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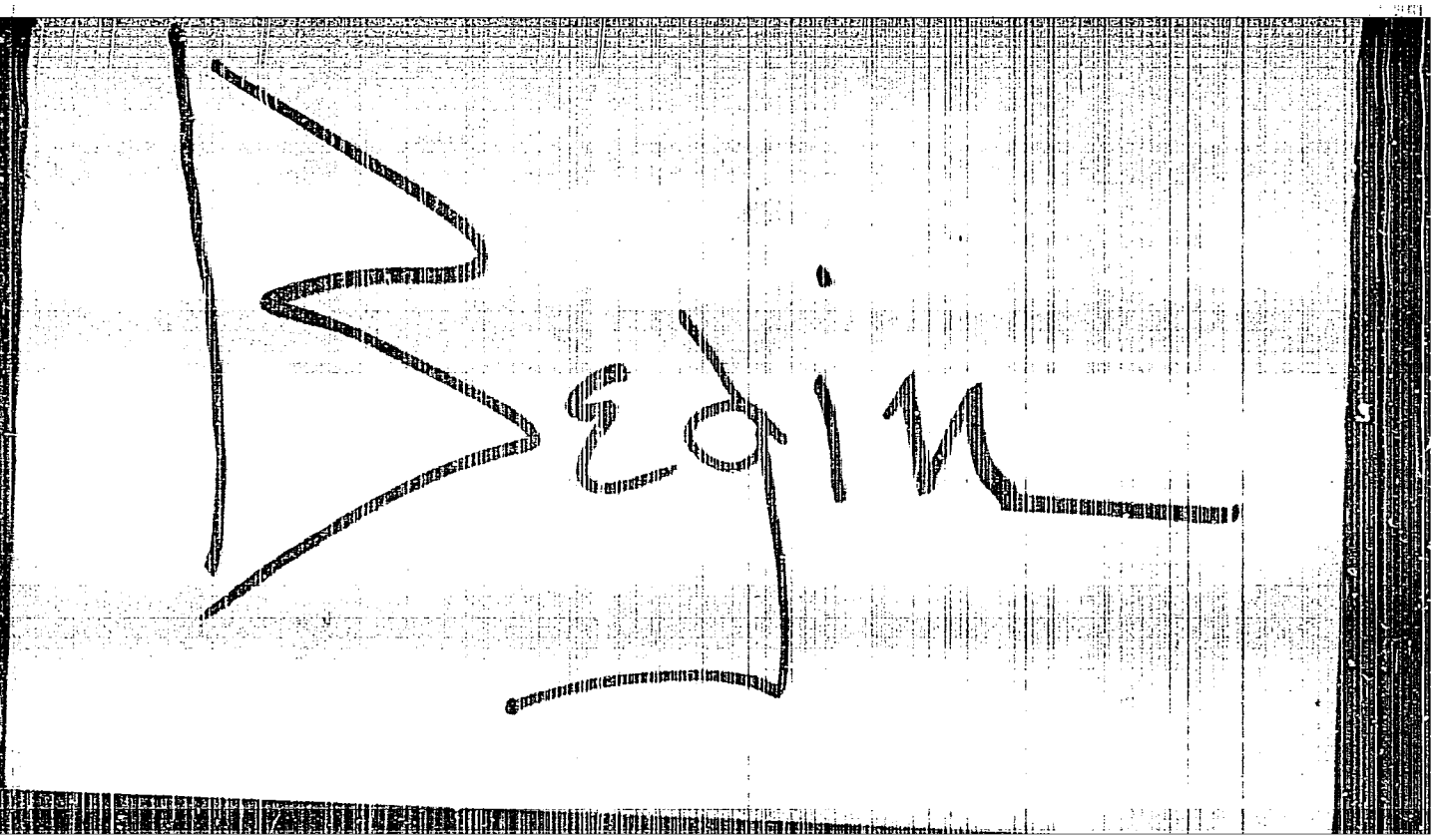

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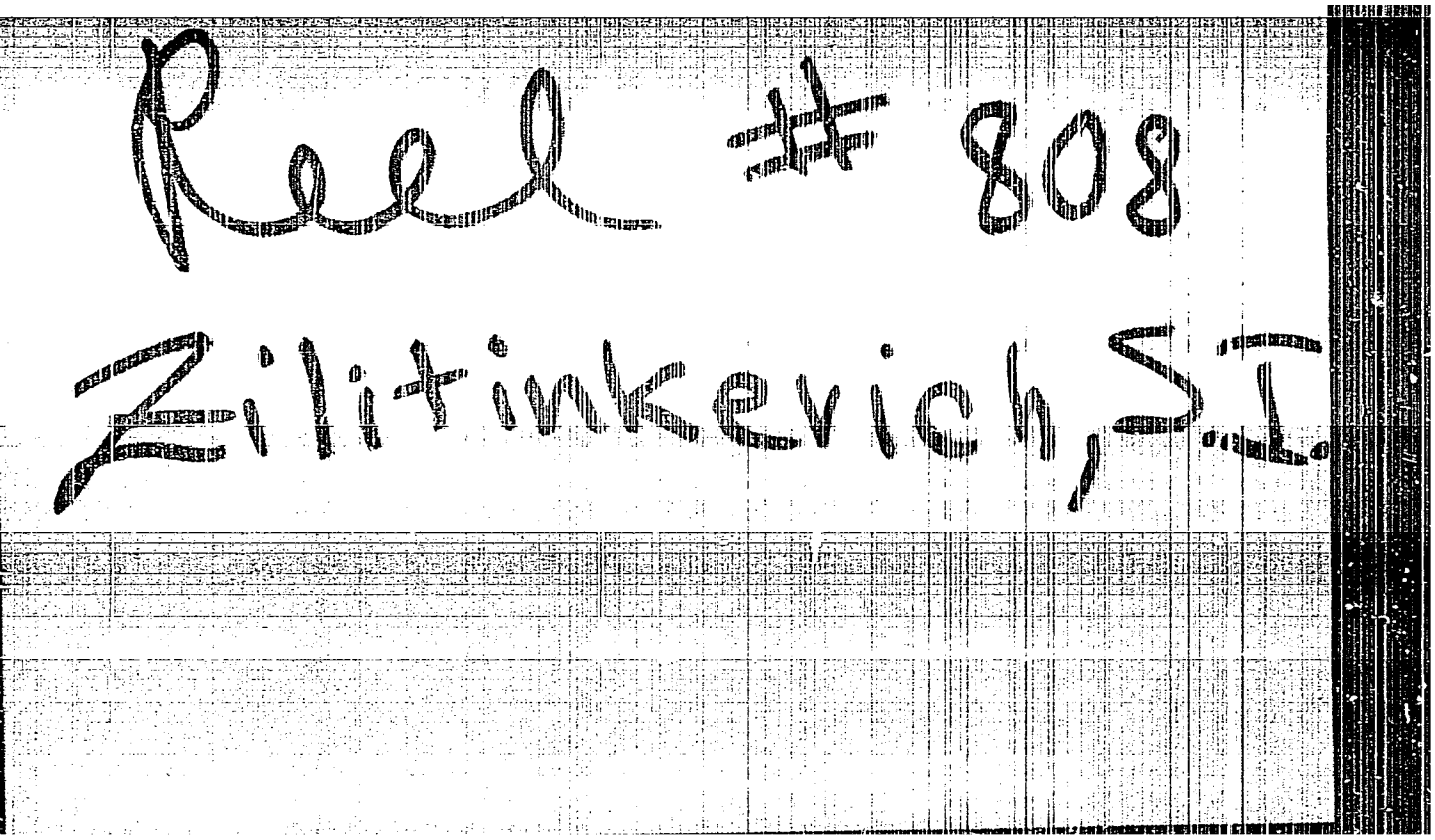

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ZILITINKEVICH, S.S.

Unsteady turbulence in the lower atmospheric layer. Trudy GGO no.127: 3-13 '62. (MIRA 15:7)

(Atmospheric turbulence)

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

S/050/63/000/001/004/007
D218/D307

AUTHOR: Zilitinkevich, S. S.

TITLE: The structure of the ground layer of the atmosphere under nonsteady-state conditions

PERIODICAL: Meteorologiya i gidrologiya, no. 1, 1963, 31-37

TEXT: It is noted that the dependence of the turbulence coefficient on the vertical coordinate under nonsteady-state conditions has not been investigated. The distribution of wind, temperature and other meteorological elements in the ground layer of the atmosphere under nonsteady-state conditions has not been investigated either, and the present work was undertaken to fill this gap. It is assumed in this theoretical analysis that the vertical turbulent flow of heat (P) and angular momentum (τ) may be regarded as independent of the vertical coordinate, and that the dimensionless ratios E/v_*^2 and $D/\tilde{D}$ are universal functions of Richardson's number, where E is the kinetic energy of pulsating motion, $v_* = \sqrt{\tau}/\rho$ is the

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The structure of the ...

dynamic velocity, ρ is the density, D is the rate of conversion of turbulent energy into thermal energy, and $\tilde{D} = v_*^3/0.38z$ where z is the vertical coordinate. Subject to these assumptions, approximate expressions are derived for the vertical distributions of wind velocity, potential temperature and turbulence coefficient in the ground layer. Analysis of available experimental data shows that for large Reynold's numbers the dimensionless quantity $v_* E^{-1/2}\big|_{Ri-0}$ will be of the order of 0.5, and under these conditions the effect of nonsteady-state air flow on the vertical distribution of the above meteorological elements in the ground layer will be very appreciable. The transformation of the air mass due to a step change in the flux of solar radiation is then considered as an example of a nonsteady-state process in the ground layer. Approximate expressions are obtained for the change in the wind velocity, potential temperature and specific humidity in the ground layer as functions of the vertical coordinate and of time. These expressions include terms representing the effect of the underlying surface and heat

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The structure of the ...

and water vapor transport in the layer.

ASSOCIATION: Glavnaya geofizicheskaya observatoriya (Main Geophysical Observatory)

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

ACCESSION NR: AT4004705 S/2922/63/007/000/0003/0010

AUTHOR: Zilitinkevich, S. S.

TITLE: The turbulent regime in the surface boundary layer of a nonstationary air current

SOURCE: Vses. nauchn. meteorologich. soveshch. Trudy*, v. 7. Fizika prizemnogo sloya. Leningrad, 1963, 3-10

TOPIC TAGS: meteorology, turbulence, atmospheric turbulence, surface boundary layer, nonstationary air current, air temperature, thermal current, wind, surface boundary layer profile, atmospheric equilibrium

ABSTRACT: A study has been made of the profiles of the distribution of wind velocity and temperature in the surface layer in the case of a nonstationary air flow under atmospheric conditons close to equilibrium. Relationships are derived which make it possible to derive formulas for dynamic velocity and the vertical turbulent heat flux from the results of gradient observations of wind and temperature in the surface layer. The final formulas cited:

$$v_* = \varkappa \frac{(z_2 - z_0)\bar{u}_1 - (z_1 - z_0)\bar{u}_2}{(z_2 - z_0)\ln\frac{z_1}{z_0} - (z_1 - z_0)\ln\frac{z_2}{z_0}} \qquad (1)$$

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$$\overline{P} = -\varkappa^2 \overline{\rho} c_p \left[\frac{(z_2 - z_0)\,\overline{u}_1 - (z_1 - z_0)\,\overline{u}_2}{(z_2 - z_0)\ln\frac{z_1}{z_0} - (z_1 - z_0)\ln\frac{z_2}{z_0}}\right]^2 \frac{\Delta\overline{\theta}}{\overline{u}_2 - \overline{u}_1} \qquad (2)$$

are of practical importance for determining the vertical turbulent fluxes of heat and momentum. They are also correct when measurements of the mean wind velocities at different heights and the difference in air temperature at these heights are determined under nonstationary conditions. Orig. art. has: 35 equations.

