IRGER, I.M., prof.; BAUM, B.M.; KOLOMOYTSEVA, I.P.; RUMYANTSEV, Yu.V.;
        SHTUL'MAN, D.R.; FAL'CHUK, A.Ya.

Results of surgical treatment of discogenic cervical myelopathy.
Trudy 1-go MMI 38:318-341 '65.   (MIRA 18:10)

L 27429-66   EWT(m)/T/EWP(t)   IJP(c)   JD/JG

ACC NR: AP6017686   SOURCE CODE: UR/0363/65/001/008/1289/1295

AUTHOR: Baum, B. A.; Gel'd, P. V.; Radovskiy, I. Z.; Suchil'nikov, S. I.   46

ORG: Ural Polytechnic Institute (Ural'skiy politekhnicheskiy institut)   B

TITLE: Electrical conductivity of liquid and solid phase components of chromium-silicon (Cr sub 3 Si, Cr sub 5 Si sub 3, and CrSi) systems   27

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 1, no. 8, 1965, 1289-1295

TOPIC TAGS: electric conductivity, chromium compound, silicide, temperature dependence

ABSTRACT: In a previous study, Baum, et al (Izv. AN SSSR, Otd. Tekh. i Metallurgiya i Gornoye Delo, No 2, (1964), p 149) reported some observations concerning the electrical conductivity (σ) of Si, Cr and silicon disilicide which were prepared by levitation melting in a rotating magnetic field at temperatures ranging from 20 to 1900°C. The present study presents the results of analogous measurements which were carried out with the lower silicides in the same temperature interval. The reasons for carrying out a similar investigation was the fact that preparations of varying purity were used previously and only data for their properties at room temperature was presented as well as the fact that the reports concerning the nature of conductivity in the lower chromium silicides are fundamentally different and, as a rule are based only on the results of low-temperature measurements.

Card 1/2   UDC: 546.76'281

L 27429-66

ACC NR: AP6017686

The present authors investigated the electrical conductivity of lower chromium silicides in temperatures ranging from room to 1900°C. It was shown that Cr_3Si and CrSi possess negative temperature coefficients all the way up to the melting point. On the other hand, Cr_5Si_3 changes type of conductivity above 600-800°C. It was discovered that liquid lower chromium silicides have a predominantly metallic nature of conductivity. Reasons for the temperature path of the electrical conductivity of these compounds in the solid state are expressed on the basis of a comparison of the distance between the Cr and Si atoms in the unit cell of the studied silicides with the sum of their metallic radii. The electrical conductivity of solid Cr_3Si drops monotonously with a rise in temperature. The temperature dependence of the electrical conductivity of Cr_5Si_3 has a complex character. Apparently some of the bonds in Cr_5Si_3 are of a covalent nature and provide for stronger interatomic reactions. It is obvious that the electrons of these bonds are excited at sufficiently high temperatures, causing a rise in the electrical conductivity and change in the sign of $d\sigma/dt$. Hence, in contradiction to Cr_3Si, Cr_5Si_3 possesses an extremal dependence of σ to t. Chromium monosilicide does not reveal an extremal relationship of σ and by its electrical properties occupies an intermediate position between Cr_3Si and Cr_5Si_3. The electrical conductivity of CrSi rises sharply at 1480°C and then a break is observed in the proximity of 1600°C. This is accompanied by a change in $d\sigma/dt$. These effects reflect the phase transformations in the system and are in fair agreement with the data for the measurement of the heat content in solid and liquid chromium monosilicide. The structural singularities of liquid Cr-Si alloys were also examined. Orig. art. has: 2 formulas and 3 figures. [JPRS]

SUB CODE: 20, 07 / SUBM DATE: 01Apr65 / ORIG REF: 019 / OTH REF: 003

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L 02222-67   EWT(1)EWT(m)/EWP(w)/T/EWP(t)/ETI   IJP(c)   JD/JG/JH

ACC NR: AR6013679

SOURCE CODE: UR/0058/65/000/010/E102/E102

AUTHOR: Gel'd, P. V.; Suchil'nikov, S. I.; Baum, B. A.

TITLE: Electric conductivity of alloys of the chromium-aluminum system

SOURCE: Ref. zh. Fizika, Abs. 10E822

REF. SOURCE: Tr. Ural'skogo politekhn. in-ta, sb. 144, 1965, 134-136

TOPIC TAGS: chromium alloy, aluminum alloy, electric conductivity, intermolecular complex

ABSTRACT: The authors investigated the electric conductivity (σ) of Al-Cr alloys in the temperature interval 15 — 1850C by a contactless method in a rotating field. Depending on the composition, σ of solid and liquid alloys varies in accordance with an extremal law. The results show that the quasimolecular complexes corresponding to melts with ∿ 50 at.% of Al and Cr are stable formations up to a temperature of 1750C. [Translation of abstract]

SUB CODE: 20

Card 1/1

L 47129-66   ENT(m)/EWP(t)/ETI   IJP(c)   JD/WW/JG
ACC NR: AR6013657
                                SOURCE CODE: UR/0058/65/000/010/E009/E009

AUTHOR: Kocherov, P. V.; Gel'd, P. V.; Baum, B. A.

REF SOURCE: Tr. Ural'skogo politekhn. in-ta, sb. 144, 1965, 139-141

TITLE: Kinematic viscosity in liquid alloys of the iron-silicon system

SOURCE: Ref. zh. Fizika, Abs. 10E63

TOPIC TAGS: silicon containing alloy, activation energy, entropy, isobaric potential

TRANSLATION: The kinematic viscosity of the phase components of the iron-silicon system (Fe$_3$Si, Fe$_{21}$Si$_{11}$, Fe$_5$Si$_3$, FeSi$_2$) and alloys containing 62 and 85% Si was studied. The experimental data obtained permits the calculation of the activation energies, changes in isobaric-isothermal potential and changes in activation entropy for viscous flow of melts. From this, one can make conclusions concerning the microinhomogeneous structure of iron-silicon melts.

SUB CODE: 11/

Card 1/1 afs

ACC NR: AR6013658   SOURCE CODE: UR/0058/65/000/010/E009/E009

AUTHOR: Baum, B. A.; Gel'd, P. V.; Kocherov, P. V.; Knyshev, E. A.

TITLE: Viscosity of liquid chromium-silicon alloys

SOURCE: Ref. zh. Fizika, Abs. 10E64

REF SOURCE: Tr. Ural'skogo politekhn. in-ta, sb. 144, 1965, 136-139

TOPIC TAGS: fluid viscosity, silicon containing alloy, iron base alloy, chromium base alloy, LIQUID METAL

TRANSLATION: Results of a study of the viscosity v of silicon and chromium and its silicides are given. Graphs of v vs alloy temperature are given. The anomalous change in the v of Si and $CrSi_2$ with increasing temperature ($\partial^2 v/\partial T^2 < 0$) is explained by changes in the nature of interparticle interaction and in the structure of these alloys. The viscosity properties of chromium-silicon and iron-silicon alloys are compared.

SUB CODE: 11

Card 1/1

IRGER, I.M.; BAUM, B.M.; FAL'CHUK, A.Ya. (Moskva)

     Surgical treatment of myelopathy of diskogenic etiology.
     Vop. neirokhir. 27 no.2:18-24 Mr-Ap '63.   (MIRA 17:2)

     1. Neyrokhirurgicheskoye otdeleniye Moskovskoy klinicheskoy
     ordena Lenina bol'nitsy imeni S.P. Botkina i klinika
     nervnykh bolezney I Moskovskogo ordena Lenina meditsinskogo
     instituta imeni Sechenova.

AUTHORS: Baum. F. A., Vsekhsvyats'kiy, S. K., Stanyukovich, K. P.

TITLE: On the Explosive Processes of Powerful Volcanic Eruptions (O
            vzryvnykh protsessakh pri moshchnykh vulkanicheskikh izverzheni-
            yakh) in Ukrainian

PERIODICAL: Nauk. zap. Kiyvs'k. un-t, 1955, Vol 13, Nr 7, pp 123-130

ABSTRACT: The paper analyzes the question of the sources of energy of the
            gigantic explosive processes observed on numerous occasions
            during extremely powerful volcanic eruptions (Vesuvius, Fujiyama,
            "Sangay","Papandayang", Osamayama, Tamboro, "Gunung-
            Gelungung", "Kazegvina", Krakatau). It is shown that under condi-
            tions which exist at extreme depths of the earth there are accumu-
            lated tremendous quantities of H_2, CO, CH_4, etc. At elevated pres-
            sures and temperatures these are explosive mixtures high in energy
            and readily detonated. Various reactions are analyzed and an evalu-
            ation of the energy released is made. The total amount of the energy
            of the explosion is calculated which is required to eject solid rocks
Card 1/2   of several scores of cubic kilometers in size (Krakatau, August 27,

On the Explosive Processes of Powerful Volcanic Eruptions   SOW/124-57-5-5264

1883). It is also shown that the velocities attained by some individual rocks may exceed 8 km/sec.

From the résumé

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29(1)   PHASE I BOOK EXPLOITATION   SOV/1235

Baum, Fillipp Abramovich, Kaplan, Samuil Aronovich, Stanyukovich,
Kirill Petrovich

Vvedeniye v kosmicheskuyu gazodinamiku (Introduction to Space Gas
Dynamics) Moscow, Fizmatgiz, 1958. 424 p. 4,000 copies printed.

Ed.: Fridman, V.Ya.; Tech. Ed.: Gavrilov, S.S.

PURPOSE: The purpose of this book is to present to astronomers and
physicists the most advanced methods of gas dynamics, to be used
for solving various astrophysical and physical problems.

