ACZEL, J.

Remarks on the characterization of classic orthogonal polynomials; an excerpt of an article. p. 245. (KOZLEMENYEI, Budapest, Hungary), Vol. 4, No. 2, 1954.

SO: Monthly List of East European Accessions, (EEAI), LC, Vol. 4, No. 5, May 1955, Incl.

par M. Fréchet à l'équation de Kol... ... solution donnée

ACÉL, J.

Remark on a Method for the Elementary Solution of Extremal Problems by Means of Elementary Inequalities

Aczél, J. Bemerkungen zu einigen Methoden bezüglich der elementaren Lösung von Extremumsaufgaben mittels elementaren Ungleichungen. Acta Univ. Debrecen 3 (1956), no. 2, 23–40. (Hungarian. German summary)

Elementary (non-calculus) inequalities used, and proved: $\sum q_i a_i \geq \prod a_i^{q_i} (\sum q_i = 1, q_i \geq 0, a_i \geq 0)$ and its subcases $(1+t)^x \geq 1+tx$ and det (pos. binary quadratic) ≥ 0. The author follows Perelman [Entertaining geometry and Entertaining algebra, Moscow-Leningrad, 1950], Natanson [Simple maximum and minimum problems, Gosudarstv. Izdat. Tehn.-Teor. Lit., Moscow-Leningrad, 1951], and Korovkin [Inequalities, Gosudarstv. Izdat. Tehn.-Teor. Lit., Moscow-Leningrad, 1952; MR 14, 24]. The question is raised whether elementary extremal problems exist that do not admit an elementary solution.

T. S. *Motzkin* (Los Angeles, Calif.)

ACZEL, J.

"The theory of mean values. In Russian."

p. 33 (Colloquium Mathematicum) Vol. 4, no. 1, 1956
Warsaw, Poland

SO: Monthly Index of East European Accessions (EEAI) LC. Vol. 7, no. 4,
     April 1958

ACZEL, J.; ZUBRZYCKI, Z.

"Problem of the theory of numbers connected with the binomial distribution.
In French."

p. 56 (Colloquium Mathematicum) Vol. 4, no. 1, 1956
Warsaw, Poland

SO: Monthly Index of East European Accessions (EEAI) LC. Vol. 7, no. 4,
    April 1958

ACZEL, J.

ACZEL, J.   Introduction of natural logarithms and exponential functions; in
            memory of Tibor Szele. p. 101.

Vol. 7, no. 1/2, 1956
MATEMATIKAI LAPOK
SCIENCE
HUNGARY

So: East Europeon Accessions, Vol. 5, No. 9, Sept. 1956

Aczél, J. and Hosszú, M. On transformations with multidimensional

For additive parameters that is for the

ACZEL, J.

Theory of geometric objects. I. Elementary proof of the nonexictence of pure
differential geometric objects of class higher than the third with a one-
dimensional single component space. II. Elementary determination of all pure
differential geometric objects of first, second, and third classes having one
component in a one-dimensional space. In German. p.339.
(Acta Mathematica, Vol. 7, no. 3/4, 1956, Budapest, Hungary)

SO: Monthly List of East European Accessions (EEAI) LC. Vol. 6, no. 9, Sept. 1957. Uncl.

ACZEL, J. (Debretsen)

Certain general methods in the theory of functional equations of one
variable. New applications of functional equations. Usp.mat.nauk 11
no.3:3-68 My-Je '56.   (MLRA 9:9)
            (Functional equations)

ACZEL, J.

Aczél, J.; et Egerváry, E.   Remarques algébriques sur la solution donnée par M. Fréchet à l'équation de Kolmogoroff., II. Publ. Math. Debrecen 5 (1957), 60–71.
Continuing an earlier paper by Aczél [same Publ. 4 (1955), 33–42; MR 16, 989], the authors study the functional equation (1) $P(s, t)P(t, u) = P(s, u)$, valid for all real s, t, u, for finite-dimensional matrices. The solutions

3

must have the form $\Pi(t)^{-1}F\Pi(u)$, where $\Pi(t)$ is nonsingular, and F is a matrix whose elements vanish except for ones in some of the places on the main diagonal. The added condition that $P(s, t)$ have row sums 1 corresponds to a simple condition on $\Pi(t)$. If, as in the case of probability matrices, $P(s, t)$ is defined only for $s \leq t$, and if (1) is to hold only for $s \leq t \leq u$, the preceding results remain true. The interpretation in this normal form of the added probability condition that $P(s, t)$ have non-negative elements is not discussed. $J. L. Doob$ (Urbana, Ill.).

"Algebraic Remarks on the Solution Given by M. Frechet for the Equation of Kolmogoroff"

Card 1/1

ACZEL, J.

Data on the theory of geometric objects. III. Specific geometric objects
with not less components than parameters. IV. Differential geometric ob-
jects of the first, second, an' third classes of the optional number of
components in a one-dimensional space. V. Covariant quotient of differential
geometric objects of the first and second classes in a one-dimensional space.
In German. p. 19.
(ACTA MATHEMATICA. Vol. 8. no. 1/2, 1957 Hungary)

SO: Monthly List of East European Accessions (EEAL) LC. Vol. 6, no. 12, Dec. 1957.
      Uncl.

ACZEL, J. (Debrecen)

Data on the theory of geometric objects. VII. Covariant derivations
in one-dimensional space q t which component numbers of the auxiliary
object are noncorresponding with that of the noncorresponding with
that of the object or the class number of covariant derivation with
that of the object. In German. Acta mat.Hung. 10 no.3/4:251-267 '59.

(EEAI 9:5)

(Differential variants) (Geometry) (Spaces, Generalized)
(Transformations (Mathematics))

PHASE I BOOK EXPLOITATION POL/4891

Aczél, J., and S. Gołąb

Funktionalgleichungen der Theorie der geometrischen Objekte
  (Functional Equations of the Theory of Geometric Objects)
Warsaw, Panstwowe Wydawn. Naukowe, 1960. 172 p. Errata
slip inserted. No. of copies printed not given. (Series:
Polska Akademia Nauk. Monografie matematyczne, t. 39).
SPECIAL NOTE: This book is copyrighted 1960 by
Państwowe Wydawnictwo Naukowe, Warszawa (Poland), ul. Miodowa
10.

Editorial Committee: Karol Borsuk, Bronisław Knaster, Ed.:
  Kazimierz Kuratowski; Stanisław Mazur, Wacław Sierpiński,
  Hugo Steinhaus, Władysław Slebodziński, Antoni Zygmund.

PURPOSE: This book is intended chiefly for readers already ac-
  quainted with the theory of geometric objects.

