydraulic turbines) (Cavitation)

42047
S/207/62/000/004/006/006
I028/I242

AUTHOR: Shal'nev, K.K. (Moscow)

TITLE: Scale effect of cavitation erosion

PERIODICAL: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no.4, 1962, 121-128

TEXT: An experimental investigation of the hydromechanics of cavitation erosion using models of circular profiles (d = 6, 12 mm) in a plane-parallel flow is described. Lead specimens were placed behind the models and the volume ΔV of material lost by them per hour was determined. The structure of the cavitation zone was recorded simultaneously by a high-speed camera. Curves of ΔV as a function of the cavitation stage, the relative dimen-

Card 1/3

S/207/62/000/004/006/006
I028/I242

Scale effect of...

ASSOCIATION: Institut mekhaniki AN SSSR (Institute of Mechanics AS USSR)

SUBMITTED: May 9, 1962

Card 3/3

45286
S/207/62/000/006/012/025
E191/E435

AUTHOR: Shal'nev, K.K. (Moscow)

TITLE: Cavitation on surface irregularities of triangular profile

PERIODICAL: Zhurnal prikladnoy mekhaniki i teoreticheskoy fiziki, no.6, 1962, 65-80

TEXT: The author has previously shown that the boundary layer has an effect on the value of the critical cavitation coefficient. New tests are described with a large number of similar triangular profile irregularities in a large range of velocities, carried out in the water tunnel of the Institut mekhaniki AN SSSR (Institute of Mechanics AS USSR). The cross-section of the tunnel could be varied by moving two transparent plastic walls. Triangular models of irregularities were made of brass, integral with a base plate which was set into the plastic wall. Preliminary tests were used to measure the velocity and pressure in the working cross-section. The basic tests consisted in varying the pressure at a constant velocity and thereby establishing different stages of cavitation, visually determined by the length of the cavitation zone. The beginning of cavitation was determined by the presence of a

Card 1/3

Cavitation on surface ...

characteristic noise and the simultaneous blinking of "clouds" of cavitation cavities. The cavitation coefficient, expressing the ratio of the pressure difference between the total pressure and the vapour pressure to the velocity head, was computed. The results of the tests were expressed in graphs of the cavitation coefficient against the relative length of the cavitation zone (referred to the height of the irregularities) and against the relative height of the irregularities (referred to the depth of the tunnel). High speed motion photography at 8000 frames per sec was applied to the cavitation zone. The external shape of the cavitation zone was observed, distinguishing cavitation caused by the model irregularities and that caused by the gaps at the ends of the models. The motion picture record was used to find the differences in behaviour according to whether the peaks of the irregularities were inside, level with or beyond the limit of the boundary layer. A formula is derived for the relation between the value of the cavitation coefficient at the start of cavitation and the height of the irregularities. The agreement between theory and experiment is discussed. The present tests are

Card 2/3

S/020/62/143/001/009/030
B104/B108

AUTHORS: Kozyrev, S. P., and Shal'nev, K. K.

TITLE: Abrasive wear and cavitation

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 143, no. 1, 1962, 60-63

TEXT: The correlation between local abrasive wear and cavitation in the eddy zones of hydraulic machines were studied in the hydrodynamic tube no. 2 of the Institute of Mechanics AS USSR under the direction of K. K. Shal'nev, jointly with the Institute of the Science of Machines AS USSR. The cross section of the working chamber of the tube is 6 by 25 mm, the diameter of the cylinder producing disruptive-type cavitations is 6 mm, the flow velocity of $v = 17$ msec^{-1} was constant in all tests. Rolled lead plates were used as standards, water with sand (grain size 0.05-0.4 mm) served as an abrasive medium. The following types of wear were observed: (1) local channel type wear surrounding the cylinder on the pressure side, produced by frontal eddies; (2) wavelike wear produced by the turbulent boundary layer. In the zone of the drag eddies, wavelike wear was observed which does not reflect the turbulence of the flow. If there is a cavita-

Card 1/2

tion zone turbulence and, consequently, wear is increased by the combined action of abrasion and cavitation. Cavitation of the cylinder has no effect upon abrasion. Both types of wear of a disruptive flow lie in the zone of cavitation behind the cylinder. Cavitation and cavitation erosion do not occur on smooth, plane surfaces whereas abrasive wear does. Metals for hydraulic machines operating with water containing sedimentary material are to be selected on the basis of tests in which both cavitation and abrasion occur. A. A. Milovidov took the motion pictures. There are 4 figures, 1 table, and 15 references: 9 Soviet and 6 non-Soviet. The three references to English-language publications read as follows: E. N. Fales, Visual Study of Flow, Washington, 1926; T. Bovet, Eng. Digest, no. 3 (1956); L. Prandtl, J. Roy. Aeronaut. Soc., 31, no. 200 (1927).