ASSOCIATION: Glavnaya geofizicheskaya observatoriya (Main Geophysical Observatory)

SUBMITTED: 00 DATE ACQ: 27Dec63 ENCL: 00

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

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

ACCESSION NR: AT4028751 S/2531/63/000/144/0133/0149

AUTHOR: Zilitinkevich, S. S.

TITLE: Some regularities in the time and space distribution of meteorological elements in the near-earth layer of a non-stationary air flux

SOURCE: Leningrad. Gl. geofiz. observ, i Ukr. n.-i. gidrometeorol. inst. Trudy*, no. 144/40, 1963. Fizika pogranichnogo sloya atmosfery* (physics of the atmospheric boundary layer); Dneprovskaya expeditsiya GGO i UkrNIGMI, 133-149

TOPIC TAGS: wind velocity, turbulence, surface layer, temperature, Richardson number, air mass, solar radiation

ABSTRACT: The author investigates the question of vertical distribution of wind velocity, temperature, and the coefficient of turbulence in the near-earth layer of the atmosphere under nonstationary conditions. Dependences are found which express the profiles of the indicated magnitudes in the region of small values of the Richardson number in processes, the characteristic time scale of which is not too small. By using these dependences, formulas are obtained for calculating the vertical turbulent heat fluxes, the amount of motion, and a number of other values, according to results of near-earth gradient observations. The air mass transforma-

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ACCESSION NR: AT4028751

tion process, which takes place in the near-earth layer of the atmosphere under the influence of sharp (intermittent) changes in the flow of solar radiation is investigated. Functions which describe the time and space distribution of the basic meteorological elements are obtained. A comparison of the calculated and measured values of vertical turbulent heat fluxes is shown in graphs. The measurement results are presented in a table for various hours of a seven-day period. In conclusion, the author expresses his gratitude to L. R. Tsvang and A. V. Perepalkina for permitting the use of their experimental research data obtained at the Institut Fiziki atmosfery* AN SSSR (Institute of Physics of the Atmosphere, Soviet Academy of Sciences). Orig. art. has: 66 formulas, 3 figures, and 1 table.

ASSOCIATION: Leningradskaya glavna geofizicheskaya observatoriya (Principle Geophysical Observatory of Leningrad)

SUBMITTED: 00 DATE ACQ: 16Apr64 ENCL: 00

SUB CODE: AS, MM NO REF SOV: 009 OTHER: 000

Card 2/2

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

ZILITINKEVICH, S. S.; LAYKHTMAN, D. L.

"Turbulent transfer in multiphase media."

report submitted for 2nd All-Union Conf on Heat & Transfer, Minsk, 4-12 May 1964.

Voyeykov Geophysical Observatory

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

[illegible]TINKEVICH, E.S.

Vertical turbulent exchange in the lowest layer of the atmosphere
Trudy GGO no.150:21-35 '64. (MIRA 17:7)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

ZILITINKEVICH, S.S.; LAYKHTMAN, D.L.

Heat conduction and moisture exchange in a turbulent atmosphere in the case of phase transitions of moisture. Dokl. AN SSSR 156 no. 5:1079-1082 Je '64. (MIRA 17:6)

1. Glavnaya geofizicheskaya observatoriya im. A.I.Voyeykova. Predstavleno akademikom Ye.K.Fedorovym.

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L 14185-66 EWT(1)/FCC GW

ACC NR: AT6004148 SOURCE CODE: UR/2531/65/000/167/0044/0048

AUTHOR: Zilitinkevich, S. S.; Laykhtman, D. L.

ORG: Main Geophysical Observatory, Leningrad (Glavnaya geofizicheskaya observatoriya)

TITLE: Closing a system of equations of turbulent motion for the boundary layer of the atmosphere

SOURCE: Leningrad. Glavnaya geofizicheskaya observatoriya. Trudy, no. 167, 1965. Fizika pogranichnogo sloya atmosfery (Physics of the boundary layer of the atmosphere), 44-48

TOPIC TAGS: atmospheric boundary layer, atmospheric turbulence, turbulent boundary layer

ABSTRACT: A closed system of equations is set up for describing turbulent conditions in the boundary layer of the atmosphere for the case of arbitrary temperature stratification. The authors consider a horizontally homogeneous stationary air flow. A system of equations is given which takes account of motion, heat flux and

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ACC NR: AT6004148

turbulent energy balance for the boundary layer. Formulas are given for the coefficient of turbulent viscosity, the diffusion flux of turbulent energy and the rate of heat dissipation for turbulent energy. A method is proposed for closing this system of equations based on an expression for the scale of turbulence in terms of average flow characteristics. The equations derived in this paper may be used for calculating all constants appearing in the initial system of equations with the use of experimental data in the literature. Thus the initial system may be used for specific calculations. Future articles will give examples of these calculations for the ground sublayer and for the boundary layer as a whole as well as a comparison of these calculations with experimental data. Orig. art. has: 14 formulas.

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APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

ZILITINKEVICH, S.S.; LAYKHTMAN, D.L.

Turbulent regime in the lowest atmospheric layer. Izv. AN SSSR. Fiz. atm. i okeana 1 no.2:150-156 F '65. (MIRA 18:5)

1. Glavnaya geofizicheskaya observatoriya.

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

L 14186-66 EWT(1)/FCC GW

ACC NR: AT6004149 SOURCE CODE: UR/2931/65/000/167/0049/005?

AUTHOR: Zilitinkevich, S. S.

ORG: Main Geophysical Observatory, Leningrad (Glavnaya geofizicheskaya observatoriya)

TITLE: Integral characteristics of turbulence in the boundary layer of the atmosphere

SOURCE: Leningrad. Glavnaya geofizicheskaya observatoriya. Trudy, no. 1, 1965. Fizika pogranichnogo sloya atmosfery (Physics of the boundary layer of the atmosphere), 49-5?

TOPIC TAGS: atmospheric turbulence, turbulent boundary layer, meteorology, planetary boundary layer

ABSTRACT: The author examines a stationary air stream which is homogeneous in the horizontal direction. The planetary boundary layer of the atmosphere is assumed to be the layer which reaches from the underlying surface to the closest level where the derivative of the module of the wind velocity with respect to the vertical is

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ACC NR: AT6004149

equal to zero. An equation is given for the energy balance of turbulence in this case. Formulas are derived for using experimental data to calculate the parameters which appear in this equation. Expressions are derived for dissipation and diffusion of energy in the atmospheric boundary layer. The formulas derived in the paper may be used for constructing a semi-empirical model of turbulent exchange in the boundary layer of the atmosphere. I am grateful to Professor D. L. Laykhtman for useful consultation. Orig. art. has: 14 formulas.

SUB CODE: 08/ SUBM DATE: 00/ ORIG REF: 002/ OTH REF: 000

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

L 24367-66 EWT(1)/FCC GS/GW

ACC NR: AT6006921 SOURCE CODE: UR/0000/65/000/000/0361/0364

AUTHOR: Zilitinkevich, S. S.; Laykhtman, D. L.

ORG: Main Geophysical Observatory (Glavnaya geofizicheskaya observatoriya)

TITLE: Turbulent transfer in multiphase media

SOURCE: Teplo- i massoperenos, t. II: Teplo- i massoperenos pri vzaimodeystvii tel s potokami zhidkostey i gazov (*Heat and mass transfer*, v. 2: Heat and mass transfer in the interaction of bodies with liquid and gas flows). Minsk, Nauka i tekhnika, 1965, 361-364

TOPIC TAGS: mass transfer, cloud physics, vapor condensation

ABSTRACT: In the mathematical treatment of the problem, it is assumed that the drops making up a cloud are completely absorbed by the movements of the air particles. It is taken into account that the water vapor in a cloud is completely in a saturated state, that is,

$$q = \frac{R}{R_w}\frac{E(T)}{p}, \qquad (1)$$

where R and R_w are the gas constants of the air and the water vapor;

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E(T) is the maximum tension of the water vapor at temperature T; p is the pressure. For points in the atmosphere lying within a cloud, the equations of transfer for the quantities under consideration have the form:

$$\left.\begin{aligned}\frac{\partial T}{\partial t}+(u,\nabla)T+u_q\gamma_a &= -\left(\nabla\cdot\frac{P}{c_p\rho}\right)-\frac{1}{c_p\rho}(\nabla D)+\frac{1}{c_p}m\\ \frac{\partial q}{\partial t}+(u,\nabla)q &= -\left(\nabla\cdot\frac{Q}{\rho}\right)-m\\ \frac{\partial b}{\partial t}+(u,\nabla)l &= -\left(\nabla\cdot\frac{B}{\rho}\right)+m\end{aligned}\right| \quad (2)$$

where m is the mass of moisture condensed in unit time in unit mass of air; t is the time; u is the wind velocity; u_q is its vertical component; γ_a is the dry adiabatic temperature gradient; c_p is the heat capacity of the air at constant pressure; ρ is the air density; D is the radiation flux; P, Q, and B are the turbulent heat fluxes of the water vapor and the moisture. By mathematical manipulation, the author arrives at the following expression

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ACC NR: AT6006921

$$\left(\frac{\partial}{\partial t}+u_1\frac{\partial}{\partial x_1}+u_2\frac{\partial}{\partial x_2}\right)\int_0^H b\,dx_3=\beta u_3(H-h)+\frac{1}{1+c}\times$$

$$\times\frac{\frac{1}{L}(P_3-D_3)-cQ_3\Big|_{h=0}^{H+\Theta}}{\rho} \qquad (1)$$

which describes the change in the total amount of liquid water held in a cloud under the influence of external factors. It is claimed that this expression can be used in practical weather forecasting. Orig. art. has: 7 formulas.

SUB CODE: 04, 20/ SUBM DATE: 09Nov65/ ORIG REF: 003.

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

L 43995-66 EWT(1) GW

ACC NR: AT6021504 (N) SOURCE CODE: UR/2531/66/000/187/0003/0012

AUTHOR: Vager, B. G.; Zilitinkevich, S. S.

