

S/200/62/000/008/001/002
D234/D308

Motion of a gyroscopic pendulum ...

pendulum with respect to its axis is small. The equations of motion are linearized under these assumptions and integrated for the case when the pendulum is subject to the force of gravity only. It is found that the motion of the pendulum can be considered as a superposition of: 1) two free vibrations with the angular velocities

$$\begin{aligned} \omega_1 &= (\sqrt{\lambda^2 + k^2} + \lambda) P_0, \\ \omega_2 &= (\sqrt{\lambda^2 + k^2} - \lambda) P_0, \end{aligned} \tag{19}$$

where

$$\dot{\varphi} = \text{const} = P_0, \quad \varphi = P_0 t + \varphi_0, \tag{13}$$

$2\lambda = A/C$, $k^2 = Gl_c / Cp_0^2$, G is the value of the force of gravity, l_c is one of the components of the vector radius of the center of gravity of the pendulum, A is the axial moment of inertia, $C + \varepsilon'(t)$ and $C + \varepsilon''(t)$ are the equatorial moments of inertia, 2) vibrations

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Motion of a gyroscopic pendulum ...

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caused by the disturbing inertial moment due to the asymmetry, having the same two frequencies as above, 3) forced vibrations having the frequency p_0 . Two special cases are considered: a) symmetrical pendulum, for which the authors obtain $\alpha = \beta = 0$, $\varphi = p_0 t$, b) slight asymmetry, one of the two parameters which characterize it being equal to 0. In this case the free vibrations 1) as above are absent. Maximum deviation of the axis is determined for this case. There are 2 figures.

ASSOCIATION: Novosibirskiy elektrotekhnicheskiy institut (Novosibirsk Institute of Electrical Engineering)

SUBMITTED: November 20, 1961

Card 3/3

S/145/52/000/006/002/005
D262/D300

The movement of a not entirely ...

These equations are integrated for the case where only the moment of gravity acts on the pendulum, where $O\xi$ is the axis of the pendulum. The general integral

$$\Delta = c_1 e^{i\omega_1 t} + c_2 e^{-i\omega_2 t} + \frac{d_1 + id_2}{2\lambda + k^2 - 1} \text{ci}(\rho_0 t + \varphi_0)$$

X

where

$$\left. \begin{aligned} \omega_1 &= (\sqrt{\lambda^2 + k^2} + \lambda) \rho_0 \\ \omega_2 &= (\sqrt{\lambda^2 + k^2} - \lambda) \rho_0 \end{aligned} \right\} \quad (16)$$

is obtained assuming that the angular velocities $\dot{\alpha}$ and $\dot{\beta}$ are small compared with the angular velocity of the rotation $\dot{\psi}$, the centrifugal moments of inertia $I_{\xi\eta_1}$, $I_{\xi S_1}$ and $I_{\eta_1 S_1}$ are small compared with the moments of inertia I_{ξ} , I_{η_1} and I_{S_1} . The effect of small static and dynamic asymmetries of the pendulum is discussed and it is shown that for the initial conditions $\alpha = \alpha_0$, $\beta = \beta_0$,

Card 2/5

The movement of a not exactly ...

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$\dot{\alpha} = \dot{\alpha}_0$, $\dot{\beta} = \dot{\beta}_0$ the movement of the pendulum axis in coordinates
 α and β is a sum of various oscillations. There is 1 figure.

ASSOCIATION: Novosibirskiy elektrotekhnicheskiy institut (Novo-
sibirsk Electrotechnical Institute)

SUBMITTED: July 13, 1962

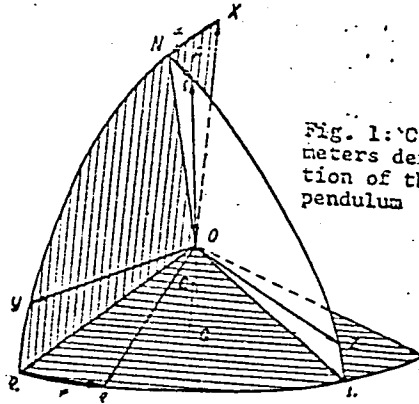


Fig. 1: Coordinate parameters defining the position of the gyroscopic pendulum

SHPIGEL'GLYAS, A.S.

SHPIGEL'GLYAS, A.S.

Prevention of errors in storage and distribution of drugs in a hospital.
Med. sestra, Moskva No.2:13-18 Feb 52. (CIML 21:4)

1. Of the Order of Lenin Clinical Hospital imeni S.P. Botkin (Head
Physician—S.A. Chesnokov; Assistant Head Physician—A.V. Ikonnikova).

SHPIGEL'GLYAS, A.S.; VILENSKIY, A.F.

The DPM dynamograph for testing agricultural machinery. Izv.tekh.
no.5:62-63 S-0 '56. (MLRA 10:2)

(Dynamometer)

AUTHOR: Shpigel'glyas, A.Sa. SOV/115-58-1-19/50

TITLE: A Weight-Dosimeter for Liquids (Vesovoy dozator dlya zhidkostey)

PERIODICAL: Izmeritel'naya tekhnika, 1958, Nr 1, pp 36 - 37 (USSR)

ABSTRACT: The described device is a combination of a simple manometer and scales designed by the author, for determining the quantity of liquids by weight within tanks or cisterns during the process of filling. The device has an electromagnetic inlet valve for liquids and an electric contact which automatically stops the filling when the weight of the liquid in the vessel reaches the limit set by the scales. There is 1 diagram.

1. Manometers---Design 2. Manometers---Equipment 3. Manometers
---Performance 4. Liquid level control

Card 1/1

ITSKOVICH, Ya.S.; SHPIGEL'GLYAS, A.S.

Automatic TsNIIKHP-0-4-59 make membrane weighing and proportioning
station. Trudy TSNIIKHP no.8:34-35 '60. (MIRA 15:8)
(Proportioning equipment) (Automatic control)

ITSKOVICH, Ya.S.; SHPIGEL'GLYAS, A.S.; MEL'TSER, I.A.; KURAMSHIN, Yu.N.

Apparatus of TsNIIKHP-L-1-58 make for the inspection of baker's
yeast quality. Trudy TSNIIKHP no.8:35-36 '60. (MIRA 15:8)
(Yeast--Testing) (Bakers and bakeries--Equipment and supplies)

MIKOVICH, Y. S.; SHEPHEL'GLYAS, A. S.

Device for rapid moisture determining. Trade (TSNIIKHP no. 13:
78-29 '62. (MIRA 18:2)

GORDIYENKO, N.V., inzh.-zemleustroitel'; SHPIGEL'MAN, A.E., inzh.-
zemleustroitel'

Some possibilities for more efficient land use. Zemledelie
7 no.2:81-82 F '59. (MIRA 12:3)
(Belgorod Province--Land)

SHPIGEL'MAN, B.I.

Improved connection circuit for treadles. Avtom., telem. i sviaz'
2 no.11:24 N '58. (MIRA 11:12)

1. Zamestitel' nachal'nika sluzhby signalizatsii i svyazi Tomskoy
dorogi.

(Railroads--Electric equipment)

SHPIGEL'MAN, B.I.

Signaling device for the grounding of the high-voltage line of automatic block systems. Avtom.telem. i svyaz' 4 no.11:28 H '60.

(MIRA 13:11)

1. Zamestitel' nachal'nika sluzhby signalizatsii i svyazi Tomskoy dorogi.

(Railroads--Signaling--Block system)

(Railroads--Electronic equipment)

SOV/137-58-9-18962

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 115 (USSR)

AUTHORS: Brovman, M.Ya., Shpigel'man, R.M.

TITLE: The Turning of Metal in Rolling on Continuous Billet Mills
(Kantovka metalla pri prokatke na nepreryvno-zagotovochnykh stanakh)

PERIODICAL: V sb.: Prokatn. i trubn. proiz-vo. Moscow, Metallurgizdat,
1958, pp 137-146

ABSTRACT: One of the special features of the rolling of steel on continuous billet mills with horizontal rolls is the need for turning after each stand. Here, the turning process is continuous and is performed by means of helicoidal or roller guides. An attempt is made to provide a theoretical analysis of the turning process from the viewpoint of permissible angles of twist (AT) of the metal, and the added expenditure of energy thereon. An equation is adduced determining the relation of the ultimate AT upon the shape and dimensions of the billet, and also upon the mechanical properties of the material. It is observed that the presence of tangential stresses at the surface of the billet reduces the ultimate AT. It is established that turning in

Card 1/2

SOV/137-58-9-18962

The Turning of Metal in Rolling on Continuous Billet Mills

helicoidal guides increases the energy requirement for rolling by 14-20%, and this is confirmed by the practical experience of the operation of the mills of the Magnitogorsk Kombinat. The energy consumption is considerably lower when roller guides are employed. Thus, if the neck mountings of the turning rollers are placed in textolite bearings, the additional energy required for turning is 1.2-1.7%, whereas it is 0.4-0.6% if the rollers are mounted in roller bearings.

