LIDMANOWSKI, WACLAW

Technika wysokich napiec. 2. wyd. Warszawa, Panstwowe Wydawn. Techniczne, 1954.
211 p. (High-tension electrical engineering. 2d ed. illus., bibl.)
NN Not in DLC

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

LIBMANOWSKI, W.

Routine testing of the insulation for high voltage. p. 22

PRACE vol. 4, no. 10, 1954

Warszawa, Poland

So. EAST EUROPEAN ACCESSIONS LIST vol. 5, no. 10 Oct. 1956

LIDMANOWSKI, W.

First mobile laboratory for routine testing of the insulation for high voltage. p. 28.

PRACE, Vol. 4, No. 10, 1954, Warsaw, Poland.

SO: East European Accessions List, Lib. of Cong., Vol. 5, No. 10, Oct. 1956.

LIDMANOWSKI, W., RYZKO, H.

Calculation of cross sections of conductors subject to heating by lightning currents with consideration of their surfaces. p. 115. (Archiwum Elektrotechniki, Vol. 6, No. 1, 1957, Warsaw, Poland)

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 6, No. 8, Aug 1957. Uncl.

POLAND/Optics - Instruments for Optical Analysis K-9

Abs Jour : Ref Zhur - Fizika, No 1, 1959, No 2196

Author : Lidmannowski Waclaw
Inst : -
Title : Electric Discharges Used in Spectral Analysis, and Methods for Their Production.

Orig Pub : Pomiary, automat., kontrola, 1958, 4, No 4, 151-153

Abstract : No abstract

Card : 1/1

P/021/60/000/006/001/002
A105/A026

AUTHORS: Lidmanowski, W.; Bogusławski, S.; Cyranowicz, K.; Fekecz, J.

TITLE: Composition and Technology Tests of High-Voltage Porcelain

PERIODICAL: Przegląd Elektrotechniczny, 1960, No. 6, pp. 227 - 231

TEXT: A brief description of tests for improvement of insulating porcelain performed in the Zakład Wysokich Napiec (High-Voltage Section) of the Zakład Materialoznawstwa Institutu Elektrotechniki (Material Research Division of the Electrotechnical Institute) is given. The purpose was to find a porcelain body with better mechanical properties than required in Polish Standard PN-56/E-06301 and in German Standard DIN 40685 (1957), listed in Table I. The influence of the porcelain-body composition on its properties is discussed and shown in 2 relation triangles (Figs. 1 and 4) introduced by G.J. Gilchrest and T.A. Klinefelter (Ref. 1) and by Wiedmann (Ref. 13), respectively. The influence of the size of quartz granules in the porcelain body on its tensile strength is discussed and shown in 2 macrophotographs (Figs. 2 and 3). Mechanical properties of No. 31, No. 32 and No. 5 porcelain bodies, which are being produced in an unspecified Polish plant are given in Figure 5 and Table II. There are 5 figures,

Card 1/2

LIDMANOWSKI, W., mgr inz.

Shock resistance of insulators under rain. Przegl elektrotech 38 no.11:473-476 '62.

1. Katedra Wysokich Napiec, Politechnika, Warszawa.

LIDMANOWSKI, Waclaw

Certain problems concerning surface discharges. Rozpr elektrotech 10 no.3:343-359 '64

1. Department of High Voltages, Technical University, Warsaw.

B. LIDMILA

"Treatment, storage, and conservation of eggs." p. 64. (VYZIVA LIDU, Vol. 8, no. 4, Apr. 1953, Praha, Czechoslovakia.)

SO: Monthly List of East European Accessions, L.C., Vol. 2 No. 7, July 1953, Uncl.

LIDMILA, B.

Industrial production of eggs and poultry meat.

p. 402
Vol. 3, no. 5, 1955
STROJIRENSKA VYROBA
Praha, Czechoslovakia

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 5, no. 2
February 1956, Uncl.

LIDMILA, M.

Ion exchange in polarographic determination of lead in urine. Pracovni lek. 4 no.3:221-234 June 1952. (CLML 23:4)

1. Of the Institute of Industrial Medicine (Head--B. Svestka, M.D.), Kladno.

Florenko, N. S.