21
B+1

ORG: none

TITLE: Method of calculating the height of the lower boundary of clouds based on numerical forecasting data

SOURCE: Leningrad. Glavnaya geofizicheskaya observatoriya. Trudy, no. 187, 1966. Fizika pogranichnogo sloya atmosfery (Physics of the atmospheric boundary layer), 3-12

TOPIC TAGS: atmospheric cloud, cloud cover, cloud level, WEATHER FORECASTING

ABSTRACT: An attempt is made to establish a functional relationship between the height of the lower boundary of the cloud cover and parameters the values of which lend themselves to numerical forecasting. In the mathematical description of the method, the input equations, boundary conditions, and integration of the input equations and additional simplifications which are performed on an electronic computer are cited. Several specific examples, the starting material for which were experimental data obtained from an investigation of the lower cloud cover during the fall of 1962 in the region of Dnepropetrovsk were examined in order to compare the calculated values of the height of the lower boundary of clouds with the observed

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ACC NR: AT6021504

values. Their mean square deviation amounted to 149 m. Orig. art. has: 2 tables and 39 formulas.

SUB CODE: 04/ SUBM DATE: none/ ORIG REF: 016/ OTH REF: 002

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L 11019-66 EWT(1) GW

ACC NR: AT6021519 SOURCE CODE: UR/2531/66/000/187/0217/0220

AUTHOR: Zilitinkevich, S. S.

ORG: none

TITLE: The effect of artificial fog dispersal

SOURCE: Leningrad. Glavnaya geofizicheskaya observatoriya. Trudy, no. 187, 1966. Fizika pogranichnogo sloya atmosfery (Physics of the atmospheric boundary layer), 217-220

TOPIC TAGS: fog, civil airfield, airfield clearing, fan

ABSTRACT: A method for dispersing fog is proposed which is based on the dynamic and thermal effect of local field velocity created by a special device pumping air out of the investigated region, for example an airfield, in horizontal directions. The basic factors of fog dispersal in this case are the mechanical removal of liquid water from the field of action by replacing the moist air being pumped out by dry air and the evaporation of drops by heating the air condensing upon descent. To calculate the expected effects the author resorts to the theory of heat and moisture transfer in clouds and fogs. The analysis is limited to the case where the water in the atmosphere is only in gaseous and liquid phases. The region occupied by a fog over the takeoff and landing strip is treated as a parallelepiped. The air-blowing devices

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(fans) exhausting the air from the region in horizontal directions are considered to be symmetrically arranged at ground level. The problem of the theoretical analysis was to estimate the values of the parameters of the exhaust fans at which fog dispersal would occur in a given time interval. It was found that a value of $M = 2.7 \cdot 10^3 m^3$/sec (M being the rating of the exhaust fan) which is required to disperse a fog of average thickness can be obtained by setting out 49 fans along the long sides of the strip and 1 fan with a capacity of 27 m^3/sec along each of the short sides. It was pointed out for comparison that the motor of a powerful jet aircraft has, with respect to exhaust velocity, an output equal to about $3 \cdot 10^3 m^3$/sec and that the consumption of fuel is about 1000 kg within 30 min, which is the time selected in the calculations for fog dispersal. Approximately the same figure can estimate the work to disperse fog by the proposed method. To prevent the natural recovery of the fog after its local dispersion the fans should operate under relatively slower conditions for the entire time the natural fog is present. Orig. art. has: 3 figures and 6 formulas.

SUB CODE: 01,04/ SUBM DATE: none/ ORIG REF: 001

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

ANDERSON, E.M.; ZILITIS, V.A.

Semiempirical method for calculating the oscillator forces for sodium and potassium atoms. Opt. i spektr. 16 no.2:177-181 F '64. (MIRA 17:4)

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

ANDERSON, E.M.; ZILITIS, V.A.

Semiempirical calculation of oscillator forces for lithium, rubidium, and cesium atoms. Opt. i spektr. 16 no.3:382-389 Mr '64. (MIRA 17:4)

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

ACCESSION NR: AP4020918 S/0051/64/016/002/0177/0181

AUTHOR: Anderson, E.M.; Zilitis, V.A.

TITLE: Calculations by a semi-empirical method of the oscillator strength for sodium and potassium atoms

SOURCE: Optika i spektroskopiya, v.16, no.2, 1964, 177-181

TOPIC TAGS: oscillator strength, atomic transition, sodium transition oscillator strength, potassium transition oscillator strength, f number, transition probability, transition matrix element, sodium, potassium

ABSTRACT: The values of the mean oscillator strengths for sodium and potassium atoms were calculated. The computations were performed with the aid of a BESM-2 computer, which was programed for calculating the radial wave functions, oscillator strengths and matrix elements $|r_{ik}|$ and $|r^2_{ik}|$ by the semi-empirical method proposed by M.I.Petrashen' and I.V.Abarenkov (Vestnik, LGU, No.5,141,1954). The basic equations used in the method are adduced. The computation results are presented in the form of tables giving the mean oscillator strengths of optical ns→np, np→nd and nd→nf transitions in Na and K between states whose energies are listed in the

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

ACC.NR: AP4020918

tables of C.Moore (Atomic Energy Levels, 1, Nat.Bureau of Standards, Wash.,1949) for n and m $\leq$ 19. For all series, except nd→mp transitions in K, the oscillator strength varies monotonically with increase of the principal quantum number n. The non-monotonic variation of f for nd→mp transitions in K is borne out by experiment. For comparison the experimental data for the principal series of Na, obtained by G. S.Kvater (Vestnik,LGU,No.2,135,1947) and A.Filipov and W.K.Prokofjew (Zs.f.Phys.56, 458,1929) are also listed; the agreement is fairly good but not consistent. Orig. art.has: 6 formulas and 8 tables.

ASSOCIATION: none

SUBMITTED: 15Apr63 DATE ACQ: 02Apr64 ENCL: 00

SUB CODE: PH NR REF SOV: 003 OTHER: 004

Card 2/2

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

ACCESSION NR: AP4020949 S/0051/64/016/003/0382/0389

AUTHOR: Anderson, E. M.; Zilitis, V. A.

TITLE: Semi-empirical calculations of the oscillator strengths for lithium, rubidium, and cesium atoms

SOURCE: Optika i spektroskopiya, v. 16, no. 3, 1964, 382-389

TOPIC TAGS: oscillator strength, f number, atomic transition, lithium oscillator strength, rubidium oscillator strength, cesium oscillator strength, lithium, rubidium, cesium

ABSTRACT: The mean oscillator strengths f_{ik} for the ns→mp, np→md, and nd→mf transitions in lithium, rubidium, and cesium atoms were computed by a procedure outlined in an earlier paper of the same authors (Opt. i spektr., 16, 177, 1964). [Abstracter's note: Calculations with the aid of a BESM-1 computer programmed on the basis of the semiempirical formulas of M. I. Petrashen' and I. V. Abarenkov (Vestnik LGU, No. 5, 141, 1954).] The necessary experimental energy values were taken from the tables of C. E. Moore (Atomic Energy Levels, Nat. Bur. of Standards, Vols. I, II, and III, Wash., 1949, 1952, and 1958) for n and m ≤ 19, and the

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

ACCESSION NR: AP4020949

screening potentials were obtained by interpolation of the results of self-consistent field calculations by Fock and Hartree. The basic computation formulas are cited. The computed values of f_{1k} (without the sign) are listed in tables, and are compared with the corresponding experimental values reported by different investigators. For Li there were also performed calculations with the potential obtained by solution of the self-consistent field equation with the aid of an M-20 computer by A. V. Ivanova and others (Litovskiy fizich.sb.,3,1964). The oscillator strength values obtained in this case agree to the third significant digit with those yielded by the above mentioned calculations, i.e., using the interpolated Fock potential. "The authors are grateful to A. V. Ivanova for enabling them to use the computer-determined value of the potential for lithium." Orig. art. has: 5 formulas and 12 tables.

ASSOCIATION: none

SUBMITTED: 22May63 DATE ACQ: 02Apr64 ENCL: 00

SUB CODE: PH NR REF SOV: 004 OTHER: 007

Card 2/2

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

L 43610-66 IJP(c)
ACC NR: AT6032341 SOURCE CODE: HU/2504/65/052/03-/0447/0455

AUTHOR: Zill, W. (Dresden)

19
B+1

ORG: none

TITLE: Application of approximation formulae in the setting out of circular arcs

SOURCE: Academia scientiarum hungaricae. Acta technika, v. 52, no. 3-4, 1965, 447-455

TOPIC TAGS: mathematics, trigonometry

ABSTRACT: The trigonometric methods for the approximate layout to the coordinates of circular arcs were described with especial reference to the technique involving the use of quartered mid-coordinates. It was shown that the usefulness of the latter technique can be increased by a relatively simple modification. The nature of the modification and its application to even and uneven arc lengths were described. [JPRS: 34,672]

SUB CODE: 12 / SUBM DATE: 29Mar65

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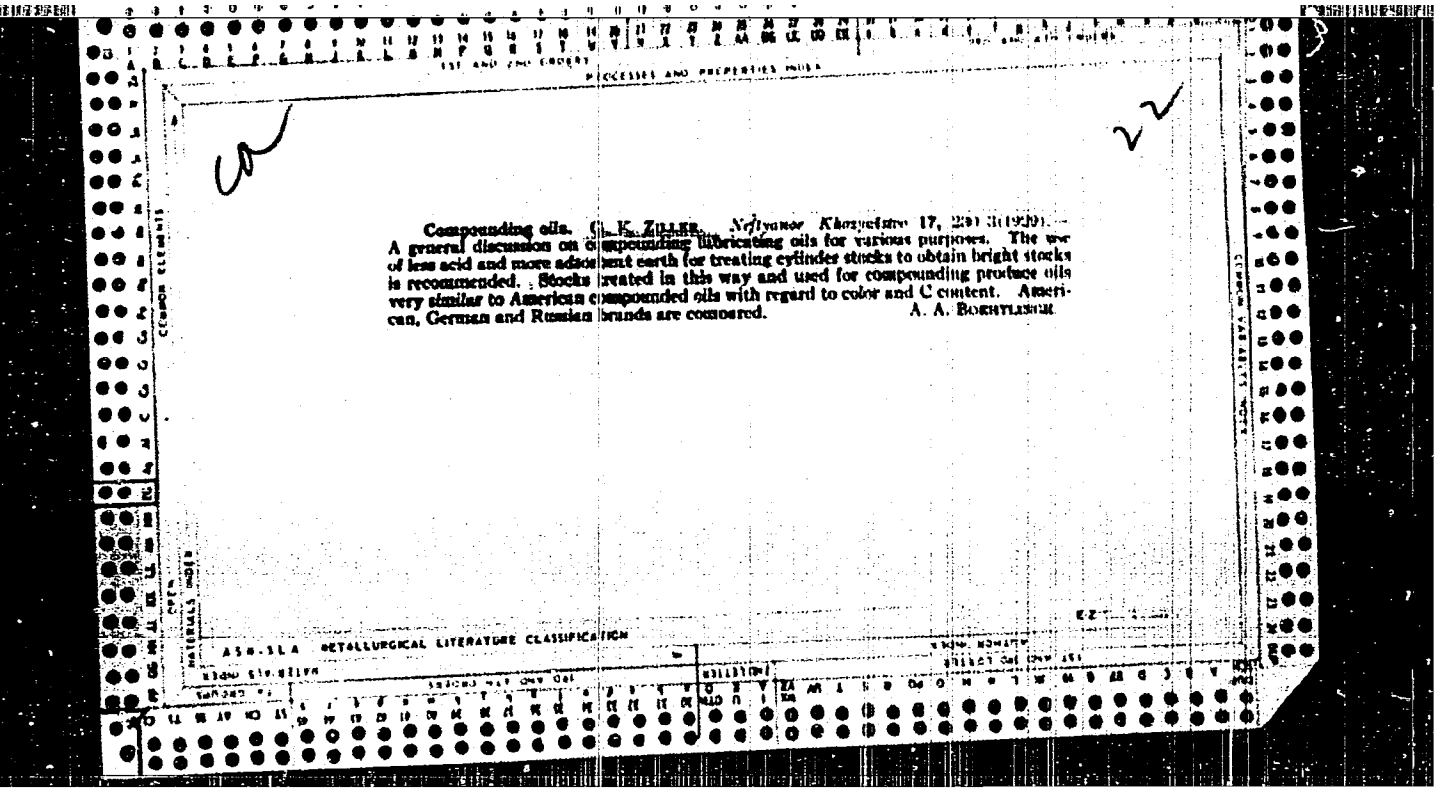


