STupochenko, YE.V

24.5300

S/058/60/000/02/14/023

Translation from: Referativnyy zhurnal, Fizika, 1960, No. 2, p. 100, # 3248

AUTHORS: Stupochenko, Ye. V., Stakhanov, I. P., Samuylov, Ye. V., Pleshanov, A. S., Rozhdestvenskiy, I. B.

TITLE: Thermodynamic Properties of Air Within the Temperature Range From 1,000 to 12,000 K and the Pressure Range From 0.001 to 1,000 atm

PERIODICAL: V sb.: Fiz. gazodinamika. Moscow, AN SSSR, 1959, pp. 3-38

TEXT: A method is described in detail for the calculation of thermodynamic properties of a mixture of gases capable to chemical reactions and ionization. The thermodynamic functions of the air were determined in two stages. First the calculation was carried out of the thermodynamic parameters of the "pure" components, which was reduced to the calculation of the statistical sums for atoms, molecules and their ions. Then the composition of the air and its thermodynamic functions were calculated. For determining the composition of the air the system of non-linear algebraic equations was solved. The system included equations of the law of acting masses for each of the possible reactions in air and the processes of ionization, the equation of Dalton's law, the equations

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5 (4)

AUTHORS: Stupochenko, Ya. V., Osipov, A. I.   SOV/76-33-7-13/40

TITLE: On the Kinetics of Thermal Dissociation of Diatomic Molecules

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 7, pp 1526 - 1533
(USSR)

ABSTRACT: For the purpose of explaining the part played by the individual
molecule collisions and by a disturbance of the equilibrium
function of molecule distribution according to energy levels
in the theory of thermal dissociation (D), the authors mea-
sured the rate of thermal (D) of diatomic molecules. It was
assumed that the (D) of molecules resulted from a transition
from the discrete oscillation state to the continuous one.
In order to simplify investigations, the authors assumed that
the dissociating gas was present as a relatively small im-
purity in a monatomic gas. The above explanations and mathe-
matical deductions indicate among other things that in most
cases interesting from practical standpoints the Boltzman
distribution of molecules according to higher energy levels
is heavily disturbed by (D) with rising temperature, which
affects the reaction rate (and its temperature dependence).

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On the Kinetics of Thermal Dissociation of Diatomic   SOV/76-33-7-13/40
Molecules

This is also confirmed by the deduced gas-kinetic equations
(17), (24), and (29), which permit estimation of the effect of
thermal (D) in a transition from highly excited oscillation
levels to the continuous spectrum. The process of thermal (D)
is effected by a transition of molecules from highly excited
oscillation levels to the continuous spectrum. The number of
molecules on the upper oscillation levels during the process
of (D) differs from their equilibrium value. This deviation
increases (as mentioned above) with rising temperature. The
disturbance of equilibrium distribution according to oscilla-
tion levels affects the (D) considerably. From the above gas-
kinetic equations analytic data were obtained on the (D)-rate
and the molecule distribution according to oscillation levels
that is not in equilibrium. There are 9 references, 7 of which
are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova
               (Moscow State University imeni M. V. Lomonosov)

SUBMITTED: December 23, 1957
Card 2/2

STUPOCHENKO, Ye. V.

4. Following is a list of the Soviet papers submitted to the combustion symposium:

Title	Author(s)
The Dependence of Laminar Flame Properties on the Mechanism of Chain Reactions	L A Lovachev
The Theory of Flame Propagation in Systems Involving Branched Chain Reactions	L A Lovachev
On the Mechanism of Non-Adiabatic Relaxation in ...	NIKITIN, Ye.Ye.
Some Questions of Analogy Between Combustion in a Rocket Chamber and in a Detonation Wave	I N Denisov, K I Shchelkin, Ye K Troshin
On the Criterion of High-Frequency (screening) Vibrations Generation in a Turbulent Combustion Chamber	K I Shchelkin
A Simple Method for Determining Effective Activation Energies for Thermal Decomposition and Spontaneous Ignition of Certain Complex Molecules	A I Rozlovskiy
On the Theory of Detonation Initiation by Impact	L G Bolkhovitinov
The Theory of Activation of Gaseous Reactions with Solid Carbon	P A Tesner
Formation of Dispersed Carbon by Explosion and Thermal Decomposition of Acetylene	P A Tesner
Formation of Dispersed Carbon in Hydrocarbon Diffusion Flames	TESNER, P.A., RAFALKES, I.S., ROBINOVICH, Ye.Ya.
Effect of Dissociation on the Parameters of Reflected Shock Waves in Carbon Dioxide	BAZHANOVA, T.V., ZAYTSEV, S.G.
Study of Combustion of Adiabatically Heated Gas Mixture	ZAYTSEV, S.G., SOLOUKHIN, R.I.
Some Methods for Studying Two-Phase Fuel-Air Mixtures in a Flow	I N Sandakov, N K Chabalin
Propagation of Flame in Turbulent Flow of Two-Phase Fuel-Air Mixture	N K Chabalin
Thermodynamic Properties of Air at High Temperatures	STUPOCHENKO, Ye. V., KOZHIN..., PLESHANOV, A.S., ROZHDESTVENSKIY, I.B., STAKHANOV, I.P.
Conditions of Regular Movement of Strong Shocks and Detonation	A S Predvoditelev
Some Remarks on the Regular Movement of Shocks with Spherical and Cylindrical Symmetry	A S Predvoditelev
Regular Motion of Shocks and of Detonation from the Viewpoint of Maxwell's Transfer Equations	A S Predvoditelev

STUPOCHENKO, Ye. V

PHASE I BOOK EXPLOITATION   SOV/4467

Predvoditelev, Aleksandr Savvich, Yevgeniy Vladimirovich Stupochenko, Viktor
    Pavlovich Ionov, Aleksandr Sergeyevich Pleshanov, Igor' Borisovich Rozhdestvenskiy,
    and Yevgeniy Vasil'yevich Samuylov

Termodinamicheskiye funktsii vozdukha dlya temperatur ot 1000 do 12,000° K i davleniy
    ot 0,001 do 1000 atm (grafiki funktsiy) (Thermodynamic Functions of the Air for
    Temperatures From 1,000 to 12,000° K. and Pressures From 0.001 to 1,000 atm.
    /Graphs of the Functions/) Moscow, Izd-vo AN SSSR, 1960. 53 p. Errata slip
    inserted. 2,500 copies printed.

Sponsoring Agencies: Akademiya nauk SSSR. Energeticheskiy institut imeni G.M.
    Krzhizhanovskogo; Ministerstvo vysshego obrazovaniya SSSR; Moskovskiy gosudarstvennyy
    universitet imeni M.V. Lomonosova. Fizicheskiy fakul'tet.

Resp. Ed.: A.S. Predvoditelev, Corresponding Member, Academy of Sciences USSR.

PURPOSE: This book is intended for scientists and engineers concerned with thermo-
    dynamic air functions.

Thermodynamic Functions of the Air (Cont.)   SOV/4467

COVERAGE: The publication contains diagrams of thermodynamic air functions plotted
   as sets of curves in relation to temperature and pressure, where pressure has been
   taken as parameter.   In addition, an approximation method for calculation of the
   straight shock is described. Universal curves, representing the dependence of the
   ratio of pressures and enthalpies along the shock on the M number, are given.
   The diagrams have been plotted using exact data computed by means of an electronic
   computer at the Vychislitel'nyy tsentr Akademii nauk SSSR (Computing Center,
   Academy of Sciences USSR).   The work presented in this publication was done by
   scientific workers of the Laboratory of Combustion Physics at the Energeticheskiy
   institut AN SSSR (Power Engineering Institute, Academy of Sciences USSR), and the
   Department of Molecular Physics of the Division of Physics at MGU (Moscow State
   University) under the general direction of Professor A.S. Predvoditelev, Corresponding
   Member of the Academy of Sciences USSR.   There are 3 references, all Soviet.

TABLE OF CONTENTS:

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STUPOCHENKO, Ye. V., STACHANOV, I. P.   (Moscow)

"A Contribution to the Theory of Supersonic Flows in Relaxing Media."

report presented at the First All-Union Congress on Theoretical and Applied Mechanics, Moscow, 27 Jan - 3 Feb 1960.

24.6100

AUTHORS: Osipov, A. I., Stupochenko, Ye. V.

TITLE: Energy Transfer in Molecular Collisions

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1960,
             Vol. 24, No. 8, pp. 992-995

TEXT: In the present paper the semiclassical method of calculating the
probabilities is investigated and the probabilities of a transfer of the
translation energy in molecular collisions with strongly non-adiabatic
course into oscillation energy is determined. Also the probabilities
of a transfer of the oscillations in molecular collisions were determined.
The investigation was made with central collisions of diatomic molecules,
where the nuclei of the colliding molecules move along a straight line.
The transfer probabilities are determined by an asymptotic solution of
the steady Schrödinger equation for the collision. C. Zener (Ref. 3)
suggested a system of equations (1) and (2) for determining these
probabilities. The solution of this system is simpler than that of the

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Energy Transfer in Molecular Collisions

82837
S/048/60/024/008/014/017
B012/B067

mentioned Schrödinger equation, however, the problem of the limits of applicability of such an approximation has not been solved. Usually, for sufficiently high velocities of the relative motion and for $\Delta E \ll E$, the agreement between the results obtained in the calculation by the method of distorted waves, and those which are obtained from the method by Zener (Refs. 3,4) will be satisfactory. ΔE denotes the energy transferred, E the original reserve of kinetic energy. The authors deduced the system of equations (1) and (2) from the steady Schrödinger equation. In this connection it was found that besides the mentioned conditions also condition (3) must be fulfilled. This condition is fulfilled a priori when the amplitude of the atom oscillations in the molecule is considerably smaller than the radius of action of the intermolecular forces. Formula (4). Practically, this condition (3) is fulfilled in the first oscillation levels. In the following, the method shown here for determining the probabilities is applied to the transition of translation energy into oscillation energy in collisions of atoms with molecules in a strongly nonadiabatic course. Formula (7) for the transition probabilities is obtained. It is pointed out that

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holds for any interaction potential if condition (6) (Ref. 6) is fulfilled. The method described here may be used for determining the probabilities of an oscillation transfer in molecule collisions irrespective of the degree of the adiabatic course of the collision. Formula (11) for the probability of the energy transfer is obtained in an analogous way. Its application is demonstrated by an example. There are 7 references: 3 Soviet, 3 British, and 1 German.