COVERAGE: The book is, to a certain extent, an elementary work
  on the theory of geometric objects. Principally, it presents

Card 1/8

Functional Equations   (Cont.)   POL/4891

the application of functional equations to that theory and their solutions. Classification theory, algebra of objects, covariant derivatives and other relevant problems are discussed. Open questions are also considered. The authors thank Dr. M. Hosszú, of Miskolc, Hungary, and Dr. M. Kuczma, of Katowice, Poland, for their assistance. There are 180 references: 42 English, 39 French, 30 German, 30 Russian, 21 Rumanian, 12 Hungarian, 2 Polish, 2 Italian, 1 Dutch, and 1 Japanese.

TABLE OF CONTENTS:

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ACZEL, J.; GHERMANESCU, M.; HOSSZU, M.

On cyclic equations. Mat kut kozl MTA 5 no.1/2:215-221 '60. (EEAI 10:1)
(Functional equations)

ACZEL, J.(Debrecen); GOLAB, Stanislaw (Krakow); KUCZMA, M. (Krakow);
SIWEK, E. (Krakow)

The double relation as the solution of a functional equation. Annales
Pol math 9 no.2:183-187 '60.   (EEAI 10:5)
            (Functional equations)

ACZEL, Janos

Some more general methods in the theory of functional equations with
one variable and some newer applications of functional equations.II.
Mat kozl MTA 10 no.1:9-32 '60.   (EEAI 9:10)

1. A. Debreceni Kossuth Lajos Tudomanyegyetem Matematikai Intezete.
      (Functional equations)
      (Transformations (Mathematics))

ACZEL, J. (Debrecen); BELOUSOV, V.D. (Beltsy, U.S.S.R.); HOSSZU, M.
(Miskolc)

Generalized associativity and bisymmetry on quasigroups. Acta mat
Hung 11 no.1/2:127-136 '60.   (EEAI 9:12)

1. Presented by A.Renyi.
        (Functional equations)   (Groups, Theory of)
        (Numbers, Theory of)   (Curves)

ACZEL, Janos (Debrecen)

Data on the foundation of addition and multiplication formulas of conditional probabilities; in commemoration of the 90th birthday of K. Jordan. Mat kut kozl MTA 6 no.1/2:111-121 '61.

(Addition)   (Multiplication)   (Probabilities)

ACZEL, Janos

Remark about the "method for separating the variables" and its
generalization. Mat lapok 12 no.1/2:62-71 '61

1. Editorial, "Matematikai Lapok."

ACZEL, Janos, a matematikai tudomanyok doktora, egy.tanar

Report on the Balatonvilagos Conference on Differential, Integral and Functional Equations. Magy tud 68 no.11:692-693 N '61.

1. Kossuth Lajos Tudomanyegyetem, Debrecen.

(Hungary—Mathematics) (Differential eauations)
(Integral equations) (Functional equations)

HAJOS, Gyorgy; SURANYI, Janos; FUCHS, Laszlo; ACZEL, Janos; KALMAR, Laszlo;(Szeged)
    SZOKEFALVI-NAGY, Bela (Szeged)

Report on the 5th regular meeting arranged by the Janos Bolyai
Mathematical Society. Mat lapok 12 no.1/2:127-144 '61

1. President, Janos Bolyai Mathematical Society, and Editor,
"Matematikai Lapok" (for Hajos). 2. Secretary General, Janos Bolyai
Mathematical Society (for Suranyi). 3. Editor, "Matematikai Lapok"
(for Aczel).

HOSSZU, Miklos, dr.; REDEI, Laszlo; FUCHS, Laszlo; ACZEL, Janos

Interpretation of functional equations by means of algebraic systems.
I. Mat kozl MTA 12 no.4:303-315 '62.

BOLLOBAS, Bela; MEGYESI, Laszlo; MORICZ, Ferenc; BOROCZKY, Karoly;
    MAKKAI, Mihaly; MALYUSZ, Karoly; SIMON, Laszlo; TUSNADY, Gabor;
    MAKKAI, Mihaly; SZOKEFALVI-NAGY, Bela; ACZEL, Janos; HOSSZU-MIKLOS;
    HALASZ, Gabor; KALMAR, Agota; KATAI, Imre; LOSONCZI, Laszlo;
    SZASZ, Domokos

The 1961 Mathematical Contest in Memory of Miklos Schweitzer.
Mat lapok 13 no.1/2:153-171 '62.

1. "Matematikai Lapok" szerkeszto bizottsagi tagja (for Aczel).

ACZEL, Janos, egyetemi tanar

Remarks about functional equations. Mat lapok 13 no.1/2:193-195 '62.

1. "Matematikai Lapok" szerkeszto bizottsagi tagja; Debreceni Kossuth Lajos Tudomanyegyetem; Bolyai Janos Matematikai Tarsulat elnoksegi tagja.

ACZEL, J. (Debrecen)

Remarks on the relations of equivalence.   Fund mat 51 no.3:267-269
'62.

ACZEL, J.; (Debrecen); FLADT, K. (Calw); HOSSZU, M. (Miskolc)

Solution of a functional equation with unharmonic relationship.
Mat kut kozl MTA 7 series A no.3:335-352 '62.

ACZEL, J. (Debrecen); HOSSZU, M. (Miskolc)

On concomitants of mixed tensors. Annales Pol math 13
no.2:163-171 '63.

ACZEL, J.; DAROCZY, Z.

Characterization of entropies of positive order and the
Shannon entropies. Acta mat Hung 14 no.1/2:95-121 '63.

1. Mathematisches Institut, Kossuth Lajos Universitat, Debrecen
Vorgelegt von A. Renyi.

ACZEL, Janos

Quasi groups, nets, nomograms. Mat lapok 15 no.1/3:114-162
'64

1. Editor, "Matematikai Lapok."

ACZEL, J.

A uniqueness theorem in the theory of functional equations and
some of their applications. Acta mat Hung 15 no.3/4:355-362 '64.

1. Mathematisches Institut, Lajos Kossuth University, Debrecen.
Submitted August 27, 1963.

HCZEL, M.

GABOR, M.;ACZEL, M.;SCULTETY, S.;SZENES, T.

Therapeutic effect of volatile oil containing azulene in experimentally induced radiation injuries. Magy. radiol. 4 no. 2:87-89 1952.   (CLML 22:4)

1. Doctors. 2. Gynecology Institute (Director -- Prof. Dr. Miklos Jancso) and First Gynecological Clinic (Director -- Prof. Dr. Geza Hetenyi), Szeged Medical University.

HCZEL, M.

ACZEL, VIKTOR,

Aczel, Viktor, Acsipari anyagtan, epitoipari tanulo iskolak szamara.
Ideiglenes tankonyv. Budapest, Tankonyvkiado Nemzeti Vallalat, 1950
156 p. (Carpentry materials; a textbook for industrial schools)

SO: Monthly list of East European Accessions, LC, V. 1. 3,
No. 1, Jan. 1954, Uncl.

ADABASHEV, Igor Ivanovich; METANIYEVA, M., red.; ANTONYUK, L., red.;
SHLENSKAYA, M., tekhn.red.

[Man improves the planet] Chelovek ispravliaet planetu.
Moskva, Izd-vo TsK VLKSM "Molodaia gvardiia," 1959.   190 p.
(MIRA 12:12)

(Civil engineering)

ADABASHEV, I.