measurements

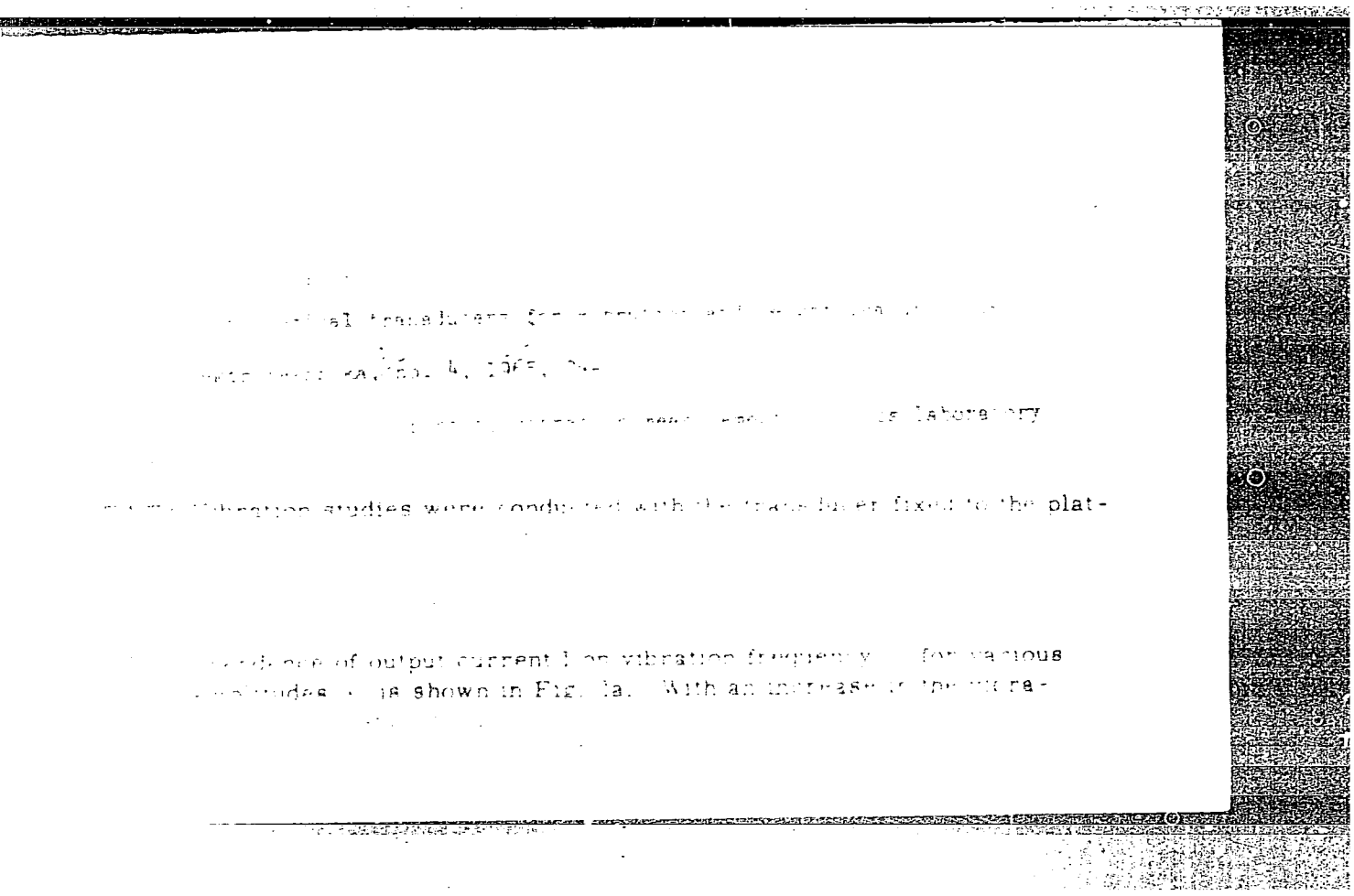
SOURCE: Elektrotekhnika, no. 3, 1965, 3-5

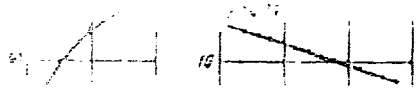
TOPIC TAGS: electrochemistry, acoustic transducer, acoustics

Abstract: The transducer with two-sided diaphragm (Fig. 1a) is a plastic vessel comprising two chambers connected by a channel. The platinum main [illegible] shape, is located in the channel [illegible] chambers. [illegible]

ACCESSION NR: AP5007530

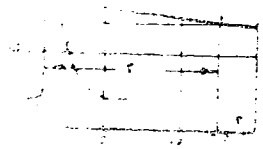
ducer to sound pressure is constant increases with increased sound pressure. A drop in sensitivity with an increase in the sound pressure is evident in Figure 2b. Figure 2c shows the dependence of output current on sound pressure. The principal characteristics of the acoustic transducers are as follows: 1) frequency range of sound pressures, 0.5--25 newton/m^2; 3) output current, 10--100 μamp; 4) weight, including the electrolyte, 50 g. The electrochemical transducer of small mechanical displacements is a plastic vessel with two concentrically arranged chambers (Fig. 1c). It has a one-sided diaphragm arrangement to reduce vibration effects. The dependence of output current on the amplitude of diaphragm displacements at constant frequency is shown in Fig. 3a; the dependence of output current on the sinusoidal signal frequency at a constant amplitude is shown in Fig. 3b. The acoustic transducer has the following characteristics: operational range (depends on the magnitude of diaphragm displacement [illegible] range of measurable displacements, 0.1--10 cps; 2) output current, [illegible] μamp; approx 3 g. [illegible]