ASSOCIATION: Moskovskiy gos. universitet im. M. V. Lomonosova
                (Moscow State University im. M. V. Lomonosov)

Card 3/3

81572

S/076/60/034/06/18/040
B015/B061

24.5300

AUTHORS: Stupochenko, Ye. V., Samuylov, Ye. V., Pleshanov, A. S.,
             Rozhdestvenskiy, I. B. (Moscow)

TITLE: Thermodynamic Functions of Air at High Temperatures

PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol. 34, No. 6,
             pp. 1265-1274

TEXT: The thermodynamic properties of air and its components were
examined at temperatures from 12000° to $20000^\circ K$ and pressures from
0.001 to 1000 at. The calculations had to be carried out in three stages
for such high temperatures: 1) Calculation of the thermodynamic functions
of the components of air, and a calculation of the equilibrium constants
for dissociation and ionization; 2) Calculation of the composition of air
at different temperatures and pressures, and 3) Calculation of the
thermodynamic properties of air. It was established that the thermo-
dynamic functions of air can be calculated with sufficient accuracy by
methods of statistical physics, with consideration of the Coulomb
interaction of the charged particles by the Debye-Hückel equation, and with

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81573

Thermodynamic Functions of Air at
High Temperatures.

S/076/60/034/06/18/040
B015/B061

consideration of the linear dimensions of the excited particles by the
method of Fermi and Urey. At a pressure of 1000 at, and a temperature
of 20000°K, the maximum error is some percent. This calculation error
is valid for ionized components of air at 1000 at and in the whole
temperature range from 12000° to 20000°K. Calculation formulas for the
initially mentioned temperature- and pressure ranges are given, as are
the calculated values of the thermodynamic function and the composition
of air. The calculations for the pressure range from 0.001 to 1 at were
carried out with consideration of a dissociation of N_2 and O_2, and
simple and double ionization of N, O, and Ar. In the pressure range from
1 to 1000 at the dissociation of N_2 and O_2, the formation of NO, and
simple ionization of N, O, and Ar were considered. The results are given
diagrammatically (Fig. 7). An electronic computer of the type БЦ (VTs)
of the AN SSSR (AS USSR) was used for the calculations. This work was
carried out in course of a research program under the direction of
Professor A. S. Predvoditelev in the institute named below. There are
7 figures, 1 table, and 10 references: 5 Soviet and 5 German.

Card 2/3

04000

10.7200

AUTHORS: Stupochenko, Ye. V. and Stakhanov, I. P.

TITLE: Equations of Relaxation Hydrodynamics

TEXT: The setting-up time τ of the local thermodynamical equilibrium widely varies in different processes. If the hydrodynamical quantities strongly change during the time τ the relaxation processes must be changed in the equations of hydrodynamics. The authors set up the following fundamental equations of relaxation hydrodynamics:
$d\varrho/dt + \varrho\,\mathrm{div}\,\vec{v} = 0$ (3); $\varrho\,d\vec{v}/dt + \mathrm{grad}\,p = 0$ (3'); $ds/dt = \frac{K}{T}(\varepsilon_\varepsilon)^2$ (3");
$d\xi/dt = -K\varepsilon_\varepsilon$ (3"'). Here, pressure p and temperature T are determined from the equations $p = \varrho^2\varepsilon_\varrho$, $T = \varepsilon_s$. Furthermore, the following relation holds between the phenomenological coefficient K and τ: $\tau = 1/K\varepsilon_{\xi\xi}$. The properties of system (3) are then studied. First, it is shown that $\mathrm{curl}\,\vec{v}$

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Equations of Relaxation Hydrodynamics   S/020/60/134/004/003/023
                                               B019/B067

changes with time. The authors demonstrate that the differential equation
$\frac{\partial}{\partial t}(\partial^2\vec{v}/\partial t^2 - c_\infty^2\Delta\vec{v}) + \partial^2 v/\partial t^2 - c_0^2\Delta\vec{v} = 0$ (6) describes the propagation of
weak disturbances in a relaxing medium. Similar equations may be obtained
for other hydrodynamical quantities. The differential equation (16)
$\frac{\partial \zeta_0}{\partial \varrho}\varrho\,\mathrm{div}\vec{v} = \frac{1}{\tau}\zeta$ (1) is then obtained by methods of nonlinear mechanics and
statistical physics with an accuracy to the terms with μ^2 for (3''');
$\mu = v\tau/L$. The equation of motion $\varrho d\vec{v}/dt = -\mathrm{grad}p_0 + \mathrm{grad}(\zeta\,\mathrm{div}\vec{v})$ is obtained

in second approximation from this differential equation. Here,

$\zeta = -(\partial p/\partial\zeta)_{\zeta=\zeta_0}\,\tau\frac{\partial\zeta_0}{\partial\varrho}\varrho$ and $\zeta = \tau\varrho(c_\infty^2 - c_0^2)$, which quantities have the
significance of a second coefficient of viscosity. The survey given under
the condition that $u \ll 1$ is not concluded and equations in a better
approximation may be obtained in this manner. There are 6 references:
5 Soviet and 1 US.

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54680

Equations of Relaxation Hydrodynamics   S/020/60/134/004/003/023
                                                B019/B067

ASSOCIATION: Moskcvskiy gosudarstvennyy universitet im. M. V. Lomonosova
              (Moscow State University imeni M. V. Lomonosov)

PRESENTED: March 17, 1960, by G. I. Petrov, Academician

SUBMITTED: March 15, 1960

Card 3/3

84824

10.5800   also 1207

AUTHORS: Stakhanov, I. P. and Stupochenko, Ye. V.

TITLE: Structure of Mach Lines in Relaxing Media

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 134, No. 5,
pp. 1044 - 1047

TEXT: The authors studied, from the viewpoint of relaxation hydrodynamics,
the Mach lines observable in a flow around a cone (approach angle 0).
Proceeding from flow equation $1(\partial/\partial x)\{(M_\infty^2 -1)\partial^2 v/\partial x^2 -\partial^2 v/\partial y^2\}$
$+ (M_0^2-1)\partial^2 v/\partial x^2 - \partial^2 v/\partial y^2 = 0$ (1) of relaxation hydrodynamics they state
that similar equations may be set up for the disturbances of other hydro-
dynamic quantities (pressure, temperature, etc). The following considera-
tions are restricted to $M_\infty > 1$, and solution

$$v(x,y) = (\alpha u/2\pi i) \int_{-\sigma} \frac{\exp[i\xi(x' - c(\xi)y')]}{\xi} d\xi \quad (6)$$

is written down. $c(\xi)$ is defined as follows:

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Structure of Mach Lines in Relaxing Media   S/020/60/134/005/007/023
B019/B060

$$c(\xi) = \sqrt{\frac{i(M_\infty^2-1)\xi + (M_c^2-1)}{i\xi + }} \; , \; x' = x/l, \; y' = y/l. \text{ Characteristic (9)}:$$

$x - \sqrt{M_\infty^2 - 1} \; y = 0$ is found to separate the disturbed flow from the un-
disturbed one, and the behavior of the solution along the characteristic
(9) is examined. The following relation is obtained for the solution on
characteristic (9):

$$v(x,y) = \begin{cases} 0 & \text{at } y > \dfrac{1}{\sqrt{M_\infty^2 - 1}} \, x \\[2ex] \alpha u e^{-\lambda^2 y/l} I_0(z) & \text{at } y < \dfrac{1}{\sqrt{M_\infty^2 - 1}} \, x \end{cases} \qquad (10)$$

$\lambda^2 = \dfrac{1}{2} \dfrac{M_0^2 - M_\infty^2}{\sqrt{M_\infty^2 - 1}} > 0$. The Bessel function $I_0(z)$ in the vicinity of

characteristic (9) is found to be about equal to unity. Thus a discon-
tinuity appears near the cone vertex, whose intensity decreases ex-

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PREDVODITELEV, A.S.; STUPOCHENKO, Ye.V.; ROZHDESTVENSKIY, I.B.;
SAMUYLOV, Ye.V.; PLESHANOV, A.S.; ORLOVA, I.A., red.;
KORKIN., A.I., tekhn. red.

[Tables of the gas dynamic and thermodynamic values of an
air flow behind a direct shock wave for velocities of the
incident wave up to 4500 m/sec.] Tablitsy gazodinamiche-
skikh :. termodinamicheskikh velichin potoka vozdukha za
priamym skachkom uplotneniia; dlia skorostei nabegaiushchego
potoka do 4500 m/sek. Moskva, Vychislitel'nyi tsentr
AN SSSR, 1962. 131 p.   (MIRA 16:4)

1. Chlen-korrespondent Akademii nauk SSSR (for Predvoditlev).
                    (Air flow)

PREDVODITELEV, A.S., prof.; STUPOCHENKO, Ye.V.; PLESHANOV, A.S.;
    SAMUYLOV, Ye.V.; ROZHDESTVENSKIY, I.B.; ORLOVA, I.A., red.;
    POPOVA, N.S., tekhn. red.