ASSOCIATION: Institut mashinovedeniya Akademii nauk SSSR (Institute of the Science of Machines of the Academy of Sciences USSR)
Institut mekhaniki Akademii nauk SSSR (Institute of Mechanics of the Academy of Sciences USSR)

PRESENTED: August 11, 1961, by A. A. Blagonravov, Academician
SUBMITTED: August 10, 1961
Card 2/2

VARGA, I.I. (Budapest, Moskva); CHERNYAVSKIY, B.A. (Budapest, Moskva); SHAL'NEV, K.K. (Budapest, Moskva)

Method for studying the scale factor in cavitation erosion. PMTF no.3:122-129 My-Je '63. (MIRA 16:9)
(Cavitation)

SHAL'NEV, K.K.; CHERNYAVSKIY, B.A.

Cavitation of the human heart. Dokl. AN SSSR 153 no.3:706-709 N '63. (MIRA 17:1)

1. Institut mekhaniki AN SSSR. Predstavleno akademikom P.Ya. Kochinoy.

*

SHAL'NEV, K.K.; RUBINA, N.P.

Pulse pressures in the zone of a secondary erosion center. Dokl. AN SSSR 154 no. 3:553-556 Ja '64. (MIRA 17:5)

1. Institut mekhaniki AN SSSR. Predstavleno akademikom P.Ya. Kochinoy.

SHAL'NEV, K.K., doktor tekhn. nauk

Conference on hydraulic machinery held in Rumania. Vest. AN SSSR 35 no.3:99 Mar '65. (MIRA 18:3)

SHAL'NEV, K.K.; MILOVIDOV, A.A.

Structure of the cavitation zone in the erosion region.
Usp.nauch.fot. 9:271-274 '64.
(MIRA 18:11)

L 61930-65 EWT(l)/EWP(m)/EWA(d)/FCS(k)/EWA(l) Pd-l

ACCESSION NR: AP5018204 UR/0207/65/000/003/0103/0108

23
B

AUTHOR: Shal'nev, K. K. (Moscow)

TITLE: Flow boundary effects on the cavitation flow around a cylinder

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 3, 1965, 103-108

TOPIC TAGS: cavity flow, infinite breadth flow, flow constriction, fluid dynamics

ABSTRACT: The results reported in this paper stem from an experiment intended to check the method of reducing experimental data obtained from models in a flow of finite breadth to the conditions of infinite-breadth flow. Cylinders 5 to 20 mm in diameter were used in a working chamber whose width varied relatively from 0.05 to 0.40. Flow parameters, such as resistance, pressure coefficient, and cavitation number, were reduced to the conditions of infinity by way of extrapolation diagrams. It is shown that the use of equivalent velocity is not always justified and may lead to errors. The error is said to be due to the fact that the equivalent velocity increment on the cylinder profile is not uniform and is affected by the shape and size of the cavitation zone, in addition to the boundary flow. The true correction magnitude can be determined only from a series of tests involving different flow constrictions and identical Reynolds numbers. When comparing the results of tests

Card 1/2

L 61930-65

ACCESSION NR: AP5018204

conducted in different chambers, consideration should be given to the effect of a possible difference between pressure gradients along the chamber axis on the magnitude of cavitation parameters. Orig. art. has: 8 figures, 2 tables, and 10 formulas. [VM]

ASSOCIATION: none

SUBMITTED: 05Sep64 ENCL: 00 SUB CODE: ME

NO REF SOV: 009 OTHER: 014 ATD PRESS: 4061

Card 2/2

L 14854-66 EWP(j)/EWT(m) RM

ACC NR: AP6001728 (A) SOURCE CODE: UR/0020/65/165/004/0813/0816

AUTHORS: Shal'nev, K. K.; Rozanov, N. P.; Pshenitsyn, P. A.; Inozemtsev, Yu. P.; Sakharov, V. I.