1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

ca

22

Compounding oils. G. K. Ziller. *Neftyanoe Khozyaistvo* 17, 230-3(1929).—A general discussion on compounding lubricating oils for various purposes. The use of less acid and more adsorbent earth for treating cylinder stocks to obtain bright stocks is recommended. Stocks treated in this way and used for compounding produce oils very similar to American compounded oils with regard to color and C content. American, German and Russian brands are compared. A. A. Boehtlingk.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

ZHDANOV, D.A.; POKROVSKIY, A.A.; NIKITYUK, B.A.; ZILLE, L.N.

Nomograms for determining body weight by body length and chest circumference based on measurements of present adult population of Moscow. Arkh.anat., gist. i embr. 49 no.10:33-42 O '65.
(MIRA 18:12)

1. Kafedra anatomii cheloveka (zav. - chlen-korrespondent AMN SSSR prof. D.A.Zhdanov) 1-go Moskovskogo ordena Lenina meditsinskogo instituta imeni Sechenova i Instituta pitaniya AMN SSSR. Submitted Nov. 3, 1964.

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

BARKAN, A.I.; ZILLER, G.K.

On the article " Reclamation of mineral oils by calcium metasilicate."
Khim. i tekh. topl. i masel 8 no.12:66 D '63. (MIRA 17:1)

1. Vsesoyuznyy trest po regeneratsii otrabotannykh neftyanykh masel. Glavneftesbyta Ministerstva neftyanoy promyshlennosti SSSR.

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

EMINOV, Ye.A.; SINITSYN, V.V.; OSHER, R.N.; CHEKAVTSEV, N.A.; PATSUKOV, I.P.; USOV, A.A.; FUKS, G.I.; VLADZIYEVSKIY, A.P.; AVDEYEV, A.V.; ARZUMANOV, Sh.P.; PETROV, G.G.; KOZOREZOVA, A.A.; LISITSKIY, K.Z.[deceased]; YAKOBI, M.A.; BELYANCHIKOV, G.P.; IVANOV, V.S.; VORONOV, N.M.; RUMYANTSEV, V.A.; TROFIMUK, V.A.; BERSHTADT, Ya.A.; ZILLER, G.K.; BEREZHNAYA, V.D.; KLEYMENOVA, K.F., ved.red.; TITSKAYA, B.F., ved. red.

[Manual on the use and norms for the expenditure of lubricants] Spravochnik po primeneniiu i normam raskhoda smazochnykh materialov. 2. perer. i dop. izd. Moskva, Khimiia, 1964. 855 p. (MIRA 18:3)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

BARKAN, A.I.; ZILLER, G.K.

Potentiometric method for determining the saponification number in used and recovered oils. Khim. i tekh. topl. i masel 7 no.10: 62-66 0'62 (MIRA 17:7)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

BARKAN, A.I.; BRAY, I.V.; ZILLER, G.K.

Petroleum oil reclamation with the use of surface-active agents.
Khim.i tekh.topl.i masel 7 no.4:33-38 Ap '62. (MIRA 15:4)

1. TSentral'naya nauchno-issledovatel'skaya laboratoriya Vsesoyuznoy kontory "Regotmas".
(Oil reclamation) (Surface-active agents)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

EMINOV, Ye.A.; OSHER, R.N.; PATSUKOV, I.P.; CHEKAVTSEV, N.A.; KAZYRIN, I.V.; FUKS, G.I.; VLADZIYEVSKIY, A.P.; PATSUKOV, I.P.; AVDEYEV, A.V.; LOPOYAN, G.S.; PETROV, G.G.; KOZOREZOVA, A.A.; LISITSKIY, K.Z.; YAKOBI, M.A.; BELYAICHIKOV, G.P.; IVANOV, V.S.; VOROHOV, N.M.; RUMYANTSEV, V.A.; ZILLER, G.K.; BEREZHNAYA, V.D.; LEVINA, Ye.S., vedushchiy red.; TRUFIMOV, A.V., tekhn.red.

[Manual on the uses and consumption standards of lubricants] Spravochnik po primeneniiu i normam raskhoda smazochnykh materialov. Moskva, Gos.nauchno-tekhn.izd-vo neft. i gorno-toplivnoi lit-ry, 1960. 703 p. (MIRA 13:4)
(Lubrication and lubricants)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

ZILLER, G.

BEREZHNAYA, V.; ZILLER, G.

Reclamation of automobile motor oils with additives. Avt.transp. 32 no.7:21-22 Jl '54. (MLRA 7:9)
(Oil reclamation)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

SHASHKIN, Prokhor Ivanovich. Prinimali uchastiye: ZILLER, G.K.; BEREZHNAYA, V.D. LEVINA, Ye.S., vedushchiy red.; POLOSINA, A.S., tekhn.red.

[Reclamation of spent petroleum oils] Regeneratsiia otrabotannykh neftianykh masel. Moskva, Gos.nauchno-tekhn.izd-vo neft. i gorno-toplivnoi lit-ry, 1960. 303 p. (MIRA 13:11)
(Oil reclamation)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

OSTROUMOV, Georgiy Arkad'yevich; ZILLER, G.K., red.; YENISHERLOVA, O.M., vedushchiy red.; FEDOTOVA, I.G., tekhn.red.

[Instructions on the gathering of spent petroleum oils for mechanics and shop supervisors] Pamiatka po sboru otrabotannykh neftianykh masel; dlia mekhanikov i nachal'nikov tsekhov. Moskva, Gos.nauchno-tekhn.izd-vo neft. i gorno-toplivnoi lit-ry, 1960. 24 p. (MIRA 13:6)

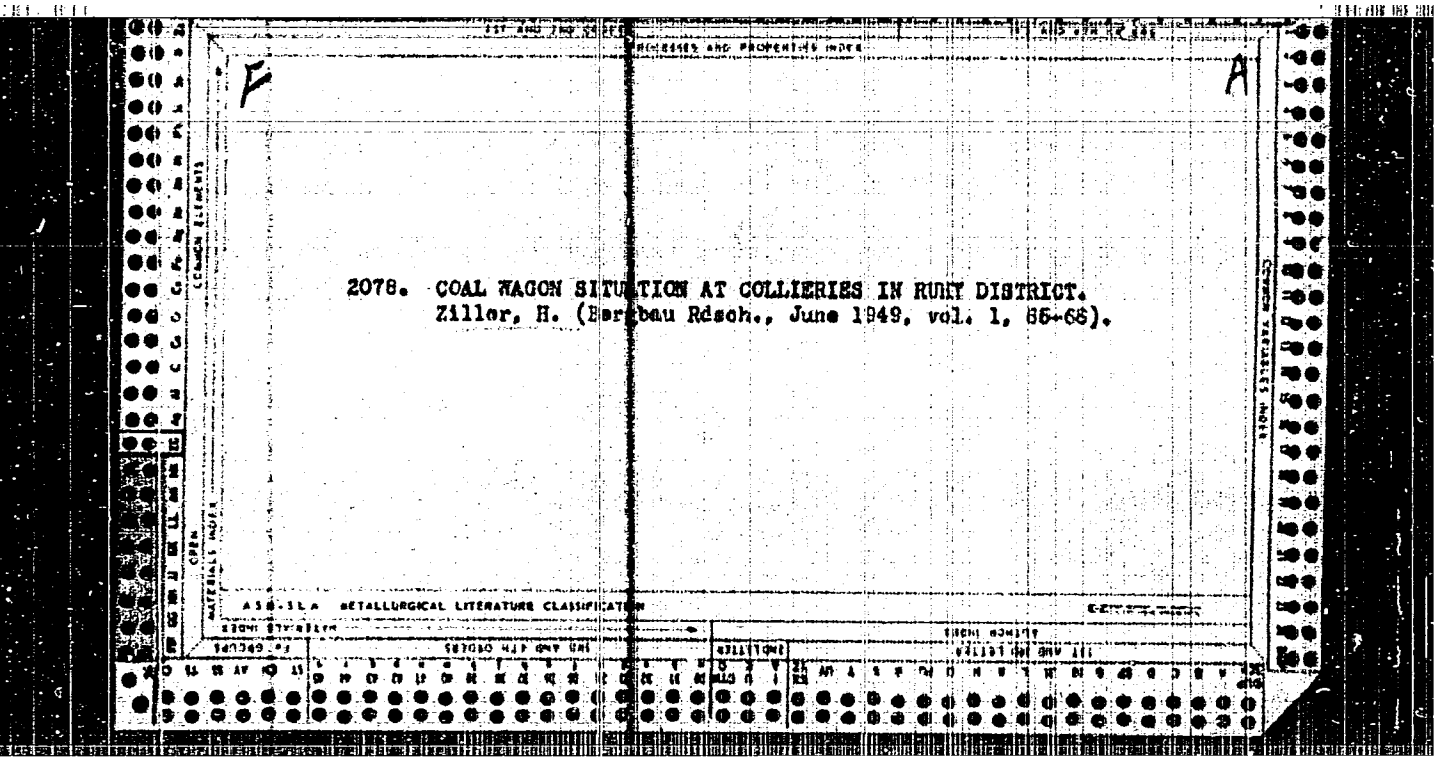
1. Vsesoyuznaya kontora regeneratsii otrabotannykh smazochnykh masel.

(Mineral oils)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

PROCESSES AND PROPERTIES INDEX



F A

2078. COAL WAGON SITUATION AT COLLIERIES IN RUHY DISTRICT.
Ziller, H. (Bergbau Rdsch., June 1949, vol. 1, 65-68).

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

ZILLES, Janos

A device and method for measuring ball burst and surface stretch. Bor cipo 11 no.6:184-186 N '61.