COVERAGE: The book is divided into three parts, each of which is
essentially complete within itself. The first part presents the
fundamentals of gas dynamics as applied to the motions of cosmic
gaseous masses in the absence of magnetic fields. Included in this
part are the theory of shock waves and the theory of unsteady
motions of a gas, the main emphasis being on the motions of a gas
in a gravitational field. The applications of theoretical methods
to nonstationary stars and to various geophysical problems are given.

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Introduction to Space (Cont.)   SOV/1235

The second part presents the fundamentals of magnetic gas dynamics, which is concerned with the motions of an electrically conducting gas in a magnetic field. This part also considers in detail the statistical theory of turbulence. The theoretical methods are applied to several astrophysical problems. The third part presents the foundations of relativistic gas dynamics and relativistic magnetogasdynamics, both of which deal with dynamic characteristics of gases at velocities near the speed of light. The book is primarily theoretical, and the authors state that much experimental work remains to be done. F.A. Baum wrote chapters II - V of the first part and with K.P. Stanyukovich wrote chapter IX. S.A. Kaplan is the author of the entire second part and also of chapter I of the first part. Stanyukovich wrote chapters VI - VIII and section 12 of the first part, sections 3, 3 a), and 8 a) of the second part, and the entire third part of the book. The authors thank M.A. Leontovich, D.A. Frank-Kamenetskiy, A.M. Yaglom, S.Z. Belen'kly, S.V. Pikel'ner, and S.I. Syrovatskiy for reviewing various parts of the book in the manuscript and making a number of valuable comments. There are 187 references, 82 of which are Soviet, 87 English, 11 German, 2 Flemish, 2 Swedish, 1 Danish, 1 French, 1 Italian.

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Introduction to Space (Cont.)

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Preface

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PART II. MAGNETOGASDYNAMICS

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PART III. RELATIVISTIC GAS DYNAMICS

AVAILABLE: Library of Congress

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                                            2-25-59

PHASE I BOOK EXPLOITATION   SOV/3793

Baum, Filipp Abramovich, Kirill Petrovich Stanyukovich, and Boris Isaakovich
Shekhter

Fizika vzryva (Physics of Explosion) Moscow, Fizmatgiz, 1959. 800 p.
    6,500 copies printed.

Eds.: I.Ya. Petrovskiy and Ye.B. Kuznetsova; Tech. Ed.: N.Ya. Murashova.

PURPOSE: This monograph is intended for specialists in the theory and use of
    explosives, and may prove useful to students and aspirants specializing in
    this field.

COVERAGE: The authors present a systematic up-to-date examination of the complex
    of problems concerning regularities of the transformations of explosives and
    explosive effect in various media. The overall properties of explosives and
    the conditions of their transformation as a function of various physical and
    chemical factors, detonation, and combustion processes are discussed.
    Problems of brisance are treated, and the theory of cumulation is examined in
    detail. Great attention is given to applied gas dynamics of unsteady flows.

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Physics of Explosion   SOV/3793

The present work is intended to fill a lacuna in the literature on explosion physics and processes taking place in the ambient medium during an explosion. The authors point out that the only authoritative textbooks on the subject, those of K.K. Snitko (1934 and 1936) and N.A. Sokolov, are out of date. Problems of nuclear explosions are not treated at all. Chapters I, II, IV, V, VI, VII, VIII were written by F.A. Baum; chapters XIII and XIV were written by K.P. Stanyukovich; chapters III, IX and XV were written by B.I. Shekhter. Chapters XI and XII were written jointly by Baum and Stanyukovich, section 46 by Shekhter, section 86 by Baum and Stanyukovich, and sections 98 and 87 by Baum and Shekhter. The supplement was written by Stanyukovich. The authors express thanks to M.A.Sadovskiy, A.S. Kompaneyts, and G.I. Pokrovskiy. References for each chapter appear at the end of the book.

TABLE OF CONTENTS:

Card 2/10

BAUM, F.A.

Processes of rock shattering by blasting. Vzryv. delo no.52/9:
262-285 '63.   (MIRA 17:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut geofizicheskikh
metodov razvedki.

BAUM, F.A., doktor tekhn. nauk

Estimating the efficency of the effect of detonating charges with air spaces. Vzryv. delo no.54/11:48-53 '64.

(MIRA 17:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut geofizicheskikh metodov razvedki, Moskva.

BAUM, F.A., doktor tekhn. nauk; GRIGORYAN, S.S., kand. fiziko-matem.
nauk; SANASARYAN, N.S., inzh.

Determining the explosive impulse along the blast forming hole
and optimal parameters of a borehole charge. Vzryv. delo
no.54/11:53-102 '64.   (MIRA 17:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut geofizicheskikh
metodov ravedki. i Institut mekhaniki Moskovskogo gosudarstvennogo
universiteta.

ACC NR: AR6030407   (A)   SOURCE CODE: UR/0124/66/000/006/V060/V060

AUTHOR: Baum, F. A.; Grigoryan, S. S.; Sanasaryan, N. S.

TITLE: Theoretical determination of the impulse of an explosion along a fissure and of the optimal parameters of the fissure charge

SOURCE: Ref. zh. Mekhanika, Abs. 6V435

REF SOURCE: Tr. V Sessii Uch. soveta po narodnokhoz. ispol'z. vzryva. Frunze, Ilim, 1965, 7-14

TOPIC TAGS: explosive charge, shock wave, gas dynamics

TRANSLATION: A study is made of the gas dynamic profile of the propagation of a detonation wave along the axis of a fissure charge (the one-dimensional problem), and also the subsequent movement of the depleted wave (in the absence of a face-obstacle and compression waves reflected from a face and the floor of the fissure). Proceeding from this profile, the authors determine the impulse acting on the walls of the fissure at various points and its relation to the mass of the face. A method is offered for calculating the parameters of the fissure charge, which ensure the formation of a cylindrical shock wave in the surrounding fissure in the rock medium. It is noted that excessive lengthening of the fissure (overbore) is clearly unadvisable. G. I. Pokrovskiy.

SUB CODE: 12,20,19

Card 1/1

L 23042-66   FSS-2/EWT(l)/EWP(m)/EWT(m)/EWA(d)/EWP(j)/EWP(t)/EWP(k)/EWA(h)/
ACC NR: AP6011504 EWA(l)   JD/WW/HW/ SOURCE CODE: UR/0414/65/000/004/0052/0062
                         RM

AUTHOR: Baum, F. A. (Moscow); Sanasaryan, N. S. (Moscow)

ORG: none

TITLE: Effect of hydrostatic pressure on the parameters of an underwater explosion

SOURCE: Fizika goreniya i vzryva, no. 4, 1965, 52-62

TOPIC TAGS: underwater explosion, PETN, cavity expansion, pressure effect, shock
wave

ABSTRACT: The effect of hydrostatic pressure on the parameters of an underwater
explosion was studied theoretically and experimentally. Equations were derived
for the pressure dependence of the radius and time of expansion of a gas cavity in
water following an explosion, of the initial parameters of a shock wave formed by
an explosion, of the shock wave intensity, of the impulse of the underwater ex-
plosion, and of the shock wave energy. The experiments were conducted at initial
hydrostatic pressures of 100—400 atm in an autoclave 350 mm in diameter which was
partially filled with tap water to form an "air cushion" cavity 50—100 mm thick.
The autoclave was equipped with a plexiglas window for high-speed photography.
The explosion time of the PETN charges inside the water was synchronized with the
photoflash. It is concluded that the hydrostatic pressure p_0 has a marked effect
on both the radius and the time of expansion of the gas cavity. The following

Card   1/2   UDC: 532.595.2

L 23042-66

ACC NR: AP6011504

correlations are given for the maximum radius R_m and maximum time t_m dependence on p_0: $R_m \sim 1/p_0^{1/3}$; $t_m \sim 1/p_0^{5/6}$. The hydrostatic pressure has no marked effect on the initial parameter of the shock wave formed in water following an underwater explosion under the pressures studied. The effect of p_0 on the pressure change Δp increased with the distance from the explosive charge. The equation derived for the pressure change with distance, permits the calculation of the pressure drop near the explosive charge. The explosive energy comprising the shock wave and the total explosion impulse decreased as p_0 increased. The effect of p_0 on the impulse with increasing radius is described by the expression: $i \sim 1/p_0^{1/6}$. Orig. art. has: 12 figures and 38 formulas.

[PS]

SUB CODE: 19/ SUBM DATE: 10Apr65/ ORIG REF: 005/ OTH REF: 001/ ATD PRESS:
4234

Card 2/2

L 32717-66   EWP(m)/EWP(j)/EWT(l)/EWT(m)/T/EWP(t)/ETI   RM/JW/JWD/JD/JG

ACC NR: AP6020558   SOURCE CODE: UR/0414/66/000/001/0105/0111

AUTHOR: Baum, F. A. (Moscow); Shipitsin, L. A. (Moscow)

ORG: none

TITLE: Thermal explosion at elevated hydrostatic pressure

SOURCE: Fizika goreniya i vzryva, no. 1, 1966, 105-111

TOPIC TAGS: explosive, thermal explosion, octogen, hexogen

ABSTRACT: The thermal explosion of three explosives, i.e., of octogen, hexogen, and explosive B-6 (not specified) was studied in a test assembly in which the compacted explosive was immersed in an autoclave containing liquid Wood alloy. The temperature of the Wood alloy was maintained at the desired level by a thermostat and the pressure of the metal was adjusted hydraulically by means of a silicon fluid. The critical temperatures, induction periods, and the change in volume due to the activation (ΔV) were determined as a function of pressure (up to 1000 atm) and temperature. The results showed that hermetically sealing the explosive caused a considerable decrease in the output parameters (temperature and induction period) which is attributed to the fact that the removal of catalytic decomposition products is prevented by the

Card 1/2   UDC: 542.127.6

L 32717-66

ACC NR: AP6020558

surrounding liquid metal. The effect of pressure on the induction period close to the critical point was found to be the same for all explosives studied. ΔV can be considered to be a kinetic characteristic which determines the extent to which the pressure affects the parameters of the thermal explosion. The constancy of the critical temperatures of octogen and hexogen at pressures exceeding 50 atm is attributed to the small variation in ΔV. B-6 exhibited a negative value for ΔV, but the critical temperature was constant. This behavior cannot be presently explained. In general, the results indicate that data on thermal explosions obtained at atmospheric pressure cannot be extrapolated to cases where the explosive is initiated by impact or shock waves. Further studies at pressures up to 10,000 atm are recommended. Orig. art. has: 7 figures, 5 tables, and 4 formulas. [PV]

SUB CODE: 21/ SUBM DATE: 16Jul65/ ORIG REF: 012/ OTH REF: 004/
ATD PRESS: 5021

Card 2/2

ACC NR: AT6034255   SOURCE CODE: UR/0000/65/000/000/0355/0365

AUTHOR: Baum, F. A.; Derzhavets, A. S.