[Tables of the thermodynamic functions of air for temperatures
from 200° to 6000°K and pressures from 0.00001 to 100 atm.]Tab-
litsy termodinamicheskikh funktsii vozdukha; dlia temperatur ot
200°do 6000°K i davlenii ot 0,00001 do 100 atmosfer. Moskva,
Akad. nauk SSSR. Vychislitel'nyi tsentr, 1962. 267 p.
                                          (MIRA 15:12)

        (Air—Thermodynamic properties)
          (Physics--Tables, etc.)

STUPOCHENKO, Ye. V.

AID Nr. 981-2   3 June
PROBLEMS OF HYDRODYNAMICS OF RELAXING MEDIA (USSR)

Stakhanov, I. P., and Yu. V. Stupochenko. Zhurnal prikladnoy mekhaniki i
tekhnicheskoy fiziki, no. 2, Mar-Apr 1962, 3-20.
S/207/63/000/002/001/025

Some general properties of equations of motion of the thermodynamically non-
equilibrium fluid are studied, including the possibility of transition to equilibrium
hydrodynamics in the limiting case of small relaxation time. The law of propa-
gation of small disturbances in relaxing media is studied and two different cases
are considered: 1) weak shock wave and 2) steady two-dimensional supersonic
flow past a slender wedge at zero incidence. It is shown that, with respect to the
order of "relaxation length," the propagation occurs along the characteristics of
the equations of relaxation hydrodynamics. Therefore, weak discontinuities
whose directions do not coincide with usually observed Mach lines occur near the
obstacles. A detailed study is presented of the variation of the disturbance charac-
ter downstream from its origin, and an equation describing the law of propagation
is established.   [ANB]

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L 9923-63   EWT(1)/BDS--AFFTC/ASD--IJP(C)

ACCESSION NR: AP3002803   S/0207/63/000/003/0041/0044

52

AUTHOR: Osipov, A. I.; Stupochenko, Ye. V.

TITLE: Nonequilibrium energy distribution with respect to the vibrational degrees of freedom of molecules when the Maxwell distribution is disturbed

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 3, 1963, 41-44

TOPIC TAGS: energy distribution, fast-particle sources

ABSTRACT: The distribution of vibrational energy in a gas disturbed by a fast-particle source has been investigated. It is shown that the disturbance of Maxwell distribution is usually accompanied by disturbance of the equilibrium energy distribution with respect to all degrees of freedom. In the case of a model of harmonic oscillators comprising a small impurity of diatomic molecules in a light monatomic gas disturbed by a source generating similar monatomic particles whose initial kinetic energy is smaller than $h\nu$, the distribution of vibrational energy can be represented as the Boltzmann distribution characterized by the temperature THETA. For a THETA different from the temperature T of the

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L 9928-63

ACCESSION NR: AP30)2803

light gas (for sufficiently intense sources THETA may considerably exceed T), an explicit expression is obtained in terms of source parameters. The deviation of vibrational energy distribution from equilibrium is associated with a relatively small perturbation of the Maxwell distribution (small in the sense that only a small portion of all the particles of the monatomic gas is affected by perturbations). Orig. art. has: 10 formulas.

ASSOCIATION: none

SUBMITTED: 14Mar63   DATE ACQ: 16Jul63   ENCL: 00

SUB CODE: 00   NO REF SOV: 004   OTHER: 000

Card   2/2

S/053/63/079 '001/003/003
B102/B186

AUTHORS: Osipov, A. I., Stupochenko, Ye. V.

TITLE: Non-uniform energy distributions with respect to the
             vibrational degrees of freedom in gases

PERIODICAL: Uspekhi fizicheskikh nauk, v. 79, no. 1, 1963, 81-113

TEXT: This review article deals with causes and effects of non-uniform
energy distribution in gas kinetics. The introduction is followed by
the two chapters of the paper: (1) The vibrational relaxation
(Introduction; gas-kinetic equations; transition probabilities;
vibrational relaxation in an isothermal system - relaxation equations;
vibrational relaxation in an isothermal system - the distribution of the
molecules with respect to the vibrational levels; vibrational relaxation
in an isolated system - the gas-kinetic equations; vibrational relaxation
in an isolated system - the distribution of the molecules with respect
to the vibrational levels). (2) The distribution of the vibration
energy in systems with particle sources (Introduction; thermal
dissociation considered as sinks of vibrationally excited molecules;
Card 1/2

ACCESSION NR: AP4044717   S/0207/64/000/004/0029/0034

AUTHORS: Safaryan, M. N. (Moscow); Stupochenko, Ye. V. (Moscow)

TITLE: Rotational relaxation of diatomic molecules in a light inert gas

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 4, 1964, 29-34

TOPIC TAGS: vibrational relaxation, inert gas, diatomic molecule, harmonic oscillator, rotational relaxation, Fokker Planck equation

ABSTRACT: The rotational relaxation of heavy diatomic molecules (a rigid rotator) was analyzed in a light inert gas under conditions of strongly nonadiabatic collisions between atoms and molecules. The initial energy distribution of the molecule corresponds to $T_0 < T$, (T- temperature of the inert gas). The Boltzmann kinetic equation is written for the distribution function $f(E, \mathcal{E}, t)$, (where $E, \mathcal{E}$ are the translation and rotational energies respectively), using the principle of detailed balancing and expanding the right hand side in powers of Δ and Δ_1. The Fokker-Planck equation of diffusion is obtained in the $(E, \mathcal{E})$ space, or $\partial f / \partial t = - \operatorname{div} \mathbf{j}$,

where $j_E = - B_E \left(\frac{\partial f}{\partial E} - f \frac{\partial \ln f^0}{\partial E} \right) - B_{E\mathcal{E}} \left(\frac{\partial f}{\partial \mathcal{E}} - f \frac{\partial \ln f^0}{\partial \mathcal{E}} \right)$, and $B_E = \frac{\langle \Delta_1^2 \rangle}{2\tau} = \frac{1}{2} \iint \Delta_1^2 w (E, \mathcal{E}, \Delta_1, \Delta) d\Delta_1 d\Delta$

$j_{\mathcal{E}} = - B_{\mathcal{E}} \left(\frac{\partial f}{\partial \mathcal{E}} - f \frac{\partial \ln f^0}{\partial \mathcal{E}} \right) - B_{\mathcal{E}E} \left(\frac{\partial f}{\partial E} - f \frac{\partial \ln f^0}{\partial E} \right)$ $B_{\mathcal{E}} = \frac{\langle \Delta^2 \rangle}{2\tau}, \quad B_{\mathcal{E}E} = \frac{\langle \Delta_1 \Delta \rangle}{2\tau}$

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ACCESSION NR: AP4014717

The coefficients of the above equation are then determined from the collision dynamics of I_2, Br_2, and Cl_2 molecules with He atoms. The change in momentum for atoms is given by $\Delta p = 2mb \sin \frac{1}{2}\chi$, and change in molecular energy by $\Delta_1 \equiv \Delta E = \frac{P \Delta p \cos \beta}{2M}$ $\left(E = \frac{P^2}{4M}\right)$. Coefficient B_E then yields

$B_E = bE$, $b = \frac{32}{3} \frac{n}{\pi} nkT \Omega_{12}^{(1,1)}$, where Ω_{12} is the total scattering cross section. Introducing rotational energy distribution function Φ $\Phi(\epsilon, t) = \int_0^\infty f(E, \epsilon, t) dE$

the Fokker-Planck equation is obtained in the form $\frac{\partial \Phi}{\partial t} = \frac{\partial}{\partial \epsilon}\left\{b\epsilon\left(\frac{\partial \Phi}{\partial \epsilon} + \frac{1}{kT}\Phi\right)\right\}$ which is identical to harmonic oscillator relaxation equation in a thermostat $h\nu/kT \ll 1$. Similarily, the equation for translational degree of freedom yields $\frac{\partial F}{\partial t} = \frac{\partial}{\partial E}\left\{bE\left(\frac{\partial F}{\partial E} + \left(\frac{1}{kT} - \frac{1}{2E}\right)F\right)\right\}$. The solutions of both of the above equations are then given in terms of generalized Laguerre polynomials. Orig. art. has: 38 equations.

ASSOCIATION: none

Card 2/3

ACCESSION NR: AP4044717

SUBMITTED: 07Apr64

SUB CODE: ME   NO REF SOV: 001

ENCL: 00

OTHER: 008

Card 3/3

STUPOCHENKO, Yevgeniy Vladimirovich; LOSEV, Staliy Andreyevich;
OSIPOV, Aleksey Iosifovich; SAMUYLOV, Ye.V., red.

[Relaxation processes in shock waves] Relaksatsionnye
protsessy v udarnykh volnakh. Moskva, Nauka, 1965. 484 p.
(MIRA 19:1)

L 46167-65   EWT(1)   IJP(c)
ACCESSION NR: AP5C09548   S/0207/65/000/001/0093/0095

AUTHOR: Safaryan, M. N. (Moscow); Stupochenko, Ye. V. (Moscow)

TITLE: Contribution to the theory of vibrational relaxation of diatomic molecules

SOURCE: Prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 1, 1965, 93-95

TOPIC TAGS: diatomic molecule, vibrational relaxation, relaxation time, gas
kinetic equation, molecular collision

ABSTRACT: The relaxation of diatomic molecules (harmonic oscillators) is con-
sidered within the framework of classical mechanics in a relatively light inert
gas which serves as a thermostat. The gas-kinetic equation for the distribution
function of the diatomic molecule is approximated by a Fokker-Planck equation in
the space of the energies of translational, rotational, and vibrational motions
under the assumption that the collisions are strongly non-adiabatic. In this ap-
proximation the different degrees of freedom relax independently of one another,
although the characteristic terms of these relaxations are found to be of the same
order of magnitude. The vibrational relaxation time is expressed in terms of the
gas-kinetic integral. It is assumed that the molecules and atoms interact clas-

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L. 46367-65
ACCESSION NR: AP5109548

sically, that the molecule vibrations are harmonic and do not change the moment of inertia of the molecule, and that a colliding atom interacts only with the nearest atom of the molecule. The vibrational relaxation time is determined in accordance with a procedure previously used by the authors for rotational relaxation of diatomic molecules in a light intert gas (PMTF, 1964, No. 4). Orig. art. has: 15 formulas.