B.Ts.

1. Rolling mills---Performance
2. Rolling mills---Equipment
3. Materials---Control

Card 2/2

SHPIGEL'MAN, R.M.

135-58-3-15/29

AUTHORS: Brownan, M.Ya. and Shpigel'man, R.M., Engineers

TITLE: The Dependence of Metal Pressure on Rolls on the Velocity of Deformation (Zavisimost' davleniya metalla na valki ot skorosti deformatsii)

PERIODICAL: Stal', 1958, ¹⁸ Nr 3, pp 250-255 (USSR)

ABSTRACT: A method of calculating the pressure of metal on rolls during hot rolling in which the influence of the rolling velocity and changes in the yield stress along the arc of grip are taken into consideration is proposed (Formulae 53, 54). The comparison of the results obtained using Tselikov's, Ekeland's and the author's formulae is shown in the table. It is concluded that: 1) under the influence of the velocity of deformation, the pressure of metal on rolls increases considerably; 2) the use of the proposed method of calculation for alloy steels is difficult due to lack of experimental data on the influence of velocity of deformation on the yield stress. In the majority of existing formulae, the influence of the velocity of deformation is taken into consideration only approximately, assuming the constancy of the yield stress along the arc or grip. With increasing rolling velocity and widening of the production of alloy steels, the influence of the velocity of deformation becomes more important.

Card 1/2

133-58-3-13/29

The Dependence of Metal Pressure on Rolls on the Velocity of
Deformation

There are 5 figures, 1 table and 4 Soviet references.

ASSOCIATION: Yuzhno-Uralskiy mashinostroitel'nyy zavod
(South - Ural Machine Building Works)

AVAILABLE: Library of Congress

Card 2/2

NOVITSKIY, S.V.; SHPIGEL'MAN, S.D.

Case of acute intestinal obstruction with ascariasis treated by enterotomy with extraction of helminths and a one-stage administration of oxygen during surgery. Nov.khir.arkh. no.4:99 J1-Ag '59. (MIRA 12:11)

1. Zastavnovskaya rayonnaya bol'nitsa, Chernovitskoy oblasti. Adres Novitskogo: Zastavna, Chernovitskoy obl., Rayonnaya bol'nitsa.

(INTESTINES--OBSTRUCTIONS)
(ASCARIDS AND ASCARIASIS)
(OXYGEN--THERAPEUTIC USE)

KANTOR, P.B.; FINKEL'SHTEYN, V.Ye.; SHPIGEL'MAN, Ye.S.

Steam thermostats for controlling surface thermocouples. Izm.tekh.
no.4:76-77 J1-Ag '56. (MLBA 9:11)
(Thermostat) (Thermocouples)

SHPIGEL'MAN, Ye. S.

USSR/Processes and Equipment for Chemical Industries - K-2
Control and Measuring Devices. Automatic Regulation.

Abs Jour : Referat Zhur - Khimiya, No 9, 1957, 33334

Author : Finkel'shteyn, V.Ye., Shpigel'man, Ye.S., Kandyba, V.V.

Inst :

Title : EOP-51M and OP-40M Pyrometers for Measuring Temperatures
Up to 6000°.

Orig Pub : Izmerit. tekhnika, 1956, No 5, 52-54

Abstract : The apparatus described have been developed at the Khar'kov State Institute of Measures and Measuring Instruments, on the basis of the OP-48 and EOP-51 pyrometers. The glass absorbers of both pyrometers, which are required to make possible an expansion of the scale up to 6000°, were made, of a larger diameter, from PS-2 glass 4.71 mm thick and were mounted on the objective of the apparatus in lieu of being set in front of the pyrometric bulb; their pyrometric attenuation is of about $430 \cdot 10^{-6}$ degree⁻¹.

Card 1/2

SHPIGEL'MAN, Ye.S.

New method for plotting scales of optical pyrometers in temperature
ranges over 3000°C. Izv.tekh.no.6:37-40 N-D '56. (MLBA 10:1)
(Pyrometers)

SHPIGEL'KAN, Ye. S., Cand Tech Sci -- (diss) "Experimental study of
optical pyrometers for measurement of temperatures over 3000°C."
Len, 1957. 12 pp (Committee of Standards, Measures, and Measuring
Devices ^{USSR} at the Council of Ministers USSR, All-Union Sci Res Inst
of Metrology im D. I. Mendeleev), 100 copies (KL, 17-58, 109)

-53-

SPIGEL'MAN, Ye.S.; KANDYBA, V.V.

Solar radiation used in calibrating of high-temperature optical
pyrometers. Izv. tekhn. no.2:29-31 Mr-Apr '57. (MLBA 10:6)
(Calibration) (Pyrometers) (Solar radiation)

Д. П. ВЕЛИМАН, У. С.

24(0): 5(4); 6(2) PHASE I BOOK EXPLOITATION SOV/2215
Vsesoyuznyy nauchno-issledovatel'skiy institut metrologii imeni D.I. Mendeleeva

Referaty nauchno-issledovatel'skikh rabot; sbornik No.2 (Scientific Research Abstracts; Collection of Articles, Nr 2) Moscow, Standartgiz, 1958. 139 p. 1,000 copies printed.

Additional Sponsoring Agency: USSR, Komitet standartov, mer i izmeritel'nykh priborov.
Ed.: S. V. Reshetina; Tech. Ed.: M. A. Kondrat'yeva.

PURPOSE: These reports are intended for scientists, researchers, and engineers engaged in developing standards, measures, and gages for the various industries.

COVERAGE: The volume contains 128 reports on standards of measurement and control. The reports were prepared by scientists of institutes of the Komitet standartov, mer i izmeritel'nykh priborov pri Sovete Ministrov SSSR (Commission on Standards, Measures, and Measuring Instruments under the USSR Council of Ministers). The participating institutes are: VNIM - Vsesoyuznyy nauchno-issledovatel'skiy metrologii imeni D.I. Mendeleeva (All-Union Scientific Research Institute of Metrology imeni D.I. Mendeleev) in Leningrad; Sverdlovsk branch institute; VNIK - Vsesoyuznyy nauchno-issledovatel'skiy institut standartov, mer i izmeritel'nykh priborov (All-Union Scientific Research Institute of the Commission on Standards, Measures and Measuring Instruments), created from NGIMIP - Moskovskiy gosudarstvennyy institut mer i izmeritel'nykh priborov (Moscow State Institute of Measures and Measuring Instruments) October 1, 1955. VNITP - Vsesoyuznyy nauchno-issledovatel'skiy institut fiziko-tekhnicheskikh i radiotekhnicheskikh izmereniy (All-Union Scientific Research Institute of Physicotechnical and Radio-engineering Measurements) in Moscow; KHGMIP - Khar'kovskiy gosudarstvennyy institut mer i izmeritel'nykh priborov (Khar'kov State Institute of Measures and Measuring Instruments); and NGIMIP - Novosibirskiy gosudarstvennyy institut mer i izmeritel'nykh priborov (Novosibirsk State Institute of Measures and Measuring Instruments). No personalities are mentioned. There are no references.

Formula for a Platinum Resistance Thermometer in the Interval -183 - 0°C 72

Allyeva, E.Z., B.M. Dlaynik, and N.Z. Dolgly [Deceased] (WNIM). 73
Producing and Studying the Triple Point of Water

Kondrat'yev, G.M., P. Z. Aliyeva, A.N. Gordov, G.I. Klimovich, Ya. E. Pal'berg, and A.A. Dolinskaya (WNIM). International Comparison of Resistance Thermometers 74

Rudnaya, A.I. (Sverdlovsk Branch of WNIM). Developing a Method and Studying the Apparatus for Calibrating and Checking Radiative Pyrometers in the 150-800°C Temperature Interval 74

Kanter, F.B., and Ye.S. Shpil'shteyn (KHGMIP). Studying Errors in Reporting the 300-2000°C Interval of the International Scale of Temperature and Improving the Accuracy of the Cheeking System 75

Pinkel'shteyn, V. Ye., and Ye.S. Shpil'shteyn (KHGMIP). Designing Card 15/27

AUTHOR: ~~Shpigel'man, Ye.S.~~ SOV/115-58-6-25/43

TITLE: Surface Thermocouples (Poverkhnostnyye termopary)

PERIODICAL: Izmeritel'naya tekhnika, 1958, Nr 6, pp 60-61 (USSR)

ABSTRACT: The dispersion of readings of present surface thermocouples reaches 30 to 40° C for temperatures around 200° C and still more for higher temperatures. The inertia is 1-3 min. A ~~ribbon and~~ a disc thermocouple are described here which reach a higher accuracy of measurement. The ribbon thermocouple (Figure 1) consists of two strips 0.2 mm thick and 5 mm broad. The disc thermocouple (Figure 2) consists of a copper disc 0.5 mm thick and 7 mm in diameter with four openings for thermo-electrodes. Their dispersion does not exceed 2° C at a temperature of 450° C. The error in the temperature range 100 to 500° C does not exceed ± 1.5 % for the disc and ± 2.5 % for the ribbon thermocouple. The inertia is 15-20 and 25-30 sec respectively. There are 2 diagrams.