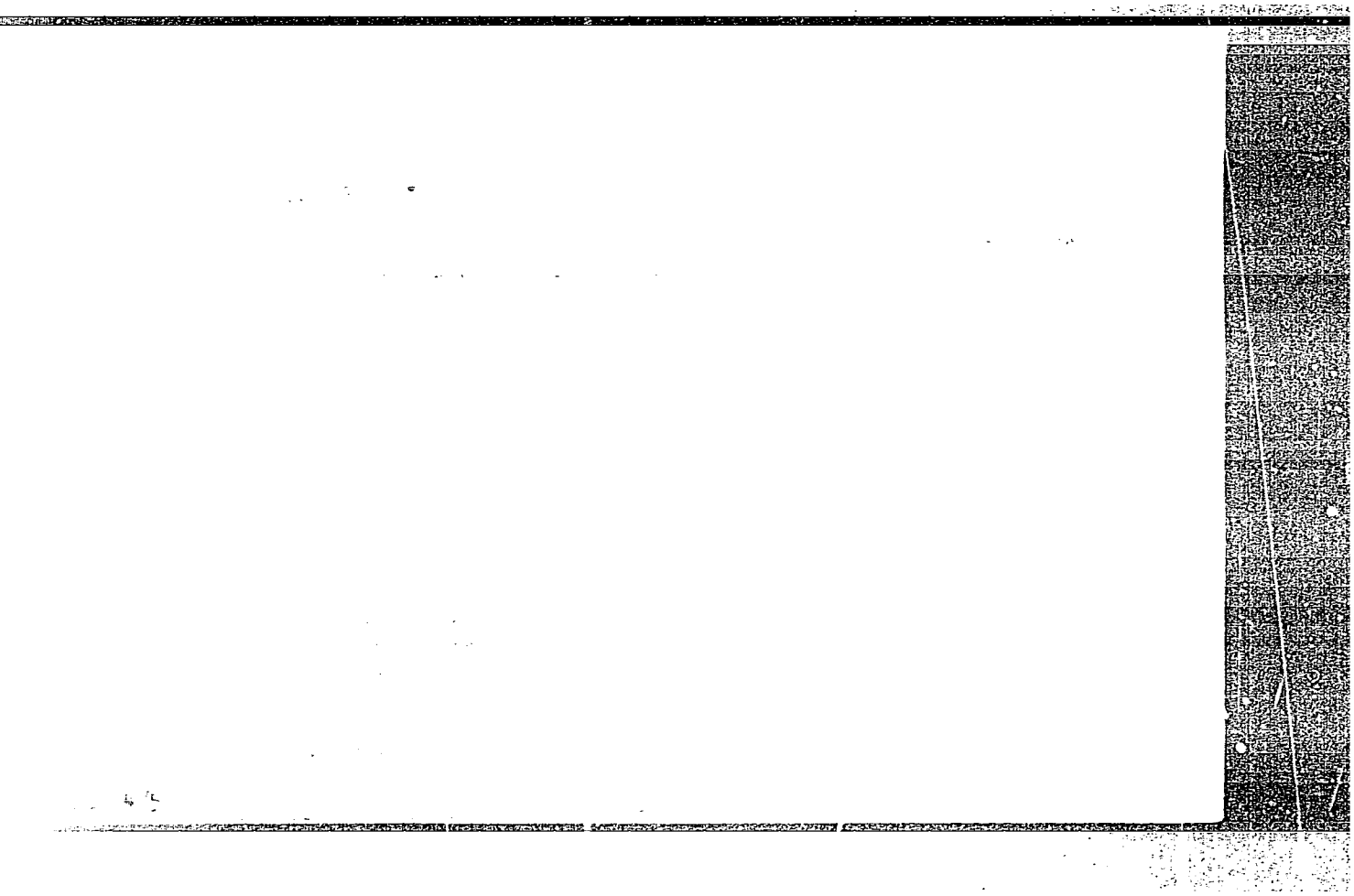




AD-009739

...tical transducers for measuring ... are of great
...terest because of their ... sensitivity, ...





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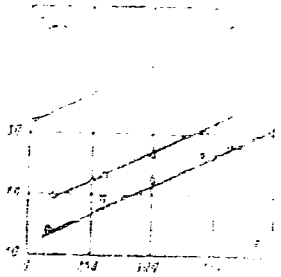


values of the polarizing voltage

= 300 mv;

None

L 35544-65 EWT(1)

ACCESSION NR: AP5008189 S/0286/65/000/005/0065/0065

AUTHORS: Nabiullin, F. Kh.; Lidorenko, N. S.; Pen'kova, L. F.; Sladkov, M. S.; [illegible]