ASSOCIATION: None

SUBMITTED: 24Sep64   ENCL: 00   SUB CODE: NP, ME

NR REF SOV: 003   OTHER: 001

Card 2/2

L00813-66   EWT(1)/EWP(m)/EWA(d)/FCS(k)/EWA(1)
ACCESSION NR: AP5020823   UR/0020/65/163/004/0849/0852

AUTHOR: Stupochenko, Yu. V.

TITLE: Temperature jump in multi-atomic gases

SOURCE: AN SSSR. Doklady, v. 163, no. 4, 1965, 849-852

TOPIC TAGS: rarefied gas flow, temperature field, temperature jump, accomodation coefficient

ABSTRACT: The temperature jump conditions at the wall of a multi-atomic gas are investigated analytically. In particular, the effect of zone l ($l \sim \sqrt{D\tau}$) is estimated on the temperature jump condition under the assumption that $l \ll L$, where L is the characteristic dimension of the temperature field. The f degrees of freedom of the molecule are divided into two groups: $f = f_1 + f_2$ where f_1 includes the translational and rotational degrees, and f_2, the vibrational degrees of freedom. The accomodation coefficient of group f_2 is assumed to be less than that of f_1. The region near the wall is divided into three zones. In zone 1, the thickness "a" is assumed of the order l, and the temperature conditions are written as follows

$$\delta_1 T_1 = g_1 \partial T_1 / \partial x |_{x \sim a},$$

$$\delta_2 T = g_2 \partial T / \partial x |_{x \sim a}.$$

Card 1/2

L 14078-66   EWT(1)/EWP(m)/EWA(d)/FCS(k)/EWA(h)   HW
ACC NR: AP6002365   SOURCE CODE: UR/0207/65/000/006/0116/0118

AUTHOR: Stupochenko, Ye. V. (Moscow)

ORG: none

TITLE: An estimate of the front thickness of strong shock waves in gases

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 6, 1965, 116-118

TOPIC TAGS: shock wave structure, shock wave front, Navier Stokes equation

ABSTRACT: In hydrodynamics of ideal fluids, the shock wave is represented by a geometrical discontinuity surface of hydrodynamic and thermodynamic quantities. However, the incorporation into the theory of viscosity and of heat conduction widens the transition region to a layer of finite thickness. The estimate of this thickness Δx using Navier-Stokes equation gives an approximate answer

$$\Delta x \approx l_0$$

where l_0 is the mean free path. Since the equations of macroscopic aerodynamics are valid

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UR/

ACC   AM6008484   Monograph

Stupochenko, YEvgeniy Vladimirovich; Losev, Staliy Andreyevich; Osipov, Aleksey Iosifovich

Relaxation processes in shock waves (Relaksatsionnyye protsessy v udarnykh volnakh) Moscow, Izd-vo "Nauka," 1965. 482 p. illus., biblio., index. 4000 copies printed.

TOPIC TAGS: gas relaxation, vibrational relaxation, relaxation process, relaxing flow, shock tube, shock wave, shock wave heating, shock wave structure, strong shock wave, gas dissociation, radiation heat transfer, nonequilibrium flow, equilibrium flow, thermodynamic equilibrium, gas dynamics, thermal dissociation

PURPOSE AND COVERAGE: This book is intended for scientific personnel concerned with the problems of gasdynamics, high-temperature thermal physics, chemical physics, and also for candidates and senior students of these specialties. The present state of experimental and theoretical investigations of relaxation processes taking place in shock waves in gases and air is described and analyzed. Particular attention is paid to physical aspects of relaxation phenomena and to elucidation of patterns in processes taking place in the establishment of statistical equilibrium with respect to various degrees of freedom. It contains a foreword and six chap-

Card 1/4   UDC: 533.601.172

ACC NR: AM6008484

ters. The first chapter deals with general problems and presents
a qualitative description of the relaxation process and the funda-
mentals of experimental methods. The second deals with shock
tubes as a means for generating and studying strong shock waves
and related phenomena. Chapter three deals with the experimental
methods used for investigating nonequilibrium phenomena taking
place in shock waves. Chapter four is devoted to a theoretical
analysis of relaxation processes and available experimental data.
Chapter five deals with nonequilibrium phenomena taking place
behind a shock front in air. Chapter six briefly outlines the gas
flow properties in relaxation and contains a brief analysis of
gaskinetic methods for deriving equations of equilibrium and relax-
ation hydrodynamics and methods of the thermodynamics of irrevers-
ible processes. The authors are grateful to N. A. Generalov,
Yu. P. Rayzer, and E. V. Samuylov for valuable comments.

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ACC NR: AM6008484

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        L.S.; KHE LI [He Li]; CHZHAN SY-TSYAN' [Chang SSM-ch'ien]:
        VOINOV, A.M.; SHIRYAYEV, S.L.; KURAKIN, V.A.; STUPOV, A.D., red.;
        KANEVSKAYA, T.M., red.; GERASIMOVA, Ye.S., tekhn.red.

        [Economy of the Chinese People's Republic, 1949-1959] Ekonomika
        Kitaiskoi Narodnoi Respubliki, 1949-1959. Moskva, Gosplanizdat,
        1959. 304 p.   (MIRA 13:5)

        1. Zavoduyushchiy sektorom ekonomiki stran narodnoy demokratii
        Instituta ekonomiki AN SSSR (for Stupov).
                    (China--Economic conditions)

STUPOV, A.

Prague conference of economists of socialist countries. Vop.
ekon. no.2 156-157 F '59.   (MIRA 12:5)
                (Prague--Economics--Congresses)

YEVSTIGNEYEV, R.N.; STUPOV, A.D., kand.sel'skokhoz.nauk, red.; TO-
MASHPOL'SKIY, L.M., kand.ekon.nauk, red.; SMIRNOVA, A.I.,
vedushchiy red.; GONCHAROV, N.G., tekhn.red.

[Economic development of the Czechoslovak Republic] Razvitie
ekonomiki Chekhoslovatskoi Respubliki. Moskva, Vses.in-t nauchn.
i tekhn.informatsii. 1960. 99 p.   (MIRA 13:6)
        (Czechoslovakia--Economic conditions)

STUPOV, Aleksey Dmitriyevich; Prinimala uchastiye LUKOVNIKOVA, S.V.,
kand.sel'skokhoz.nauk, mladshiy nauchnyy sotrudnik; KANEVSKAYA,
T.M., red.; GERASIMOVA, Ye.S., tekhn.red.

[Development of socialist agriculture in Bulgaria] Razvitie
sotsialisticheskogo sel'skogo khoziaistva v Bolgarii. Moskva,
Gosplanizdat, 1960. 273 p.   (MIRA 14:3)

1. Sektor ekonomiki stran narodnoy demokratii Instituta ekonomiki
Akademii nauk SSSR (for Lukovnikova).
            (Bulgaria--Agriculture, Cooperative)

STUPOV, A.; GERTSOVICH, G.

Further consolidation of the economic foundation of the world system of socialism. Vop.ekon. no.9:55-68 '61.

(MIRA 14:8)

(Communist countries--Economic conditions)

STUPOV, Aleksey Imitriyevich; RABINOVICH, M., red.; KLIMOVA, T.,
tekhn. rid.

[Fraternal cooperation among socialist countries] Bratskoe
sotrudnichestvo sotsialisticheskikh stran. Moskva, Gospolit-
izdat, 1962. 60 p.   (MIRA 15:7)

1. Institut ekonomiki mirovoy sotsialisticheskoy sistemy (for
Stupov).
          (Communist countries—Economic policy)

SERGEYEV, V.P.; TARNOVSKIY, O.I.; MITROFANOVA, N.M.; SHMELEV, N.P.;
    SHABUNINA, V.I.; SKVORTSOVA, A.I.; VASIL'TSOV, V.D.;
    KRASNOGLAZOV, B.P.; BELYAYEV, Yu.N.; KURAKIN, V.A.; YUMIN,
    M.N.; SERGEYEV, V.P.; ZOTOVA, N.A.; MATVIYEVSKAYA, E.D.;
    STUPOV, A.D., otv. red.; LISOV, V.Ye., red. izd-va;
    NOVICHKOVA, N.D., tekhn. red.

[Economic cooperation and mutual aid in socialist countries]Eko-
nomicheskoe sotrudnichestvo i vzaimopomoshch' sotsialisticheskikh
stran. Moskva, Izd-vo Akad. nauk SSSR, 1962. 272 p.
                                            (MIRA 16:2)
1. Akademiya nauk SSSR. Institut ekonomiki mirovoy sotsialisti-
cheskoy sistemy.
            (Communist countries--Foreign economic relations)
              (Communist countries--Industries)

RYABUSHKIN, T.V., doktor ekonom. nauk, prof., nauchnyy red.; STUPOV, A.D., kand. ekonom. nauk,nauchnyy red.; LEPNIKOVA, Ye., red.; BESSUDNOVA, N., mladshiy red.; MOSKVINA, R., tekhn. red.