ORG: none

TITLE: The mechanism of sensitization of explosives during detonation

SOURCE: AN SSSR. Sibirskoye otdeleniye. Uchenyy sovet po narodnokhozyayst-
vennomu ispol'zovaniyu vzryva. Sessiya. 5th, Frunze, 1963. Trudy. Frunze,
Izd-vo Ilim, 1965, 355-365

TOPIC TAGS: explosive, detonation, explosive charge, shock wave, lead,
sensitization, explosive sensitization

ABSTRACT: The various methods of increasing sensitization of explosives to
detonations are described in detail and discussed. One of the methods is the
addition of small quantities of inert additives, such as oxides and carbonates and
sulfates of lead, barium, tungsten and other metals to the explosives. The
properties, particle size, percentage and optimum content of there additives are
listed in tables in the original article. Their movement in an explosive flow beyond

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ACC NR: AT6034255

the shock wave front was given detailed investigation. The interaction of the explosive flow with the inert additives, causing "heat spots," is described. A high concentration of such "hot points" is a sine-qua-non condition for effective addition of inert substances to the explosive. The author discusses the main results of tests made to determine sensitization conditions. Orig. art. has: 11 formulas and 4 tables.

SUB CODE: 19/ SUBM DATE: 03Sep65/ ORIG REF: 006/ OTH REF: 001/

Card 2/2

FEDOTOV, I.G.; BELOV, A.V.; KRAVTSOV, F.Ye.; MASHIN, A.R.; PUTYAKOV,
        K.P.; REZNICHENKO, F.I.; SEMENOV, N.S.; SHEVCHENKO, N.I.;
        BAUM, G., red.; BYKOVA, E., tekhn.red.

    [Brief handbook for builders] Kratkii spravochnik stroitelia.
    Saratov, Saratovskoe knizhnoe izd-vo, 1959. 521 p.
                                                        (MIRA 12:12)
                        (Building)

BAUM, I.S.

Our methods for increasing the knowledge of communication workers
in the field of economics. Vest. sviazi 21 no.5:15 My '61.
(MIRA 14:6)
1. Nachal'nik Frunzenskogo pochtamta Kirgizskoy SSR, rukovoditel'
seminara konkretnoy ekonomiki.
(Telecommunication—Employees)

BAUM. I.V. (Glazov, Udmurtskaya ASSR)

Elements of vector algebra in secondary schools. Mat. v shkole no.2: 56-59 Mr-Ap '63.   (MIRA 16:4)
(Algebra—Study and teaching)   (Vector analysis)

SEDMAKOV, Živka, vojni službenik II klase,dr.; LESIC, Ivan, sanitetski
    pukovnik, docent, dr.; BAUM, Jordana, sanitetski kapetan I
    klase, dr.

Our experience in the treatment of facial nerve paralysis.
Vojnosanit. pregl. 22 no.3:175-177 Mr'65.

1. Odeljenje za fizikalnu medicinu i rehabilitaciju, Vojno-
medicinska akademija' u Beogradu.

BAUM, Jordana, dr.

Rimske Toplice, a military health resort, as an army
rehabilitation center. Vojnosanit Pregl. 20 no.10:656-
658 O '63.

1. Vojnomedicinska akademija u Beogradu, odeljenje za
fizikalnu medicinu i rehabilitaciju.

BAUM, R.

The development of the technology of scraping milling machines. p.166. (Strojirenska Vyroba. Praha. Vol. 5, no. 4, Apr. 1957.)

SO: Monthly List of East European Accessions (EEAL) LC., Vol. 6, no. 7, July 1957. Uncl.

BAUM, St.

Esthetic aspects of wrapping for drugs. Farm. polska 10 no.8:
208-210 Aug 54.
            (PHARMACY
                esthetic aspect of wrapping & containers for drugs)

BAUM, Stefan

        Trading of drugs mailed in parcels from abroad. Farm.polska 11
no.4:93-94 Apr '55.
                (DRUG INDUSTRY
                        in Poland, trading of drugs mailed in parcels from
                        abroad)

BAUM, Stefan

Role of pharmacy in the public health service. Farm.polska 11
no.5:113-114 May '55.
        (PHARMACY
            role in pub.health serv.)
        (PUBLIC HEALTH
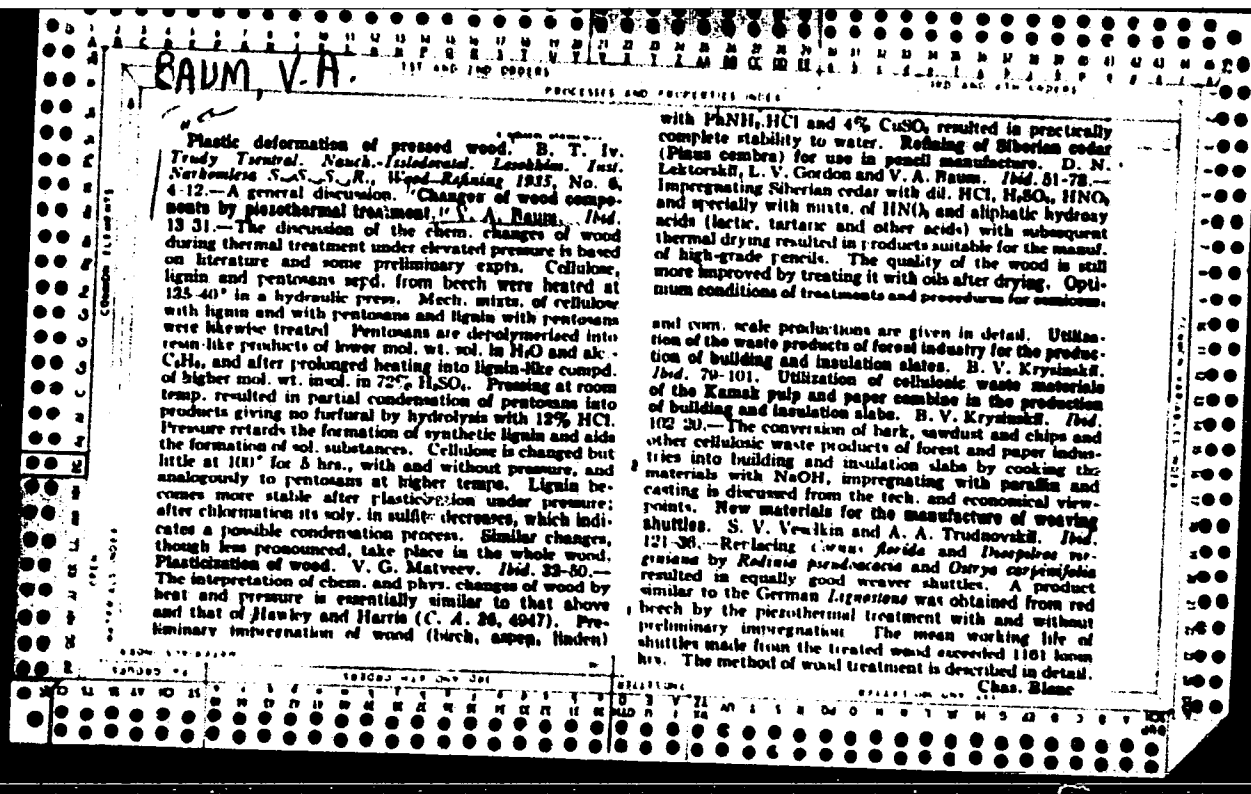   role of pharmacy)

BAUM, Vilko, Prim., dr.

Giant adenosarcoma of the kidneys in one-year old infant. Med. pregl., Novi Sad 8 no.4:239-242 1955.

1. Hirursko odelenje Opste bolnice - Vrcko. Sef: prim. dr. Vilko Baum.
(KIDNEYS, neoplasms
giant, in inf., surg. & follow-up (Ser))

BAUM, V.A.