TITLE: Mirror base for concentrators of radiant energy. Class 14, No. 168853

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 5, 1965, 65

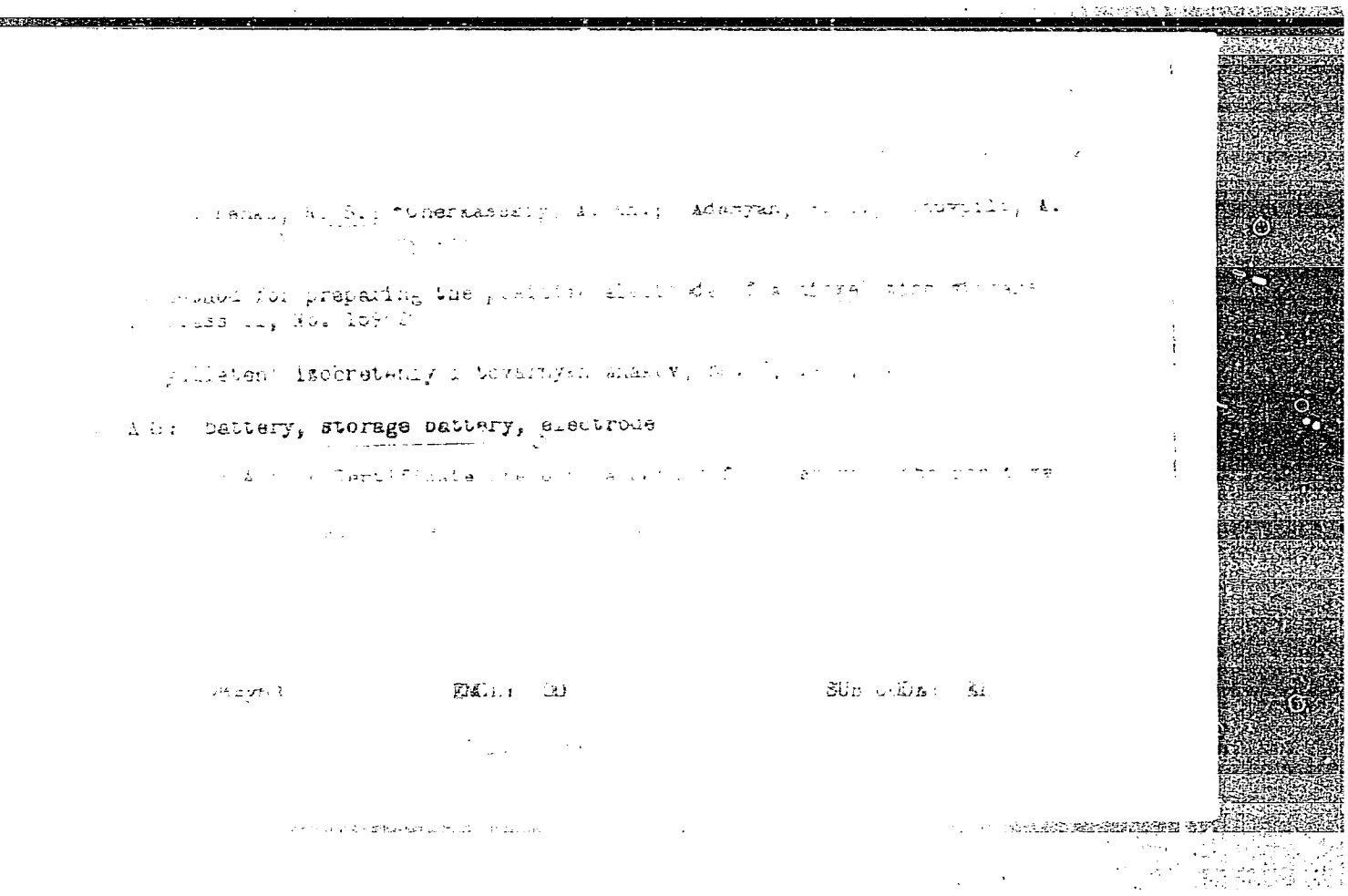
TOPIC TAGS: concentrator, radial energy, metal foil, mirror, aluminum, radiation energy

ABSTRACT: This Author Certificate introduces the application of metallic foil or thin sheet, of, say, aluminum as a mirror base for radiant energy concentrators produced by inflating (see Fig. 1 on the Enclosure). [illegible]

1 figure.

ASSOCIATION: Vsesoyuznyy ordena trudovogo krasnogo znameni [illegible]

SUB CODE: 00



L 05795-67 EWT(1) DS

ACC NR: AP6030579 SOURCE CODE: UR/0413/66/000/016/0058/0058

INVENTOR: Kocherginskiy, M. D.; Nen'kova, L. F.; Kalachev, S. L.; Lidorenko, N. S.

24
B

ORG: none

TITLE: Rechargable disc shaped alkali galvanic cell. 29 Class 21, No. 184948. [announced by All-Union Scientific Research Institute of Power Sources (Vsesoyuznyy nauchno-issledovatel'skiy institut istochnikov toka)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 16, 1966, 58

TOPIC TAGS: galvanic cell, rechargable galvanic cell

ABSTRACT: An Author Certificate has been issued describing a rechargable disc shaped, alkali-galvanic cell with a negative zinc electrode a positive manganese dioxide electrode and a thick electrolyte diaphragm (see Fig. 1). To improve the electrical ratings, the cell is provided with a casing having a symmethrical lug along the inside perimeter on which the diaphragms rest with the negative electrode between them, while the positive electrodes are arranged above the diaphragm.