Card 1/1

SOV/58-59-8-18972

Translated from: Referativnyy Zhurnal Fizika, 1959, Nr 8, p 272 (USSR)

AUTHORS: Finkel'shteyn, V.Ye., Shpigel'man, Ye.S., Kandyba, V.V.

TITLE: Extending the Range of the "EOP-51M" Pyrometer up to 6,000° and 10,000°C

PERIODICAL: Tr. Vses. n.-i. in-ta metrol., 1958, Nr 35 (95), pp 60-69

ABSTRACT: The range of the "EOP-51M" pyrometer, originally calibrated up to 4,000°C, was extended up to 6,000° and 10,000°C by using two absorbers made of "PS-2" purple glass. The magnitudes of the pyrometric attenuation of the absorbers were determined, as well as their variations with a variation in the apparent brightness temperature. Strictly speaking, the calibration of the scale was made according to the formula $1/T_0 - 1/T_W = A$, where T_0 is the apparent brightness temperature, corresponding to some intensity of the current of the pyrometric tube, and A is the pyrometric attenuation of the absorber. The value T_W thus obtained, which is the approximate value of the measured temperature, is adjusted by the correction $T - T_W$, computed on the basis of allowance for the inaccuracy of Wien's formula. The error in calibrating the scale

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SOV/58-59-8-18972

Extending the Range of the "EOP-51M" Pyrometer up to 6,000° and 10,000°C

is compounded of the errors involved in calibrating the pyrometer's basic scale, measuring the pyrometric attenuation and determining the correction $T - T_w$. The root-mean-square error is equal to 50°C at a temperature of 6,000°C and to 160°C at a temperature of 10,000°C. The obtained estimates are apparently very overstated.

Ye. Antropov

Card 2/2

SHPIGELMAN, Ye.S.

Using aluminum in graduating thermocouples of the first degree.
Izm.tekh. no.5:28-29 My '60. (MIRA 14:5)
(Thermocouples)
(Calibration)

20441
S/115/61/000/003/004/013
B124/B204

9.4170 (1142,1537,2801)

AUTHORS: Shpigel'man, Ye. S. and Golub, L. M.

TITLE: The dependence of the thermal electromotive force of the
TEPA-50/900-1800 (TERA-50/900-1800) telescopes on temperature

PERIODICAL: Izmeritel'naya tekhnika, no. 3, 1961, 16-17

TEXT: For the ideal case that the scheme of the radiation pyrometer is simple and contains no reflecting and refracting systems, the relation

$e = a(T^4 - T_0^4)$ (1) holds for the variation of the thermal e.m.f. as depending on T_0 the temperature of the black body at all wavelengths. Therein, T denotes the temperature of the source (of the black body) and T_0 the temperature of the receiver. Since the coefficient of total transmissivity of the optical system of rational telescopes varies with temperature to quite some extent, (1) can only difficultly be satisfied, and the dependence of e on T may be rendered by the relation

$e = a(T^b - T_0^b)$ (2), where b denotes a factor which is constant for every

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The dependence of the...

device and whose numerical value varies between 3.5 and 4.5. The size of the source and its distance from the telescope are in this case assumed to be constant. For pyrometers with a lower measuring limit of 900°C and more, T_o^b is very small as compared to T^b , and therefore the equation $e = aT_o^b$ (3) is correct for practical purposes. The calibration curve plotted according to (3) in logarithmic coordinates, is a straight line according to which radiation pyrometers may be calibrated up to 1300 - 1400°C; at higher temperatures, the values of the thermal e.m.f. must be ascertained by extrapolation. Work carried out at the KhGIMIP (Khar'kov State Institute of Measures and Measuring Instruments) showed that a discrepancy highly exceeding the trouble in calibration exists between the experimental log e-versus-log T curve and that calculated according to (3). The authors examined 10 radiation pyrometers (type TERA-50) with glass lens and a factor of sighting 1/20 in order to find an analytical equation for a sufficiently exact description of the dependence of the thermal e.m.f. on the temperature of the telescope. The results were evaluated according to the method of the least squares and expansion of Eq. (3) into a series, with t°C taken instead of T°K. The

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The dependence of the...

fourth-order equation $e = at + bt^2 + ct^3 + dt^4$ (4) rendering the mentioned dependence the most exactly was found. It was further found that the best suited temperatures in plotting the curve of Eq. (4) according to four measured points, are at 1000, 1200, 1400, and 1600°C. On the basis of the thermal e.m.f. at the above temperatures for each of the telescope investigated, the system of equations

$$\begin{aligned} e_1 &= a1000 + b1000^2 + c1000^3 + d1000^4 \\ e_2 &= a1200 + b1200^2 + c1200^3 + d1200^4 \\ e_3 &= a1400 + b1400^2 + c1400^3 + d1400^4 \\ e_4 &= a1600 + b1600^2 + c1600^3 + d1600^4 \end{aligned} \quad (5)$$

was solved. Therefrom, the coefficients a_i , b_i , c_i , and d_i were calculated for all telescopes. Table 2 shows the values of the thermal e.m.f. as obtained on experimental calibration of seven telescopes according to the "black" emitter and calculated from the coefficients a_i , b_i , c_i , and d_i from (5), as well as the values Δt which denote the difference between the experimental and calculated thermal e.m.f. In this case, Δt is much

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smaller than 2σ (σ stands for the mean square error of second-class radiation telescopes, which amounts to $\pm 2.5^{\circ}\text{C}$ in the range of from 900 to 1300°C , and to $\pm 4^{\circ}\text{C}$ in the range of from 1400 to 1800°C). Only at some telescopes, Δt at 1800°C is somewhat greater than 2σ . There are 2 tables.

f

Card 4/5

GOLUB, L.M.; SHPIGEL'MAN, Ye.S.

Efficient methods for calibrating standard telescopes for radiation
pyrometers. Izv.tekh. no.4:30-33 Ap '63. (MIRA 16:5)
(Calibration) (Pyrometers)

L 10304-66 EMT(i) GW

ACC NR: AP6000033

SOURCE CODE: UR/0115/65/000/010/0050/0051

AUTHOR: Golub, L.M.; Finkel'shteyn, V. Ye.; Shpigel'man, Ye. S.

ORG: None

44.55

44.55

44.55

54
23

TITLE: A method for expanding the range of a radiation pyrometer in the high-temperature region

SOURCE: Izmeritel'naya tekhnika, no. 10, 1965, 50-51

TOPIC TAGS: meteorologic instrument, radiation pyrometer, telescope, optic black body

12,44,55

ABSTRACT: From the meteorologic viewpoint, one of the practical disadvantages of telescopes of radiation pyrometers is that they are calibrated directly by "black body" emitters, as a result of which the upper temperature limit is restricted by the maximum working temperature of this emitter. It is desirable to have a method of range expansion which would make it possible to construct the range by means of calculations, but which would be free of any assumptions regarding the optic properties of the telescope itself. The authors propose the application of a method widely known in optical pyrometry, but never used in radiation pyrometry. The method is based on the following. In measuring high temperatures the light flux is attenuated by a glass selective absorber, the transmission τ_{λ} of which, in the

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UDC: 536.521.2

L 10304-66

ACC NR: AP6000033

entire longwave range admitted by the radiation pyrometer is related to the long wave λ by the relationship:

$$\tau_{\lambda} = \epsilon \frac{c_2}{\lambda}, \text{ Where } \epsilon = \text{const.} \quad (1)$$

After absolute black body emission passes through such an absorber, the temperatures T are made identical (i. e., equal at all wavelengths) to the emission of the absolute blackbody at a lower temperature T_0 , related with T by the relationship:

$$\frac{1}{T_0} - \frac{1}{T} = A, \text{ Furthermore } A = \frac{c_2}{c_1} = \text{const.} \quad (2)$$

where c_2 is the second constant in the Planck formula, equal to 1.438 cm x deg. Hence, irrespective of the properties of the radiation pyrometer, the signal originating from the black body of temperature T through the absorber will be equal to the signal originating without the absorber of the black body temperature T_0 . Several examples of application of the method are presented. It is concluded that the utilization of an absorber which satisfies the condition of formula (1) in the region of 0.8-2.7 microns makes it possible to extend the range of measurement of industrially produced telescopes of radiation pyrometers up to very high temperatures. Orig. art. has: 3 figures and 3 formulas.

SUB CODE: 17,04 / SUBM DATE: None / ORIG REF: 003

Card 2/2 *PC*

ACC NR: AP6014526 SOURCE CODE: UR/0115/65/000/011/0066/0067

AUTHOR: Golub, L. M.; Finkel'shteyn, V. Ye.; Shpigel'man, Ye. S.