1. Boripari Kutato Intezet.

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

ZILLES, Janos; PARIS, Laszlone

Abrasion resistance testing of plastic floor coverings by diamond-tipped abrasion tester. Magy kem lap 18 no.2/3: 116-118 F-Mr '63.

1. Muanyagipari Kutato Intezet.

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

ZILLES, Janos (Budapest)

An instrument for measuring ball burst strength and surface elongation. Bor cipo 11 no.6:184-186 N '61.

1. Boripari Kutato Intezet, Budapest.

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

ZILLES, J.

15

2

148. A wear apparatus with diamond point. J. Zilles. *Bor. és Gépötechnika*, Vol. 8, 1958, No. 2, pp. [illegible]. 1 fig.

The apparatus is designed to determine the resistance to wear of leather, wood, stone, plastics etc. It consists of a diamond cone or pyramid mounted eccentrically on a disc of small diameter, rotated at high speed while the specimen is reciprocated beneath the diamond point. The pressure with which the diamond bears against the specimen is variable. The abrasive effect [illegible]

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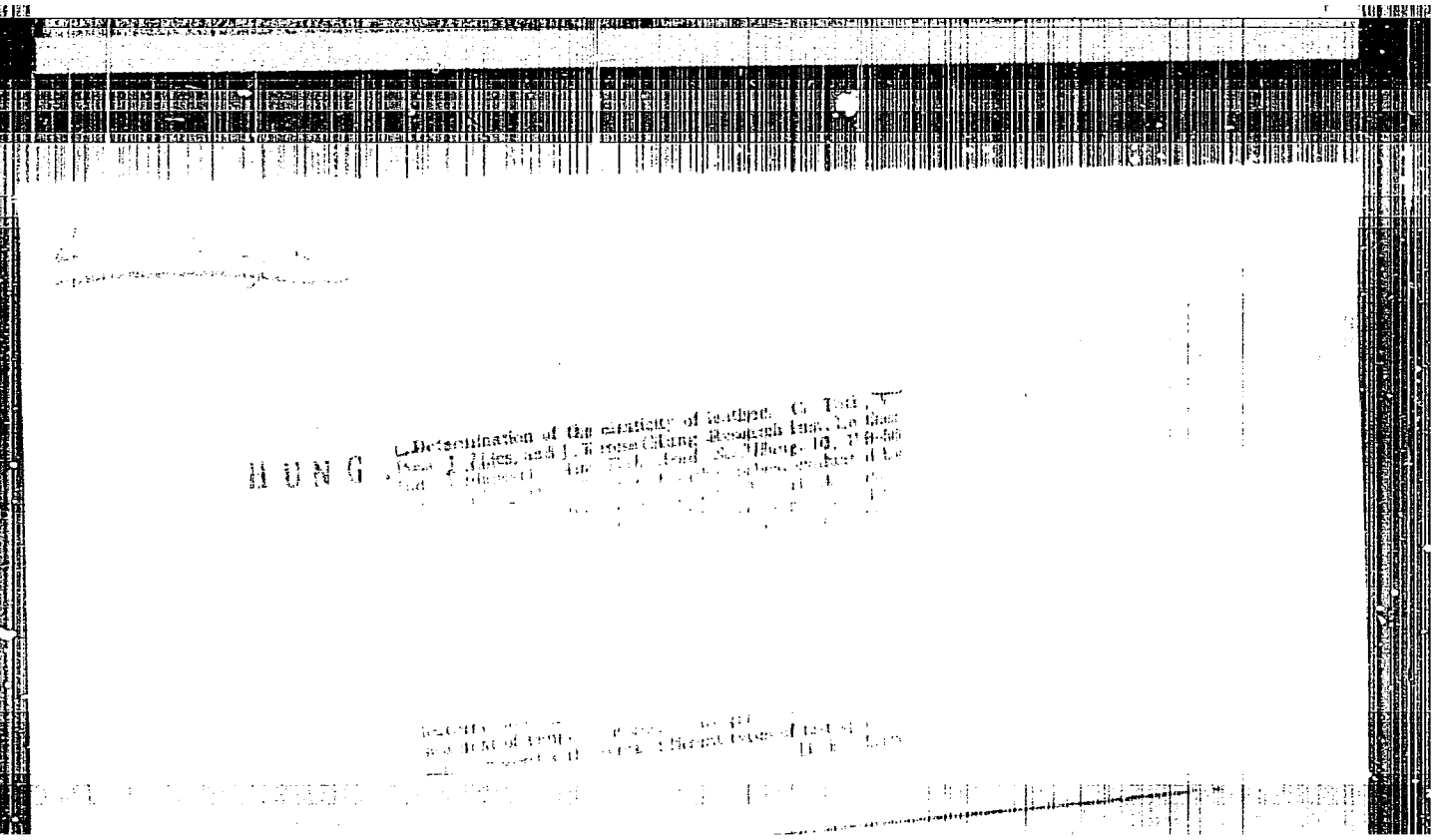
"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4



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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

ZILLICH, Pal

Transistor metronome. Radiotechnika 11 no. 1:27-28 Ja '61.

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

ZILLICH, Pal

Simple accumulator charger for automobilists and motorists. Auto motor 15 no.12:8 21 Je '62.

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

ZILLICH, Pal

8 W transistor final amplifier for a guitar, record player, or radio. (To be contd.) Radiotechnika 11 no.11:326-327 N '61.

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

ZILLINSKI, PRZEMYSLAN

POLAND/Theoretical Physics - Quantum Theory of Fields. B-6

Abs Jour : Ref Zhur - Fizika, No 4, 1957, 8482

Author : Zillinski, Przemyslan
Inst :
Title : The Gell-Mann and Pais Attempt to Systematize Elementary Particles.

Orig Pub : Postepy fiz., 1956, 7, No 4, 331-341

Abstract : Survey, Bibliography, 22 titles.

Card 1/1

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

RUMANIA / Virology. Human and Animal Viruses. Hepatitis Viruses. E-3

Abs Jour : Ref Zhur - Biol., No 20, 1958, No 90634

Authors : Bukaresti, L.; Kasza, L.; Zillmann, V.; Gross, K.; Kovacs, E.; Csiki, I.; Gagyi, R.

Inst : Not given

Title : Polarographic Studies in Epidemic Hepatitis.

Orig Pub : Rev. med. (RPR), 1956, 2, No. 2, 16-22.

Abstract : No abstract given.

Card 1/1

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

ZIL'MAN, Ye.

Determining the density of the prospecting net as examplified by the prospecting of the Kadzharan copper-molybdenum stockwork. Prom.Arm. 5 no.10:43-47 O '62. (MIRA 15:11)

(Kadzharan region—Copper ores)
(Kadzharan region—Molybdenum ores)
(Prospecting)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

ZIL'MAN, Ye.P.

State of the geological service at mining enterprises of the National Economic Council of the Armenian S.S.R. Razved. i okh. nedr 28 no.8 32-35 Ag '62. (MIRA 15:8)

1. Sovet narodnogo khozyaystva Armyanskoy SSR.
(Armenia—Mining geology)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

ZIL'MANOVICH, D.Ya., polkovnik tekhnicheskoy sluzhby.

Radio or selector-system communication? Vest.Vozd.Fl. 38 no.2:71-73 F '56. (MLRA 9:7)
(Aeronautics, Military--Communication systems)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

AID P - 4577

Subject : USSR/Aeronautics - communications

Card 1/1 Pub. 135 - 12/23

Author : Zil'manovich, D. Ya., Col. of tech. service

Title : Radio or telephone communication?

Periodical : Vest. vozd. flota, 2, 71-73, F 1956

Abstract : The author analyzes the advantages and disadvantages of both the radio and telephone intercommunication between the control post of engineer and the technical personnel on the airfield. He comes to the conclusion that the portable ultra-short wave radio sets are most suitable for such intercommunication.

Institution : None

Submitted : No date

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

MUKHINA, Lidiya Ivanovna; BUYANTUYEVA, B.R., red.; BAZAROVA, D.B., red.; ZILOTIN, Yu.V., red.

[The Vitim Plateau; natural conditions and regionalization] Vitamskoe ploskogor'e; prirodnye usloviia i raionirovanie. Ulan-Ude, Buriatskoe knizhnoe izd-vo, 1965. 134 p. (MIRA 18:5)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

BASHKUYEV, Budda Vasil'yevich; TUGUTOV, Rodion Filippovich; KILOTIN, Yu.V., red.; BERKOVICH, M.Z., tekhn. red.

[Across Buryatia; tourists' routes] Po Buriatii; turistskie marshruty. Ulan-Ude, Buriatskoe knizhnoe izd-vo, 1961. 86 p. (MIRA 15:4)

(Buryat--Mongolia--Guidebooks)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

ZILOTIN, Yu.V., red.; NAGORNOVA, A.Ya., red.; BATOTSYRENOVA, D.B., tekhn. red.

[Buryatia strides toward the future] Buriatiia shagaet v budushchee. Ulan-Ude, Buriatskoe knizhnoe izd-vo, 1963. 138 p. (MIRA 16:10)
(Buryat A.S.S.R.--Economic conditions)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

BUYANTUYEV, B.R.; DERYUGINA, V.N.; RADNAYEV, G.Sh.; ZILOTIN, Yu.V., red.; RADNAYEV, A.N., tekhn. red.

[Essay on the national economy of Buryatia]Ocherk narodnogo khoziaistva Buriatii. Ulan-Ude, Buriatskoe knizhnoe izd-vo, 1963. 199 p. (MIRA 17:2)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

LUBSANOV, D.D., spets.red.; ZILOTIN, Yu.V., red.; BATOTSYRENOVA, D.B., tekhn. red.

[The 40th anniversary of the Buryat A.S.S.R.; articles] Sorok let Buriatskoi ASSR; sbornik statei. Ulan-Ude, Buriatskoe knizhnoe izd-vo, 1963. 137 p. (MIRA 16:11)

(Buryat A.S.S.R.--Economic conditions)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

BUYANTUYEV, Bal'zhan Rinchinovich; ZILOTIN, Yu.V., red.; BATOTSYRENOVA, D.B., tekhn.red.

[Barguzin Valley; survey of the nature, economy and prospects for the development of the region] Barguzinskaia dolina; obzor prirody, khoziaistva i perspektiv razvitiia raiona. Ulan-Ude, Buriatskoe knizhnoe izd-vo, 1959. 56 p. (MIRA 12:11)
(Barguzin Valley--Economic conditions)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

KOZLOV, V.A.; CHERNYAYEV, N.V.; ZILOTIN, Yu.V., red.

[Goryachinsk Health Resort] Kurort Goriachinsk. Ulan-Ude, Buriatskoe knizhnoe izd-vo, 1965. 50 p.
(MIRA 18:11)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

ZILOV, A.