Plastic deformation of pressed wood. B. T. Iv.
Trudy Tsentral. Nauch.-Issledovatel. Lesokhim. Inst.
Narkomlesa S.S.S.R., Wood-Refining 1935, No. 6,
4-12.—A general discussion. "Changes of wood compo-
nents by piezothermal treatment." S. A. Baum. Ibid.
13 31.—The discussion of the chem. changes of wood
during thermal treatment under elevated pressure is based
on literature and some preliminary expts. Cellulose,
lignin and pentosans sepd. from beech were heated at
125-40° in a hydraulic press. Mech. mixts. of cellulose
with lignin and with pentosans and lignin with pentosans
were likewise treated. Pentosans are depolymerized into
resin-like products of lower mol. wt. sol. in H₂O and alc.-
C₆H₆, and after prolonged heating into lignin-like compd.
of higher mol. wt. insol. in 72%, H₂SO₄. Pressing at room
temp. resulted in partial condensation of pentosans into
products giving no furfural by hydrolysis with 12% HCl.
Pressure retards the formation of synthetic lignin and aids
the formation of sol. substances. Cellulose is changed but
little at 100° for 5 hrs., with and without pressure, and
analogously to pentosans at higher temps. Lignin be-
comes more stable after plasticization under pressure;
after chlorination its soly. in sulfite decreases, which indi-
cates a possible condensation process. Similar changes,
though less pronounced, take place in the whole wood.
Plasticization of wood. V. G. Matveev. Ibid. 32-50.—
The interpretation of chem. and phys. changes of wood by
heat and pressure is essentially similar to that above
and that of Hawley and Harris (C. A. 26, 6047). Pre-
liminary impregnation of wood (birch, aspen, linden)

with PbNH₄HCl and 4% CuSO₄ resulted in practically
complete stability to water. Refining of Siberian cedar
(Pinus cembra) for use in pencil manufacture. D. N.
Lektorskiĭ, L. V. Gordon and V. A. Baum. Ibid. 51-78.—
Impregnating Siberian cedar with dil. HCl, H₂SO₄, HNO₃
and specially with mixts. of HNO₃ and aliphatic hydroxy
acids (lactic, tartaric and other acids) with subsequent
thermal drying resulted in products suitable for the manuf.
of high-grade pencils. The quality of the wood is still
more improved by treating it with oils after drying. Opti-
mum conditions of treatments and procedures for semicom.
and com. scale productions are given in detail. Utiliza-
tion of the waste products of forest industry for the produc-
tion of building and insulation slates. B. V. Kryzinskiĭ.
Ibid. 79-101. Utilization of cellulosic waste materials
of the Kamsk pulp and paper combine in the production
of building and insulation slabs. B. V. Kryzinskiĭ. Ibid.
102-20.—The conversion of bark, sawdust and chips and
other cellulosic waste products of forest and paper indus-
tries into building and insulation slabs by cooking the
materials with NaOH, impregnating with paraffin and
casting is discussed from the tech. and economical view-
points. New materials for the manufacture of weaving
shuttles. S. V. Veselkin and A. A. Trudnovskiĭ. Ibid.
121-36.—Replacing Cornus florida and Theophrasta ner-
vosans by Rhamnus pseudocacacia and Ostrya carpinifolia
resulted in equally good weaver shuttles. A product
similar to the German Lignostone was obtained from red
beech by the piezothermal treatment with and without
preliminary impregnation. The mean working life of
shuttles made from the treated wood exceeded 1161 hours
hrs. The method of wood treatment is described in detail.
Chas. Blanc

BAUM, V. A.

PHASE X   TREASURE ISLAND BIBLIOGRAPHICAL REPORT   AID 601 - X
                                                      [Supersedes AID 601-I]
BOOK   Call No.: AF428232
Authors: BAUM, V. A., BUDRIN, D. V., et. al.
Full Title: METALLURGICAL FURNACES
Transliterated Title: Metallurgicheskiye pechi
PUBLISHING DATA
  Originating Agency: None
  Publishing House: State Scientific and Technical Publishing House of
    Literature on Ferrous and Nonferrous Metallurgy (METALLURGIZDAT)
  Date: 1951   No. pp.: 975   No. of copies: 8,000
  Editorial Staff: The Authors' Collective (Avtorskiy Kollektiv) with
    Glinkov, M. A., Dr. of Tech. Sci., Prof. as Editor-in-Chief.
    Collaborating members are: Baum, V. A., Budrin, D. V.,
    Vashchenko, A. I., Glinkov, M. A., Granovskiy, B. L., Kitayev, B. I.,
    Kuz'min, M. A., Mikhaylenko, A. Ya., Nazarov, I. S., Plotnikov,
    L. A., Semikin, I. D., Tayts, N. Yu. and Troyb, S. G. Kantorov,
    M. V. and Krapukhin, V. V. as associates.
PURPOSE AND EVALUATION: To give one textbook to replace several books
    used in the course at the metallurgical colleges, and to provide
    metallurgists and furnace designers with a comprehensive reference
    book. This book is approved by the Ministry of Education as a text-
    book.   While not as exhaustive in any one division or on any detail
    of the subject as for example Steel Plant Design by M. W. Reed and

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Metallurgicheskiye pechi

AID 601 - X

Associates, published by the Carnegie-Illinois Steel Corporation, or The Open-Hearth Furnace, by William C. Buell, Jr., or the Special Reports published by the Iron and Steel Institute, circa 1938, or Le four Martin: description generale-construction, by S. Terrat, this symposium, textbook and manual may be considered as an original and successful presentation of the subject.

TEXT DATA

Coverage: It is explained in the preface that the authors each pre-sented a chapter or whole division of the course to the Authors Collective (Avtorskiy Kollektiv), where their manuscripts underwent a thorough "crisscross" evaluation, correction and critical discus-sion, and then after several conferences, were passed to the Editor-in-Chief. The first part of the book discusses fuels and processes of combustion, construction of furnaces, underlying principles and building materials used. The basic theories of heat transfer, the mechanics of gases and the theory of similarity, heating, smelting and cooling of metals, and basic principles of furnace construction are presented in the second part. Furnaces in ferrous and nonfer-rous metallurgy are given in the third part (a detailed discussion), including furnaces designed and/or constructed by Russians (Chemygin, Zelenskiy, Georgadze, Gerasimov and others). Furnace component parts and equipment, mechanical installations for gas, liquid and solid

2/6

.Metallurgicheskiye pechi

AID 601 - X

fuels, recuperators, regenerators, etc., as well as the foundations, chambers and chimneys are described. Blast, open-hearth and heat-treatment furnaces used in ferrous metallurgy, the shaft, reverbera-tory, (revolving cylinder) and crucible furnaces used in nonferrous metallurgy, as well as electric resistance, induction and electric arc furnaces, and safety measures required are also described in this part. Electric furnaces in ferrous metallurgy and control and automatic equipment of furnaces are omitted from this book in-tentionally. These subjects and laboratory explorations in these fields are treated separately, in a work to be published later. The book is abundantly illustrated with diagrams, mathematical formu-lae, pertinent charts, and tables.

Table of Contents

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Metallurgicheskiye pechi

AID 601 - X

Pages

of heat balance; analytical computation of fuel combustion
process; graphic presentation and formulae; coefficient of
air excess, its significance and methods of determination;
classification of fuels: natural and artificial, solid
liquid and gaseous fuels.

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Metallurgicheskiye pechi

AID 601 - X

Pages

furnaces for refining of nonferrous metals; revolving cylinder furnaces; furnaces for smelting of nonferrous metals; general information on electric furnaces; electric resistance furnaces; induction furnaces and electric arc furnaces.

No. of References: 175 Russian, 1925-1950.
Facilities: Moscow Institute of Steel, Urals Polytechnic Institute, Dnepropetrovsk Metallurgical Institute, Moscow Institute of Nonferrous Metals and Gold, Leningrad Polytechnic Institute, Siberian Metallurgical Institute, State Scientific and Research Institute of Nonferrous Metals. Names of distinguished scientists and metallurgists, such as P. P. Anosov, M. A. Pavlov and others are also mentioned in the book.

6/6

BAUM, V. A.

USSR/Engineering - Hydraulics   Feb 52

"Investigation of the Turbulent Intermixing
Process in a Liquid Flow," V. A. Baum
                 USSR,
"Iz.Ak.Nauk, Otdel.Tekh.Nauk", No 2, pp 201-216

Investigates field of concns in pipes of square
cross section, 12 and 25 diameters long, in which
flow of pure water was intermixed with water flow
contg hyposulfite. Discusses detn of coeff of
turbulent intermixing, or eddy diffusion, by re-
sults of studying field of concns. Submitted by
Acad M. V. Kirpichev.

212T70

BAUM, V. A.

USSR/Physics - Solar Energy, Utilization   Jun 52

"Solar Equipment," M. V. Kirpichev and V. A. Baum

Nauk i Zhizn', Vol 19, No 6, pp 11-13

Soviet scientists B. P. Veynberg, K. G. Trofimov, B. V. Petukhov, S. G. Polyarkov, G. I. Markov, R. R. Aparisi, and other solar technicians are busy constructing solar water boilers, distillators of sea water, solar kitchens, reflectors for medical purposes, steam kettles, etc. The Heliolaboratory of the Power Engineering Inst Krzhizhanovskiy, Acad Sci USSR, designed a paraboloid mirror of aluminum

263T108

of 1.2 m diameter and a parabolic-cylindrical mirror with an area of 12 m^2 for solar boilers, for use in the Main Turkmen Canal region.

263T108

1. KIRPICHEV, M.V.; BAUM, V.

2. USSR (600)

4. Solar Radiation

7. Solar energy. Sov. soyuz. No. 5, 1953.

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

Baum, V. A.

USSR.

2190. Baum, V. A., Study of fluid mixing processes in currents flowing through tubes filled with coarse material (in Russian), *Izv. Akad. Nauk SSSR Otd. tekh. Nauk* no. 9, 1317-1330, Sept. 1953.