Card 1/2 UDC: 621.352.7

ACC NR: AP6030579

Orig. art. has: 1 figure. [Translation]

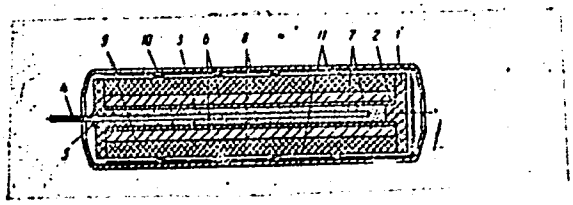


Fig. 1. Rechargable alkali-galvanic cell. 1—Casing; 2—casing lug; 3—negative electrode; 4—negative current lead; 5—casting compound; 6—diaphragm; 7—auxiliary diaphragm; 8—positive electrode; 9—positive current lead; 10—depressions of positive current lead; 11—plastic film.

SUB CODE: 09/ SUBM DATE: 03Jun65/

Card 2/2

ACC NR: AP6029786 SOURCE CODE: UR/0119/66/000/008/0005/0007

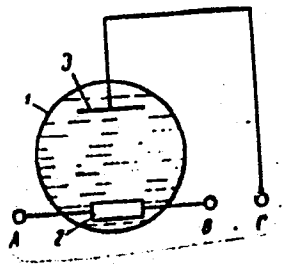
AUTHOR: Belevtsev, A. T. (Candidate of technical sciences); Voronkov, G. Ya. (Candidate of technical sciences); Lidorenko, N. S. (Corresponding member AN SSSR); Fedorin, V. A. (Engineer)

ORG: none

TITLE: Electrochemically-controlled resistor

SOURCE: Priborostroyeniye, no. 8, 1966, 5-7

TOPIC TAGS: resistor, electrochemically controlled resistor, electrode design, electrolyte



ABSTRACT: The electrochemically-controlled resistor consists of cell 1 (see figure) filled with an electrolyte and containing resistive electrode 2 and control metal electrode 3. D-c control signal is applied between one end of 2 and 3. Readout a-c signal appears between A and B. An

UDC: 621.316.87

Card 1/2

ACC NR: AP6021819 SOURCE CODE: UR/0413/66/000/012/0111/0111

INVENTOR: Nabiullin, F. Kh.; Lidorenko, N. S.; Pen'kova, L. F.; Sladkov, M. S.; Gertsik, Ye. M.; Buzova, Z. M.

ORG: None

TITLE: A method for producing spherical solar energy concentrators. Class 46, No. 182962

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 12, 1966, 111

TOPIC TAGS: solar energy, epoxy plastic, geometric form

ABSTRACT: This Author's Certificate introduces: 1. A method for producing spherical solar energy concentrators. This method consists of forming the solar energy concentrator elements from solidifying materials such as epoxy resins and plating the working surface with a mirror-like metallic coating. Production is simplified by placing the solidifying materials between synthetic films clamped together by a frame on a dead base. One of these films is metallized and the cavity between the base and the film is compressed by air to give the proper shape to the concentrator. 2. A modification of this process in which the concentrator is reinforced by placing material such as glass cloth or metallic rings along the edge of the concentrator between the films. 3. A modification of this process in which the metallized film is removed when necessary after the concentrator base has been set.

SUB CODE: 13, 11/ SUBM DATE: 08Dec62

Card 1/1 UDC: 535.872.002.2;621.472

ACC NR: AP7008488 SOURCE CODE: UR/0292/67/000/002/0001/0003

AUTHOR: Lidorenko, N. S. (Corresponding member AN SSSR; Doctor of technical sciences; Professor)

ORG: none

TITLE: Some problems of solar energy convertor

SOURCE: Elektrotekhnika, no. 2, 1967, 1-3

TOPIC TAGS: thermoelectric convertor, solar battery, solar-energy conversion, photoelectric cell, power generating station

ABSTRACT: Several small ground solar-energy converting stations have been designed and tested in the USSR. Two automatic stations (about 1 kw each) using photocells are shown in Fig. 1. One station has 9 mirror solar energy concentrator formed by a ribbed surface which ensure a 2.5 times greater photo-cell illumination. The second station has a parabolic concentrator which consists of plane mirror facets providing an 8 to 10 times greater photocell illumination (the area of photocell bank is about 2 m^2). A third type, a thermionic converter, with a parabolic concentrator (1 m^2 for each 60 to 80 w) is shown in Fig. 2. Several types semiconductor materials are presently, being produced for thermal energy conversion. The first ground thermal converter was tested in the USSR in 1955 and the first space conveter in 1961. These materials provide solar-to-electric energy conversion with an efficiency of 12—15% at a 1000—0°C temperature drop. The thermal and thermionic

Card 1/2 UDC: 621.472.001.1

ACC NR: AP7008488

converters are not so expensive as photocell converters but their life is much shorter. Orig. art. has: 2 figures. [WP]

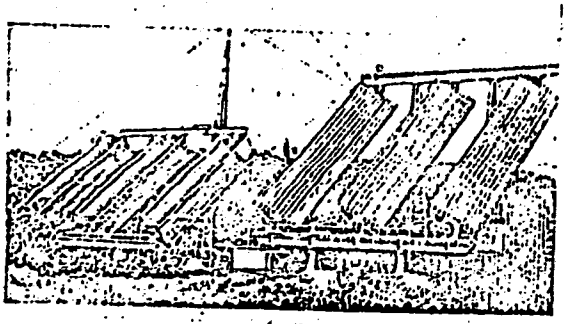


Fig. 1.