"Blue ring." Tekh.mol. 28 no.6:34-35 '60.

(MIRA 13:7)

(Poland--Hydraulic engineering)

ADABASHEV, I. (Vil'nyus)

World without armaments. Tekh. mol. 28 no. 3:31-32 '60.

(MIRA 14:4)

(Peace) (Technology and civilization)

ADABASHEV, Igor' Ivanovich; ANTONYUK, L., red.; SAMARSKAYA, N., red.; KOVALEV, A., tekhn. red.

[Reason against the elements] Razum protiv stikhii. Moskva, Izd-vo TsK VLKSM "Molodaia gvardiia," 1962. 270 p.
(MIRA 15:3)

(Disasters)

ADABASHEV, Igor' Ivanovich; ANTONYUK, L., red.; SHLENSKAYA, M.,
tekhn. red.

[Man improves the planet] Chelovek ispravliaet planetu.
Izd.2., dop. Moskva, Molodaia gvardiia, 1964. 238 p.
(MIRA 17:3)

ADABASHEV, Igor' Ivanovich; MYAKUSHKOV, V.A., red.; BELICHENKO, R.K., mladshiy red.; ARDANOVA, N.P., tekhn. red.

[Underground ocean]Podzemnyi okean. Moskva, Geografgiz, 1962. 99 p.
(MIRA 16:3)
(Water, Underground)

S/028/60/000/010/013/020
B013/B063

AUTHORS: Kontsevaya, Ye. M., Adabashev, T. I.

TITLE: Tensile Strength of Thin Sheet of Carbon Steel

PERIODICAL: Standartizatsiya, 1960, No. 10, pp. 46-47

TEXT: This "Letter to the Editor" is a contribution to the standard for thin structural sheet of high-grade carbon steel, which was enforced in 1956. It is noted that ГOCT 914-47 (GOST 914-47) meets the requirements of consumers much better than GOST 914-56 which it replaced. A disadvantage of the new standard is that it gives no simple and reliable methods for the determination of the punching properties. The sheet rolled in continuous mills is cooled too quickly in the air because of the high temperatures at the end of rolling, and thus takes the structure of normalized metal without additional heat treatment. It should be considered that normalized metal differs from annealed metal by its higher strength. As a result, the major part of metal normalized with a normal elongation and indentation depth according to Eriksen does not attain the strength specified in the standard. A reduction in tensile strength by double heat

Card 1/2

ADABASH'YAN, A.

Automation and remote control in construction. Na stroi. Ros. 3
no.1:9-10 Ja '62.
(MIRA 16:5)

1. Nachal'nik Glavproyektmontazhavtomatiki Ministerstva
stroitel'stva RSFSR.
(Automatic control) (Remote control) (Construction industry)

ADABASH'YAN, A. K. (Eng.); VOSKOBOYNIKOV, V. G. (Dr. Tech. Sci.)

"Trends of Development of Automation of Blast Furnace, Steel Melting and Rolling Production and Problems of Science,"

paper read at the Session of the Acad. Sci. USSR, on Scientific Problems of Automatic Production, 15-20 October 1956.
Avtomatika i telemekhanika, No. 2, p. 182-192, 1957.

9015229

ADABASH'YAN, A.K.; KAGANOV, V.Yu.

Automatization of blast and open-hearth furnaces. Priborostroenie
no.10:6-8 O '56.   (MLRA 9:12)
    (Automatic control)   (Blast furnaces)   (Open-hearth furnaces)

ADABASH'YAN, A.K.   PHASE I BOOK EXPLOITATION   617

Energochermet Trust, Moscow

Avtomaticheskiye elektronnyye mosty EM-120 i EM-107; montazhno-
   ekspluatatsionnaya instruktsiya EM-120 MI (EM-120 and EM-107
   Automatic Electronic Bridges; Instructions for Assembly and Use
   of the Em-120 MI) Moscow, Metallurgizdat, 1957. 33 p. 2,200
   copies printed.

Ed.: Adabash'yan, A. K.; Tech. Ed.: Evenson, I. M.

Additional Sponsoring Agencies: USSR Ministerstvo chernoy
   metallurgii, and Zavod "Teplopribor", Chelyabinsk.

PURPOSE: The booklet is an instruction manual on the assembly and
           use of automatic electronic bridges.

COVERAGE: The booklet describes the arrangement, basic properties,
           and principles of operation of automatic electronic
           bridges used for temperature measurements by the bridge
           balance method. The instruments may also be used for
Card 1/3   other values, . the measurement of which will be identical

EM-120 and EM-107 (Cont.)   617

to the changes of the active electrical resistance. Since it is
easy to build some regulating instruments into this bridge, the
device may widely be used in automatic control systems. The
instrument gives readings which are recorded on a disk diagram.
There are three tables of specifications (pp. 17-19). There are no
references, no personalities are mentioned.

TABLE OF
CONTENTS:

Card 2/3

AVAILABLE: Library of Congress: (TK 7872.B7E5)

Card 3/3   JP/mtl
                                                  9/25/58

ADABASHYAN, A. K.   (Leningrad)

"Measurement of Roof Temperature in Open-Hearth Furnaces with the Aid of a Photoelectric Pyrometer."

paper presented at the Annual Meeting of the Society of German Miners and Foundrymen, 14-15 Nov (1957?) in Leipzig.

Neue Huette, Oct 58

ADABASHYAN, A.K.

137-1958-1-202

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 1, p 32 (USSR)

AUTHORS: Voskoboynikov, V. G., Adabash'yan, A. K.

TITLE: Prospects of Development of Automation in Blast-furnace, Steel-
             smelting and Rolling Operations, and the Problems Before Science
             in Connection Therewith (Perspektivy razvitiya avtomatizatsii
             domennogo staleplavil'nogo i prokatnogo proizvodstv i zadachi
             nauki)

ABSTRACT: The need for automatic control of open-hearth furnaces, and
             for overall process-control mechanization and automation of
             rolling mill operations is indicated. It is also necessary to pro-
             ceed toward the overall process-control automation of control of
             blast furnaces. The basic and essential problems involved in
             further process-control automation are posed for each of these
             primary fields of iron and steel production. The unsatisfactory
             organization of the investigations and planning operations now
Card 1/2   under way is noted, as is the need to elaborate new continuous

137-1958-1-202

Prospects of Development of Automation in Blast-furnace, (cont.)

technological processes susceptible to automatic overall-process control.

M. L.

1. Open hearth furnaces--Automation   2. Blast furnaces--Automation   3. Rolling mills--Automation   4. Steel industry--Equipment--USSR

Card 2/2

AUTHOR: Adabashyan, A.K. (Engineer).   130-3-21/22

TITLE: At a Meeting of German Metallurgical Engineers (Na sbyezde
           Germanskikh Inzhenerov-metallurgov)...