Author studies experimentally the mixing process in parallel filtration flows. He proves that the Fourier-Kirchhoff equation $\partial c/\partial t + u \cdot \mathrm{grad}\, c = \mathrm{div}\,(\varepsilon\, \mathrm{grad}\, c)$, or simplified $\partial c/\partial x = \varepsilon/|u| \cdot (\partial^2 c/\partial x^2 + \partial^2 c/\partial x^2)$, is satisfied for the smoothed field of concentrations (c is the concentration of one of the fluids; u the effective velocity vector of filtration; ε the "filtration-mixing-coefficient," $\varepsilon = k\delta|u|$ where δ is the grain diameter of the fill, and k a non-dimensional coefficient, subject of experimental determination by the author). His experiments were done with water and sodium hyposulphite solution and with fills of different kinds and sizes. Obtained values of k were compared with those by R. A. Bernard and R. H. Wilhelm [*Chem. Engng. Progr.* 46, no. 5, 1950], with good agreement. Author gives a graph $k(\mathrm{Re}\,\delta)$ (where $\mathrm{Re}\,\delta = |u|\delta/\nu$ is Reynolds number referred to grain size), from which he deduces: $0.08 < k < 0.16$ (for lower $\mathrm{Re}\,\delta$) and $0.09 < k < 0.1$ (for higher $\mathrm{Re}\,\delta$), concluding that, in practice, calculations should be available $k = 0.1$ for all $5 < \mathrm{Re}\,\delta < 2000$.

Author calls attention to following details: (1) Coefficient k does not change its value when the current between grains changes from laminar to semiturbulent. (2) Equation keeps validity up to very coarse fill (eight particles in duct width). (3) For accurate measurements, the flow must run downward because, when the opposite occurs, it lifts or moves grains, changing ε. (4) The

USSR/Physics - Solar energy

Card 1/1   : Pub. 86 - 5/34

Authors   : Kirpichev, M. V., Academician; and Baum, V. A., Professor

Title   : Utilization of solar energy

Periodical   : Priroda 1, 45-53, Jan 1954

Abstract   : The difficulties involved in transforming solar energy into useful
               electrical energy for heating buildings and for other industrial
               purposes are discussed. The economical aspects of deriving electrical
               energy from solar energy are explained. The problem of transforming
               solar energy into electrical, by means of special photo-elements, is
               debated. Drawings; illustrations.

Institution : .....

Submitted   : .....

BAC.., V. A., VO ....NLY, K. J., ...1, ..., ...A.

"Heat Delivery of molten metals," a paper presented at the Atoms for Peace Conference, Geneva, Switzerland, 1955

BAUM, V. A.

      "Prospects for the Application of Solar Energy, and Some Research Results in the USSR," page 289-298 of the Proceedings of the World Symposium on Applied Solar Energy, Phoenix, Arizona, 1-5 November 1955.

Director, Heliotechnical Laboratory, G. M. Krzhizhanovskiy Power Institute, Moscow.

  Translation filed in Heliotechnical Laboratory file

MIKHEYEV, M.A.; BAUM, V.A.; VOSKRESENSKIY, K.D.; FEDYNSKIY, O.S.

[Heat transfer in melted metals] Teplootdacha rasplavlennykh
metallov. Moskva, 1955. 13 p.   (MIRA 14:7)
                    (Heat—Transmission)

-num, V.A,

USSR.

4581. **SOVIET SOLAR ENERGY RESEARCH.** Baum, V.A, (Pap. to Symposium on Solar Energy and Wind Power, New Delhi, 1954; abstr. in Research, Lond., Jan. 1955, vol. 8, 37). Work at the Heliotechnical Laboratory of the G.M. Krzhizhanovskii Power Institute, Tashkent, is described. Available annual solar energy amounts to 10^6 kcal/sq.m. Soviet scientists have developed paraboloid reflectors 10 m in diameter, which produce 60 kg (100 lb) steam per hour at a pressure of 7 kg/sq. cm (100 lb/sq. in.). One large industrial installation which has been recently developed produces 12 ton/h of steam. A still based on the same type of heater has been used to make 75,000 tons of distilled water and 12,000 tons of ice per year. Work is now proceeding to make a solar steam generator which can be used to heat buildings in the winter and cool them in the summer. Other methods of supplying solar energy, including flat glass heat collectors, which were suitable for some purposes are described. So far the problem of electricity generation from solar energy has not been solved because no practical means is available to store electrical energy to offset fluctuations in sunshine.

BAUM, V. A.

        "Hydrodynamics and Turbulent Mixing Under Different Hydrodynamic Conditions of
Combustion," a paper presented at the 6th International Symposium on Combustion, Yale
University, 19-24 Aug 56

Abstract of papers E-4519, Branch 5

B- 99575, 4 Sep 52

Form V. A.

BAUM, V. A

124-11-12810

Translation from: Referativnyy Zhurnal, Mekhanika, 1957, Nr. 11, p. 72 (USSR)

AUTHOR: Mikheyev, M. A. , Baum, V. A. , Voskresenskiy, K. D. , Fedynskiy, O. S.

TITLE: Heat Transfer by Molten Metals. (Teplootdacha rasplavlennykh metallov)

PERIODICAL: V sb.: Reaktorostroyeniye i teoriya reaktorov. Moscow, Izd-vo AN SSSR, 1955, pp 139-151 (Also, in English, Progr. Nuclear Energy. 1956, Ser. 4, No. I, pp 223-232)

ABSTRACT: Contains fundamental information of experimental installations, measuring techniques, and testing methods.
Investigated was the heat transfer by mercury, tin, lead, bismuth, sodium, and bismuth-lead and sodium-potassium alloys.
The flow velocities varied from 0.1 to 20 m/sec, the Reynolds number from 1×10^4 to 6.5×10^5, the Prandtl number from 4×10^{-3} to 3.2×10^{-2}, and the specific heat flux from 2×10^4 to 1×10^6 kg-cal/m^2.hr.
The Authors offer criteria for pure and oxidized surfaces based on 600 test points.

Card 1/2   A comparison is made between the test data and existing theories.

124-11-12810

Heat transfer by molten metals (continued).

From an evaluation of a variety of test data a new criterion is proposed in the form of a formula which applies to molten metals as well as to "common" liquids in which the Prandtl number exceeds 0.7.

Investigations were also performed on the heat transfer in conditions of natural convection on heated plates and tubes for heavy and alkaline molten metals and their alloys.

As a result of the evaluation of the test material, and also from available data on liquids exhibiting low heat conductivity, the Authors submit a single criterion formula for the heat transfer in large volumes, applicable over a wide range of Grashof and Prandtl numbers.

The data relative to the hydrodynamic resistance in the flow of liquid metals show that the general formulas of hydrodynamics are applicable.   (V. N. Krylov)

Card 2/2

Baum, V. H.

AID P - 4425

Subject   : USSR/Heat Engineering

Card 1/1   Pub. 110-a - 5/13

Authors   : Baum, V. A., Dr. Tech. Sci., R. R. Aparisi and B. A.
Garf, Kands. of Tech. Sci. Power Institute of the USSR
Academy of Sciences.

Title   : Solar installations with large capacities.

Periodical : Teploenergetika, 6, 31-39, Je 1956

Abstract   : Research made on the feasibility of building solar
thermal plants in sunny regions of the USSR is reported.
The design and output of solar-radiated energy is
discussed. A mathematical analysis computing energy
losses is given. A table summarizes data in megacalories
per hour on the boiler surface. Ten diagrams. Four
Russian references, 1935-1956.

Institution : None

Submitted   : No date

BAUM, V.A.

Call Nr: AF 1133946

AUTHOR: See Table of Contents

TITLE: Use of Solar Energy (Ispol'zovaniye solnechnoy energii), Volume I (Sbornik 1)

PUB.DATA: Izdatel'stvo Akademii nauk SSSR, Moscow, 1957, 247 pp., 3200 copies

ORIG.AGENCY: Akademiya nauk SSSR. Energeticheskiy institut im. G.M. Krzhyzhanovekogo. Geliotekhnicheskaya laboratoriya.

EDITORS: Ed. in Chief: Baum, V. A., Prof., Doctor of Tech. Sciences; Ed. of Publishing House: Bogoslovskiy, B. B.; Tech. Ed.: Prusakova, T. A.

PURPOSE: The book is the first attempt to assemble data gathered from laboratory experiments on heliotechnique.

Card 1/8

Call Nr: AF 1133946

Use of Solar Energy (Cont.)

COVERAGE: The work is a collection of articles on various subjects
              dealing with solar energy. The book deals with Russian
              contributions. For bibliographic references and per-
              sonalities see the Table of Contents.

TABLE OF CONTENTS

Foreword: The Heliotechnical Laboratory of the Institute of
            Power Engineering im. G. M. Krzhyzhanovskiy, Academy of
            Sciences, has for many years been conducting research
            on the use of solar energy, the design of new solar
            installations, and the most practical uses for solar
            energy in many regions. The foreword, which gives a
            running commentary on each article published in the book,
            points out that, with the exception of Veynberg, V. B.
            and Yaroslavtsev, I. P.; all authors are staff members
            of the Heliotechnical Laboratory of the Institute of
            Power Engineering.   3

Card 2/8

Call Nr: AF 1133946

Use of Solar Energy (Cont.)

Baum, V. A. Possible Utilization of Solar Energy   7

    There are 22 references, 10 of which are USSR, 9 English,
    1 French, 1 Italian, 1 Indian; 2 tables and 4 photographs
    are included.

Yaroslavtsev, I. N. Variations in Total Heat from Sun and Sky
    Radiations and the Time Distribution of Solar Radiation Energy
    for Tashkent.   24

    All 5 references are USSR; 10 tables are included.

Veynberg, V. B. The Coefficient of Intercepting Radiation
    Reflected From Parabolo-cylindrical and Paraboloid Mirrors
    by a Receiver.   32

    There are no references; 6 figures are included.