62
B

ORG: none

15

TITLE: Mechanism of cavitation erosion of cement and polymer concretes

SOURCE: AN SSSR. Doklady, v. 165, no. 4, 1965, 813-816

TOPIC TAGS: cavitation, reinforced concrete, erosion, polymer, plastic strength

ABSTRACT: The authors investigated the effect of various factors, besides strength, on the resistance to cavitational erosion of cement and polymer concrete (plastic-reinforced concrete). These factors were homogeneity of the concrete structure, composition and structure of the filler rock, cohesion of the binding agent and its adhesion to the filler. The tests were made in a hydrodynamic tube with area

Card 1/2

L 14854-66
ACC NR: AP6001728

24 x 100 mm, at a stream velocity ahead of the sample 20 m/sec, the cavitation being measured on the rear end of the sample. Gravel concrete had the least resistance to cavitation, and stone concrete the highest, indicating that a large mesh of the filler is harmful from the point of view of cavitation erosion. In the case of plastic-based concrete the resistance to erosion was higher by tens and hundreds of times. No connection was established between the strength of the concrete and its resistance to cavitation erosion, in contradiction to earlier reports. It is concluded that the cavitation erosion damage of concrete has many similar features to damage to metals, so that the requirements should be identical for all types of materials. This report was presented by Academician P. Y. Kochina. Orig. art. has: 2 figures and 3 tables.

SUB CODE: 11. SUBM DATE: 25Mar65/ ORIG REF: 007/ OTH REF: 003

Card 2/2

Accession Nr L 45485-66 EWP(t)/ETI IJP(c) JD/WB

SOURCE CODE: HU/2504/65/051/03-/0361/0379

ACC NR: AT6033335

AUTHOR: Varga, J.--Varga, Y.; Sebestyen, Gy.--Shebesht'yen, D.; Shalnew, K. K.--Shal'nev, K. K.; Tschernawskij, B. A.--Chernyavskiy, B. A.

ORG: [Varga; Sebestyen] Technical University, Budapest; [Shalnew; Tschernawskij] Institute for Mechanics, AN SSSR, Moscow

TITLE: Investigation of the scale effect in cavitation corrosion

SOURCE: Academia scientiarum hungaricae. Acta technica, v. 51, no. 3-4, 1965, 361-379

TOPIC TAGS: corrosion, cavitation

ABSTRACT: This article is the Hungarian publication of an article published in Zh. Prikl. Mekh. i Tekh. Fiz. AN USSR, 1963, no. 3, pp. 122-129. The methodologies employed at the authors' Institutes for the investigation of the scale effect were described. This investigation covers the subject on the basis of an energetical parameters. The equipment used and the experimental conditions employed were discussed and an evaluation of the work is made. Orig. art. has: 11 figures, 2 formulas and 1 table. [Orig. art. in German] [JPRS: 33,732]

SUB CODE: 11, 20 / SUBM DATE: 23Nov63 / ORIG REF: 003 / SOV REF: 008
OTH REF: 018

Card 1/1

0920 1356

L 04641-67 EWT(m)/EWP(w)/EWP(t)/ETI IJP(c) JD/WB

ACC NR: AP6024412 (N) SOURCE CODE: UR/0020/66/169/001/0085/0088

66
63
B

AUTHOR: Shal'nev, K. K.; Stepanov, R. D.; Logov, I. L.

ORG: Institute of Problems of Mechanics, Academy of Sciences SSSR (Institut problem mekhaniki Akademii nauk SSSR)

TITLE: Cavitation-mechanical strength of metals

SOURCE: AN SSSR. Doklady, v. 169, no. 1, 1966, 85-88

TOPIC TAGS: lead, cavitation, ultimate strength, erosion, metals stress, creep mechanism, yield stress

ABSTRACT: To check on the effect of cavitational erosion on various parts of hydraulic machinery, the authors have set up experiments to investigate the influence of cavitation on the deformation curves of metals under conditions of uniaxial tension. The investigations were made in a hydrodynamic tube with 24 x 100 mm working chamber. The cavitation was excited by a round cylinder of 24 mm dia. The stream velocity in all experiments was maintained constant at 22 m/sec; the stage of the cavitation zone was also kept constant. The experimental conditions were such that the frequency of the pulsations of the pressure should lie in the 200 - 30,000 cps range. The material tested was 99.985% pure lead (SI grade), being the most plastic material that retains an elongation deformation after removal of the load. The samples were prisms of length 18 - 20 mm, thickness 1.2 - 1.5 mm, and height 10 - 12 mm. The load was produced by a suspended weight. Tests were made under both continuous and intermittent conditions. The authors point out that in all the theories of cavitation sight is