PERIODICAL: "Metallurg" (Metallurgist), 1957, No.3, pp.41-44 (U.S.S.R.)

ABSTRACT: A brief account is given of the proceedings held in Leipzig in
           October, 1956 attended by 700 delegates, including some from
           the U.S.S.R. and countries of the Soviet bloc as well as India,
           Austria, Belgium, Sweden and Western Germany. A report by
           I.Born dealt with the use of isotopes in metallurgy, K.Leytner
           described the use of basic refractories in the lining of a 150-
           ton open hearth furnace at the Brandenburg metallurgical works,
           P. Baake described investigations on the open hearth process and
           R. Perlik discussed automation in metallurgical processes.

                The Soviet delegation visited the Brandenburg, Kalbe and
           Max-Hutte works, and descriptions of these are included in the
Card 1/1   article.

           There are four diagrams and three photographs.

AVAILABLE:

AUTHOR: Adabash'yan, A.K.

TITLE: The Level of Automation of Production Processes Must be Raised (Vyshe uroven' avtomatizatsii proizvodstvennykh protsessov)

130-58-5-2/16

PERIODICAL: Metallurg, 1958, Nr 5, pp 1 - 3 (USSR).

ABSTRACT: The author points out the importance of automation in the iron and steel industry and considers the state and problems of the automation of production processes in 1958-1965. He states that all blast-furnace charging is already fully automatic in the USSR, charge weighing and selection being also automatic at the Kuznetskiy metallurgicheskiy kombinat (Kuznetsk Metallurgical Combine) and Nizhne-Tagil'skiy metallurgicheskiy kombinat (Nizhniy-Tagil Metallurgical Combine); blast-temperature control is automatic on all Soviet furnaces; 90% of large furnaces have automatic blast-moisture and 67% top-pressure control and stove heating is automatic on 90% of all furnaces. He mentions recent tendencies to introduce complex automation of the blast-furnace process and considers the pre-requisites for success. In 1959-1965 new control arrangements are to be adopted on 33 new, on all reconstructed and on some working furnaces. The automation envisaged

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130-58-5-2/16
The Level of Automation of Production Processes Must be Raised

includes that of the blast-distribution between the tuyeres
and correction for blast temperature, pressure and moisture
in blowing-rate control. The author estimates that complex
automation of the blast furnace process would result in a
1.5 - 2% productivity increase and a 1.0 - 1.5% coke-rate
decrease; work on automation has resulted in changes of
+ 7-10% and -2% in productivity and coke rate.
The author next considers steel-making, the open-hearth where
wide use is already being made of automatic reversals,
furnace-pressure control, firing rate and air/gas ratio and
metal temperature is often measured with immersion couples.
The extent of automation, however, has proved insufficient for
effective firing control for mixed-gas fired and oxygen-
supplied furnaces; this is to be corrected by 1965 and auto-
mation is to be further extended. The following are given as
the four lines on which work on the complex automation of
the open-hearth process is proceeding: study of the furnace as
a thermal unit; study of factors influencing the rate of
processes - melting, slag formation, temperature, etc. -
occurring in the furnace; mechanisation and automation of
technological operations; development and production of
Card 2/4

130-58-5-2/16

The Level of Automation of Production Processes Must be Raised

suitable control and measuring instruments. In 1959-1965,
62 new furnaces are to be automated: automation will enable
open-hearth furnace productivity to be increased by 7-9%.
In converter practice, blowing is to be automated and punched-
card recording and analyses of technological data is to be
adopted. 80% of electric arc-furnaces are fitted with
electrical-mechanical regulators and other controls; auto-
matic arc ingot hot-tops have enabled metal yield to be
increased by 6-8%. Continuous casting is to be progressively
automated, including liquid and solid metal temperatures and
liquid metal levels in 1959-1965 and television is to be
introduced. Automation is to cost 27 million roubles and the
expected annual saving is 37 million roubles.
The author states that at present 15 section mills and 7 tube
mills are automated and 3 blooming mills and sheet mills
partly automated: in 1959-65, forty-five working mills and
about sixty newly built mills are to be automated.
In the production of metal objects (nuts, belts, wire,
springs, etc.) automation is to be introduced into almost
all process and will be based largely on contact-less methods
of measurement and control.

Card 3/4

130-58-5 2/10

The Level of Automation of Production Processes Must be Raised

The author warns against expecting a greatdecrease in labour requirements through automation and points out that productive-worker wages constitute 2 - 5, 1 - 2 and 0.4 - 2.2% of the costs of coke, steel and rolled products, respectively. He argues that automation should be applied first where working conditions are difficult or process speeds are high. He considers that the Gipromez, Giprostal', Giprouda and other organisations are not advancing automation and that shortages of suitable equipment and instruments hamper its development. He names the organisations in the "Energochermet" Trust as working unsatisfactorily and advocates greater attention to automation in planning.

ASSOCIATION: "Energochermet" Trest ("Energochermet" Trust)

Card 4/4

S/130/60/000/006/005/011

AUTHORS: Adabash'yan, A. K., Zvenigorodskiy, B. M.

TITLE: Development of Automation in Ferrous Metallurgy

PERIODICAL: Metallurg, 1960, No. 6, pp. 7-8

TEXT: The Head Office for the Planning and Installation of Automation
Systems (Glavproyektmontazhavtomatika) is occupied with studies on the
comprehensive automation of the following plants and production processes of
the ferrous metallurgy: concentration plants, crushing and sorting plants,
sintering plants, blast furnaces, open-hearth furnaces, continuous steel melting
installations, converter processes, electric melting and rolling processes.
An experimental installation for the full automation of the sintering process
and automatic quality control of the sinter will be tested in 1960. New
automatic devices and regulators to check and control the melting process in
open-hearth furnaces are being developed; including an experimental instal-
lation for the automatic heat control. Comprehensive mechanization and
automation of all basic and secondary technological processes and operations
with continuous control of the melting process by computers and control
machines must be completed after 1965. In the rolling practice the following

Card 1/2

Development of Automation in Ferrous Metallurgy   S/130/60/000/006/005/011

machines will be automated within a near future: reversing roughing mills,
continuous sheet rolling mills; continuous cold sheet rolling mills; shaping
mills and pipe rolling mills. In all rolling mills special attention must be
devoted to the full mechanization and automation of quality control sorting,
branding and packing. Mass production of high-speed contactless indicators
of the metal position, geometrical dimensions of the rolled metal, and the
temperature of the metal must be organized. Special computing devices and
standard elements must be manufactured by mass production. Special control
devices must be developed which coordinate the operation of all mechanisms and
units of the technological process in rolling. Telemechanization will be widely
developed and used in continuous conveyer systems of sinter and concentration
factories, coke chemical plants, railroad transportation, electric stations
and mining industry.

ASSOCIATION: Glavproyektmontazhavtomatika

Card 2/2

ADABASH'YAN, Artem Karpovich; YANOVSKIY, P.I., nauchnyy red.;
SHIROKOVA, G.M., red. izd-va; KASIMOV, D.Ya., tekhn. red.