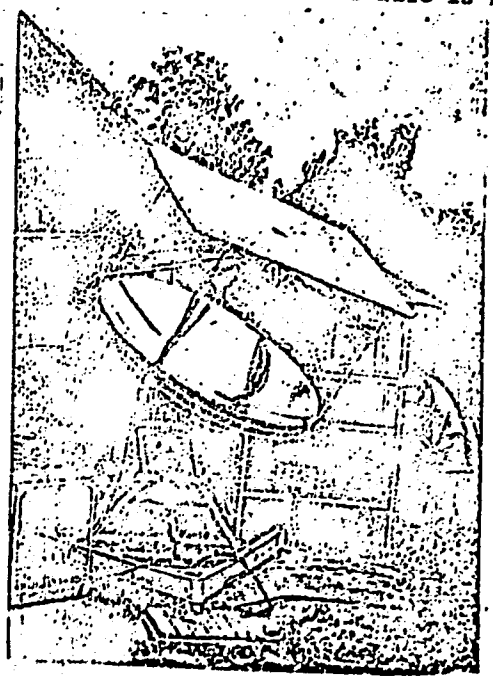


Fig. 2.

SUB CODE: 10 / SUBM DATE: none

Card 2/2

ACC NR: AP7005615 SOURCE CODE: UR/0413/67/000/002/0052/0053

INVENTOR: Belevtsev, A. T.; Dudkin, L. D.; Yerofeyev, R. S.; Lidorenko, N. S.; Khanin, M. A.

ORG: none

TITLE: A method for manufacturing thermoelements. Class 21, No. 190448 [announced by the All-Union Scientific Research Institute of Current Sources (Vsesoyuznyy nauchno-issledovatel'skiy institut istochnikov toka)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 2, 1967, 52-53

TOPIC TAGS: thermocouple, temperature sensitive element, CURRENT CARRIER

ABSTRACT: A method of making thermocouples with a variable concentration of electric current carriers along the operating temperature gradient is introduced. To assure both optimum variable concentration of the carriers and thermodynamic stability of the elements, the amount of alloying impurities in the carrier concentration is determined by the specific solubility of the alloying impurities, thus assuring the desired relationship between the carrier concentration and temperature—i.e., $n \approx T^{3/4}$.

[JR]

SUB CODE: 09/ SUBM DATE: 29Jul65

Card 1/1 UDC: 621.362.1

ISKRZHITSKAYA, A.I.,; LIDOV, I.P.,; PETROVA, K.V.

Prophylactic effect of bicillin in wound infections. Antibiotiki, Moskva 9 no.2:33-36 Mar-Apr 56 (MLRA 9:3)

1. Kafedra mikrobiologii (zav.-chlen-korrespondent AMN SSSR prof. Z.V. Yermol'yeva) TSentral'nogo instituta usovershenstvovaniya vrachey i Gospital'naya khirurgicheskaya klinika (zav. prof. V.S. Mayat) II Moskovskogo gosudarstvennogo meditsinskogo instituta imeni I.V. Stalina.

(WOUNDS AND INJURIES, compl.
infect., prev. with benzathine penicillin G)
(INFECTIONS
wound infect., prev. with benzathine penicillin G)
(PENICILLIN, deriv.
benzathine penicillin G, prev. of wound infect.)

LIDOV, I.P., dotsent; MESHKOV, V.V., kand.meditsinskikh nauk; STEPANSKIY, G.A., prof.

The Great Medical Encyclopedia is a valuable aid for the military physician. Voen.-med.zhur. no.7:83-90 Jl '59. (MIRA 12:11)
(MEDICINE--DICTIONARIES)

ZAVALISHIN, N.I., prof.; LIDOV, I.P., dots.; LITOVCHENKO, I.G.; MESHKOV, V.V., dots.; MOBIL'NITSKIY, M.B., kand. med. nauk; ARTEM'YEV, S.G., red.; BUL'DYAYEV, N.A., tekhn. red.

[Organizational principles in providing medical care for troops] Osnovy organizatsii meditsinskogo obespecheniia voisk. Moskva, Medgiz, 1961. 219 p. (MIRA 15:2)
(RUSSIA—ARMY—MEDICAL CARE)

LIDOV, I.P., dotsent

Problem of terminology in military medicine. Voen.-med.zhur. no.9:18-20 S '61. (MIRA 15:10)
(MEDICINE, MILITARY--TERMINOLOGY)

LIDOV, I.P., prof.; REVICH, G.G., kand. med. nauk (Moskva)

Improvement of the training of physicians. Zdrav. Ros. Feder. 8 no.3:35-39 Mr'64 (MIRA 17:4)

LIDOV, L.; OKHOTSIMSKIY, D. Ye. (Comn for Space Res USSR)

"Research on the category of trajectory in the restricted problem of three bodies."

report submitted for 15th Intl Astronautical Cong, Warsaw, 7-12 Sep 64.