ORG: None

TITLE: A new "black body" radiator for the 1500-3000°C temperature range

SOURCE: Izmeritel'naya tekhnika, no. 11, 1965, 66-67

TOPIC TAGS: black body radiation, radiation measurement, pyrometer

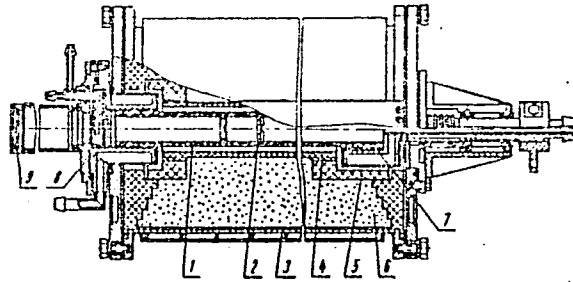
ABSTRACT: The authors describe a "black body" radiator developed at the Kharkov State Institute of Measures and Measuring Instruments for graduating the telescopes of radiation pyrometers with a sighting index of 1/40 (and less) in the 1500-3000°C temperature range. The radiator (see figure) is an electric resistance furnace in which the heating element is graphite tube 1 400 mm long with an inside diameter of 25 mm and a wall thickness of 3 mm. A screw thread is cut inside the tube for holding graphite partition 2 and diaphragms to increase the blackness of the radiating cavity. The heater is placed in a cylindrical metal housing 3 with double walls for passage of running water. Inside the housing is a graphite screen 4 in the form of a tube with fireclay rings 5. The screen and rings separate the furnace housing from the heater tube. The space between the housing and screen is filled with a heat insulation material (carbon black) 6. The furnace is covered on both sides by metal lids with double

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UDC:681.2.089.6:536.521.2

L 45601-56
ACC NR: AP6014526

walls cooled by running water. The heater (graphite tube) is threaded into movable 7 and stationary 8 metal flanges which simultaneously serve as current conductors. The movable flange is necessary for expansion of the heated tube. Both flanges are equipped with glass windows 9 with metal baffles to avoid burn-through of the graphite heater. Argon is fed through pipe branches in the movable flange for the same purpose. The maximum working temperature of 3000°C is reached in one hour at a power of 20 kw. Radiation blackness is 0.980±0.015. Orig. art. has: 1 figure.



SUB CODE: 20/ SUBM DATE: None

Card 2/2 *plw*

25 (1,7)

PHASE I BOOK EXPLOITATION

SOV/1687

Gladkov, B. A., L.N. Grachev, P.M. Shpigel'shteyn, V.A. Kudinov,
A.S. Lapidus, G.M. Azarevich, Yu. A. Leshchenko

Modernizatsiya tokarnykh stankov; rukovodyashchiye materialy
(Modernization of Lathes; Instructions) Moscow, Mashgiz, 1958.
286 p. 6,800 copies printed.

Sponsoring Agency: Moscow. Eksperimental'nyy nauchno-issledovatel'skiy
institut metallorezhushchikh stankov.

Ed.: A.Ye. Prokopovich; Ed. of Publishing House: N.A. Ivanova;
Tech. Ed.: Ye. N. Matveyeva; Managing Ed. for Literature on
Metal Working and Tool Making: R.D. Beyzel'man, Engineer.

PURPOSE: This book is intended for manufacturing personnel dealing
with the operation of machine tools, and for designers in plant
machine-shops, and engineer-technologists.

Card 1/5

BROYER, P.; KISSELEV, A.V.; LOPATIN, A.A.; SHPIGIL', S.

Energy of interaction between simple molecules and faujasite-type
zeolites. Dokl. AN SSSR 161 no.4:853-856 Ap '65. (MIRA 18:5)

L. Moskovskiy gosudarstvennyy universitet. Submitted September 24,
1964.

SVIRIDENKO, S.Kh.; AKHMECHET, L.S.; VOLKOV, A.A.; MEYSTEI', A.M.;
MIZHEVSKIY, L.L.; POLYAKOV, L.M.; RASHKOVICH, M.P.;
SRIBNER, L.A.; KHVALOV, Yu.G.; SHFIGLER, L.A.; SERAGO,
L.K.; ORLIKOV, M.L., inzh., re'tsenzent; SVECHNIKOV, L.V.,
inzh., re'tsenzent; MATSIYEVSKIY, A.G., inzh., red.

[Elements of the automation of machine tools] Elementy
avtomatizatsii metallorezhushchikh stankov. Moskva, Mash-
giz, 1964. 210 p. (MIRA 17:12)

MARCHEVSKAYA, Yu.M.; KURILENKO, O.D.; KLOCHKOV, V.P.; SHPIGUN, A.A.

X-ray diffraction examination of ion exchangers. Ukr. khim. zhur.
31 no. 11e1161-1164 '65 (MIRA 19e1)

1. Institut obshchey i neorganicheskoy khimii AN UkrSSR.

I 00724-67 EWT(m)/EWP(j)/T IJP(c) RM/WW

ACC NR: AP6024845

SOURCE CODE: UR/0073/66/032/004/0366/0370

AUTHOR: Klochkov, V. P.; Shpigun, A. A.; Ul'berg, Z. R.; Prikhod'ko, G. P.; Ivanova, Ye. I.; Kabakchi, A. M.; Meleshevich, A. P.; Natanson, E. M.

ORG: Institute of General and Inorganic Chemistry, AN UkrSSR (Institut obshchey i neorganicheskoy khimii AN UkrSSR) 47

TITLE: X-ray diffraction study of ED-5 epoxy-diane resin irradiated with Co⁶⁰ gamma rays and of metallopolymers based on it 15 15 19

SOURCE: Ukrainskiy khimicheskiy zhurnal, v. 32, no. 4, 1966, 366-370

TOPIC TAGS: metallopolymer material, epoxy plastic, resin, irradiation effect, gamma irradiation

ABSTRACT: The effect of gamma irradiation on the molecular structure of ED-5 epoxy-diane resin and metallopolymers prepared from it and containing from 1 to 6% copper and 5% lead was studied by using a URS-50 I² diffractometer and a scintillation method. The irradiation of purified uncured ED-5 resin and its mixtures with colloidal metals was carried out on a UK-70 000 unit (with a Co⁶⁰ activity corresponding to 70 000 g-eq of Ra). A distinct structure appeared in the resin as a result of the irradiation: under the influence of the high-energy radiation, the highly dispersed copper was found to accelerate the ordering effect in the resin. An appreciable increase in the degree of crystallinity was produced by the irradiation in the binary system ED-5 + 6%

Card 1/2

UDC: 621.039.55

L 00724-67

ACC NR: AP6024845

copper. The combined influence of gamma radiation and colloidal lead on the structuration of ED-5 and the interaction of the latter with the metal were much less pronounced than in the case of the system containing copper. Orig. art. has: 5 figures, 1 table, and 2 formulas.

SUB CODE: 11/ SUBM DATE: 08Jul64/ ORIG REF: 004/ OTH REF: 002

Card 2/2 afs

OL'SHANSKIY, M.K.; SHPIGUN, G.B.

Reinforced concrete pits for slow metal cooling. Metallurg 7
no.9:20-21 S '62. (MIRA 15:9)

1. Prokatnyy tsekh No.1 Chelyabinskogo metallurgicheskogo zavoda.
(Furnaces, Heating)

17(

SOV/177-58-9-38/51

AUTHOR: Shpigunov, F.A., Colonel of the Medical Corps

TITLE: Immunological Effectiveness of Living Variolovaccine, Brucellar Vaccine and Polyvaccine of the NIISI When Simultaneously Applied

PERIODICAL: Voyenno-meditsinskiy zhurnal, 1958, Nr 9, pp 84-85 (USSR)

ABSTRACT: The immunobiological effectiveness of the variolovaccine and the components of polyvaccine was studied in rabbits, and of brucellar vaccine, in guinea-pigs. The study of the immunological effectiveness of combined inoculation was carried out in comparison with the effectiveness of monovaccination with vaccines being a part of the combination. Both, rabbits and guinea pigs, took the vaccination without any reaction. The results obtained in various animal experiments warrant the conclusion that the immunological effectiveness of variolovaccine, tetanus, abdominal typhus parathyphus B and dysenteric

Card 1/2

SHPIGUNOV, F.A.

Immunological effectiveness of certain components of the polyvaccine developed by the Experimental Sanitation Research Institute when combined with live smallpox and brucellosis vaccines. Zhur.mikrobiol. epid. i imun. 30 no.1:24-28 Ja '58. (MIRA 12:3)

1. Iz kafedry mikrobiologii Voenno-meditsinskoy ordena Lenina akademii imeni Kirova.

(VACCINES AND VACCINATION,

immunol. eff. of polyvaccine against enteric dis.
assic, with live smallpox & brucellosis vaccines
(Rus))

SHPIGUNOV, F.A.