UDC: 532.528

Card 1/2

lost of the structure of the cavitation zone accompanying the erosion zone and its physical aspects. The cavitation zone was shown by one of the authors in another paper (Shal'nev, DAN v. 139, No. 1, 1961) to consist of caverns which occur periodically, pulsate, and are carried away by the stream. This unstable state of the cavitation zone gives rise to sound waves and pulsating pressures, producing conditions for the material which differ from the ordinary static tests. The tests resulted in creep curves for lead under vibration and cavitation at different stresses. The strain curves were plotted from creep curves for intervals of 30 and 120 sec. The results showed an appreciable increase in the creep of the lead in the cavitating liquid, compared with tests in air, and a decrease in the yield point of the lead. Various other changes in the mechanical properties of the lead under the influence of cavitation are briefly discussed. The authors thank N. A. Lysov and I. A. Kolesnikov for help with the laborious experiments. This report was presented by Academician P. Ya. Kochina 24 September 1965. Orig. art. has: 4 figures.

SUB CODE: 20, 11/ SUBM DATE: 10Sep65/ ORIG REF: 002/ OTH REF: 001

awm

SHAL'NEV, N., gvardii polkovnik.

Sergeant first class Belov, participant in the All-Army conference of leaders in military and political training. Voen.-inzh. zhur. 101 no.10:38 O '57. (MLRA 10:11)

(Belov, Valerii)

SHKLYAEV, V.

Industrial accidents

Science in the service of labor protection. Prof. soiuzy no. 8, 1952.

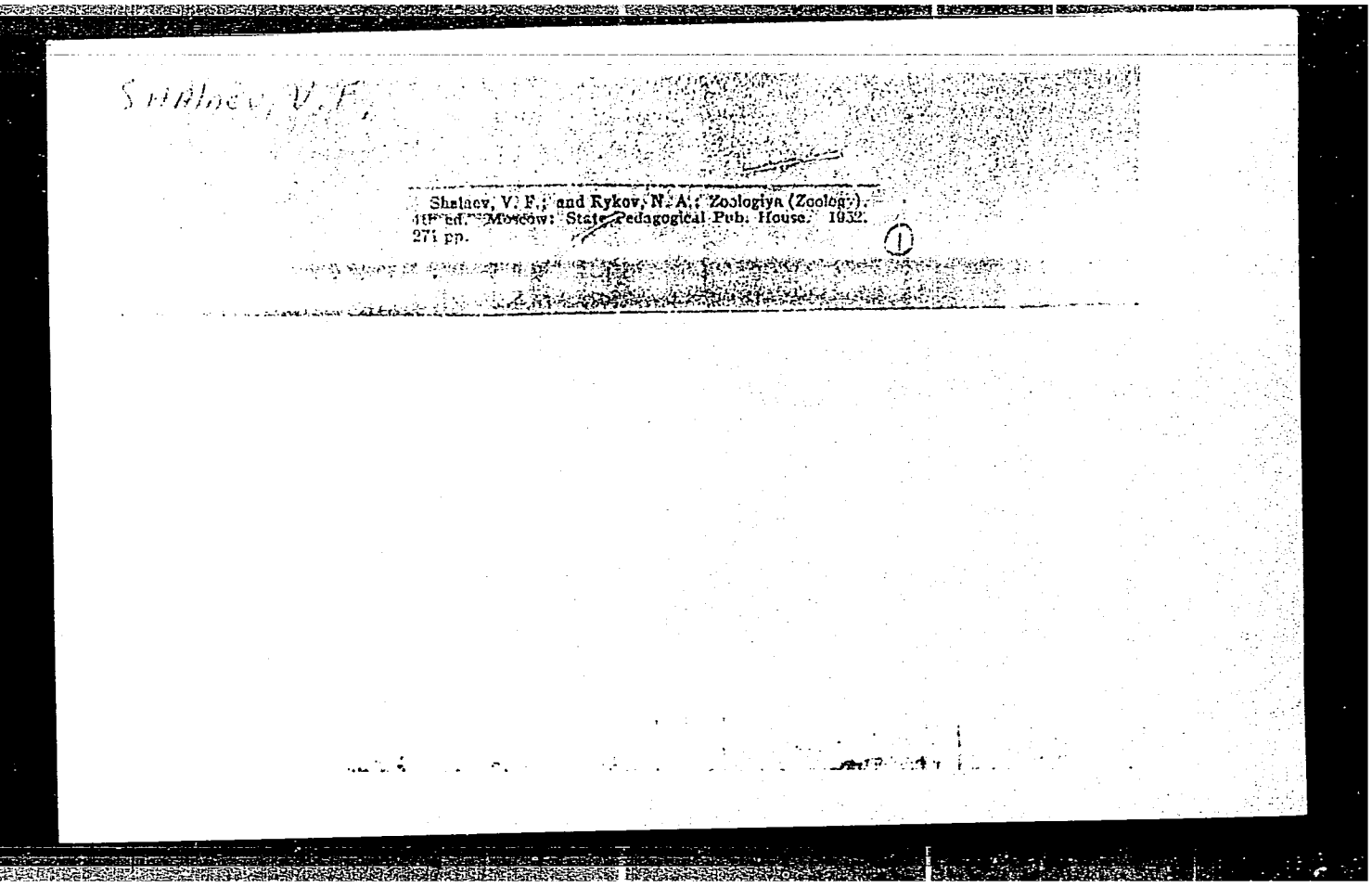
S. Monthly List of Russian Accessions, Library of Congress, November 1952, UNCL.