Card 3/8

Use of Solar Energy (Cont.)

Veynberg, V. B.   Spectral Characteristics of Sun Radiation   41
                   Receivers.

    There are 14 references, 11 of which are USSR, 2 English,
    and 1 a translation from English; 3 figures and 2 tables
    are included. The personalities mentioned are Lazarev, D.N.,
    and Kuznetsov, N. P.

Garf, B. A., Borozdina, M. S., Rekant, N. B.   Study of Reflecting
    Surfaces of Solar Installations   49

    Of a total of 6 references, 4 are USSR, 1 English,
    1 Japanese. There are 6 figures and 8 tables. The per-
    sonalities mentioned are: Savinov, Yanishevskiy, and Gurevich;
    the facilities referred to are: the Chemical Laboratory of
    the Plant im. Yablochkov, the Glass Works of the Konstantinov-
    skiy Plant, the Glass Manufacturing Plant in Proletarsk
    (Voroshilovgradskaya o.), the Glass Works in Tallinn (Eston-
    skaya SSR), and the Leningrad Polytechnic Institute.

Garf, B. A.   Rotation Mechanisms of Mobile Solar Installations   62

    There are no references; 26 figures are included.

Card 4/8

Call Nr: AF 1133946

Use of Solar Energy (Cont.)

Brdlik, P. M.   Testing a Solar Refrigerator   118

    The All-Union Scientific Research Institute of the
Refrigerating Industry is mentioned.   There are no
references; 2 figures are included.

Shchegolev, D. M.   Heating Buildings by Means of Solar
    Energy   124

    Of a total of 10 references, 4 are USSR, 6 English.

Brdlik, P. M.   Testing and Rating Solar Distillers   136

    Of a total of 8 references, 5 are USSR, 2 English,
1 German; 10 figures and 3 tables are included.

Aparisi, R. R.   Experimental Installation Generating High
    Temperatures   151

    Of a total of 6 references, 1 is USSR, 2 are French,
1 English, 1 a translation from English, 1 a trans-
lation from German, 14 figures are included.

Card 6/8

Call Nr: AF 113946

Use of Solar Energy (Cont.)

Markov, G. I. Coefficient of Darkening of Direct Solar
      Radiation by the Glass Cover of a Helio Receiver and
      the Quantity of Direct Solar Radiation Falling on the
      Receiver   210

      All 4 references are USSR, 3 figures are included.

Poyarkov, S. G. Technical and Economic Indicators of Solar
      Installations   214

      There are no references; 11 tables are included.

Ismailova, A. A. Possibilities of Utilizing Solar Energy for
      Fruit and Vegetable Drying.

      All 5 references are USSR; 12 figures are included.

Card 8/8

BAUM, V, A

brass-melting furnace. A. A. Sokolov V. A. Baum, A. N.

45

RM

BAUM, V.A.

V656. TEST RESULTS OF TWO EXPERIMENTAL SOLAR THERMO-ELECTRIC GENERATORS.
Baum, V... and Okhotin, A.S. (Teploenergetika (Heat Power Engrs, Moscow), Aug.

Energeticheskiy institut Akademii nauk SSSR.

BAUM, V. A.

Possibilities of utilizing solar energy. Ispol'.soln.energ.
no.1:7-23 '57.   (MIRA 10:11)
                              (Solar energy)

APARISI, R.R.; BAUM, V.A.; GARF, B.A.

High power solar furnaces. Ispol'.soln.energ. no.1:85-98 '57.

(MIRA 10:11)

(Solar energy)

BAUM, V.A., dokter tekhnicheskikh nauk, professor; BRDLIK, P.M., kandidat
tekhnicheskikh nauk.

Condensation of steam from a moving steam-air mixture. Teploenergetika
4 no.1:42-44 Ja '57.   (MLRA 10:3)

1. Energeticheskiy institut AN SSSR.
                (Steam)

Baum, V.A.

AUTHOR:	Baum, V.A., Professor 30-8-11/37
TITLE:	On the Application of Solar Energy in Egypt (Ispol'zovaniye solnechnoy energii v Yegipte)
PERIODICAL:	Vestnik Akademii Nauk SSSR, 1957, Vol 27, Nr 8, pp 67-69 (USSR)

ABSTRACT: At the invitation of the director of the National Research Center
in Egypt, Dr. Riad El Turki, the author spent 1 month at various
research institutes of Egypt. The main purpose of the sojourn con-
sisted in visiting those institutions which deal with the prepara-
tory work of the planned utilization of solar energies. Great
interest was displayed, not only by scientists but also by leading
economic politicians, for this problem. At the National Research
Center Dr. M. Khafez attends to the working out and construction
of several devices which operate with solar energy, i.e. boilers,
stoves for households, ovens, water desalters and other devices.
Some of the research work is carried out at the so-called engi-
neering faculties of the universities at Cairo and Alexandria. The
Cairo Institute for Desert Research invited the author to visit
the Research Station Ras-el)khekma (near the El Nubariya canal),
where numerous experimental fields are located. Water supply is
a problem of first importance in Egypt. Plans are therefore worked
out to utilize solar energy for pumping plants. The author of this
report delivered lectures at Cairo as well as at Alexandria.

AVAILABLE: Library of Congress

Card 1/1

APARISI, Rafael' Rafaelevich; GARF, Boris Arnol'dovich; BAUM, V.A.,
        otv. red.; KLYAUS, Ye.M., red. izd-va; RYLINA, Yu.V., tekhn.
        red.

        [Using solar energy]Ispol'zovanie solnechnoi energii. Moskva,
        Izd-vo Akad. nauk SSSR, 1958.   (MIRA 16:1)
                              (Solar energy)

βAUM V. A.

AUTHORS: Krzhizhanovskiy, G. M., Veyts,   105-58-4-34/37
           V. I., Baum, V. A., Gorushkin, V. I.,
           Nekrasov, A. M., Markovich, I. M., Tolstov, Yu. G.

TITLE: V. I. Popkov, Corresponding Member of the AS USSR
           (Chlen-korr. AN SSSR V. I. Popkov)

ABSTRACT: On the occasion of his 50th birthday and his 25th
            anniversary of scientific activity. Valeriy Ivanovich
            Popkov was born in February 1908. His activity as
            engineer started in the Dzerzhinskiy Works in 1930.
            In 1932 he worked at the All Union Institute for
            Electrical Engineering and began with the elaboration
            of lightning protective plants for energy systems.
            His main activity was devoted to the problem of
            corona discharge. In 1934 he began a great work at the
            ENIN of the AS USSR concerning the investigation of
            d. c. corona. In the course of this he elaborated
            the theory of dipolar corona and experimentally

Card 1/2

V. I. Popkov, Corresponding Member of the AS USSR   105-58-4-34/37

determined a number of important physical parameters
in this field. In 1948 he became Dr. of Technical
Sciences and Director of the Group for the Investigation
of Corona Discharge at the Institute for Power
Engineering of the AS USSR. Under his direct charge
the research works on the corona are coordinated in the
various institutes of the Union. He wrote 40 scientific
works. In 1953 he became Corresponding Member of the
AS USSR. Since 1953 he has been First Vice Director
of the Institute for Power Engineering imeni G. M.
Krzhizhanovskiy of the AS USSR and President of the
Department for Electrical Power Engineering of the
Scientific Coucil (Uchenyy sovet). There are 1 figure.

AVAILABLE: Library of Congress

1. Biography

Card 2/2

AUTHORS: Levin, A.M. and Baum, V.A.   SOV/21-58-10-8/27

ABSTRACT: The authors investigated the length of a recirculation zone
              originated in discharging water from a cylindrical nozzle
              into a circular cylinder of a larger diameter. The water
              discharge varied from 0.5 to 10 cu m per hr. With an increase
              in Reynold's number from Re = 10,000 to Re = 50,000, the
              length of the zone increases, first rapidly and then more
              gradually. At Re > 50,000 the length of the recirculation
              zone is independent of the Re-value. The authors derive an
              empirical equation which shows the dependence of the relative
              length of the recirculation zone on the ration of diameters.

$$\frac{D-d}{d} \; : \; \frac{\ell}{d} = 8.8 \sqrt{\frac{D-d}{d}}$$

Card 1/2

SOV/21-58-10-8/27

The Dimensions of the Recirculation Zone in the Abrupt Enlargement of the Flow

Experimental data agrees closely with the curve constructed according to this formula. There are 2 graphs and 1 table.

ASSOCIATION: Institut ispol'zovaniya gaza AN UkrSSR (Institute for Utilization of Gas of the AS UkrSSR)

PRESENTED: By Member of the AS UkrSSR, N.N. Dobrokhotov

SUBMITTED: April 22, 1958

NOTE: Russian title and Russian names of individuals and institutions appearing in this article have been used in the transliteration.