Readings of a speedometer after replacement of "Moskovich" car units. Avt.transp. 38 no.8:43-44 Ag '60.
(MIRA 13:8)

1. Vedushchiy konstruktor Otdela glavnogo konstruktora Moskovskogo zavoda malolitrazhnykh avtomobiley.
(Automobiles--Maintenance and repair)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

ZILOV, A.

23573 ELEKTROOBORUDOVANIYe AVTOMOBILYa MOSKVICH AVTOMOBIL', 1949, No. 7, C. 19—23.

SO: LETOPIS' NO. 31, 1949.

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

MALAKHOVSKIY, Yakov Emmanuilovich; LAPIN, Aleksandr Al'bertovich; ZILOV, A.L., retsenzent; LIPGART, A.A., prof., red.; FRUMKIN, A.K., red.; MARTENS, G.L., red.izd-va; UVAROVA, A.F., tekhn.red.

[Clutches] Stseplenia. Pod obshchei red. A.A.Lipgarta. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1960. 191 p. (MIRA 13:5)

(Motortrucks--Clutches)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

BELKIN, L.I.; GORELOV, L.R.; GORYACHIY, Ya.V.; ZILOV, A.L.; NEMTSOV, Yu.M.; TAPINSKIY, V.N.; YUTT, Yo.M.; ANDRONOV, A.F., inzh., red.

[Automobile "Moskvich" 403; design and maintenance] Avtomobil' "Moskvich" modeli 403; konstruktsiia i tekhnicheskoe obsluzhivanie. Moskva, Mashinostroenie, 1965. 402 p. (MIRA 18:8)

1. Glavnyy konstruktor Moskovskogo zavoda malolitrazhnykh avtomobiley (for Andronov).

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

BELKIN, L.I.; GORELOV, L.R.; GORYACHIY, Ya.V.; ZILOV, A.I.; NEMTSOV, Yu.M.; NOVOSELOV, I.V.; YUTT, Ye.M.

["Moskvich-407" automobile; its design and maintenance] Avtomobil' "Moskvich-407"; konstruktsiia i tekhnicheskoe obsluzhivanie. [By] L.I.Belkin i dr. Izd.2., perer. Moskva, Mashinostroenie, 1965. 14 p. (MIRA 18:3)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

ZILOV, A.R.; POKALOV, V.T.

Molybdenum mineralization in the Uda-Vitim tectonic zone of Transbaikalia. Min.syr'e no.5:70-82 '62. (MIRA 16:4)
(Transbaikalia--Molybdenum ores)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

ZILOV, G.N.	Deceased
Medicine	See ILC

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

SHIYAN, I.V.; LUZKOVA, S.L.; MATVEYEVA, L.S.; ZILOVA, A.N.

Osseous form of xanthomatosis in adults. Klin. med. 38 no. 4:141-145 Ap '60. (MIRA 14:1)

(LIPOIDOSIS)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

ZILOVA, A.N.; LAKSHINA, L.K.

Application of dicoumarin in myocardial infarctions and in thromboses of peripheral vessels. Klin. med., Moskva 31 no1 1:42-47 Jan 1953. (CLML 24:1)

1. Of the Department of Hospital Therapy (Head -- Prof. A. L. Myasnikov), Active Member AMS USSR).

Increased coagulability of the blood may lead to intervascular thrombosis, which often causes death. In cases of acute coronary thrombosis and stenocardia there is a tendency toward hyperthrombinemia. Dicoumarin sharply reduces the prothrombin content and consequently retards blood coagulation. The degree of reduction of protjrombin depends both on the dosage of dicoumarin and on the organism's sensitivity to it. Dicoumarin has been produced synthetically in the USSR since 1944; expts on animals confirmed its high coagulative properties. It also possesses antibacterial properties and in a 1 to 100,000 concentration checks propagation of staphylococci and streptococci.

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ZILOVA, T. K.

25(6) P.2

PHASE I BOOK EXPLOITATION SOV/3075

Defektoskopiya metallov; sbornik statey (Flaw Detection in Metals; Collection of Articles) Moscow, Oborongiz, 1959. 458 p. Errata slip inserted. 4,550 copies printed.

Ed.: D.S. Shrayber, Candidate of Technical Sciences; Ed.: M.S. Lagovskaya; Tech. Ed.: V.P. Rozhin; Managing Ed.: A.S. Zaymovskaya, Engineer.

PURPOSE: This book is intended for engineers and technicians in the field of nondestructive inspection and testing of metals.

COVERAGE: This collection of articles deals with methods of nondestructive inspection and testing of metals. Results of investigations conducted at scientific research institutes and plants of magnetic, electrical, X-ray, ultrasonic, and fluorescent-penetrant methods of flaw detection are described. Detailed descriptions of flaw-detection methods and equipment are presented. Data are given on the status of the development of flaw-detection methods in non-Soviet countries. No personalities are mentioned. References follow several of the articles.

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ZILOVA, T. K,

PA 38/49T82

USSR/Mechanics
Deformation
Plasticity

"A Study of the Deformed State by Means of a Rolled Dividing Network," T. K. Zilova, Ya. B. Fridman, 9 pp

"Zh Tekh Fiz" Vol XIX, No 3

Makes distinction between local (or maximum) and average plasticity of a sample. Values coincide only in uniform deformed state. States that local plasticity for uniform deformed state or small deformed spaces must be studied

38/49T82

USSR/Engineering (Contd) Mar 49

first to establish rules of plastic deformation. Uses new method of "rolled dividing network," which replaces the photo-network, to study deformed state in smooth and notched aluminum and steel samples. Showed that maximum shear at top of pointed notch is equal to maximum shear of smooth sample for aluminum. Thus, the notch decreases average plasticity, but does not affect maximum plasticity. Submitted 25 Nov 48.

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"Investigation of the Deformed State by Means of a Rolled-On Reference Network. T. K. Zilova and Ya. B. Fridman (*Zhur. Tekhn. Fiziki*, 1949, 19, (3), 431–440).—[In Russian]. It is necessary to distinguish between the local (or max.) plasticity and the average plasticity of a specimen or machine part. These two characteristics are identical only in the special case of a homogeneous deformed state. Studies of the plastic deformation should be based primarily on investigation of the local plasticity in homogeneously deformed states or on small deformed volumes, with subsequent consideration of the whole range of deformations. For many practical purposes the overall plasticity is important, connected as it is not only with the local maximum of plasticity but also with the gradient of plastic deformation. The new method presented, studying the local deformation by a rolled-on co-ordinate network is much simpler and more accurate than the photo-net method. It is suitable for smooth and notched specimens of aluminium and steel. For aluminium the max. displacement at the apex of a sharp notch is equal to the max. displacement for a smooth specimen. Thus the presence of a notch leads only to a reduction of the average plasticity, and not of the max. plasticity. It is further shown that in hardened and tempered steels the max. displacement at the apex of a notch is considerably smaller than the maximum for a smooth specimen. A characteristic of the relative gradient of plastic deformation $\Gamma = \frac{\partial \varepsilon_{max}}{\partial l}\left(\frac{1}{\varepsilon_{max}}\right)$ is also presented.—B. F. K.

May 1951

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Process of fracture of plastic metals. Ya. B. Fridman and T. K. Zilova. *Doklady Akad. Nauk S.S.S.R.* 73, 697-700(1950).--By use of a network of lines 0.5 mm. apart to study the localized deformation of the surface of cylindrical specimens plastically deformed in torsion, it was shown that the formation of the first cracks in the specimen coincide with the beginning of localized deformation. In a steel tempered at 200°, when the general deformation was about 8% the localized deformation was 20% near the first cracks. At final fracture the general deformation was 10% and the localized deformation was 55%. The same steel, 40 KhNMA, in the annealed condition was tested as a Charpy-type specimen, and the localized deformation at the base of the notch increased during the process of fracture, beginning with the formation of the first crack. Thus, the entire process of fracture should be studied, not merely the final fracture.

A. Cl. Guy

All-Union Sci Res Inst. Aviation Materials.

1951

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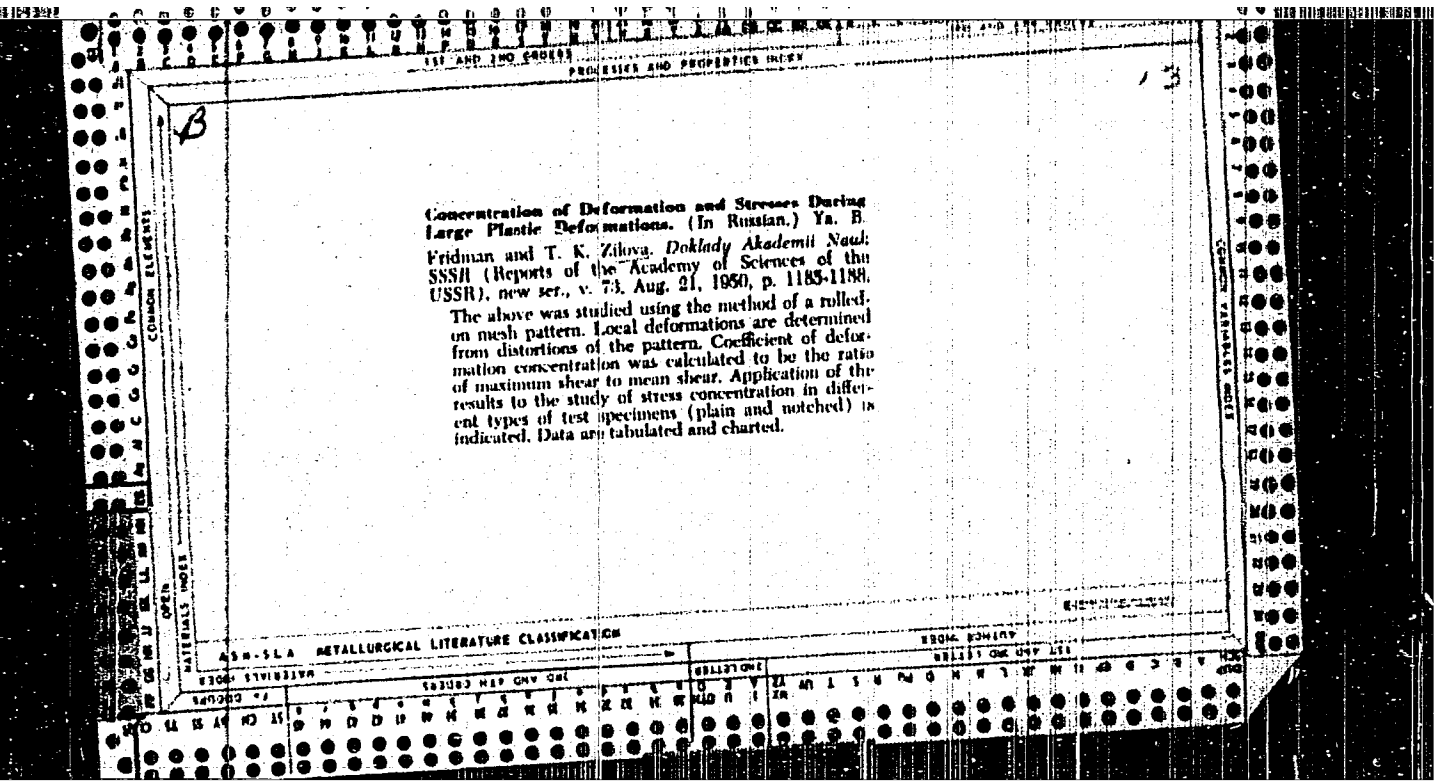

Concentration of Deformation and Stresses During Large Plastic Deformations. (In Russian.) Ya. B. Fridman and T. K. Zilova. *Doklady Akademii Nauk SSSR* (Reports of the Academy of Sciences of the USSR), new ser., v. 73, Aug. 21, 1950, p. 1185-1188.