[Installation of regulating and measuring devices and automatic
control apparatus] Montazh kontrol'no-izmeritel'nykh priborov i
apparatury avtomaticheskogo regulirovaniia. Moskva, Gosstroi-
izdat, 1962. 398 p.   (MIRA 15:7)
            (Electric engineering—Handbooks, manuals, etc.)
            (Automatic control—Handbooks, manuals, etc.)

S/118/62/000/003/001/005
D221/D302

AUTHORS: Adabash'yan, A.K., Engineer, and Starovich, M.N.,
               Candidate of Technical Sciences

· TITLE: On the path towards complex automation in ferrous
               metallurgy

PERIODICAL: Mekhanizatsiya i avtomatizatsiya proizvodstva, no. 3,
               1962, 3 - 6

TEXT: The Magnitogorsk, Kuznetzk and Nizhne-Tagil'sk combines as
well as the Metallurgicheskiy zavod im. Dzerzhinskogo (Metallurgi-
cal Plant im. Dzerzhinskiy) are developing pilot shops for comple-
te mechanization, the results of which will be transferred to the
ferrous metal industry. The work is being shared by 52 scientific
research institutes, 21 design institutes, 17 machine building
plants and 11 experimental design organizations. The systems for
blast furnaces permit optimization of the process. Some introduce
complex automatic control of heating air, or distribution of air
jet in the ducts. The correct division of gas flow in the furnace
top is also being automated. The automatic control of metering the
Card 1/4

On the path towards complex ...   S/118/62/000/003/001/005
                                         D221/D302

charge is the stage of introduction. During 1961-1965 pilot instal-
lation for complex mechanization of heavy work is envisaged. The
above tasks necessitate the accumulation of information concerning
the operation of blast furnaces, which is being accomplished by in-
strumentation at the Tsentral'naya laboratoriya avtomatiki (Central
Laboratory of Automation). The automation of open hearth furnace
operation is also planned, and pilot installations are in use at
Nizhne-Tagil'sk and other centers. One trend is the introduction of
automatic control of heat conductions in accordance with thermal
and technological parameters of the cast; another is the develop-
ment of new means for measuring the main factors of furnace opera-
tion and their control. High speed contactless electric devices
were developed for computating chemical composition of fuel and air
requirements, and for correction based on the deviation of oxygen
content in the fumes. The mechanization of the converter process
includes the use of conveyor systems and automatic blending. The
Central Laboratory of Automation carried out prototype work on a
bolometric instrument for measuring the carbon content in the melt
by the intensity of infra-red radiations. At present, there are 12
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On the path towards complex ...   S/118/62/000/003/001/005
                                         D221/D302

installations for continuous casting of steel with a planned year-
ly capacity of 1.8 million tons. The Novo-Tul'skiy metallurgiches-
kiy zavod (Novo-Tulsk Metallurgical Plant) carried out tests on me-
tal level regulator in the intermediate ladle. Experiments with a
radioactive transducer for the level control in the crystallizator
are also being conducted. The development in the rolling mills in-
cludes the automatic control of heating plant, regulation of the
drive and of auxiliary operations. At present 12 profile and 15
tube rolling mills are automated. The Magnitogorsk Combine employs
about 800 workers for the manual cleaning of blanks and 600 for
finished products. The design offices are now engaged in providing
the mechanization of these jobs. Partial automation ensured increa-
ses in productivity: In profile rolling - by 6 %, sheet production
- by 3.5 - 5 %, and in tube manufacture - by 7 %. Program control
is being introduced in bloomings by the Instytut avtomatiki i tele-
mekhaniki (Institute of Automation and Telemechanics) and TsNIIKA,
which relates to the control of a jaw crane and ingot carrier. The
Central Laboratory of Automation has designed measuring devices for
checking the width of hot and cold strips. A prototype unit for not

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On the path towards complex ...   S/118/62/000/003/001/005
                                         D221/D302

and cold strips. A prototype unit for hot sheets 630 - 1250 mm wide
was designed by VNiIMETMASh. Control systems for the thickness of
hot rolled strips are worth mentioning. The self-adjusting welding
of tubes was tested at Moskovskiy trubnyy zavod (Moscow Tube Plant)
It includes a computing device which reduces the temperature varia-
tion. The authors suggest a speedy organization of manufacture and
shop tests of new machines and devices for the complex mechaniza-
tion in blast furnaces, steel casting etc. He points out the slow-
ness on documentating these machines of the Proyektno-konstruktors-
kiy tekhnologicheskiy institut Dnepropetrovskogo sovnarkhoza (De-
sign Technological Institute of Denpropetrovsk Sovnarkhoz).

Card 4/4

ADABASIAN, A.K. [Adabash'yan, A.K.]; STAROVICI, M.N. [Starovich, M.N.]

Complex automation in siderurgy. Analele metalurgie 16 no.4:
151-159 O-D '62.

ADABASH'YAN, A.K., inzh.

Assembly of the automatic control and signaling systems of
blast furnaces. Mont. i spets. rab. v stroi. 24 no.6:15-17
Je '62.   (MIRA 15:6)

1. Glavproyektmontazhavtomatika.
        (Blast furnaces)   (Automatic control)

ADABASH'IAN, G.

27-5-13/25

AUTHOR: Adabash'yan, G., Chief of Department of Housing and Sanitary
               Service for Students of the Latvian Administration of Labor
               Reserves.

TITLE: Done by the Efforts of Students (Sdelano silami uchashchikhsya)

PERIODICAL: Professional'no - Tekhnicheskoye Obrazovaniye, 14 May 1957, #5(144)
               p 23 (USSR)

ABSTRACT: The article gives a description of what has been done by the
               students of the professional schools of Latvia to improve and
               beautify their schools and the amount of money this has saved.

               Article has one photo.

INSTITUTE: None

PRESENTED BY:

SUBMITTED:

AVAILABLE: At the Library of Congress

Card 1/1

BRILL, J.; POLITYNSKA, E.; NOWICKI, A.; ADACH, D. (Warszawa)

The phages of Erysipelothrix rhusiopathiae of swine. Rocz nauk roln
wet 70 no.1/4:259-261 '60.   (EEAI 10:9)

(Swine)   (Erysipelas)

AUTHORS: Dremin, A. N., Adadurov, G. A.