2 03120-67 FSS-2/EWT(1)/EWP(m) TT

ACC NR: AN7002762 SOURCE CODE: UR/9012/66/000/185/0004/0004

AUTHOR: Lidov, M. (Doctor of physicomathematical sciences)

ORG: none

TITLE: Thus changes the satellite orbit

SOURCE: Pravda, 04Jul66, p. 4, col. 2-5

TOPIC TAGS: lunar satellite, satellite orbit / Luna-10 lunar satellite

ABSTRACT: The last radio contact was made with "Luna-10" on 30 May. If only lunar attraction was involved, and the distribution of mass within the moon was symmetrical, the station would remain in its orbit forever. However, its motion is affected by the asymmetrical distribution of lunar mass and the attraction of the sun and earth. Solar attraction is 180 times less than that of the earth. The motion can be considered as motion in an ellipse whose parameters gradually change. It is difficult to predict the lifetime of the satellite because the anomalies of the lunar gravity field are unknown and this is a problem which can be solved only by observations of evolution of the satellite orbit. Perturbations of the sun and earth are known quite precisely. It could be assumed that the moon has a spherically symmetrical distribution of mass or it could be postulated that the lunar gravity field corresponds to a homogeneous triaxial ellipsoid. (The parameters of such a field are known from observations of lunar physical libration.) The known orbital parameters of the satellite make it possible to compute the

45

Card 1/2

0925 1638

orbital evolution for either case. It may be that in the next 500 days the height of the pericenter of the orbit will increase to about 500 km. The semimajor axis of the orbit would remain virtually constant but the height of the apocenter would decrease by this same value. Four years after initial oribiting the height of the pericenter would become less than the lunar radius and the satellite would fall to the surface. During this time orbital inclination would have changed only 1½ degrees. During its lifetime the satellite would have turned in its place by about 80°. In the second variant the prediction is quite different. The maximum height of the pericenter is attained in 6.5 months (2,150 km). Then the satellite pericenter would decrease and the satellite would fall to the surface in 2.5 years. During this time the angular distance of the pericenter from the node would decrease by approximately 120° and the node would turn by 165°. Computations suggest that "Luna-10" will continue in orbit for several years and then fall to the lunar surface. Continuing observations of orbital evolutaion will give a more precise lifetime. [JPRS: 37,710]

SUB CODE: 22 / SUBM DATE: none

USSR/Mathematics - Hydrodynamics

Card : 1/1

Authors : Lidov, M. L.

Title : Exact solutions of equations of one-dimensional unstabilized movements of a gas, taking into account the Newtonian gravitational forces.

Periodical : Dokl. AN SSSR, 97, Ed. 3, 409 - 410, July, 1954

Abstract : By using some assumptions, reduces the solution of a system of differential equations expressing one-dimensional unstabilized movements of a mass of gas having weight and spherical shape, to the solution of a problem on such a gas, starting to move from rest in a vacuum. One reference.

Institution : ...

Presented by : L. I. Sedov, Academician, May 10, 1954

USSR/Physics - Shock waves

FD-2851

Card 1/1 Pub. 85-4/16

Author : Lidov, M. L. (Moscow)

Title : Theory of nonsteady movement of a gas taking account of forces of gravity

Periodical : Prikl. mat. i mekh., 19, Sep-Oct 1955, 541-550

Abstract : The author discusses solutions of gas equations for slight deviations from the self-model statement of the problem as given by L. I. Sedov (Metody podobiya i razmernosti v mekhanike [Methods of similarity and dimensions in mechanics], edition III, State Tech.-Theo. Lit. Press, 1954). Four references: e.g. M. L. Lidov, "Finite integral of equations of one-dimensional self-model movements of a gas," DAN SSSR, 103, No 1; "Theory of linearized solutions around one-dimensional self-model motions of a gas," DAN SSSR, 102, No 6; P. Carrus, P. Fox, F. Gaas, Z. Kopal, "Propagation of shock waves in a stellar model with continuous density distribution," The Astrophysical Journal, 113, 1951, 496-519.

Institution :

Submitted : May 25, 1955

Lidov, M. L.

2

Lidov, M. L. On the theory of solutions linearized about one-dimensional self-similar motions of a gas. Doki. Akad. Nauk SSSR (N.S.) 102 (1955), 1089–1092. (Russian) 1 - F/W

In the general case of unsteady adiabatic motion of a perfect gas, referred to spherical polar coordinates, the velocity components, pressure and density can be written, with an obvious notation, in the form,

$$V_r = b^{1/m} t^{-(n/m)-1} \tilde{V}_r(\lambda, \nu, \theta, \phi), \text{ etc.},$$

$$P = ab^{-(k+1)/m} t^{(n/m)(k+1)-(s+2)} \tilde{P}(\lambda, \nu, \theta, \phi),$$

$$\varrho = ab^{-(k+3)/m} t^{(n/m)(k+3)-s} \tilde{R}(\lambda, \nu, \theta, \phi),$$

where $\lambda = br^{-m}t^{-n}$, and $\nu = \varepsilon t^l$ are dimensionless variable parameters, $\tilde{V}_r$, $\tilde{V}_\theta$, $\tilde{V}_\phi$, P and $\tilde{R}$ dimensionless functions.