[The economy of socialist countries in figures for 1961; consicie statistics]Ekonomika stran sotsialisticheskogo lageria v tsifrakh, 1961 god; kratkii statisticheskii sbornik. Moskva, Sotsekgiz, 1962. 236 p.   (MIRA 16:1)
          (Communist countries--Statistics)

USIYEVICH, M.A., kand. ekon. nauk; VIDMAR, V.N., kand. ekon. nauk;
    STUPOV, A.D., kand. sel'khoz. nauk; STARODUBROVSKAYA, V.N.,
    kand. ekon. nauk; STOROZHEV, V.I., kand.ist. nauk; RUDAKOV,
    Ye.V., kand. ekon. nauk; KIRANOV, P., prof.; KHORVAT, L.
    [Horvat, L.], kand. ekon. nauk; KROMM, K., doktor; FRUKK, Kh.
    [Frukk, H.], doktor; SHMIDT, V.[Schmidt, V.], prof., doktor;
    TEPIKHT, Ye.[Tepicht, E.], prof.; NIK, S. [Nic,S.], kand.
    ekon. nauk; DUMITRIY, D.[Dumitro, D.]; SVOBODA, K., kand.
    ekon. nauk; LEPNIKOVA, Ye., red.; KIRSANOVA, I., mladshiy red.;
    NOGINA, N., tekhn. red.

[Socialist reorganizations in the agriculture of the European
people's democracies] Sotsialisticheskie preobrazovaniia v sel'-
skom khoziaistve evropeiskikh stran narodnoi demokratii. Moskva,
Sotsekgiz, 1963.   334 p.   (MIRA 16:7)

1. Akademiya nauk SSSR. Institut ekonomiki mirovoy sotsialisti-
cheskoy sistemy.2. Institut ekonomiki mirovoy sotsialistiche-
skoy sistemy AN SSSR (for Usiyevich, Vidmar, Stupov,
Starodubrovskaya, Storozhev, Rudakov).
        (Europe, Eastern--Agriculture, Cooperative)

LISICHKINA, S.M., obshchiy red.; TOMASHPOL'SKIY, L.M., obshchiy red.;
    CHUTKERJSHVILI, Ye.V., obshchiy red.; KARYAGIN, I.D., red.;
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    SOKOLOV, Yu.S., red.; STUPOV, I.D., red.; BELYAVSKIY, A.M., red.;
    GRAZHUL', V.S., red.; DANILOV, N.N., red.; RAKHMANINOV, G.I., red.;
    SHEVCHENKO, G.A., tekhn.red.

[Development of the national economy of the German Democratic
Republic] Razvitie narodnogo khoziaistva Germanskoi Demokrati-
cheskoi Respubliki. Moskva, Proizvodstvenno-izdatel'skii kombi-
nat VINITI, 1959.   906 p.   (MIRA 13:4)

1. Akademiya nauk SSSR. Institut nauchnoy informatsii.
        (Germany, East--Economic conditions)

L 7914-66   EWT(d)   IJP(c)

ACC NR: AP5027355

SOURCE CODE: UR/0043/65/000/004/0038/0046

AUTHORS: Ladyzhenskaya, O. A.; Stupyalis, L.

ORG: none

TITLE: Equations of mixed type

SOURCE: Leningrad. Universitet. Vestnik. Seriya matematiki, mekhaniki i astronomii, no. 4, 1965, 38-46

TOPIC TAGS: differential equation, partial differential equation, elliptic equation, hyperbolic equation, parabolic equation

ABSTRACT: The authors consider the problem of determining $u(x,t)$, satisfying one of $L_i^{(j)} u = f_i^{(j)}$, $i = 1,2,3$ for each $j = 1,2$ on $\Omega_j \times [0,T]$, and various initial conditions depending on i. Here i indicates an elliptic, parabolic, or hyperbolic type of equation. Conjugacy conditions on the common boundary of Ω_1 and Ω_2 are to be satisfied. The method of solution is illustrated on

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UDC: 517.946

L 79114-66
AOC NR: AP5027355

$$-\Delta u = f_1(x,\ t), \qquad (1)$$
$$u_t - \Delta u = f_2(x,\ t), \qquad (2)$$
$$u_{tt} - \Delta u = f_3(x,\ t), \qquad (3)$$

under simple conjugacy conditions. Orig. art. has: 39 formulas.

SUB CODE: MA/   SUBM DATE: 24Apr64/   ORIG REF: 007

Card 2/2

STURC, Josef

Reconstruction and modernization of chemical plants for producing precipitated calcium carbonate. Chem prum 14 no.11:569-573 N '64

1. Research Institute of Inorganic Chemistry, Usti nad Labem.

HUNGA

V Action of penicillin on the oxidation-reduction potential of Staphylococcus aureus. A. Kriml, J. Stur, and P. Turay (Acta physiol. Acad. Sci. Hung., 1954, 5, 449—551).—0·0005 to 0·001 Oxford units/ml. is the penicillin concn. that causes a rise in oxidation-reduction potential of sensitive strains of S. aureus. In resistant strains not even concn. of 10·0 u./ml. have an effect on the oxidation-reduction potential.   A. B. L. Břízňák.

STUR, J

KRAMLI, A.; STUR, J.; TURAY, P.

The change in the oxidation-reduction potential of Staphylococcus aureus on the action of penicillin; a preliminary report. Acta physiol. hung. 5 no.3-4:549-551 1954.

1. Biochemical Institute of the Medical University, Szeged.
(Received December 2, 1953)
        (PENICILLIN, eff.
            on oxidation-reduction potential of Micrococcus
            pyogenes aureus)
        (MICROCOCCUS PYOGENES
            aureus, oxidation-reduction potential, eff. of penicillin)
        (OXIDATION-REDUCTION
            potential of Micrococcus pyogenes aureus, eff. of
            penicillin)

KRAMLI, A.,; STUR, J.K.,; TURAY, P.

Effect of penicillin and streptomycin on the redox potential of
sensitive and resistant strains of Staphylococcus aureus.
Acta physiol. hung. 8 no.1:15-24 1955

1. Institute of Chemistry and Biochemistry University Medical
School, Szeged (Received May 5, 1954)
            (MICROCOCCUS PYOGENES, effects,
                penicillin & streptomycin, redox potential in resist.
                & sensitive strains)
            (PENICILLIN, effects,
                on Micrococcus phogenes, redox potential in resist. &
                sensitive strains)
            (STREPTOMYCIN, effects,
                on Micrococcus pyogenes, redox potential in resist. &
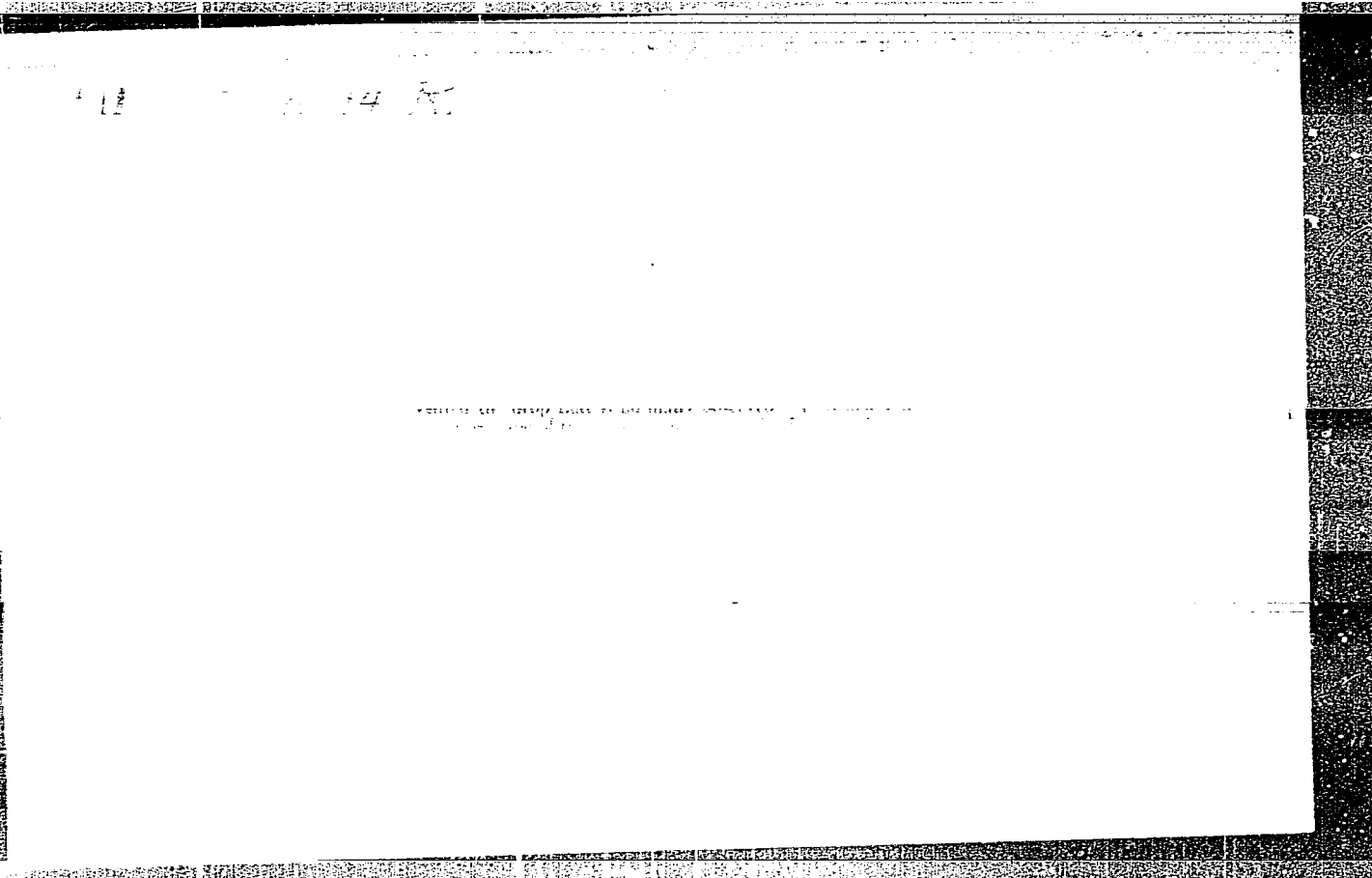   sensitive strains)

STAR, L. G. T.