TITLE: Adiabatic Shock Curve of Marble

ABSTRACT: The laws of the conservation of mass and momentum during the
            passage of the substance through the shock wave allow for a
            reduction of the determination of the density ϱ and the pressure
            P of shock compression to the determination of easily measurable
            kinematic parameters, i. e. of the translation rate of the two
            dimensional wave front D in an undisturbed medium and of the
            velocity u of matter behind the wave front:

            $\varrho = \varrho_0 \dfrac{D}{D - u}$; $P = \varrho_0 Du$. ϱ_0 denotes the initial density of
            the medium. However, if the adiabatic shock curve of any sub-
            stance is known, only D is to be measured in the material under
            investigation to determine its adiabatic shock wave. This method
            is based upon the following circumstances: The shock wave passes
Card 1/3   from the substance imposed on the marble (with known adiabatic

Adiabatic Shock Curve of Marble   SOV/20-128-2-11/59

shock curve) to the marble itself. The (P-u)-diagram deter-
mines the state of the two media during this transition by
the common intersection of the wave straight of the marble and
the expansion curve of the above medium. The tangent of the
angle of inclination of the wave straight in marble amounts
to $\varrho_o D$. The authors used aluminum as a substance with known

adiabatic shock curve:

$$D_{Al} = 5.190 + 20.77 \log\left(\frac{W_{Al} + 10.895}{10.895}\right) \frac{km}{sec} \text{ , where } D_{Al}$$

denotes the shock-wave velocity in the aluminum plate, W_{Al} the
velocity of motion of its free surface (in km/sec), which
equals double the mass velocity ($W_{Al} = 2u_{Al}$). Consequently,

measurement of W_{Al} or D_{Al} is sufficient for a determination

of the coordinates of point a. Figure 1 shows the principal
experimental arrangements for the measurement of $W(A)$ and $D(B)$.
Various details of measurement are then briefly discussed. In
measuring D and W, the authors used the average results of 4-8
Card 2/3   experiments. A table and two diagrams illustrate the experimen-

tal results. Accordingly, two distinctly separate ranges are visible in the behavior of marble, the variation being ascribed to phase transformation. The following empirical equations result from experiments: $D = (3.39 + 2.C\ u)\,km/sec$,

$P = 42.6.10^9\left[(\varrho/\varrho_0)^{7.23} - 1\right]$ bar (before phase transformation;

$D = (4.01 + 1.30\ u)\,km/sec$, $P = 106.10^9\left[(\varrho/\varrho_0)^{4.1} - 1\right]$ bar (after phase transformation). The range pertinent to mixed phases cannot be ascertained by the method described above. Nevertheless, the limits of this range could be rather accurately outlined, since the configuration of two shock waves exists within the range of phase transition. There are 4 figures, 1 table, and 6 references, 2 of which are Soviet.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics of the Academy of Sciences, USSR)

PRESENTED: April 14, 1959, by V. N. Kondrat'yev, Academician

SUBMITTED: April 11, 1959

Card 3/3

DREMIN, A.N.; ADADUROV, G.A.

Detonation parameters of trotyl - hexogen mixtures. Izv.AN
SSSR.Otd.khim.nauk no.6:1130-1131 Jl '60. (MIRA 13:7)

1. Institut khimicheskoy fiziki Akademii nauk SSSR.
           (Tolune) (Triazine)

31501

S/020/60/133/006/012/016
B101/B206

//. 1360

AUTHORS: Dremin, A. N., Adadurov, G. A., and Rozanov, O.K.

TITLE: Detonation of nitromethane close to the limit

PERIODICAL: Doklady Akademii nauk SSSR, v. 133, no. 6, 1960, 1372 - 1374

TEXT: The measurement of the shock adiabate of nitromethane led to the statement that inhomogeneities occurred on the side of the charge. In order to study this effect, the propagation of the detonation in nitro-methane was photorecorded simultaneously at the side- and end face of the charge by means of time-lapse motion camera. The experimental device is shown diagrammatically in Fig. 1. The magnesium platelet 2 of 5 mm thick-ness was placed on the end face of the active trotyl charge 1 (ρ_0 = 1.43 g/cm^3 diameter 40 mm). On it, the Plexiglass cylinder 3 (wall thickness 2 mm) which contained nitromethane, was pasted. A plane detonation wave propagated through the active charge. By means of mirror 4 the end face of the nitromethane charge was projected into the СФР(SFR a photorecorder (velocity 2.25 mm/μsec). The discussion of the photographs obtained [Abstracter's note: The photographs Figs. 2 - 4 are not reproducible]

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31501

Detonation of nitromethane...

S/020/60/133/006/012/016
B101/B206

yielded the following results: 1) Dark sections (inhomogeneities) occur on the detonation front (recorded at the end face). 2) The dark sections increase during the propagation of the detonation in nitromethane. 3) To the increase of the dark sections on the end face corresponds a steady decrease of the shine of the side face, with distinct transitions to glare, which spreads against the direction of detonation and reminds of a retonation wave. 4) The rate of detonation of nitromethane was constant for all experiments and amounted to 6300 m/sec. The following conclusions are drawn from these results: If the detonation of nitromethane occurs close to the limit, the front of the detonation wave does not cover any more the entire cross section of the charge. Zones remain which did not enter into reaction and which only detonate subsequently. Under the effect of the shock wave, the nondetonated nitromethane gets opaque, which leads to the dark inhomogeneities observed. The development of centers of pre-vented detonation and the mechanism of their subsequent reaction has not been clarified as yet. Studies by Yu. N. Shchelkin (ZhETF, 36, 2(1959)), Yu. N. Denisov and Ya. K. Troshin (Zhurn. prikl. mekhaniki i tekhn. fiziki SO AN SS. 1, no. 1 (1960)) are however pointed out, who observed similar inhomogeneities in gas detonations close to the limit, and found that the

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31501
S/020/60/133/006/012/C16
B101/3206

Detonation of nitromethane...

plane wave front is unstable and the reaction is not initiated over the total cross section of the charge, but in individual centers. A. Ya. Apin and V. K. Bobolev (DAN, 58, no. 2 (1947)) also recorded inhomogeneities of the detonation in powdery explosives. There are 4 figures and 6 references: 5 Soviet-bloc and 1 non-Soviet-bloc. The reference to English-language publication reads as follows: T. E. Holland, M. E. Malin, T. P. Cotter, Nature, 178, no. 4523, 38 (1956).

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics, Academy of Sciences, USSR)

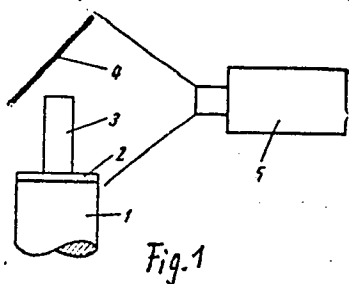PRESENTED: April 2, 1960 by V. N. Kondrat'yev, Academician

SUBMITTED: April 1, 1960

Card 3/4

Detonation of nitromethane...

Fig. 1. Diagram of the experimental setup.

Fig.1

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89405

S/062/61/000/001/014/016
B101/B220

11.8100

AUTHORS: Dremin, A. N. and Adadurov, G. A.