Immunological effectiveness of live vaccines associated with
polyvaccine NIISI. Report No.2. Zhur.mikrobiol.epid. i
immun. 30 no.4:19-23 Ap '59. (MIRA 12:6)

1. Iz kafedry mikrobiologii Voenno-meditsinskoy akademii imeni
Kirova.

(VACCINES AND VACCINATION,
immunol. effectiveness of various live vaccines
assoc. with polyvaccine NIISI (Rus))

SHPIGUNOV, F.A.

Immunological effectiveness of smallpox vaccine combined with live
brucellosis vaccine. Zhur.mikrobiol.,epid.i immun. 30 no.11:25-28
N '59. (MIRA 13:3)

1. Iz Voenno-meditsinskoy ordena Lenina akademii imeni Kirova.
(SMALLPOX immunol.)
(BRUCELLOSIS immunol.)
(VACCINATION)

PUKHOVSKIY, Ye.P.; ZAKHAROVA, P.A.; SHPIGUNOVA, N.A.; BUDAYEV, G.P.

Sulfidization of chromium stainless steel. Metalloved.i obr.met.
no.5:40-43 My '56. (MLRA 9:8)

1. Kaluzhskiy turbinnyy zavod.
(Steel, Stainless)

SHPIKALOV, V.D. (g. Dmitrov)

Efficiency promoters assume higher responsibilities. Shvein.
prom. no.1:28-29 Ja-F '61. (MIRA 14:3)
(Dmitrov--Clothing industry)

Distribution of boron between liquid and solid phases
 of the Inder Lake (Western Kazakhstan) brines during
 isothermal evaporation. I. N. Lepeshkov and A. L.
 Shpikel'man. *Compt. rend. acad. sci. U. R. S. S.* 24,
 707-8, 1930 (in English). — A discussion of the problems
 assoc. with the development and utilization of the Inder
 Lake brines contg. Ca, Mg, K, Na, B and Br. P. G.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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1ST AND 2ND ORDERS
PROCESSES AND PROPERTIES INDEX

CA

The rate of oxidation of high-chromium iron-chromium-aluminum alloys. I. I. Kornilov and A. I. Shpikel'man. *Compt. rend. acad. sci. U.R.S.S.* 53, 815-8(1946). The oxidation rates were investigated of a series of ternary Fe-Cr-Al alloys with a const. Cr content of 40% and with 2, 4, 7, 8, 10, and 13% Al. These alloys also contained 0.03-0.05% C and 0.15-0.37% Si. After oxidation the alloys were analyzed chemically and their wt. loss and elec. resistivity were detd. Methods employed and data obtained were similar to those previously reported by the authors. H. F. Pool

COMMON ELEMENTS
COMMON VARIABLES INDEX
OPEN
ASB-31A METALLURGICAL LITERATURE CLASSIFICATION
FROM SYMBOLS
2ND LETTER
1ST AND 2ND LETTER

14

Rate of Oxidation of Iron-Chromium-Aluminum Alloys. I. I. Kornilov and A. I. Shpikelman 7 pages. Henry Bratcher, Altadena, Calif. (Translation No. 1965.) From *Reports of the Academy of Sciences of U.S.S.R.*, v. 53, no. 9, 1946, p. 813-816.

The resistance of a series of the above alloys to corrosion was determined. The significance of the sigma phase in alloys with 40% Cr and up to 8.5% Al, and the optimum composition for heat resistance, are indicated.

ASME-ISA METALLURGICAL LITERATURE CLASSIFICATION

ALPHABETIC INDEX

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00
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14

Rate of Oxidation of an Iron-Chromium-Nickel Austenitic Alloy. I. I. Kornilov and A. I. Shpikel'man. 8 pages. Henry Bratcher, Altadena, Calif. (Translation No. 2034.) From *Doklady Akademii Nauk SSSR* (Reports of the Academy of Sciences of the U.S.S.R.), v. 54, no. 6, 1946, p. 515-518.

Gives results of an experimental study of the rate of oxidation of an iron-base austenitic alloy containing 0.6% C, 1.7% Si, 28% Cr, 27% Ni, and 0.35% Mn at 1100°-1200°C. for 120 to 750 hrs. Discusses mechanism of oxidation; role of the different elements; and reduction of chromium oxide by silicon.

ASME-ISA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND LETTERS: A B C D E F G H I J K L M N O P Q R S T U V W X Y Z AA AB AC AD AE AF AG AH AI AJ AK AL AM AN AO AP AQ AR AS AT AU AV AW AX AY AZ BA BB BC BD BE BF BG BH BI BJ BK BL BM BN BO BP BQ BR BS BT BU BV BW BX BY BZ CA CB CC CD CE CF CG CH CI CJ CK CL CM CN CO CP CQ CR CS CT CU CV CW CX CY CZ DA DB DC DD DE DF DG DH DI DJ DK DL DM DN DO DP DQ DR DS DT DU DV DW DX DY DZ EA EB EC ED EE EF EG EH EI EJ EK EL EM EN EO EP EQ ER ES ET EU EV EW EX EY EZ FA FB FC FD FE FF FG FH FI FJ FK FL FM FN FO FP FQ FR FS FT FU FV FW FX FY FZ GA GB GC GD GE GF GG GH GI GJ GK GL GM GN GO GP GQ GR GS GT GU GV GW GX GY GZ HA HB HC HD HE HF HG HH HI HJ HK HL HM HN HO HP HQ HR HS HT HU HV HW HX HY HZ IA IB IC ID IE IF IG IH II IJ IK IL IM IN IO IP IQ IR IS IT IU IV IW IX IY IZ JA JB JC JD JE JF JG JH JI JJ JK JL JM JN JO JP JQ JR JS JT JU JV JW JX JY JZ KA KB KC KD KE KF KG KH KI KJ KL KM KN KO KP KQ KR KS KT KU KV KW KX KY KZ LA LB LC LD LE LF LG LH LI LJ LK LL LM LN LO LP LQ LR LS LT LU LV LW LX LY LZ MA MB MC MD ME MF MG MH MI MJ MK ML MN MO MP MQ MR MS MT MU MV MW MX MY MZ NA NB NC ND NE NF NG NH NI NJ NK NL NM NO NP NQ NR NS NT NU NV NW NX NY NZ OA OB OC OD OE OF OG OH OI OJ OK OL OM ON OO OP OQ OR OS OT OU OV OW OX OY OZ PA PB PC PD PE PF PG PH PI PJ PK PL PM PN PO PP PQ PR PS PT PU PV PW PX PY PZ QA QB QC QD QE QF QG QH QI QJ QK QL QM QN QO QQ QR QS QT QU QV QW QX QY QZ RA RB RC RD RE RF RG RH RI RJ RK RL RM RN RO RP RQ RR RS RT RU RV RW RX RY RZ SA SB SC SD SE SF SG SH SI SJ SK SL SM SN SO SP SQ SR SS ST SU SV SW SX SY SZ TA TB TC TD TE TF TG TH TI TJ TK TL TM TN TO TP TQ TR TS TT TU TV TW TX TY TZ UA UB UC UD UE UF UG UH UI UJ UK UL UM UN UO UP UQ UR US UT UU UV UW UX UY UZ VA VB VC VD VE VF VG VH VI VJ VK VL VM VN VO VP VQ VR VS VT VU VV VW VX VY VZ WA WB WC WD WE WF WG WH WI WJ WK WL WM WN WO WP WQ WR WS WT WU WV WW WX WY WZ XA XB XC XD XE XF XG XH XI XJ XK XL XM XN XO XP XQ XR XS XT XU XV XW XX XY XZ YA YB YC YD YE YF YG YH YI YJ YK YL YM YN YO YP YQ YR YS YT YU YV YW YX YY YZ ZA ZB ZC ZD ZE ZF ZG ZH ZI ZJ ZK ZL ZM ZN ZO ZP ZQ ZR ZS ZT ZU ZV ZW ZX ZY ZZ

PROCESSES AND PROPERTIES INDEX

2

M

The Rate of Oxidation of High-Chromium Fe-Cr-Al Alloys. I. I. Kornilov and A. I. Shpikelman (*Compt. rend. (Doklady) Acad. Sci. U.R.S.S.*, 1946, 53, (9), 805-808).—[In English]. The rate of oxidation of alloys containing chromium 40, aluminium 2, 4, 7, 8, 10, and 13%, and iron remainder, was measured at 1200° C. by determining the weight loss. The results of oxidation lasting 1000 hr. show that the rate of oxidation decreases with an increasing aluminium content in the alloy, attaining a minimum with an aluminium content of 10-13%. The process of oxidation is followed by a loss in aluminium content of the alloy and an increase in its chromium content. —V. K.

ASM-51A METALLURGICAL LITERATURE CLASSIFICATION

ALPHABETIC INDEX

GHIKIN, A.A., polkovnik med. sluzhby, dotsent

Some data on the medical service of the United States Navy; based on
data from foreign literature. Voen.-med.zhur. no.6:82-86 '64.

(MIRA 18:5)

SHOIKIN, A. A. Doklady, polkovnik meditsinskoy sluzhby

Some problems of the medical care in the U.S. Navy. Voen.-med. zhur.
no. 7:85-88 '64. (MIRA 18:5)

SHPIKITER, V.O.