Action of oxidation-reduction systems on the metabolism of microorganisms. II. Investigation by oxidation-reduction potential of the yeast C-hemin complex. A. Kramli, Judit Lantos, and Judit Stur (Univ. Szeged). _Acta Biol._ _Acad. Sci. Hung._ _____ (German) _____ In summary, ___ C.A. 50, _____ ___ _____ __ _____ investigated suggest that C-hemin complex of yeast replaced the C-hemin of some of the oxidation enzymes of the tricarboxylic acid cycle. The yeast removed the alien hemin through abolition of the bond owing to spontaneous enzymic adaptation and restored the initially changed oxidation-reduction potential. Cytochrome c brought about a prolonged increase in the oxidation-reduction potential of the yeast cultures. In the presence of its own metabolic substance the cell did not develop an oxidation-reduction hemin effect. III. Effect of thioglycolic acid on ergosterol production in yeast cultures. A. Kramli and Judit Lantos _____

__ _____ ____ (Biol. 107-28.) Treatment of producing culture of E. _____ with young culture resulted in a temp____ _____

STUB, .; MADARSZ, K.; KAFFATI, I.

"Electrometric investigations of tumorous rats." p. 139.

BIOLOGIAI KOZLEMENYEK. (Magyar Biologiai Tarsasag. Altalanos Biologiai
Szakoaztaly). Budapest, Hungary, Vol. 6, No. 2, 1959.

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

L 7863-66   EWT(1)/FS(v)-3   DD

ACC NR: AT5028036   SOURCE CODE: HU/2501/65/016/001/0043/0049

AUTHOR: Marek, Nandor (Szeged); Sipos, Maria (Szeged); Stur, Judit k. (Szeged);
Szarvas, Janos (Szeged); Kramli, A. (Head, Szeged)

ORG: Institute of Medical Chemistry, Medical University, Szeged

TITLE: Continuous culturing of algae in artificial illumination

SOURCE: Academia scientiarum hungaricae. Acta biologica, v. 16, no. 1, 1965, 43-49

TOPIC TAGS: photosynthesis, algae, chlorella

ABSTRACT: A method for continuous cultivation of algae is described; this method can
produce algae in sufficient quantities to inoculate larger culturing units. A diagram
of the apparatus, which is based on the light-utilizing properties of the algae
(Chlorella in these experiments) and on the theoretical principles of continuous cul-
tivation, is given in the original article. Experiments showed that this system is
self-regulatory in a certain light-intensity range: its productivity per unit volume
of suspension remains constant at a rate of inflow of the medium between certain
limits. The computed cell concentration values at different renewal periods must be
taken as limits since the values obtained deviate approximately 10% from theoretical
values. Orig. art. has: 1 figure and 12 formulas.   [JS]

SUB CODE: LS/ SUBM DATE: 20Jul64/ OTH REF: 002/ ATD PRESS: 4/47

Card 1/1

MAREK, N.; SIPOS, M.; STUR, J.K.; ZHIRVAS, J.; KRAMLI, A.

Continuous culturing of algae in artificial illumination. Acta
biol. acad. sci. Hung. 16 no.1:43-49 '65.

1. Institute of Medical Chemistry, Medical University, Szeged
(Head: A. Kramli). Submitted July 20, 1964.

L 23896-66   SCTB   DD
ACC NR: AT6011827   SOURCE CODE: HU/2501/66/016/004/0319/0325

AUTHOR: Marek, Nandor (Szeged); Sipos, Maria (Szeged); Stur, Judit K. (Szeged);
Szarvas, Janos (Szeged); Kramli, Andras (Szeged)
ORG: Institute of Medical Chemistry, Medical University, Szeged/ headed
by A. Kramli/

TITLE: Studies on the redox potential in algal cultures   36

SOURCE: Academia scientiarum hungaricae. Acta biologica, v. 16, no. 4,
1966, 319-325

TOPIC TAGS: algae, redox potential, oxygen tension, plant growth

ABSTRACT: Redox potential (RP) measurements were carried out in algal
cultures to investigate the influence of the daily periodicity of light
and darkness on changes in RP values and to establish the relationship
between RP and growth curves. It was found that RP values are subject
to regular daily changes, and are higher and lower in light and dark-
ness, respectively. The difference between the maximum and minimum
values varies greatly depending on whether the cultures or grown in
inorganic media or in those containing organic hydrocarbons. It is
assumed that this might be caused by differing oxygen tensions due to
difference in photosynthetic oxygen production in the various media.
The regular relationship between daily RP maximum values and growth rate

Card 1/2

Card 2/2 ISK

STURC, F.

Protection of locking steel gates in hydraulic constructions. p. 253,
TECHNICKA PRACA (Statne nakladatelstvo technickej literatury)
Baratislava, Vol. 7, No. 6, June 1955

SOURCE: East European Accessions List (EEAL) Library of Congress,
          Vol. 4, N . 12, December 1955

STURC, F.

Resolution of the 1st Scientific Mining Congress of the Slovak
Academy of Sciences, p. 255, TECHNICKA PRACA (Statne nakladatelstvo
technickej literatury) Baratislava, Vol. 7, No. 6, June 1955

SOURCE: East European Accessions List (EEAL) Library of Congress,
Vol. 4, No. 12, December 1955

STUC, T.

Protection of steel construction in hydraulic structures against corrosion. p. 157. VODNI HOSPODARSTVI. (Ustredni sprava vodniho hospodarstvi) Praha. Vol. no. 6, June 1956.

SOURCE: East European Accessions List, Vol. 5, no. 9, September 1956

STORC, Josef

CZECH

Utilization of wastes from dichromate production. Josef Sturc. Chem. Prumysl 4(29), 379-81(1954).—A discussion of various uses of wastes from alk. dichromate production in Czechoslovakia, including the so-called Ca waste, a residue contg. various oxides and salts after extg. the melts, and so-called conversion salt consisting mainly of NaCl and Na$_2$SO$_4$, a by-product of converting Na$_2$Cr$_2$O$_7$ into K$_2$Cr$_2$O$_7$.

L. A. Helwich

STURC, R., NAJMAN, M.

Yugoslavia (430)

Technology

The production of natural gas in Italy. p. 78.
NAFTA. Vol. 3, no. 3, Mar. 1952.

East European Accessions List. Library of
Congress. Vol. 2, no. 3, March 1953. UNCLASSIFIED

SOLYOM, Janos; KOTRA, Zsuzsa; SALAMON, Ikos; STURCZ, Jozsef;
        UJJ, Miklos

Studies on the relationship betwuen the renin-angiotensin
system and aldosterone excretion. Kiserl. orvostud. 15 no.4:
431-434 Ag '63.

1. Budapesti Orvostudomanyi Egyetem Elettani Intezete,
        (ALDOSTERONE)   (RENIN)   (ANGIOTENSIN)
        (ADRENAL CORTEX)   (NEPHRECTOMY)   (BLOOD)
                    (CHROMATCGRAPHY)

SOLYOM, Janos, KOTRA, Zsuzsa; SALAMON, Akos; STURCZ, Jozsef.

Study of the role of the renin-angiotensin system in the regulation of aldosterone production. Kiserl. orvostud. 16 no.1: 96-100   Ja'64.

1. Budapesti Orvostudomanyi Egyotem Elettani Intezete.

*

SPAT, Andras; SALIGA, Margit; STURCZ, Jozsef; SOLYOM, Janos

Effect of aldosterone on intestinal Na- and K-transport.
Kiserl. orvostud. 16 no.2:153-156 Ap'64

1. Budapesti Orvostudomanyi Egyetem Elettani Intezete.

*

SOLYOM,J.; KOTRA, Susanna; SALAMON,A.; STURCZ,J.

A study on the role of the renin-angiotensin system in the
control of aldosterone secretion. Acta physiol. acad. sci.
Hung. 24 no.3:293-298 '64.

1. Department of Physiology, Medical University, Budapest.

*

SPAT, A.; SALIGA, Margit; STURCZ, J.; SOLYOM, J.

Effect of aldosterone on the intestinal transport of sodium
and potassium in rats. Acta physiol. acad. sci. Hung. 24
no.4:465-459 '64

1. Department of Physiology, Medical University, Budapest.

STURZA, M., dr.; RADU, G., dr.

Maxillofacial trauma through sport accidents. Stomatologia
(Bucur.) 12 no.5:439-446 '65.

1. Lucrare efectuata in Clinica de chirurgie buco-maxilo-faciala
Institutul medico-farmaceutic, Bucuresti (seful clinicii: prof.
Valerian Popescu).

L 13508-66

ACC NR: AP6007038   SOURCE CODE: HU/0018/65/017/003/0248/0252

AUTHOR: Spat, Andras--Shpet, A.; Sturcz, Jozsef--Shturts, Y.; Szigeti, Robert--
Sigeti, P.