1. Fluid flow—Reynolds number effect   2. Nozzles—Performance
3. Mathematics

Card 2/2

26(0)
AUTHOR: Baum, V. A., Doctor of Technical
           Sciences   SOV/30-58-11-16/48

TITLE: International Conference on the Use of Solar Energy
           (Mezhdunarodnaya konferentsiya po ispol'zovaniyu energii
           solnechnogo izlucheniya)

PERIODICAL: Vestnik Akademii nauk SSSR, 1958, Nr 11,
           pp 78 - 80 (USSR)

ABSTRACT: The conference was held in the solar energy laboratory
           of the French National Center of Scientific Research
           from June 23 to 28. The laboratory is situated in
           the Eastern Pyrenees 78 km from Perpignan in an alti-
           tude of about 5400 ft. So far, work in the laboratory
           has been primarily concerned with the generation of
           great heat by means of solar furnaces and with using
           these high temperatures for the solution of some
           metallurgical problems and the production of highly
           refractory ceramic materials. Participants were shown
           the working of a big furnace with a stationary concave
Card 1/3   reflector with a surface of about 100 sq.m. The

International Conference on the Use of Solar Energy   SOV/3o-58-11-16/48

reflector is parabolic in shape and generates in
its focus a temperature of more than 2500°C. Research
is being carried out with a view to building new
solar furnaces as well as perfecting the existing
ones. The laboratory development plan envisages the
construction of a furnace with a parabolic reflector
with a diameter of about 58 m and a thermal efficiency
of 1ooo kW at a temperature of up to 4000°C by 1960.
The same idea was the basis of a projection of the
Energeticheskiv institut im.G.M.Krzhizhanovskogo Akademii nauk
SSSR (Power Institute imeni G.M.Krzhizhanovskiy, AS USSR)
suggested in 1954. Furthermore synthetic films are
mentioned which possess an especially high and lasting
reflectivity and absorptive power, as well as absorption-
type refrigerating machines for the production of ice.
The author quotes the results of the Tashkent plant
of the Energy Institute imeni G.M.Krzhizhanovskiy
for the production of ice. Operation there was taken
up in 1953. Furthermore, experiments are being carried
out with a view to constructing a water-desalting
plant utilizing solar energy. The author of the present

Card 2/3

International Conference on the Use of Solar Energy   SOV/35-58-11-16/48

article reported on the method of objectively
assessing the accuracy of the optical systems of
solar energy plants. This report had been prepared on
the basis of studies carried out in cooperation
with R.R.Aparisi, D.I.Teplyakov at the Geliotekhniches-
kaya laboratoriya Energeticheskogo instituta (Helio-
technical Laboratory of the Energy Institute). Upon
request the author reported on the work lately done
at the laboratory.

Card 3/3

SHERMAZANYAN, Yakov Tigranovich; BAUM, V.A., prof., doktor tekhn.nauk,
red.; SARKISYAN, M., red.izd-va

[Utilization of solar energy in the national economy] Ispol'-
zovanie solnechnoi energii v narodnom khoziaistve. Pod red.
V.A.Bauma. Erevan, Izd. Ob-va po rasprostraneniiu polit. i
nauchn. znanii Armianskoi SSR, 1959. 42 p.   (MIRA 13:1)
                    (Solar energy)

24,2700   68759

AUTHORS: Baum, V. A., Okhotin, A. S.   S/170/59/002/11/004/024
                                                       B014/B014

TITLE: The Method of Calculating Thermoelectric Solar Generators

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1959, Vol 2, Nr 11, pp 29-34
                (USSR)

ABSTRACT: By way of introduction equation (1) is given for the power of
                a thermoelectric generator, after which the quantities occurring
                therein are discussed. Next, the authors discuss the nomogram shown
                in figure 1, which was drawn according to formula (1). This nomo-
                gram illustrates the influence of the Peltier- and Joulian heat.
                For the technical calculation the authors give formula (4) for
                the number of thermocouples and formula (5) for their length. It
                is noted that the unequal energy distribution of the heat flow in
                the focus should be taken into account. Equation (6) describes the
                distribution of the heat flow in the focus, equation (7) describes
                the energy distribution, and equation (8) is given for the power
                of the individual thermocouples. Experiments were made with a solar
                generator in order to verify formula (8). The thermocouples of this
                generator were set up on concentric circles. The parabolic reflec-
                tor had a diameter of 2 m. The measurements shown in figure 3 in-
                dicate the nonagreement between experimental and theoretical curves.
Card 1/2   (10) gives the corrected formula (8) in which the shading of the

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The Method of Calculating Thermoelectric Solar Generators S/170/59/002/11/004/024
                                                            B014/B014

sunlight by the thermoelectric generator is taken into consideration.
The results obtained from this formula are in close agreement with
experimental results (Fig 4). After a brief discussion of the heat
losses the authors show that the experimental power is lower than
the calculated one. This is ascribed to the shading. It is further
said that the position of the thermoelectric generator on the opti-
cal axis has some influence. In the case of uniform distribution of
the heat flow the influence exercised by shading is said to be not
particularly strong. The power of the generator can be increased.
In order to obtain such a uniform heat flow it is necessary to modi-
fy either the reflector or the thermoelectric generator. Further-
more, a decrease in uniformity of the heat flow entails a weight
loss of the entire unit. There are 4 figures and 5 Soviet references.

ASSOCIATION: Energeticheskiy institut AN SSSR im. G. M. Krzhizhanovskogo, g.
                Moskva (Institute of Power Engineering of the AS USSR imeni G. M.
                Krzhizhanovskiy, City of Moscow)

Card 2/2

BAUM, V.A., doktor tekhn.nauk, otv.red.; TOLSTOV, Yu.G., doktor tekhn.
nauk, red.; PETROV, V.I., kand.tekhn.nauk, red.; KOLCHANOGOVA,
I.P., kand.tekhn.nauk, red.; LIBKIND, M.S., kand.tekhn.nauk,
red.; NABOKO, I.M., inzh., red.; BABURIN, B.L., inzh., red.;
BOL'SHOV, N.D., red.; BURAKOV, S.Ye., tekhn.red.

[Proceedings of the Fifth Conference of Young Scientists]
Trudy V konferentsii molodykh uchenykh. Moskva, Akad.nauk
SSSR, Energ.in-t. Vol.1. 1960. 91 p. Vol.2. 1960. 79 p.
                                                   (MIRA 14:3)

1. Konferentsiya molodykh uchenykh. 5th.
        (Electric power distribution)

BAUM, V.A.

PHASE I BOOK EXPLOITATION   SOV/4642

Akademiya nauk SSSR. Energeticheskiy institut

Teploenergetika, vyp. 2: Ispol'zovaniye solnechnoy energii (Heat Power
    Engineering, No. 2: Use of Solar Energy) Moscow, 1960. 195 p. Errata
    slip inserted. 2,500 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Energeticheskiy institut imeni
    G.M. Krzhizhanovskogo.

Resp. Ed.: V.A. Baum, Doctor of Technical Sciences, Professor; Ed. of
    Publishing House: G.B. Gorshkov; Tech. Ed.: I.N. Dorokhina.

PURPOSE: The publication is intended for power engineers and economists
    interested in the industrial utilization of solar energy.

COVERAGE: This collection of 19 articles is a continuation of an earlier
    work published under the same title in 1957. The articles present results
    of investigations conducted in the USSR during the last three years at
    the Laboratory on the Use of Solar Energy and Wind in the Energeticheskiy
    institut AN SSSR (Power Engineering Institute of the AS USSR). Problems

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Heat Power (Cont.)   SOV/4642

    in determining the operational indices of solar engines, depending upon the amount of solar energy received, are analyzed. No personalities are mentioned. References follow each article.

TABLE OF CONTENTS:

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Heat Power (Cont.)

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AVAILABLE: Library of Congress

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JA/dwm/sfm
2/6/61

GARF, B.A., kand.tekhn.nauk [translator]; MOTULEVICH, V.P., kand.tekhn.
    nauk [translator]; BAUM, V.A., prof., red.; VISKOVA, M.V., red.;
    RYBKINA, V.P., tekhn.red.

[High-temperature solar furnaces; collection of translations]
Solnechnye vysokotemperaturnye pechi; sbornik perevodov. Pod red.
V.A.Bauma. Moskva, Izd-vo inostr.lit-ry, 1960. 470 p.
                    (Solar furnaces)   (MIRA 13:11)

BAUM, V. A

S/170/60/003/008/005/014
B019/B054

AUTHORS: Baum, V. A., Borovikova, R. P., Okhotin, A. S.

TITLE: An Investigation of the Work of Photoelectric Cells With
            Intense Light Fluxes

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1960, Vol. 3, No. 8,
            pp. 47-52

TEXT: The authors report on an investigation of the work of silicon
photoelectric cells with intense light fluxes. It is pointed out that
the efficiency of photoelectric cells with intense light fluxes is
considerably reduced by the temperature increase. It is known that this
disadvantage can be avoided by cooling. Cheap silicon cells were used
in the experiments described here. At the beginning, the authors discuss
the modern theory of photoelectric cells, and deal particularly with the
voltampere characteristics. Fig. 1 shows the experimentally determined
voltampere characteristics of a photoelectric cell in light irradiation
with a power of from 0.013 to 0.097 watt/cm^2. Fig. 2 shows the dependence
of the output power of p-type silicon semiconductors on irradiation. It

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An Investigation of the Work of Photoelectric   S/170/60/003/008/005/014
Cells With Intense Light Fluxes   B019/B054

was shown that the power only increased up to about 0.5 watt/cm^2 with
increasing irradiation, which is explained by the heating of the photo-
electric cell. It was attempted to raise this upper limit of capacity by
cooling the photoelectric cell by means of an experimental arrangement
which allowed an irradiation of the cell up to 15 watt/cm^2. The diagram
(Fig. 3) shows that the current of the photoelectric cell considerably
increases with increasing irradiation, particularly with low load
resistances. Fig. 4 shows the photocurrent as a function of irradiation
and of load resistances; the good agreement with the results of an
equation suggested by V. K. Subashiyev (Ref. 2) is pointed out here.
Finally, the authors discuss the deviations of the optimum voltages of
the photoelectric cell and of the optimum amperage from the theoretical
values. The diagram (Fig. 5) representing the capacity increase of
high- and low-resistance photoelectric cells as a function of increase
in irradiation shows that the increase in output power of high-resistance
cells is not particularly high whereas this increase in power is con-
siderable in the case of low-resistance cells. There are 5 figures and
3 references: 2 Soviet and 1 US.