TUSTANOVSKIY, A.A.; SHPIKITER, V.O.

Initial structural changes in procollagen during denaturation.
Vop.med.khim. 4:70-82 '52. (MIRA 11:4)

1. Laboratoriya khimii tkaneykh belkov Instituta biologicheskoy
i meditsinskoy khimii AMN SSSR, Moskva.
(PROCOLLAGEN) (HEAT--PHYSIOLOGICAL EFFECT)

SHPIKITER, V. O.

The Committee on Stalin Prizes (of the Council of Ministers USSR) in the fields of science and inventions announces that the following scientific works, popular scientific books, and textbooks have been submitted for competition for Stalin Prizes for the years 1952 and 1953. (Sovetskaya Kultura, Moscow, No. 22-40, 20 Feb - 3 Apr 1954)

<u>Name</u>	<u>Title of Work</u>	<u>Nominated by</u>
Shpikiter, V. O.	"Procollagens, Their Chemical Composition, Properties, and Biological Role"	Institute of Biological and Medical Chemistry, Academy of Medical Sciences

SO: W-30604, 7 July 1954

SHPIKITER, V. O.

Molecular weight and the degree of asymmetry of procollagen. V. N. Orekhovich and V. O. Shpikiter (Inst. Biol. and Med. Chem., Acad. Med. Sci. U.S.S.R., Moscow). *Biokhimiya* 20, 438-43(1955); cf. *C.A.* 49, 12556c.—A critical discussion was presented of the methods and formulas usually employed in the detn. of S (sedimentation const.), M (mol. wt.), f (molar coeff. of viscosity), f_0 (molar coeff. of viscosity for spherical particles), and the degree of asymmetry from the ratio f/f_0 and the ratio of the semiaxes b/a . White rats were used and procollagen was obtained by a previously described method (V. N. Orekhovich, *Prokollageny ikh Klin. Sostav, Svoistva i Biol. Rol'* (Moscow)(1952)). The needle-shaped crystals pptd. were thoroughly washed and stored in a moist condition. For use in expts. the protein was dissolved in 0.1M citrate buffer of pH 3.6. Total N was then detd. H₂O soln. of CaCl₂ and urea was added so that a procollagen soln. in 0.05M citrate buffer of pH 3.6 in 1% CaCl₂ soln. and another in 0.5M urea were obtained. Thymol was added as a preservative. In the case of the diffusion expts. solns. were dialyzed against the solvent for 24-30 hrs. in the cold. Sedimentation studies were made with the use of a Svedberg ultracentrifuge at 61,000 r.p.m.; in the summer some expts. were performed at a speed of 60,000 r.p.m. and at a temp. of approx 24°. Sedimentation diagrams were prepd. Results indicated that the procollagen sediment represented a single component and that the single peak at approx. 0.03% concn. is an indication of the monodisperse nature of the protein. By extrapolation to zero protein concn. in expts. with 0.05M citrate buffer, pH 3.6, and with 1% CaCl₂, S was 3.05×10^{-11} ; in the case of 0.5M urea soln., S was 3.25×10^{-11} . Diffusion

expts. by the method of Lamm were continued for 4-6 days at approx. 23° (approx. 0.003° error). The diffusion const. of procollagen at a concn. of 0.03% in 1% CaCl₂ (other conditions being the same), detd. with the aid of a polarizing interferometer on the Tsvetkov app., was $D = 0.35 \times 10^{-7}$ sq. cm./sec. Extrapolation to zero protein concn. yielded the same D value in 1% CaCl₂ and $D = 0.4 \times 10^{-7}$ sq. cm./sec. in 0.5M urea. Viscosity detns. were made with the aid of a U-shaped capillary viscosimeter (diam. 0.03 cm., length approx. 40 cm., vol. 0.3 cc.) at 20° and at different flow rates. For procollagen in 0.05M citrate buffer and for CaCl₂ 1% and pH 3.6, $[\eta]$ was 17.5; with 0.5M urea $[\eta]$ was 16.8. Mol. wt. detns. were calcd. for M_{sp} with the aid of formulas for S and $[\eta]$, taking v_0 (partial specific vol.) = 0.72 and formulas $M = SRT/[D(1 - v_0)](1)$ and $S_0[\eta]^{1/2}/M^{1/2} = v_0^{1/2} \rho^{-1} (1 - v_0)^{1/2} N(2)$. The av. mol. wt. for procollagen thus obtained was 680,500. In detg. the degree of asymmetry and the size of the procollagen particles the following discussion is presented: according to formula (1) and Stokes equation for f_0 , f/f_0 is 9.3. If it is assumed that the shape of part of the procollagen is an elongated ellipsoid. Then in the case with the f/f_0 , $b/a = 1/525$, i.e., the length of the particles is 500 times their diam. With the formula, particle size = Mv/N = $Mv^{1/2}/N$ the size of the procollagen particles are found to be 1.28 μ in diam. and 675.5 μ long. B. S. Levine

①

Shpikler V. O.

✓
 CI Physicochemical characteristics of the soluble proteins of the eye lens. V. N. Orekhovich, K. F. Firarova, and V. O. Shpikler (Inst. Biol. Med. Chem., Acad. Med. Sci. U.S.S.R., Moscow). *Ukrain. Biokhim. Zhur.* 27, 365-63 (1955) (in Russian).—Lenses of eyes of cattle and other animals were comminuted in a homogenizer in a ratio of 50 lenses per 150-200 ml. of distd. H₂O. The homogenate was allowed to stand for 60 min. at 5°, centrifuged twice, and the insol. protein was removed. Protein fractionation was as follows: to the clear lens ext. (NH₄)₂SO₄ was added to 0.3 satn. The first ppt. was dissolved in dist. H₂O and repptd. twice. To the first supernatant (NH₄)₂SO₄ up to 0.45 satn. was then added, which completely pptd. the α-crystalline. The second ppt. was dissolved in H₂O and repptd. twice with 0.3 satn. of (NH₄)₂SO₄. (NH₄)₂SO₄ was then added to the original supernatant to 0.5 satn. The third pptn. isolated β-crystalline and γ'-crystalline. (NH₄)₂SO₄ was then added to the original supernatant to 0.6 satn. The fourth ppt. contained the remainder of β- and γ'-crystalline. (NH₄)₂SO₄ was then added to complete satn. The fifth ppt. contained the remainder of the proteins, leaving a protein-free supernatant fluid. Electrophoretic sepn. was done by means of Tiselius app. in a buffer of pH 7.8, ionic strength 0.07 at 6.3 v./cm.² gradient and +2°. Differential centrifugation was accomplished with a Svedberg ultracentrifuge. Diffusion index and specific vol. detns. were also made. In the lenses of many animals are present 6-7 sol. protein components which can be well differentiated electrophoretically. Pptn. with (NH₄)₂SO₄ failed to yield homogeneous components. The α-crystalline fraction obtained at 0.3 (NH₄)₂SO₄ satn. contains β-crystalline. Attempts to remove same by repeated pptn. resulted in a par-

tial denaturation of α-crystalline. Ultrafiltration of electrophoretically obtained α-crystalline produced results pointing to the monodisperse nature of that protein. Its sedimentation const. ($S = 16.7 \times 10^{-10}$) and diffusion constant ($D = 1.86 \times 10^{-7}$ cm.²/sec.) make possible the detn. of the mol. wt. of α-crystalline (800,000) as well as the degree of asymmetry (1/17). In the case of guinea pigs, rats, rabbits, and dogs the α-crystalline fraction of the lens contained another component which had a lower electrophoretic mobility. In the β-crystalline of the lens of cattle electrophoretic analysis showed the presence of 2 components. In all other animals the presence of 2 such components was even more clearly in evidence. Ultracentrifugation studies indicated the presence in fraction β-crystalline of 2 components; a lighter one, which corresponds to the component of greater electrophoretic mobility (β') having a mol. wt. of 45,000, and a heavier component, corresponding to the component of lower electrophoretic mobility (β'') having a mol. wt. of 100,000. In the fraction γ-crystalline of the lens of cattle electrophoresis disclosed 3 components as indicated by the ascending part of the graph. Generally, the amt. of γ-crystalline in the lens of the eye of cattle was lower than that of other animals. A β-crystalline-free γ-fraction was not obtained by fractional pptn. It was obtained electrophoretically and in only small amts. Ultracentrifugation studies of 0.5 (NH₄)₂SO₄-satd. fraction gave data regarding a component of γ-fraction, which was denoted as γ'-crystalline, having a mol. wt. of 600.

B. S. Levine

(2)

Shpikiter, V. O.

USSR/ Biology - Biochemistry

Card 1/1 Pub. 22 - 35/49

Authors : Orekhovich, V. N., Act. Memb., Acad. of Med. Sc., USSR; and Shpikiter, V. O.