ORG: Medical University of Budapest, Institute of Physiology (Budapesti
Orvostudomanyi Egyetem, Elettani Intezet)

TITLE: Angiotensin II activating factor in rat plasma

SOURCE: Kiserletes orvostudomany, v. 17, no. 3, 1965, 248-252

TOPIC TAGS: rat, biosynthesis, biologic metabolism, gland, hormone,
endocrinology, blood plasma, drug effect, pharmacology

ABSTRACT: The effect of angiotensin II on the
in vitro synthesis of steroids by the rat adrenals has been studied in Krebs-
Ringer solution and in rat plasma. An effect of angiotensin on the increase
of steroid synthesis could not be demonstrated in either of the incubation
media. As compared with the Krebs-Ringer solution, rat plasma alone effected
a significant increase in aldosterone production by the adrenals. The authors
thank the CIBA and the Organs of the Pharmaceutical Factories for placing the
Angiotensin II and Steroid preparations at their disposal. Orig. art. has 3 figures.
SUB CODE: 06 / SUBM DATE: 29Jun54 / ORIG REF: 004 / OTH REF: 022 /JPRS/

Card 1/1 HW   2

L 28993-66

ACC NR: AT6019371   SOURCE CODE: HU/2505/65/027/003/0199/0203

AUTHOR: Spat, Andras; Sturcz, Jozsef; Szigeti, Robert

ORG: Institute of Physiology, Medical University of Budapest (Budapesti Orvostudomanyi Egyetem, Elettani Intezet)

TITLE: New observations on the function of the angiotensin-aldosterone system

SOURCE: Academia scientiarum hungaricus. Acta physiologica, v. 27, no. 3, 1965, 199-203

TOPIC TAGS: rat, hormone, blood plasma, adrenal gland, corticosteroid, hormone

ABSTRACT: The effect of angiotensin II on steroid synthesis by the rat adrenal cortex has been studied in Krebs-Ringer medium and in rat blood plasma. Attempts to demonstrate that angiotensin would have an increasing effect on the rate of steroid synthesis failed in both media. Moreover, a depression in aldosterone and corticosterone production was observed, especially in the plasma medium. No evidence was obtained for an activation of angiotensin II by blood plasma. A significantly higher rate of steroid synthesis was achieved in the plasma medium than in the Krebs-Ringer medium. The authors are indebted to Ciba Ltd., Basel, for supplies of angiotensin II and Organon Ltd. Oss., for the steroid preparations. Orig. art. has: 2 figures. [Orig. art. in Eng.] [JPRS]

SUB CODE: 06 / SUBM DATE: 14Jul64 / ORIG REF: 003 / OTH REF: 017

Card 1/1   BLG

L 29393-66

ACC NR: AT6019811   SOURCE CODE: HU/2505/65/028/002/0163/0170

AUTHOR: Sturcz, Jozsef; Kotra, Zsuzsanna; Purjesz, Istvan; Lakatos, Katalin, S.;
Saliga, Margit K.

ORG: /Sturcz, Purjesz, Lakatos, Saliga/ Institute of Physiology, Medical University
of Budapest (Budapesti Orvostudomanyi Egyetem, Elettani Intezet); /Kotra/ KOJAL,
Budapest

TITLE: Effect of vagotomy on aldosterone secretion in the dog

SOURCE: Academiae scientiarum hungaricae. Acta physiologica, v. 28, no. 2, 1965, 163-170

TOPIC TAGS: corticosteroid, dog, endocrinology

ABSTRACT: A study was carried out on the effect of vagotomy on the rate of aldosterone
secretion in hypovolemic and hypervolemic dogs. The rate of secretion achieved in the
hypovolemic state was significantly increased by vagotomy. In the hypervolemic state,
vagal section had no effect on the aldosterone output of the adrenals. Under such
experimental conditions, the inhibitory effect of hypervolemia on aldosterone secretion
was overruled by the stimulating effect of blood loss. The authors thank Ciba, Basel
and Organon, Oss, Netherlands for supplies of steroid preparations. Orig. art. has:
3 figures. /Orig. art. in Eng./ /JPRS/

SUB CODE: 06 / SUBM DATE: 18Dec64 / ORIG REF: 001 / OTH REF: 028

Card 1/1 CC

L 37820-66

ACC NR: AP6028457   SOURCE CODE: HU/0018/66/000/003/0258/0261

AUTHOR: Spat, Andras--Shpet, A.; Sturcz, Jozsef--Shturts, Y.

ORG: Institute of Physiology, Medical University of Budapest (Budapesti Orvostudomanyi Egyetem, Elettani Intezet)

TITLE: Effect of angiotensin II on aldosterone synthesis in rat adrenals

SOURCE: Kiserletes orvostudomany, no. 3, 1966, 258-261

TOPIC TAGS: rat, adrenal gland, drug effect, biologic secretion

ABSTRACT: The effect of angiotensin II on surviving adrenal tissue in the rat was studied. The steroid synthesis in the adrenals was influenced neither by the administration of 50 µg/100 g daily doses of angiotensin II for 3 days before decapitation, nor by a single dose of 50 µg/100 g of it injected 40 minutes before decapitation. In comparing these results with other data, it is considered doubtful that angiotensin II plays   a role in the physiological aldosterone regulation of the rat. Orig. art. has: 2 figures. [JPRS: 36,599]

Card 1/1

SPAT, Andras, and STURCZ, Jozsef, Institute of Physiology at the Medical University (Orvostudomanyi Egyetem Elettani Intezete) in Budapest.

"The Effect of Angiotensin II on Adrenal Steroid Synthesis in the Rat"

Abstract: [English article; authors' English summary, modified] The effect of angiotensin II on steroid synthesis in the rat adrenal cortex was investigated. This drug (Hypertensin, CIBA) was practically ineffective on the rate of steroid production by incubated adrenal slices when administered in doses of 50 µg per 100 g daily for three days prior to decapitation, or in a single dose 50 µg per 100 g injected 40 minutes prior to the experiment. In view of these results and some other data, it appears unlikely that angiotensin   plays   a significant role in the physiological regulation of aldosterone secretion in the rat. 13 references, including 3 Hungarian, 1 German, and 9 Western. (Manuscript received 12 Jun 1965).

1/1

STURCZ, Jozsef, SPAT, Andras, and SZIGETI, Robert, Institute of Physiology, University Medical School (Orvostudomanyi Egyetem Elettani Intezete), Budapest.

"Effect of Local Aldosterone Concentration on Aldosterone Production in Incubated Adrenals"

Endocrinology

HUNGARY

STURCZ, Jozsef, SPAT, Andras, SZIGETI, Robert; Medical University of Budapest, Institute of Physiology (Budapesti Orvostudomanyi Egyetem, Elettani Intezet).

"Effect of Changes in Local Aldosterone Concentration on Aldosterone Synthesis by Surviving Adrenals."

Abstract: [Authors' Hungarian summary] Rat adrenal tissues were incubated in different amounts of Krebs-Ringer solution. According to the experimental results,   aldosterone synthesis is independent of the hormone concentration and metabolic product concentration present in the incubation medium. The stimulating effect of plasma on steroid synthesis is presumably not caused by the aldosterone--or metabolic product-binding capacity of plasma proteins. 1 Hungarian, 16 Western references. [Manuscript received 23 Sep 65.]

1/1

CERNAY, J.; HUDAKOVA, G. Technicka spoluprace: STURDIKOVA, G.

Effect of a mixture of adrenalin and noradrenalin on the level
of reduced glutathione (GSH) in the blood of healthy children.
Bratisl. lek. listy 44 no.10:596—603   '64

1. Pediatricka katedra SUDL v Trencine (veduci: MUDr. A.
Getlik) ; Centralne laboratorium OUNZ v Trencine (veduci:
MUDr. Z.Cicvarek), a Ustav zdravotnickej statistiky v
Bratislave (riaditel: prom. ekonom. S. Estok).

IZAKOVIC,V.; IZAKOVICOVA, A.; HNILICA, P.; CICVAREK. Z. Technicka spolu-
praca: STURDIKOVA. M.

Determination of the corticotropin activity of the hypophysis
with metopyrapone (metopironetest). Bratisl. lek. listy 2
no.1:34-41 '64

1. Katedra vnutorneho lekarstva Slovenskeho ustavu pre dosko-
lovanie lekarov v Trencine (veduci: doc. MUDr. D.Dieska) a
Centralne biochemicke laboratorium OUNZ v Trencine (veduci:
MUDr. Z.Cicvarek).

GERMAN, J.; CICVAREK, Z.; technicka spolupra e STURDIKOVA, M.

Relation of the level of glutathione reductase in the blood
to weight and body surface in healthy children of school age.
Cesk. pediat. 19 no.11:979-982 N '64.

1. Pediatricka katedra SUL - Trencine (veduci MUDr. A. Getlik)
a Gent no bioutumioke s th ns r a Cu odniho ustavu narod-
niho zdravi v trencine (veduci MUDr. Z. Cicvarek).

RUMANIA/Microbiology - General Microbiology, Systematics,   F
            Morphology, Cytology.

Abs Jour   : Ref Zhur Biol., No 22, 1958, 99234

Author   : Combiescu, D., Sturdza, N., Sefer, M., Radu, I., Dercea,
              A.

Inst   : Rumanian Academy

Title   : Serological Determination of Certain Types of Leptospirae
              of the Same Species Obtained from Various Foreign Labora-
              tories

Orig Pub   : Comun. Acad. RPR, 1956, 6, No 10, 1251-1256

Abstract   : No abstract.

Card 1/1

STURDZA, N.

COMBIESCO, D.; STURDZA, N.

Types of leptospirae discovered in Roumania. J. Hyg. Epidem., Praha
1 no.2:205-212 1957.

1. Institut de Microbiologie, Parasitologie et Epidemiologie
"Dr. Cantuzino".
            (LEPTOSPIRA
                  serotypes discovered in Roumania (Fr))

RUMANIA / Microbiology. Microbes, Pathogenic to Man and   F
           Animals. Bacteria. Spyrochaeta.