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An Investigation of the Work of Photoelectric   S/170/60/003/008/005/014
Cells With Intense Light Fluxes   B019/B054

                                                                    /C

ASSOCIATION: Energeticheskiy institut im. G. M. Krzhizhanovskogo,
               g. Moskva (Institute of Power Engineering imeni
               G. M. Krzhizhanovskiy, Moscow)

SUBMITTED: March 10, 1960

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26.2222

S/196/61/000/005/003/004
E073/E535

AUTHOR: Baum, V. A.

TITLE: Thermal Simulation of the Heat Releasing Elements of
             an Atomic Reactor

PERIODICAL: Referativnyy zhurnal, Elektrotekhnika i energetika,
             No.5, 1961, p.47, abstract 5G363. (Konvektivn. i
             luchistyy teploobmen, M., AS, USSR, 1960, 176-187)

TEXT: A technical justification is presented and a thermal
analogue is described on which the temperature in the centre of
the butt end of a shell of a heat releasing element and the
temperature distribution along the length of the rod axis of the
element were determined for the case that there is a good
contact between the shell and the rod. It is shown that the
temperature distribution in the element and the absolute value of
the temperature depends to a large extent on the contact between
the shell and the material enclosed in it.
Abstracted by B. Yegorov.

[Abstractor's note: Complete translation.]
Card 1/1

GODES, E.G., inzh.; SHASHKOV, S.A., kand. tekhn. nauk; BAUM, V.A., inzh.;
SOROKIN, P.P., kand. tekhn. nauk, retsenzent; LISITSYN, B.V.,
inzh., retsenzent; BESPALOV, I.V., inzh., nauchnyy red.; PENOVA,
Ye.M., red. izd-va; VORONETSKAYA, L.V., tekhn. red.

[Reinforcing river banks near factory grounds]Ukreplenie beregov
rek na zavodskikh territoriiakh;.proizvodstvennyi opyt. Lenin-
grad, Gos. izd-vo lit-ry po stroit., arkhit. i stroit. materialam,
1961. 134 p.   (MIRA 14:10)
                    (Hydraulic engineering)

BAUM, V. A.

Report presented at the Conference on Heat and Transfer.
Minsk, USSR, 5-10 June 61.

BV-852

270. V. I. Borovoy, I. K. Tus, Fusion of Bodies at High Supersonic Gas Flow.

271. A. J. Eid, The Heat Transfer Coefficient for Flow in a Pipe.

272. S. I. Krikunov, L. S. Shternko, Experimental Investigation of Slip and Temperature Jump at Rarefied Air Flow near the Solid Wall.

273. A. K. Drevian, On Some Results of the Investigation of Heat Transfer by Rarefied Gas at Natural Convection.

274. A. B. Glagolev, O. I. Roslyakova, Heat Transfer at the Process of Radiative-Convective Baking by Infrared Rays.

275. V. A. Num, Influence of the Mass Transfer Coefficient on Water Temperature Distribution in the Assembly of the Water-Moderate Water-Cooled Reactor.

276. V. I. Subbotin, E. P. Kasovsky, V. I. Sidorov, Investigation of Heat Removal by Liquid Metal Heat Agents on Models of Flat Heat Fuel Elements.

277. B. M. Patniber, Some Principal Problems of Critical Methods of Heat Transfer Surface Investigation.

278. P. I. Povarnin, Application of the Thermodynamic Similarity Principles for Heat Transfer Calculation.

279. K. K. Shohardov, Peculiarities of Heat Transfer Through the Wall with Longitudinal Fins at Surface Boiling.

280. V. K. Novikov, Generalization of the Newton Law of Cooling of Bodies.

281. A. V. Kalinner, Investigation of Convective Heat Transfer in Aluminum Pipes with Fins.

282. C. J. Scheller, Some Problems of Heat and Mass Transfer Studied in The National Research Institute of Heat Engineering.

283. I. T. Elperin, Intensification of Heat Transfer Between Gas and Solid Surface by Means of Inactivated Heat Transfer Fluid.

284. K. V. Belkov, S. S. Dunnid, The Theory of Thermal and Diffusive Relaxation of an Evaporative Drop.

285. I. A. Kirepichev, M. B. Elesman, Critical Heat Flow at Water Boiling in Tubes.

286. I. A. Postiakov, Application of the Corresponding State Law for Heat Transfer Calculation at Boiling of a Liquid.

S/594/61/000/000/001/011
D234/D303

AUTHOR: Baum, V.A.

TITLE: Effect of mass exchange coefficient on distribution
               of temperature of water in the cassette of a water-
               water reactor

SOURCE: Soveshchaniye po teplo- i massoobmenu. Minsk, 1961.
               Tezisy dokladov i soobshcheniy (Dopolneniye), 21

TEXT: Owing to different density of the heat flow from
the surfaces of separate heating elements (TVEL) to the water flow-
ing in the cassette, the water has different temperatures in the
cross section of the cassette. If the inhomogeneity of heat flow
from TVEL to water is given, the temperature field (average volume
temperatures of water in the spaces between pipes) depends on the
coefficient of mass transport (mixing coefficient) in the stream
of water. It is important to know this temperature field. The
author determined the value of the coefficient of mass exchange

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Effect of mass exchange...

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D234/D303

with the aid of a model of a part of the cassette. For this purpose
the change of distribution of an admixture in the stream of water
in the cassette was investigated. Comparison of the field was mea-
sured concentrations of the admixture with the theoretical solution
of the equation of mass transport (equation of mixing) for the boun-
dary conditions realized in the investigations permitted determina-
tion of the value of the coefficient. Calculations showed that the
field of water flowing in the cassette is determined chiefly by
turbulent heat conductivity which is easily obtained from the value
of mass exchange coefficient, and that one can neglect all other
heat flows (molecular heat conductivity of water, heat conductivity
of the TVEL themselves). An equation of turbulent heat conductivity
was formulated for given volume sources of heat (heat loss by TVEL)
which was solved for the boundary conditions corresponding to the
working conditions of the cassettes of the reactor. The results of
calculation of the distribution of temperature of water in the cas-
settes for different values of mass exchange coefficient and for
different conditions of inhomogeneity of heat flow can be utilized

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Effect of mass exchange...   S/594/61/000/000/001/011
                                          D234/D303

for designs connected with the operation of a water-water reactor.
/¯Abstracter's note: Complete translation_7

ASSOCIATION: ENIN im. G.M. Krzhizhanovskogo (ENIN im. G.M. Krzh-
                izhanovskiy)

Card 3/3

33944
S/665/61/000/003/008/018
E035/E420

26./630

AUTHORS: Alatyrtsev, G.A., Baum, V.A., Malevskiy, Yu.N.,
              Okhotin, A.S.

TITLE: A ten watt solar thermogenerator

SOURCE: Akademiya nauk SSSR. Energeticheskiy institut.
              Teploenergetika. no.3, 1961. Poluprovodnikovyye
              preobrazovateli solnechnoy energii. 73-81

TEXT: A ten watt thermoelectric solar generator has been
constructed as a prototype to investigate the problems associated
in the construction of a 1 kW generator.   For ensuring uniform
thermal flux across the hot junction of the thermogenerator, mirror
facets were used with a total reflecting surface of 1.12 m^2 and
fastened to a 4 mm thick disc of duraluminium.   The rotational
equatorial system was employed for combining the optical axis with
the direction of incident solar radiation.   The manufacture of the
thermoelements has been described by G.A.Alatyrtsev and
Yu.N.Malevskiy in a paper "The coupling of PbTe and Bi_2Te_3-Sb_2Te_3
thermoelements" presented at this symposium.   In the construction
of the thermogenerator it was necessary to produce coupling links
Card (1/3)

33944
S/665/61/000/003/008/018
A ten watt solar thermogenerator   E035/E420

for the thermoelements of the battery, to ensure a stable contact
of the thermoelement with the cooling fin, to construct a sealed
cooling fin for thermal dissipation by water and to obtain the
greatest packing coefficient for heating the thermoelement area.
The cold ends of the thermoelements were stuck on to the cooling
fins by means of a cement БФ-2 (BF-2) which was loaded with
aluminium powder to improve its thermal conductivity. With a
thermal flux of 20000 kcal/m^2 h the temperature drop across the
cement layer did not exceed 30°C. The thermogenerator consisted
of 12 rows of thermoelements. The average temperature of the hot
junctions obtained were close to the calculated ones although the
temperature distribution was not uniform. Current voltage
characteristics were measured for different resistive loads and it
was shown that the maximum power yield would be obtained with an
external load of $\sim 4\Omega$. The power and temperature difference
increased with Q_p and attained a value of 10.2 W and 180°C at
Q_p = 760 kcal/m^2 h which agreed well with the calculated value.
It is shown that the efficiency of the separate units η_T is
about twice that of the complete solar generator η_c due to
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A ten watt solar thermogenerator

absorption of energy by the concentrator, self radiation,
convection and reflection from the thermobattery. It should be
noted that the thermoelectric generator power during a 100 h test
hardly varied. A series of experiments of the operation of a
solar thermogenerator under dynamic conditions was also carried
out. Maximum thermogenerator power was attained after 7 min from
the time of heating although even after 2 to 3 min the magnitude
of the power was only 8% below maximum. This is due to the small
inertia of the solar generator and allows it to operate success-
fully under varying cloudy conditions. The power was sharply
reduced on cooling and after a minute dropped almost by half.
This is also due to the small inertia of the system. There are
15 figures and 8 references: 6 Soviet-bloc and 2 non-Soviet-bloc.
The reference to an English language publication reads as follows:
Ref.6: Selent K. Thermoelectricity Electronic Industries, no.7,
1959.

Card 3/3