Title : Study of certain properties of denatured procollagen by means of an ultracentrifuge

Periodical : Dok. AN SSSR 101/3, 529-530, Mar 21, 1955

Abstract : It was determined on the basis of experimental works that native procollagen represents a complex of two or more albumina components. A study of procollagen properties, by means of the Svedberg ultracentrifuge, showed that the procollagen components have relatively weak bonds and unusually high viscosity whereas the products of denatured procollagen have a very low viscosity. Three references: 2 USSR and 1 English (1940-1952). Graphs.

Institution : Acad. of Med. Sc., USSR, Inst. of Biol. and Med. Chemistry

Submitted : November 25, 1954

Shpikiter, V. O.

✓ Role of active center of trypsin in formation of complex with ovomucoid. M. P. Chernikov and V. O. Shpikiter. *Doklady Akad. Nauk S.S.S.R.* 104, 780-2 (1955). Centrifugal sedimentation of ovomucoid (from fractionated egg protein) and diisopropylphosphoryltrypsin (I) in phosphate buffer at pH 5 was examd. The typical sedimentation curves are reproduced. Inactive I does not complex with ovomucoid at all, but the active trypsin forms a complex which has a sedimentation rate some 50% greater than that of the components alone. The complex migrates to the anode more slowly than does ovomucoid alone. The blocking of trypsin action by diisopropyl fluorophosphate is probably connected with loss of ability of protein complex formation at the active center of the enzyme. G. M. F.

MD
①

Inst. Biol. + Med. Chem., AMS USSR

Shpikite, v. o.

✓Molecular weights of pepsinogen and pepsin. V. N. Grekhovich, V. O. Shpikite, and V. I. Petrova, *Doklady Akad. Nauk S.S.S.R.* III, 401-3(1956).—The centrifugal sedimentation method gave a sedimentation const. of 3.6×10^{-11} sec. for pepsinogen and 3.25×10^{-11} sec. for pepsin (cf. Philpot and Eriksson, *C.A.* 28, 1726; Steinhardt, *C.A.* 32, 5420). Diffusion in a Lamm cell gave diffusion consts., resp., of 7.54×10^{-7} sq. cm./sec. and 5.7×10^{-7} (cf. Polson, *C.A.* 33, 6884; Northrop, *C.A.* 24, 5313). Examn. of the substances in respect to widening of sedimentation curves (cf. Williams, *et al.*, *C.A.* 45, 8081) showed their individual homogeneity. The specific vols. of the 2 substances were detd. pycnometrically, obtaining 0.726 and 0.725, resp. (cf. Polson, *C.A.* 33, 5084). Application of Svedberg formula gave mol. wts. of 42,240 and 32,630, resp., for pepsinogen and pepsin. The axis ratio δ/a was calcld. as 4.7 and 4.0, resp., indicative of cleavage of a fragment during activation of pepsinogen and conversion to pepsin. G. M. Kuznetsov

Clam
MIA

ARSHVILI, V. G. and GOSKIN-VLASH, V. I.

"Physicochemical Nature of Procollagen,"

paper submitted to the Conference on Advances in Gelatin and Glue Research,
Univ. of Cambridge, England, 1-5 July 1957.

Translation - Encl. A-3098181, 11 Feb 1958

Inst. of Biological and Medical Chemistry, Acad. Med. Sci. USSR, Moscow

SHPIKIN, V. O. and GREKHOVICH, V. N.

"Procollagens - A Citrate-soluble Fraction of Collagen is assumed to Form a Special Group of Connective Tissue Proteins." Science, 13 June 1958, Vol. 127, No. 3311.

Inst. Biological and Med. Chem., Acad. Medical Sci. USSR, Moscow,
(Dir. - Dr. Grekhovich)

This article is based on a paper which Dr. Grekhovich presented at Mass. Gen Hospital, Boston, 11 Dec 57.

OREKHOVICH, V.N.; PAVLIKHINA, L.V.; SHPIKITER, V.O.

Nature of the alkali-soluble fraction of collagen. [with summary in English]. Biokhimiia 22. no.1/2:210-213 Ja-F '57. (MLRA 10:7)

1. Institut biologicheskoy i meditsinskoy khimii Akademii meditsinskikh nauk SSSR, Moskva.

(COLLAGEN,
alkali-soluble fraction (Rus))

SAPPHIRE, 44.

20-1-37/54...

AUTHOR OREKHOVICH, V.M., Regular member of the Academy of Medical Sciences of the U.S.S.R., and SHPIKITER, V.O.

TITLE Isolation of α - and β -Components of Procollagen (Vydeleniye α - i β -komponentov prokollagena. Russian)

PERIODICAL Doklady Akademii Nauk SSSR, 1957, Vol 115, Nr 1, pp 137-140(U.S.S.R.)

ABSTRACT When investigating the sedimentation of procollagen in a 3 M urea solution the authors observed a decomposition of protein after 10 min. heating at 30°C. This permits the conclusion that the procollagen molecule represents a two-component complex. These complexes are bound together in their native structure by comparatively weak, perhaps saline or hydrogen linkage. This splitting in two was also observed on sedimentation of procollagen solutions which were previously treated with 5 M KCNS in a phosphate buffer solution at room temperature, or which were heated for 20 min. at 70°C as suspensions in such a solution (pH 8). This indicated that the liberation of individual components takes place under the influence of various actions (temperature, urea, KCNS) which lead to the splitting of weak non-valent linkages. One of the objects of further studies was the isolation of individual components. The decomposition products of procollagen in their chemical composition and several physical properties are somewhat like gelatin. Therefore the authors employed a number of methods which earlier served in the fractioning of gelatin.

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20-1-37/54

Isolation of α - and β -Components of Procollagen

gen were produced. In a comparison of the chromatograms of all three preparations no marked difference in the content of amino acids were found. According to provisional results the amount of oxyprolin in the β -component is smaller than in the two others. The α -component contains somewhat of this acid more than procollagen. Finally published data are analyzed. (With 3 illustrations, 1 Slavic reference).

ASSOCIATION
PRESENTED BY
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AVAILABLE

Not given

18.1.1957

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Card 3/3

Shpikiter, V.O.

OREKHOVICH, V.N., SHPIKITER, V.O.

Sedimentation and diffusion of the α - and β - components of procollagen and their quantitative ratio in procollagen [with summary in English]. Biokhimiia 23 no.2:285-290 Mr-Apr '58 (MIRA 11:6)

1. Institut biologicheskoy i meditsinskoy khimii AMN SSSR, Moskva.

(COLLAGEN,

procollagen α - & β -components, determ. of sedimentation & diffusion constants (Rus))

AUTHORS: Kazakova, O. V., Member AMN SSSR, 307/20-120-2-36/63
Orekhovich, V. N., Shpikher, V. G.

TITLE: The Influence of Temperature Upon the Velocity of
Procollagen Splitting by Collagenase (Vliyaniye temperatury
na skorost' rasshchepleniya prokollagenov kollagenazoy)

PERIODICAL: Doklady Akademii Nauk SSSR, 1958, Vol. 120, Nr 2,
pp. 359-360 (USSR)

ABSTRACT: The present paper deals with this influence with regard to
soluble collagens of the skin of rats, the skin of the air
bladder of the carp (Ichthiokoll) and the skin of the cod-
fish. These proteins approximately have the same molecular
weights and size of molecules (reference 1) as well as a
similar configuration of the polypeptide chains. On the other
hand they differ by the quantitative content of oxyproline
(reference 2). The latter fact causes a different temperature
of the heat-denaturation of procollagens in the solution
which is accompanied by a splitting of hydrogen chains and
by the decomposition of molecules into their component parts
(references 1,3-5). The collagenase preparation was produced
of a filtrate of Clostridium histolyticum culture by means of

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The Influence of Temperature Upon the Velocity of Procollagen
Splitting by Collagenase

SOV/20-12-1-28/55

precipitation with ammonium sulfate (reference 6). A dialysis against water and drying in a vacuum from a frozen state follow. The proteins were extracted from small pieces of tissue by acid citrate-buffer and produced by dialysis of the extracts against a double substituted sodium-phosphate-solution. Figure 1 shows the velocity curves of the splitting of different procollagens by collagenase (curves A,B,V) in dependence on temperature; the velocity is expressed in conventional units. The velocity curves of heat-denaturation (curves a,b,v) are given in the same figure in the same units. As may be seen from this a very intensive splitting of the procollagen of rat skin takes place at 24°, the same velocity is observed in the carp at 18°, and in the protein of codfish at 10°. The denaturation of the same proteins only sets in at 36, 28 and 12°. Thus it becomes clear that collagenase already acts intensively enough at temperatures at which no denaturation does yet occur, and the original configuration of the substrates is preserved. Nevertheless the hydrogen bonds must be weakened with a temperature increase and the inner stability of the molecules reduced.