The above was studied using the method of a rolled-on mesh pattern. Local deformations are determined from distortions of the pattern. Coefficient of deformation concentration was calculated to be the ratio of maximum shear to mean shear. Application of the results to the study of stress concentration in different types of test specimens (plain and notched) is indicated. Data are tabulated and charted.

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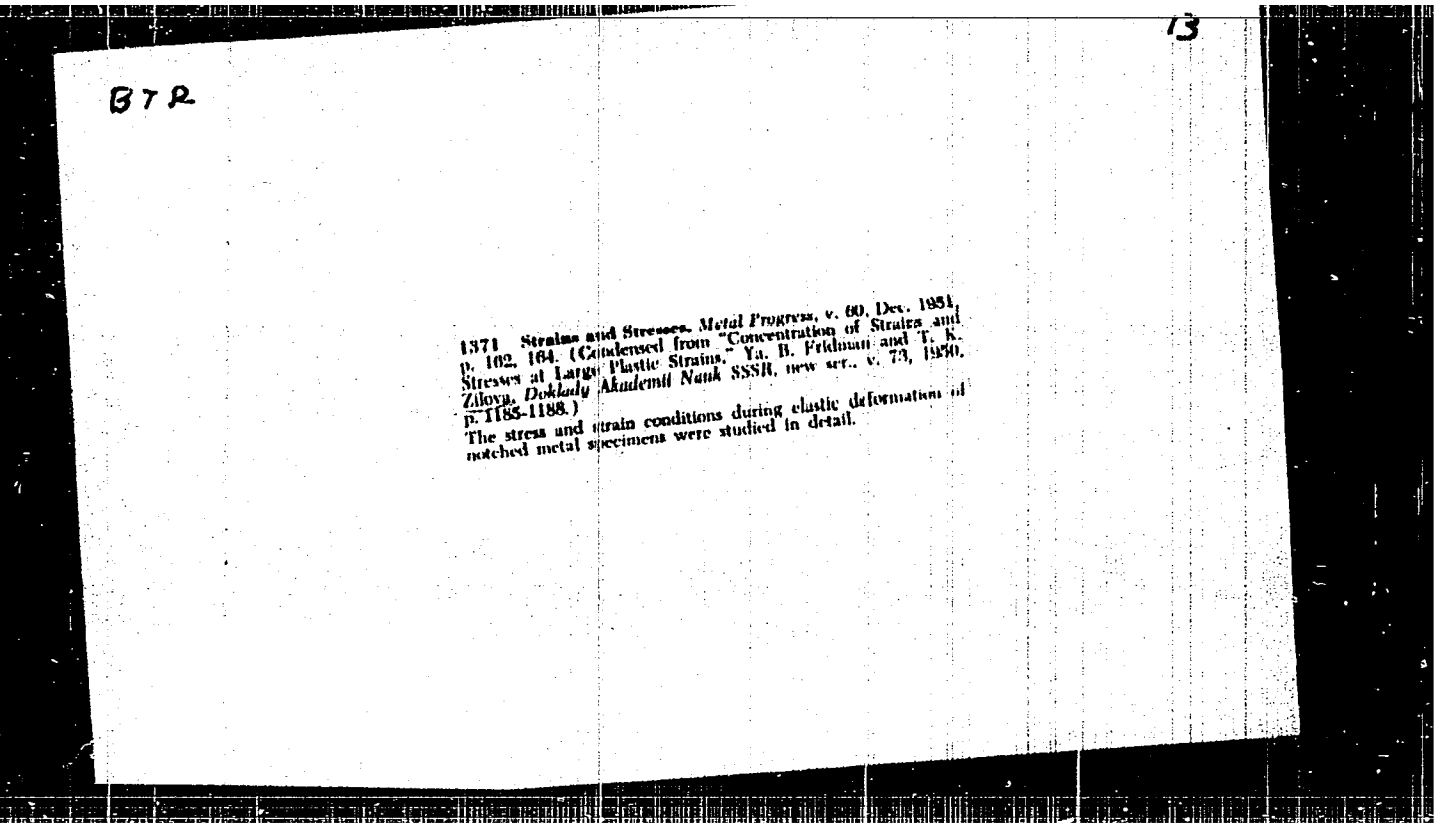

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BTR

1371 **Strains and Stresses.** *Metal Progress*, v. 60, Dec. 1951, p. 162, 164. (Condensed from "Concentration of Strains and Stresses at Large Plastic Strains," Ya. B. Fridman and T. K. Zilova, *Doklady Akademii Nauk SSSR*, new ser., v. 73, 1950, p. 1185-1188.)

The stress and strain conditions during elastic deformation of notched metal specimens were studied in detail.

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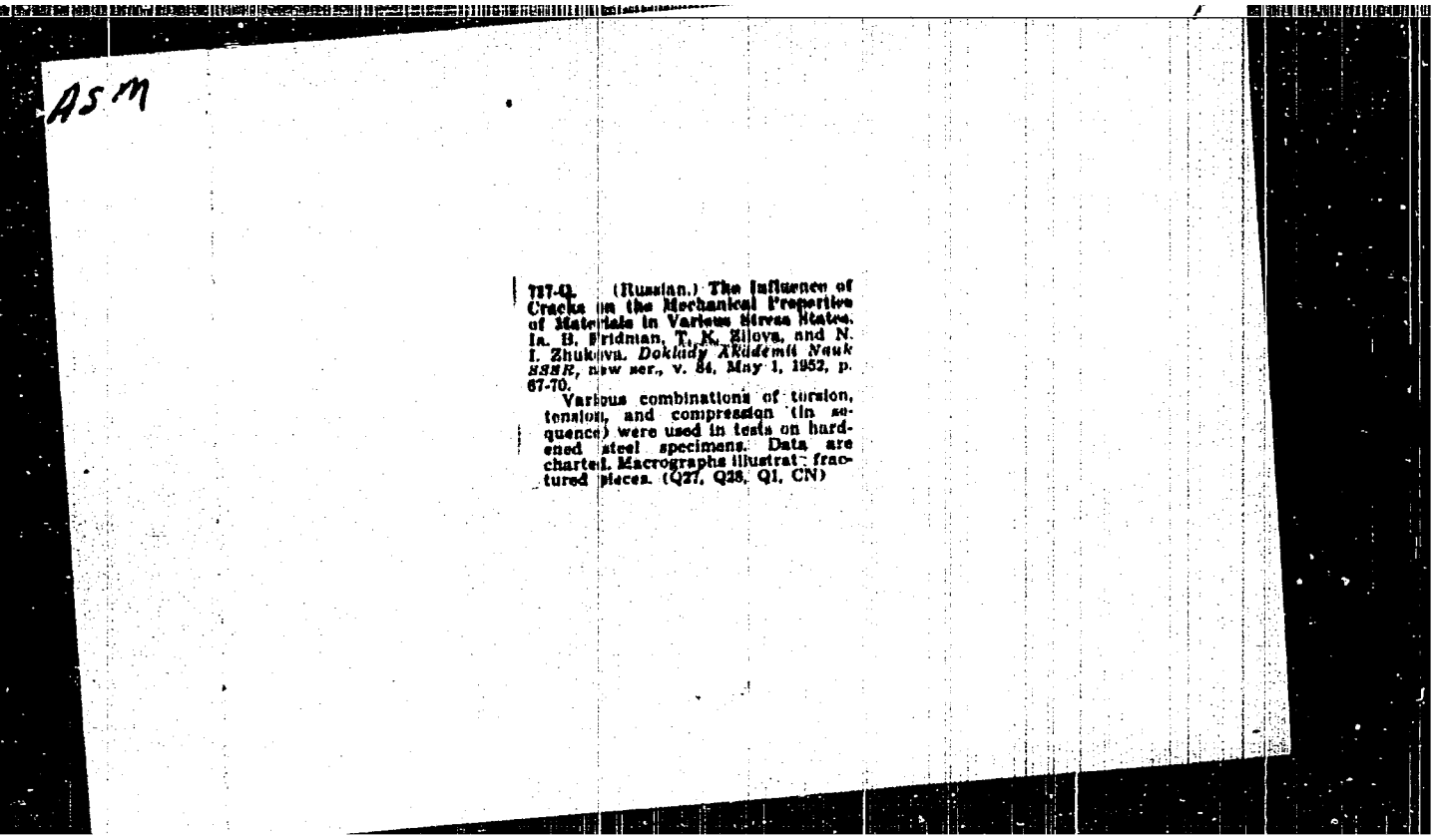

ASM

737-Q. (Russian.) The Influence of Cracks on the Mechanical Properties of Materials in Various Stress States. Ia. B. Fridman, T. K. Zilova, and N. I. Zhukova. *Doklady Akademii Nauk SSSR*, new ser., v. 84, May 1, 1952, p. 67-70.

Various combinations of torsion, tension, and compression (in sequence) were used in tests on hardened steel specimens. Data are charted. Macrographs illustrat fractured pieces. (Q27, Q28, Q1, CN)

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

FRIDLYANDER, Iosif Naumovich, doktor tekhn.nauk; DOBATKIN, V.I., doktor tekhn.nauk, retsenzent; ZILOVA, T.K., kand.tekhn.nauk, red.; SUVOROVA, I.A., izdat.red.; ORESHKINA, V.I., tekhn.red.

[High-strength deformable aluminum alloys] Vysokoprochnye deformiruemye aliuminievye splavy. Moskva, Gos.nauchno-tekhn.izd-vo, 1960. 290 p. (MIRA 13:5)
(Aluminum alloys)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

FRIDMAN, Ya. B., ZILOVA, T. K., ZHUKOVA, M. I.

Strength of Materials; Strains and Stresses

Effect of cracks on the mechanical properties of material under different conditions of stress. Dokl. AN SSSR 84, No. 1, 1952. Rcd. 7 Jan. 1952

Monthly List of Russian Accessions, Library of Congress, September 1952. UNCLASSIFIED.

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

ZILOVA, T.K.