TITLE: Detonation of inhomogeneous charges of TG 68/32

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk,
             no. 1, 1961, 157-158

TEXT: The authors measured the detonation parameters of inhomogeneous
trotyl hexogen charges Tr 68/32 (TG 68/32), corresponding to 68% by weight
of trotyl, 32% by weight of hexogen). The charges were made by melting
the trotyl (d = 1.672 g/cm^3) and adding lumps of high-density hexogen
(d $\approx$ 1.80 g/cm^3). The parameters of the detonation wave were measured
on the basis of the shock wave in aluminum. The experimental data are
summarized in the following table:

No.	dimension l of hexogen particles, mm	D, km/sec	P·10^9, bars
1	10 < l < 14	8.32	239
2	5 < l < 10	8.25	245
3	$\sim$ 0.05	7.56	255

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89405

Detonation of inhomogeneous charges ...   S/062/61/000/001/014/016
                                                B101/B220

The detonation rate in the inhomogeneous charges is greater than that
in homogeneous ones, whereas the pressure at the wave front is lower.
This is explained in the diagram of Fig. 2. OA2 is the shock adiabatic
curve of the explosive, C1D the shock adiabatic curve for the explosion
products, corresponding to the total energy of explosion. The straight
lines originating in point O are the Michelson lines corresponding to
different detonation rates. According to the hydrodynamic theory of
Ya. B. Zel'dovich, a normal detonation reaches point 1. Points of the
adiabatic curve C1D above point 1 (range of supercompressed detonation)
cannot be reached in steady detonation, nor points below point 1 (range
of incompletely compressed detonation). These points will be reached,
however, if the rate of the process is not determined by the shock wave,
but by other causes, e.g., by the propagation of detonation in the hexogen
lumps and in trotyl. A. S. Kompaneyets is mentioned. There are 2 figures,
1 table, and 3 Soviet-bloc references.
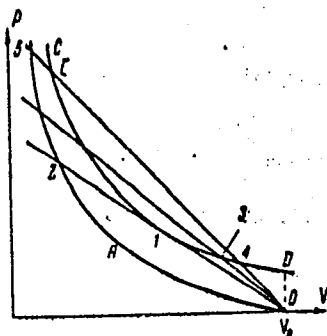
ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR
              (Institute of Chemical Physics, Academy of Sciences USSR)

SUBMITTED: March 9, 1960
Card 2/3

Detonation of· inhomogeneous charges...   S/062/61/000/001/014/016
                                                 B101/B220

Fig. 2

Фиг. 2. Диаграмма $P-V$

Card 3/3

ADADUROV, G.A.; BALASHOV, D.B.; DREMIN,A.N.

Investigating the cubic compressibility of marble at high pressures.
Izv.AN SSSR.Ser.geofiz. no.5:712-716 My '61.   (MIRA 14:4)

1. Akademiya nauk SSSR, Institut khimicheskoy fiziki.
            (Marble)   (Compressibility)

ADADUROV, G.A. (Moskva); DREMIN, A.N. (Moskva); PERSHIN, S.V. (Moskva);
RODIONOV, V.N. (Moskva); RYABININ, Yu.N. (Moskva)

Shock wave compression of quartz. PMTF no.4:81-89 Jl-Ag '62.
(MIRA 16:1)
(Shock waves)   (Compressibility)   (Quartz)

ADADUROV, G.A. (Moskva); DREMIN, A.N. (Moskva); RYABININ, Yu.N. (Moskva)

Behavior of certain substances under shock wave compression.
PMTF no.6:115-119 N-D '64   (MIRA 18:2)

ACCESSION NR: AP4039665   S/0181/64/006/006/1757/1764

AUTHORS: Dremin, A. N.; Adadurov, G. A.

TITLE: The behavior of glass during dynamic loading

SOURCE: Fizika tverdogo tela, v. 6, no. 6, 1964, 1757-1764

TOPIC TAGS: dynamic load, compressive property, glass, shock wave, wave front/ OK 17 oscillograph

ABSTRACT: The authors studied the behavior of glass during dynamic compression, using electromagnetic methods of measurement. Profiles of the mass velocity were obtained in front of shock waves generated in the glass at various pressures by the reflection of various detonation waves from a deflector. The shock speed was measured over a length of 4-8 mm. In all the experiments the ratio of the width of the specimen to its thickness was greater than 3. The electromagnetic method of measurement is described by L. V. Al'tshuler, K. K. Krupnikov, and M. I. Brazhnik (ZhETF, 34, 886, 1958) and A. N. Dremin and G. A. Adadurov (DAN SSSR, 128, 261, 1959). A constant magnetic field of 380 oersteds was used for these measurements. The emf was recorded by a double impulse cathode oscillograph of the type OK-17 with a passage frequency along both channels of 10 megacycles. The

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ACCESSION NR: AP4039665

steep front in the oscillogram did not exceed 0.1 microsec to a precision of 3%. Experiments on a glass having a percentage composition of SiO_2 - 72.2, CuO - 12.4, Na_2O - 14.1, Al_2O_3 - 0.5, SO_3 - 0.43, MgO - 0.1, and Fe_2O_3 - 0.08, and a density of 2.48 g/cm^3 showed the following results: 1) the shock speed was 5.40 km/sec, and the wave profiles revealed that at low pressures only one wave was present; 2) with increasing pressure a double wave configuration appeared, and the amplitude of the first wave had a mild tendency to decrease. The second wave did not have a sharp front at first, but beginning with a certain pressure, its front started to turn; 3) between these two waves there was a region in which there was a buildup of the mass velocity. In these experiments the pressure at the paraffin deflector was 10.3 x 10^{10} bar. Using these results, the authors plotted a P-V diagram for glass during compression. The authors thank F. F. Vitman for furnishing the glass specimens for these experiments, V. S. Trofimov for the useful discussions, and V. Ie. Chemagin for helping with the experiments. Orig. art. has: 7 figures and 1 table.

ASSOCIATION: Institut khimicheskoy fiziki, AN SSSR, Moscow (Institute of Chemical Physics, AN SSSR)

SUBMITTED: 07Jan64

SUB CODE: MT

Card 2/2

NO REF SOV: 008

ENCL: 00

OTHER: 004

L 23593-65   EWT(m)/EPF(c)/EWP(j)/T   Pc-4/Pr-4   RM

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 1, 1965, 180

L 23593-65

ASSOCIATION: none

ADADUROV, G.A.; BARKALOV, I.M.; GOL'DANSKIY, V.I.; DREMIN, A.N.;
IGNATOVICH, T.N.; MIKHAYLOV, A.N.; TAL'ROZE, V.L.; YAMPOL'SKIY, P.A.

Polymerization of condensed monomers in a shock wave. Dokl.
AN SSSR 165 no.4:851-854 D '65.   (MIRA 18:12)

1. Institut khimicheskoy fiziki AN SSSR. 2. Chlen-
korrespondent AN SSSR (for Gol'danskiy).

ADADUPOV, R. A.

ADADUROV, R. A.

Opredelenie kasatel'nykh napriazhenii v tonkostennykh konstruksiiakh vblizi zadelki. Moskva, 1947. (TSAGI. Trudy, no. 614)

Title tr.: Determination of tangential stresses in thin-walled structures near the seams.

NCF

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress, 1955.