Card 2, 4

The Influence of Temperature Upon the Velocity of Precollagen Splitting by Collagenase SOV/20-120-2-38/63

This weakening is not sufficient for the molecule decomposition, but suffices for making the substrate susceptible to the influence of the enzyme. In other words, an unstable state of the substrate is necessary for the action of collagenase. The higher this state, the faster is the velocity of splitting. The position of the velocity curves of splitting can be explained by a different degree of the natural stability of molecules of the investigated proteins. In any case further investigations in this field are necessary. There are 1 figure and 9 references, 2 of which are Soviet.

ASSOCIATION: Institut biologicheskoy i meditsinskoy khimii Akademii meditsinskikh nauk SSSR (Institute of Biological and Medical Chemistry, Academy of Medical Sciences, USSR)

SUBMITTED: January 27, 1958

Card 3/4

AUTHORS: Kazakova, O. V., Orekhovich, V. N., SOV/20-122-4-33/57
Member, Academy of Medical Sciences, USSR, Shpikiter,
V. O.

TITLE: On the Nature of the Bonds Subject to Splitting by
Collagenase (Oprirode svyazey, rasshcheplyayenykh
kollagenazoy)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 122, Nr 4,
pp 657 - 660 (USSR)

ABSTRACT: It is of interest that the collagenase has an astonishingly
narrow specific effect, being able alone to split
the proteins of the collagen group. The explanation
of this manifestation might give valuable evidence
on the mode of action of this ferment. After a survey
of publications (Refs 1-6) the authors stated that both
the ferment itself and the mechanism mentioned are
but little investigated. Therefore, the problem under
review is of great importance. As substrate, procollagen
from the skin of rats was used that was extracted by
citrate buffer, and was well washed and dried in vacuo
in frozen state. The starting material for the pro-
duction of collagenase was a filtrate from the

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On the Nature of the Bonds Subject to Splitting by
Collagenase

SOV/20-122-4-33/57

culture of "Cl.histoliticum" (produced in Institut epidemiologii i mikrobiologii AN SSSR= Institute of Epidemiology and Microbiology of the Academy of Medical Sciences, USSR). The electrophoresis (method according to Gallop, Ref 7) was carried out at 4° for 18-20 hours at a current of 30 mA. After termination of the electrophoresis, the starch slab was cut in stripes of 1 cm from which eluates of 10 ml each were produced by means of 0,9% salt solution. In these the content of collagenase- and nonspecific proteinase activity was investigated. To the determination of the nonspecific activity the method according to Gallop (Ref 7) was applied and completed. The method of milk precipitation was used, since the proteolytic ferments of Cl.histoliticum coagulate the milk well, whereas collagenase is not capable of doing so (Ref 8). Figure 1 shows the distribution of the collagenase- and of the nonspecific proteinase-activity in the starch block. From these results it may be concluded that the collagenase represents a specific proteinase that splits

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On the Nature of the Bonds Subject to Splitting by
Collagenase

SOV/20-122-4-33/57

the peptide linkages, which are chiefly formed by amino groups of glycine, and, according to preliminary information, by the carboxyl groups of oxyproline alanine and proline. L.A.Lokshina and O.V.Troitskaya have assisted in this work. There are 2 figures and 11 references, 1 of which is Soviet.

ASSOCIATION: Institut biologicheskoy i meditsinskoy khimii Akademii meditsinskikh nauk SSSR (Institute of Biological and Medical Chemistry of the Academy of Medical Sciences, USSR)

SUBMITTED: June 14, 1958

Card 3/3

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Bacterial collagenase. Usp. sovr. biol. 50 no.3:294-309 N-D '60.

(COLLAGENASE)

(BACTERIA)

(MIRA 14:3)

SHPIKITER, V. O., OREKHOVICH, V. N., GINODMAN, L. M., LOKSHINA, L. A.,
SKLOBOVSKAYA, M. V., AND SLOHNYEVA, N. I. (USSR)

"Some Observations on the Structure and Mechanism of Action
of Proteinases."

Report presented at the 5th International Biochemistry Congress,
Moscow, 10-16 August 1961

SHFEMTER, V. O., USPENSKAYA, V. D., ALEKSEYENKO, L. P., SOLOVYEVA, N. I.,
and RODIONOV, N. I. (USSR)

"The Protein of Canine Plasma."

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Moscow, 10-16 Aug 1961

SHPIKITER, V. O., LEVDIKOVA, L. A., OREKHOVICH, V. N., SOLOVYEVA, N. I., (USSR)

"The Mechanism of Action and the Properties of Collagenase from
Clostridium histolyticum."

Report presented at the 5th Int'l. Biochemistry Congress, Moscow, 10-16 Aug 1961.

OREKHOVICH, Vasilii Nikolayevich; SHPIKITER, Vadim Olegovich;
OPARIN, A.I., akademik, otv. red.; MATVEYENKO, T.A., red.
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[Biological role, characteristics and structure of soluble
collagenlike proteins (procollagens); read at the 18th annual
Bakh Lecture on March 17, 1962]Biologicheskoe znachenie, svoi-
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lagenov); dolozheno na vosemnadtsatom ezhegodnom Bakhovskom
chtenii 17 marta 1962 g. Moskva, Izd-vo Akad. nauk SSSR, 1962.
29 p. (Bakhovskie chteniia, no.18) (MIRA 15:12)
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YEVTIKHINA, Z.F.; OREKHOVICH, V.N.; SHPIKITER, V.O.

Purification and some properties of highly active cathepsin
from the spleen. Vop. med. khim. 9 no.6:626-635 N-D '63.

(MIRA 17:10)

1. Institut biologicheskoy i meditsinskoy khimii AMN SSSR, Moskva.

TORCHINSKIY, Yu.M.; SHPIKITER, V.O.

Interaction between sodium dodecyl sulfate and aspartate-glutamate-transaminase. Dokl. AN SSSR 152 no.3:751-753 S '63.

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1. Institut radiatsionnoy i fiziko-khimicheskoy biologii AN SSSR i Institut biologicheskoy i meditsinskoy khimii AMN SSSR. Predstavleno akademikom V.A.Engel'gardtom.

*

LEVDIKOVA, G.A.; OREKHOVICH, V.N.; SOLOV'YEVA, N.I.; SHPIKITER, V.O.

Dissociation of collagenase molecules into subunits. Dokl.
AN SSSR 153 no.3:725-727 N '63. (MIRA 17:1)

1. Institut biologicheskoy i meditsinskoy khimii AMN SSSR.
2. Deystvitel'nyy chlen AMN SSSR (for Orekhovich).

SHPIKITER, V.O.

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otv. red.; UMRIKHINA, A.V., red.

[Structure and functions of contractile proteins] Struk-
tura i funktsii sokratitel'nykh belkov. Moskva, Nauka,
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LIVANOVA, N.B.; PIKHEL'GAS, V.Ya.; SHPIKITER, V.O.

Transformations of phosphorylase B in acid and alkaline media.
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1. Submitted July 3, 1964.

POLYAKOV, G.I.; SHIL'NER, V.G.

Dissemination of aspartate-transaminase into subunits in acid and alkaline medium. Dokl. Akad. Nauk SSSR no.4:1011-1013 Ag '65.

(MIRA 18:8)

I. Institut radiofizicheskoy i fiziko-khimicheskoy biologii AN SSSR i Institut biologicheskoy i meditsinskoy khimii ANU PCSR. Submitted October 13, 1964.

POGLAZOV, Boris Fedorovich; SHPIKATER, V.O., doktor biol. nauk,
svy. rel.; UMRIKHINA, A.V., rel.

[Structure and functions of contractile proteins] Struktura
i funktsii skratitel'nykh belkov. Moskva, Nauka, 1965.
328 p. (MIRA 18:9)

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SHEPIKOV, A.B.

Yield limit as a generalized index of ground composition and
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pred. no.6:79-86 '59. (MIRA 14:3)
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SULEYMANOV, D.M.; SHPIKOV, A.B.

Characteristics of Quaternary clay rocks in Baku Bay from the view-
point of engineering geology. Uch.zap. AGU.Ser.geol.-geog.nauk no.5:
21-29 '61. (MIRA 16:9)

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Might of public influence. Pozh.delo 3 No.6:7 Je '57.
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SHPIKOV, B.

Electric welding shops on tankers are indispensable. Mor. Flot 25
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Boris Izraylevich; MATYUSHINA, S.P., red.; TIKHONOVA,
~~Ye.A., tekhn. red.~~

[Fire extinguishing on merchant ships] Tushenie pozharov na
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SEIDOV, S.C. SEIDOV, S.B.

Lithological and mineralogical characteristics of the Apsheron
and the Quaternary clay rocks of the Bakinskii Bay. Izv. AN
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1. Kafedra neorganicheskoy khimii (zav. - dotsent V.T.Chuyko)
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(COPPER—ANALYSIS)

CHUYKO, V.I.; SHPIKULA, V.M.

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1. Ternopol'skiy gosudarstvennyy meditsinskiy institut.

SHPIL'BERG, A.U.

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1. Starshiy sledovatel' Smolenskoy oblastnoy prokuratury.

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1. Khar'kovskiy zavod "Elektromashina".