SHAL'NEV, V.A.

Genetic principle of physicogeographical regionalization using the example of the Stavropol Plateau. Izv.Vses.geog.ob-va 96 no.4:343-346 Jl-Ag '64. (MIRA 17:10)

CHA[illegible]V, V.A.

Practice in the physicogeographical regionalization of the Stavropol Upland and some theoretical problems in the study of landforms. Izv. Vses. geog. ob-va 97 no.3:222-228 My-Je '65. (MIRA 18:8)



Shalaev, V. F.

Shalaev, V. F., and Rykov, N. A.; Zoologiya (Zoology).
4th ed. Moscow: State Pedagogical Pub. House. 1932.
271 pp.

1. SHAL'NEV, V. F.

2. USSR (600)

4. Castration

7. Large-scale castration of hogs for fattening on state farms of the Ministry of State Farms for the Ukrainian S. S. R., Dost. sel'khoz., No. 10, 1952.

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

SHAL'NEV, V.G.; STOROZHEV, M.V., redaktor.

[Pressing machinery] Mekhanicheskie pressy. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1946. 447 p. (MLRA 7:4)
(Power presses)

[illegible]

Dissertation: "[illegible]." Moscow Inst of Nonferrous Metals and Gold imeni M. I. Kalinin, [illegible].

SO: Vechernyaya Moskva, Apr, [illegible] (Project #17736)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548420004-3"

ZLOTNIKOV, S.L., inzhener. SHAL'NEV, V. G

"Manual for crankshaft-press set-up men". V.G.Shal'nev. Reviewed by S.L.Zlotnikov. Vest.mash.27 no.2:73 '47. (MLRA 9:4)
(Power presses) (Shal'nev, V.G.)

SHALIMOV, V. G.

"Lubrication of Metallurgic Equipment," bk., Kiev, 1949.

SHAL'NEV, Viktor Grigor'yevich; VESELKINA, A., redaktor; KIRSANOVA, N., tekhnicheskiy redaktor.

[Safety engineering in forge and stamping press shops.] Tekhnika bezopasnosti v kuznechno-pressovykh i shtampovochnykh tsekhakh. Izd-vo VTsSPS Profizdat, 1954. 112 p. (MLRA 8:3)
(Metal industries--Safety measures)

SHAL'NEV, V.G.; BIBIKOV, A.V., inzhener, retsenzent; LOBACHEV, P.V., inzhener; POLUEKTOV, Ye.V., inzhener, redaktor; SAKSAGANSKIY, T.D. redaktor; POPOV, Ya.N., redaktor; POPOVA, S.M., tekhnicheskiy redaktor.