USSR/Metals - Steel, Testing 1 May 52

"On the Effect of Cracks on the Mechanical Properties of Material at Various Stressed Conditions," Ya. B. Fridman, T. K. Zilova, N. I. Zhukova

"Dok Ak Nauk SSSR" Vol LXXXIV, No 1, pp 67-70

Studies influence of previously formed cracks using double test specimens with 3 heads and two gauge lengths. Application of torsional force to entire specimen up to failure of one half of it imposed cracks on its other part which was subjected to consequent tension. Graphically represents test results and discusses effect of cracks on deformation process. Submitted by Acad. P. A. Rebinder 7 Mar 52.

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

POTAK, Yakov Mikhaylovich; KISHKIN, S.T., laureat Stalinskoy premii, doktor tekhnicheskikh nauk, professor, retsenzent; FRIDMAN, Ya.B., laureat Stalinskoy premii, doktor tekhnicheskikh nauk, professor, retsenzent; ZILOVA, T.K., kandidat tekhnicheskikh nauk, redaktor; SUVOROVA, I.A., redaktor; ZUDAKIN, I.M., tekhnicheskiy redaktor.

[Brittle fracture of steel and steel parts] Khrupkie razrusheniia stali i stal'nykh detalei. Moskva, Gos.izd-vo obor.promysh.,1955. 388 p. (Steel--Brittleness) (MIRA 9:4)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

FRIDMAN, Ya.B.; ZILOVA, T.K.; ZHUKOVA, N.I.

Inhomogeneity of plastic deformation in the notched region and the defect sensitivity of materials. Fiz. met. i metalloved. 1 no.3:553-561 '55. (MLRA 9:6)
(Deformation (Mechanics))(Steel--Testing)

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

ZILOVA, T.K.; FRIDMAN, Ya.B.

Mechanical testing with alternating stress yield. Zav.lab. 22 no.6: 712-717 '56. (MLRA 9:8)
(Metals--Testing)

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

ZILOVA, T.K.; DENINA, N.I.; FRIDMAN, Ya.B.

Method for testing the tendency of materials for delayed destruction. Zav.lab. 22 no.8:967-972 Ag '56. (MLRA 9:11)
(Materials--Testing)

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065210001-4

AUTHOR: Zilova, T.K., Candidate of Technical Sciences, and Sadovskiy, V.Ye. and Demina, N.I., Engineers. 129 - 8 - 1/16

TITLE: Influence of the surface state on the tendency of steel 30XГCA to slow failures. (Vliyanie sostoyaniya poverkhnosti na sklonnost stali 30 KhGSA k zamedlennomu razrusheniyu.)

PERIODICAL: "Metallovedeniye i Obrabotka Metallov" (Metallurgy and Metal Treatment), 1957, No.8, pp.2-7 (U.S.S.R.)

ABSTRACT: On investigating slow failures of bolts and nuts made of steel 30XГCA (ultimate strength 120 kg/mm^2), thin hardened layers were frequently observed directly at the surface and these appeared to be one of the causes of failure of such components. Investigation of the heat treatment and of the heating baths revealed that there was a possibility of surface hardening to be produced during the normal heat treatment, but it was not possible to reproduce in these experiments the brittle layers which were detected in bolts and nuts of current manufacture. In this paper the results are given of further study of the influence of the conditions of heat treatment and shaping on the surface state and the mechanical properties of the above mentioned steel. The experiments were carried out with plates of 2 x 8 x 100 mm and pins of 12 mm dia. produced from rods of 16 mm of a single melt and, also, on boards of 10 mm dia.

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Influence of the surface state on the tendency of steel 30XГСА to slow failures. (Cont.) 129 - 8 - 1/16

produced from hexagonal rods. The steel was of the following composition: 0.33% C, 0.94% Si, 0.84% Mn, 1% Cr, 0.014% S, 0.029% P. The hardness and the depth of the hardened layer were determined by measuring the micro-hardness of oblique cuts prepared from components which have failed. Surface hardening could occur whilst heating in the salt bath when deoxiding by means of potassium ferro-cyanide or during tempering at 500 to 530 C in an alkaline bath consisting of 60% NaOH, 40% KCl, deoxided by potassium ferro-cyanide. Fig. 1 gives the results of measurement of the micro-hardness of the plates heated for hardening to 890 C in a KCl bath with various percentages of added potassium ferro-cyanide and various annealing times. Figs. 2 and 3 give the results of measurement of the micro-hardness of plates and pins heated for hardening in a KCl bath deoxided with charcoal and subsequently tempered at 530 C in an alkaline bath deoxided with potassium ferro-cyanide. Comparison of the characteristics of the layers hardened during hardening and during tempering indicates that they differ slightly from each other; the maximum micro-hardness produced by tempering amounts to 800 - 900 kg/cm^2 and the hardened layer reaches a depth of 80 - 100 μ whilst the micro-hardness obtained

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Influence of the surface state on the tendency of steel 30XГСА to slow failures. (Cont.) 129 - 8 - 1/16

during heating in the process of hardening, reaches, after tempering, a maximum value of 600 - 700 kg/mm^2 and the hardened layer has a depth of 100 - 300 μ. The conditions of heat treatment of the bolts and of the pins and the obtained test results for these are summarised in a table on p. 4. The tests showed that irrespective of how the hardened layer is obtained on the surface of the steel, it does bring about an increase in sensitivity to slow failure. The characteristics of the hardened layer obtained thermo-chemically and by mechanical work hardening differ from each other. For a work-hardened surface layer, a steeply falling micro-hardness curve is characteristic; for a depth below 20 μ, the micro-hardness is 1.5 to 2 times that of the micro-hardness of the core. For the investigated steel, the presence of thin, thermo-chemically hardened surface layers increases the sensitivity to distortion and slow failure of bolts and pins up to 2.5-fold under certain unfavourable conditions. The work-hardening produced during cutting of threads on heat-treated components of this steel increases the notch sensitivity and the sensitivity to slow failure by more than 1.5 times under certain conditions.

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ZILOVA, T. K.

126-3-10/34

AUTHORS: Zilova, T. K., Demina, N. I. and Fridman, Ya. B.

TITLE: Study of the non-uniformity of the plastic deformation during torsion by the method of rolled-in grid network. (Izucheniye neodnorodnosti plasticheskoy deformatsii pri kruchenii metodom nakatannykh setok).

PERIODICAL: "Fizika Metallov i Metallovedeniye" (Physics of Metals and Metallurgy), 1957, Vol.4, No.3, pp. 455-469 (U.S.S.R.)

ABSTRACT: Yakutovich, M. V. and his team revealed certain features of torsion testing of materials which were previously not taken into consideration, namely, the non-uniformity of the plastic deformation along the specimen, the high sensitivity of the state of the surface and the presence of microcracks (1-4). The aim of the here described investigations was to elucidate the influence on the test results for steels after hardening and tempering of the following: the non-uniform distribution of the deformation along the specimen during torsion on the final characteristics of the mechanical properties of the material obtained for this type of investigation; the surface quality on these characteristics; the super-position of the process of fracture on the distribution of the local plastic deformations during torsion; necessity

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Study of the non-uniformity of the plastic deformation during torsion by the method of rolled-in grid network.(Cont.)

of entering corrections in existing methods of evaluation of the plasticity and strength of the materials during torsion. The experiments were carried out on specimens of 11.95 ± 0.05 mm dia., 55 mm active length Steel 40XHMA hardened and tempered at 550, 350 and 220 C, the surface of which was provided with a network of closely spaced lines for studying the distribution of the deformation on the surface during torsion. For reducing the non-uniform deformation observed on specimens after low temperature tempering, the authors proposed to use as a final treatment mechanical or electrolytic polishing. The results are described in some detail. The graph, Fig.3, shows the influence of the surface state on the strength and plasticity of the specimens; it gives the maximum displacement as a function of the maximum tangential stress for ground as well as for ground and polished specimens tempered at 220, 350 and 550 C respectively. Fig.4 gives a comparison of the mean ductility of the specimens during torsion as a function of the tempering temperature for ground and for polished specimens. Results relating to the non-uniformity of the plastic deformation are entered in the graphs, Fig.6, and illustrated by the

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Study of the non-uniformity of the plastic deformation during torsion by the method of rolled-in grid network.(Cont.)

photo reproduced in Fig.7. Table 5 gives a comparison of the average with the local plasticity measured during torsion tests. In Table 6 the plasticity of the material in tensile tests and in torsion tests is compared for ground as well as for polished specimens. On the basis of the results it is concluded that for steel specimens with a low modulus of plasticity the process of deformation is practically uniform along the entire length (tempering at 550 C);if tempered at low temperatures (350 and 220 C),intensive hardening occurs during plastic deformation, the development of the deformation is non-uniform and practically has the character either of a "travelling" deformation,which gradually propagates along the specimen,or it is concentrated as a result of presence of stress concentrators; the non-uniform distribution of deformation is due to non-uniform resistance of the transverse cross sections brought about by non-uniformity of the macro- and micro-geometry of the specimen, non-uniformity of the structure of the material in the body of the specimen, etc; the character of the non-uniformity of propagation of the deformation depends on the surface state of the specimen; the state of the surface affects appreciably the ductility of the specimens; for polished specimens it is two to five times as

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Study of the non-uniformity of the plastic deformation during torsion by the method of rolled-in grid network. (Cont.)

high as for specimens which are only ground. For reducing the non-uniform distribution of deformation during torsion of low tempered steel specimens, mechanical or electrolytic polishing is recommended as final treatment and also reduction of the diameter tolerances to $\pm$ 0.1%. Observation of these recommendations permits applying torsion as one of the methods of testing materials at which it is possible to maintain uniform deformation along the length of the specimen up to the instant of failure, in spite of the non-uniformity of the process of plastic deformation. In cases in which there is non-uniform deformation, it is necessary to evaluate the average and the local plasticity; for evaluating local plasticity the method of rolled-on lattice lines is recommended. The divergence between the average and the local plasticity values can be used for evaluating the sensitivity of the material to their surface state. The process of fracture introduces an additional non-uniformity of the displacements (non-symmetrical relative to the specimen axis), which is superimposed on the non-uniformity brought about by the process of axis-symmetrical plastic deformation.

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Study of the non-uniformity of the plastic deformation during torsion by the method of rolled-in grid network.(Cont.)

Card 5/5 There are 9 figures, 6 tables and 9 references, all of which are Slavic.

SUBMITTED: June 27, 1956 and after revision July 12, 1956.

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(Composition of the Steel 40XHMA: in %, 0.36-0.44 C, 0.17-0.37 Si, 0.50-0.80 Mn, 0.60-0.90 Cr, 1.25-1.75 Ni, 0.15-0.25 Mo, max 0.030 S, 0.035 P, 0.25 Cu)

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ZILOVA, T.K.

ZILOVA, T.K.; DEMINA, N.I.; FRIDMAN, Ya.B.

Studying the heterogeneity of plastic deformation under torsion by the method of knurled grating. Fiz. met. i metalloved. 4 no.3: 455-469 '57. (MIRA 10:11)
(Deformations (Mechanics)) (Torsion) (Steel--Testing)

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