ADADUROV, R.A.

AMR

22. R. A. Adadoorov, "Stresses and deformations in a cylin-drical shell with rigid cross sections" (in Russian), *Notes Acad. Sci. USSR* (*Doklady Akad. Nauk SSSR*), Sept. 11, 1948, vol. 62, pp. 183-186.

The author considers here a thin shell reinforced over its whole length with diaphragms which are rigid in their own plane and flexible in the perpendicular direction. The stresses in this shell are produced by a twisting moment, by longitudinal forces on the surface and by forces acting perpendicular to the end sections of the shell. The paper contains the equations of equilibrium of a shell element, the determination of the boundary conditions and the general solution of the principal equations.

Witold Wierzbicki, Poland

ADADUROV, R. A.

2568. Adadurov, R. A., State of stress in a prismatic rec-
tangular box stiffened at the corners and loaded at the ends (in
Russian). Doklad! Akad. Nauk SSSR (N.S.) 79, 3, 407-410, July
1951.

Solution is given for state of stress in a prismatic box having a
closed rectangular cross-section, formed by orthotropic sheets and
four equal and absolutely flexible longitudinal stiffeners located
at the corners. Box is continuously stiffened by transverse
frames which resist bending in planes of frames but are perfectly
flexible in perpendicular direction. Contour of frames is assumed
inextensible. Opposite sides of box have same thickness and same
elastic properties. Opposite elements of transverse frames are
also equal. Thus, transverse sections referred to orthogonal
coordinates have double symmetry.

To ends of box are applied skew-symmetric system of loads
statically equivalent to zero, causing normal stresses and shearing
forces at ends of horizontal and vertical sheets.

Solutions for cases of given displacements at both ends of box,
and given stresses and forces at one end of box and displacements
at the other end, can be analogously found.

S. Sergev, USA

14(10)

AUTHOR: Adadurov, R. A.   SOV/20-124-5-12/62

TITLE: The Axially-symmetric Stressed State of a Thin Annular
                 Plate (Osesimmetrichnoye napryazhennoye sostoyaniye
                 tonkoy kol'tsevoy plastinki)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 124, Nr 5,
                 pp 1005-1008 (USSR)

ABSTRACT: The present paper investigates the stressed state of an
                 annular plate, which is supported on the internal and
                 external circle with the radii r and R absolutely rigid
                 concentric rings. The plate is assumed to be subjected
                 to the stress of the moments M which act upon the plane
                 surfaces of these rings. The plate is assumed to be thin,
                 so that it is not able to withstand compression stresses.
                 In the case of such a stress the plate develops folds, in
                 the direction of which the elongated stresses are σ_c
                 and the main stresses are $\sigma_3 = \sigma_{max}$. In the direction
                 vertical to the fold σ'_{min} = 0 holds for the normal stresses.
                 Tangential stresses in the directions vertical and tangential
Card 1/3   to the folds are equal to zero. Such a stressed state is

The Axially-symmetric Stressed State of a Thin
Annular Plate

described as uniaxial. The stressed state of the plate
under investigation will be axially-symmetric. The present
paper supplies an exact solution of this problem in linear
treatment. The stressed state in the plate is characterized
by the stresses σ_ϱ , σ_φ and $\tau_{\varrho\varphi}$. Here it holds that

$$\tau_{\varrho\varphi} = \frac{M}{2\pi\delta} \; \frac{1}{\varrho^2} \; , \; \sigma_{min} = 0; \quad \delta \text{ denotes the thickness of}$$

the plate. The equation for the equilibrium of a plate
element and the formulas for the invariants of the stresses
are written down. In this way the equation

$$\sigma_\varrho \frac{d}{d\varrho} (\sigma_\varrho \varrho) = (\frac{M}{2\pi\delta})^2 \frac{1}{\varrho^4} \quad \text{is obtained, and herefrom follows}$$

$$\sigma_\varrho = \frac{M}{2\pi\delta} \; \frac{1}{r\varrho^2} \sqrt{k\varrho^2 - r^2}, \; \sigma_\varphi = \frac{M}{2\pi\delta} \; \frac{r}{\varrho^2} \; \frac{1}{\sqrt{k\varrho^2 - r^2}} \; ,$$

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The Axially -symmetric Stressed State of a Thin
Annular Plate

SOV/20-124-5-12/62

$$\sigma_c = \sigma_{max} = \frac{M}{2\pi\delta} \frac{1}{r} \frac{k}{\sqrt{k\varrho^2 - r^2}}$$

Here k denotes a random constant. Also for the angle between
the directions of the radius ϱ and the fold a formula is
written down. The folds are straight lines. Next, formulas
for the deformations are derived. Also for the angle of
the rotation of the external ring with respect to the
internal ring a formula is derived. In the second part
of the present paper the same problem is investigated by
means of the energy method. An expression is derived for
the elongation energy of the plate. There are 1 table and
1 reference.

PRESENTED: November 6, 1958, by I. N. Vekua, Academician

SUBMITTED: June 19, 1958

Card 3/3

24,4200

S/124/62/000/010/015/015
D234/D308

AUTHOR: Adadurov, R. A.

TITLE: Stability of nonuniformly heated plates

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 10, 1962, 16, ab-
             stract 10V104 (In collection: Teplovyye napryazheniya
             v elementakh turbomashin. no. 1, Kiev, AN USSR, 1961,
             121-137)

TEXT: The author considers the problem of stressed state of a non-
uniformly heated thin plate with variable section along the chord.
The heating temperature varies only along the chord of the plate.
The magnitudes of support reactions and the influence of framing
are not taken into account. The author determines the stressed
state of the system in case of additional bending moments and tor-
ques applied to the ends of the plate, constant along the length.
Magnitudes of variations of torsional and bending rigidity of the
plate are found together with the parameter k which determines
these variations. If k is larger than 0 only flexural form of loss

Card 1/2

SAVIN, G.N., otv.red.; ADADUROV, R.A., red.; ALUMYAE , N.A., red.;
AMBARTSUMYAN, S.A., red.; AMIRO, I.Ya., red.; BOLOTIN, V.V., red.;
VOL'MIR, A.S., red.; GOL'DENVEYZER, A.L., red.; GRIGOLYUK, E.I.,
red.; KAN, S.N., red.; KARMISHIN, A.V., red.; KIL'CHEVSKIY, N.A.,
red.; KISELEV, V.A., red.; KOVALENKO, A.D., red.; MUSHTARI, Kh.M.,
red.; NOVOZHILOV, V.V., red.; UMANSKIY,A.A., red.; FILIPPOV, A.P.,
red.; LISOVETS, A.M., tekhn. red.

[Proceedings of the Second All-Union Conference on the Theory of
Plates and Shells]Trudy Vsesoiuznoi konferentsii po teorii plastin i
obolochek.2d,Lvov, 1961.Kiev, Izd-vo Akad.nauk USSR, 1962. 581 p.
                                            (MIRA 15:12)
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