[Safety measures and improvement of working conditions for hot press working of metals in forging and pressing shops] Tekhnika bezopasnosti i ozdorovlenie uslovii truda pri goriachei obrabotke metallov davleniem v kuznechno-pressovykh tsekhakh. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit. lit-ry, 1955. 214 p. (MLRA 8:11)
(Forging--Safety measures)

ZLOBINSKIY, Boris Mikhaylovich; ZOLOTNITSKIY,N.D., doktor tekhnicheskikh nauk, professor, redaktor; KHUTORSKAYA,Ye.S., redaktor; TRUKHANOV, A.A., professor, doktor tekhnicheskikh nauk, retsenzent; SHAL'NEV, V.G., kandidat tekhnicheskikh nauk, dotsent, retsenzent; CHERNYAVSKAYA,S.G., kandidat tekhnicheskikh nauk, retsenzent; EVENSON,I.M., tekhnicheskiy redaktor

[Principles of safety engineering; general course for students in metallurgical schools] Osnovy tekhniki bezopasnosti; obshchii kurs dlia studentov metallurgicheskikh spetsial'nostei vuzov. Moskva, Gos.nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1956. 219 p. (MLRA 9:3)

(Metallurgy--Safety measures)

SHAL'NEV, V. G., inzhener.

Efficient utilization of metals in designing machinery. Izobr.v SSSR 2 no.5:5-7 My '57. (MLRA 10:7)
(Machinery industry)

SHAL'NEV, V.G.

Heavy forging and pressing equipment and the tasks of inventors and efficiency promoters. Izobr.v SSSR 2 no.7:6-11 Jl '57. (MLRA 10:7)

(Forging machinery) (Power presses)

SHAL'NEV, V.G.

Tasks of inventors and efficiency promoters in the development of materials. Izobr. v SSSR 2 no.9:6-9 S '57. (MIRA 10:10)
(Materials) (Plastics)

SHAL'NEV, V.G.

Methods of decreasing the amount of metals used in manufacturing machines. Izobr.v SSSR 2 no.10:5-10 O '57. (MIRA 10:11)
(Machinery--Construction)

SHAL'NEV, V.G.

Development of mechanical engineering in the U.S.S.R. and aims of inventors and innovators. Izobr.v SSSR 2 no.11:10-19 N '57. (MIRA 10:10)

(Mechanical engineering)
(Inventions)
(Efficiency, Industrial)

SHAL'NEV, Viktor Grigor'yevich; VOZNESENSKIY, N.A., kand.tekhn.nauk, retsenzent; SIVAY, A.V., dots., red.; RUDENSKIY, Ya.V., tekhn. red.

[Safety engineering in the cold working of metals under pressure] Tekhnika bezopasnosti pri kholodnoi obrabotke metallov davleniem. Kiev, Gos.nauchno-tekhn.izd-vo mashinostroit. lit-ry, 1958. 351 p. (MIRA 11:6)

(Metals--Cold working--Safety measures)

SHAL'NEV, V.G.

Using continuous casting techniques in machining metals by pressure. Izobr.i rats. no.8:26-29 Ag '58. (MIRA 11:9)
(Continuous casting) (Forging) (Rolling (Metalwork))

PHASE I BOOK EXPLOITATION SOV/6237

Shal'nev, Viktor Grigor'yevich

Razvitiye metodov obrabotki metallov davleniyem (Development of Methods for the Pressure Working of Metals). Moscow, Mashgiz, 1962. 618 p. 4500 copies printed.

Ed.: I. G. Konstantinov, Candidate of Technical Sciences; Ed.: Yu. P. Pilipenko, Engineer; Tech. Ed.: M. S. Gornostaypol'skaya; Chief Ed., Mashgiz (Southern Dept.): V. K. Serdyuk, Engineer.

PURPOSE: This book is intended for engineering personnel of machine-building plants engaging in the pressure working of metals.

COVERAGE: The book reviews technological achievements attained in the field of pressure working of metals. The basic processes of forging, die forging, extrusion, drawing, and rolling are described, and advanced methods of heating metal for hot pressure working are reviewed. Development of the design of forging, drawing, and rolling equipment is outlined, along with the basic elements and systems

Card 1/[illegible] 2

SHAL'NEVA, A. M.

SHAL'NEVA, A. M.: "Water fever in Stavropol' Kray." First Moscow Order of Lenin Medical Inst. Stavropol', 1954. (Dissertation for the Degree of Candidate in Medical Science.)

Knizhnaya letopis', No. 30, 1956. Moscow.