Abs Jour   : Ref Zhur - Biologiya, No 5, 1959, No. 19610

Author   : Comblescu, D.; Sturdza, N.; Sefer, M.;
              Oprolu, M.
Inst   : Not given
Title   : The Pathogenesis of Leptospira Strains,
              Isolated in RPR

Orig Pub   : Studii si certetari inframicrobiol.,
              microbiol. si parasitol., 1957, No 2,
              239-248

Abstract   : Leptospira icterohaemorrhagiae brings
              about in guinea pigs a disease with a short
              incubation, a characteristic course and a
              fatal outcome. Strains of L. canicola,
              L. pomona, I. mitis, and L. grippotyphosa

Card 1/2

RUMANIA / Microbiology. Microbes, Pathogenic to Man and   F
          Animals. Bacteria. Spyrochaeta.

Abs Jour   : Ref Zhur - Biologiya, No 5, 1959, No. 19610

          cause a fever which in the bile-hemorrhagic
          form occasionally ends in death. Recently
          isolated strains are the most virulent. L.
          grippotyphosa, apparently, is the least
          pathogenic to the guinea pigs. The temperature
          curve of the pigs exhibits a multiphase
          character. The authors recommend the use of
          pigs for the isolation of pure leptospira
          cultures. -- Z. A. Yakubovich

          Card 2/2

COMBIESCU, D.; STURDZA, N.; RADU, I.; SEFER, M.

Several cases of anicteric leptospirosis appearing in children after a
swim; laboratory confirmation and epidemiological notes. Bul. stiint.,
sect. med. 9 no.1:171-178 1957.
        (LEPTOSPIROSIS, in inf. & child
                epidemic caused by swimming in pool contaminated by
                nearby pig sty)

STURDZA, Nina; ELIAN, M.

Comparative study on different strains of L. biflexa as antigen for the complement fixation test in leptospirosis. Arch. Roum. path. exp. microbiol. 20 no.1:33-41 Mr '61.

1. From the "Dr. I. Cantacuzino" Institute - Division of Leptospiroses.

(LEPTOSPIROSIS immunol)   (COMPLEMENT)

COMBIESCO, D.[deceased]; STURDZA, Nina; NICOLESCO, Marcela

Further research on the sources of infection in leptospiroses.
L. batavlae and L. saxoebing isolated for the first time in
Rumania. Arch. Roum. path. exp. microbiol. 22 no.1:5-12 Mr '63.

1. Travail de l'Institut "Dr. I. Cantacuzino" - Service des
Leptospiroses.
            (LEPTOSPIROSIS)   (CATTLE DISEASES)
            (HORSE DISEASES)   (SHEEP DISEASES)
            (DOG DISEASES)   (SWINE DISEASES)

STURDZA, Nina;, NICOLESCO, Marcela. Collaboration technique: CONSTANTINESCO, Georgeta.

Uncommon frequency of L. pomona infection in Rattus norvegicus. Arch. roum. path. exp. microbiol. 23 no.3: 655-660 S'63

1. Travail de l'Institut "Dr. I. Cantacuzino"; Laboratoire de Leptospirose, Bucarest.

STURDZA, Nina; SAFIRESCO, Doina

On the stainability of Leptospira and Treponema. Arch. Roum.
path. exp. microbiol. 23 no.4:927-938 D '64.

1. Travail de l'Institut "Dr. I. Cantacuzino", Laboratoire
des Leptospires. Submitted June 26, 1964.

STURDZA, S.A.

CY

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The lysis of pneumococcus by chloroform. S. A. Sturdza. Arch. roumaines path. exptl. microbiol. 11, 171-85(1938)(in French); cf. C. A. 33, 3112. CHCl₃ brings about the soln. of pneumococci. The phenomenon has much analogy with lysis by bile, proceeding, however, less rapidly. Under the microscope the lysis betrays itself by similar alterations and can take place only under conditions favorable to the activity of autolytic enzymes. Therefore it is probable that it is a phenomenon of autolysis like the phenomenon of Neufeld.   George Nachol

METALLURGICAL LITERATURE CLASSIFICATION

STURDZA, S.A.

Rumania /Chemical Technology. Chemical Products   H-5
          and Their Application
          Water treatment. Sewage water.

Abs Jour: Referat Zhur - Khimiya, No 1, 1958, 1664

Author : Sturdza S.A.

Title   : Bacteriophage Fauna and Its Role in Spontaneous
          Bacterial Purification of Streams and Reservoirs

Orig Pub: Igiena, 1956, 5, No 3, 3-20

Abstract: A review.

Card 1/1

STURDZA, S.A.

Research on the method of distribution of bacterial of the
Proteus group in the outdoor environment. I. Method of determina-
tion of the number of Proteus. Proteus content of polluted
waters. Arch. Roum. path. exp. microbiol. 22 no.1:193-203
Mr '63.

(WATER POLLUTION)   (PROTEUS)
(SWIMMING POOLS)   (WATER SUPPLY)
(SEWAGE)   (WATER MICROBIOLOGY)

STURDZA, S.A.

Research on the mode of distribution of Proteus group bacteria in the external environment. II. Hygienic qualities of a water and proteimetric data. Arch. roum. path. exp. microbiol. 22 no.4:104.5-1062   S-D'63

STURDZA, S.A., dr (Bucuresti)

Bacterial self-purification of surface waters; present problems.
Natura Biologie 17 no.1:40-50 Ja-F '65.

STURDZA, S.A., dr.

Diversity, multiplicity and constancy of types in the Proteus
group determined by the phenomenon of the line of demarcation.
Microbiologia (Bucur) 10 no.2:111-118 Mr-Ap'65.

1. Lucrare efectuata in Clinica a II-a de dermatologie , Insti-
tutul medico-farmaceutic, Bucuresti (director: prof. S. Longhin).

STURS, A.Y.

The use of stencils and paint sprays. Det. khor. igr.
no.1:54-55 '55.   (MIRA 10:2)

1. Nachal'nik Otdela tekhnicheskogo kontrolya "Maksliniyeks."
          (Stencil work) (Toys)

YUKHIMENKO, A.(.; STURE, B.P.

       Anchor bolt of plasticized wood. Ugol' 38 no.9:20-22
       S '6;.   (MIRA 16:11)

88819

S/035/61/000/002/001/016
A001/A001

3.1400 (1080,1409)

Translation from: Referativnyy zhurnal, Astronomiya i Geodeziya, 1961, No. 2, p.13, # 2A153

AUTHORS: Shteyns, K., Sture, S. Ya.

TITLE: On One Case of Application of Matrices to Celestial Mechanics

PERIODICAL: Uch. zap. Latv. un-t, 1959, Vol. 28, pp. 141 - 143 (Latvian summary)

TEXT: The authors derive equations for conversion of Euler angles relative to the Earth's symmetry axis to Euler angles relative to the instantaneous rotation axis using matrices-krakowians. Oppolzer equations are obtained as a particular case:

$$\left\| \begin{array}{c} -\omega \sin \theta_1 d\psi_1/dt \\ \omega d\theta_1/dt \\ d\omega/dt \end{array} \right\| = r(-\varphi) \left\| \begin{array}{c} dp/dt \\ dq/dt, \\ 0 \end{array} \right\|$$

Card 1/2

88819

S/035/61/000/002/001/016
A001/A001

On One Case of Application of Matrices to Celestial Mechanics

where ω is angular velocity of Earth's rotation, ψ_1 is lunar-solar precession, θ_1 is nutation, φ is angle of intrinsic rotation in Oppolzer sense,

$$r(-\psi) = \begin{Vmatrix} \cos\varphi & -\sin\varphi & 0 \\ \sin\varphi & \cos\varphi & 0 \\ 0 & 0 & 1 \end{Vmatrix} .$$

N. Yakhontova

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

Card 2/2

SHTEYNS, K.A. [Steins, K.]; STUKE, S.Ya.

Diffusion of comets. Astron.zhur. 39 no.3:506-515 My-Je '62.
(MIRA 15:5)

1. Astronomicheskaya observatoriya Latviyskogo gosudarstvennogo
universiteta.
                            (Comets)

STURGEN, Bogdan; RADULESCU, Marcel

Mathematical methods in regional zoogeography. Studii biol Cluj 12
no.1:7-24 '61.

1. Universitatea "Babes-Bolyai" Cluj, Catedrele de zoologie si analiza
matematica. 2. Secretar de redactie, "Studii si cercetari de biologie"
[Filiala Cluj, Academia Republicii Populare Romine](for Sturgen).

SOLOV'YEV, V.M., kand.tekhn.nauk, dotsent; STURIS, A.I., aspirant;
AVDEYEV, N.Ye., inzh.; KAZHATKIN, G.D., inzh.

Investigating the power indices of the SK-3 self-propelled combine.
Izv. TSKh. no.5:162-167 '61. (MIRA 14:12)

1. Moskovskaya ordena Lenina sel'skokhozyaystvennaya akademiya
im. K.A. Timiryazeva (for Solov'yev, Sturis). 2. TSentral'naya
mashinoispytatel'nayu stantsiya (for Avdeyev, Kazhatkin).
(Combines (Agricultural machinery))

STURIS, A.I., aspirant

Automatic control of the working process of the SK-3 combine.
Izv. TSHHA no.3:118-124 '62.   (MIRA 15:9)
                (Combines (Agricultural machinery))
                        (Automatic control)

STURIS, A.I., aspirant

Dynamic characteristics of units and the investigation of the stability of the system of automatic feeding control of a grain combine. Izv. TSKHA no.6:151-158 '62.   (MIRA 16:6)

(Combines(Agricultural machinery))
(Automatic control)

STURIS, A.I.

The ZhNT-2,1 mounted harvester and puller. Biul. tekh.-ekon.
inform. Gos. nauch.-issl. inst. nauch. i tekh. inform. 17 no.6:
71-73 Je '64.   (MIRA 17:11)

STURIS, L.

Using a SG-35/6 generator as a compensator. Muk.-elev.prom. 23
no.1:11 Ja '57.
(MLRA 10:5)

1.Shcherbakul'skiy punkt Zagotzerno Omskoy oblasti.
        (Electric generators) (Electric transformers)