It is assumed that for $\nu = 0$ the motion degenerates into a self-similar motion with spherical symmetry so that $[\tilde{P}]_{\nu=0} = P_0(\lambda)$, etc. The effect of a small disturbance to a self-similar motion is then represented by considering the general motion when ν is small. The problem can be reduced to that of solving a system of 5 equations, linear in derivatives with respect to λ, θ, ϕ and with coefficients depending on the basic exact solution.

Using dimensional arguments, integrals of this system are obtained in the following two cases. (1) When the perturbed motion is not self-similar, but has spherical

1/2

(over)

Moscow State U, im M. V. Lomonosov

2

Lidov, M.L.

symmetry. (2) When the dependent variables can be written in the separable form

$$P(\lambda, \theta, \phi) = P_1(\lambda)P_2(\theta, \phi), \text{ etc.}$$

Complete details are not given. The author states that other cases can be worked out and that the work can be extended to discuss small deviations from self-similar motions with cylindrical or plane symmetry. *M. Holt.*

2/2

USSR/ Mathematics

Card 1/ Pub. 22 - 9/46

Authors : Lidov, M. L.

Title : The finite integral of equations of one-dimentional self arranging (auto-modeling) adiabatic gas movements

Periodical : Dok. AN SSSR 103/1, 35-36, Jul 1, 1955

Abstract : A reduction is presented of equations expressing a one-dimentional adiabatic movement of an ideal gas to the equations of self arranging movement (definition of such movement is given). Then, using the expressions of self-arranging movement for velocity, density, pressure and mass, the equations are reduced to a system of ordinary differential equations a solution of which leads to obtaining an integral which is good for any self-arranging movement. One USSR reference (1954).

Institution : Moscow State University im. M. V. Lomonosov

Presented by: Academician L. I. Sedov, April 21, 1955

LIDOV, M. L., and KARPENKO, A. G.

"Concerning the Temperature Regime in Earth Satellites," a paper presented at the Eight Annual Congress of the International Astronautical Federation, 6-12 Oct 1957, Barcelona.

2 / DOY, M.L.

AUTHORS: Karpenko, A.G., and Lidov, M. L. 49-4-16/23

TITLE: On the temperature regime in an artificial Earth satellite. (O temperaturnom rezhime iskusstvennogo sputnika zemli).

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Geofizicheskaya, 1957, No.4, pp. 527-533 (USSR)

ABSTRACT: Papers published on the temperature regime in artificial satellites are devoted either to evaluating the extreme values of the temperature, which cannot be achieved in reality or to the influences of the individual factors, for instance, the molecular heat flow (Refs.1-3), corpuscular radiation of the Sun (Ref.4), etc. Such an approach does not permit a sufficiently accurate determination of the possible range of fluctuations of the temperature of the satellite during its movement along an orbit. The authors of this paper assume infinite thermal conductivity of the body of the satellite and also that the satellite has no definite orientation whatever in space and these assumptions enable disregarding the concrete design parameters of the satellite. For certain circular orbits calculations were made and graphs were plotted of the minimum and

Card 1/3

49-4-16/23

On the temperature regime in an artificial Earth satellite.

maximum temperature reached by the body as a function of the power of the internal sources of energy and its heat capacity for a characteristic area and a characteristic reflection coefficient of the surface. In the calculations the energy from internal sources, from direct solar radiation and also from the Earth (the thermal radiation of the Earth and the reflection of the Sun's radiation) were considered. The derived formula, Eq.(19), p.531, is utilised for determining the temperature for two types of orbits, one circular in a plane perpendicular to the line Earth-Sun (graph Fig.5) and one with a circular orbit in a plane passing through the line Earth-Sun. In both cases it is assumed that the orbits are at distances of 200 and 100 km from the surface of the Earth. By giving a satellite a definite orientation the temperature conditions can be influenced appreciably; the finite heat conductivity of the body also brings about a change in the results. It can be seen from the graphs that,in presence of small internal sources of energy in the satellite, the temperature inside the satellite will vary between 0 and 10°C.

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LIDOV, M.L.

49-12-13/16

AUTHOR: Lidov, M.L.

TITLE: Resistance of a Non-orientated Body During its Movement in a Rarified Gas (Soprotivleniye neoriyentirovannogo tela pri dvizhenii v razrezhennom gaze)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Geofizicheskaya, 1957, No.12, pp. 1524 - 1528 (USSR).

ABSTRACT: A body moving in a free-molecular flow (particularly an artificial satellite in the region of the upper atmosphere) without its being specially orientated relative to its direction of movement, which is influenced by random disturbances, will rotate with a variable angle of speed relative to the centre of the mass. The ideal non-orientated body introduced in this paper permits calculating the average resistance of such a body without calculating the resistances for individual incidence angles. In the general formulation, accurate determination of the resistance coefficient of the sphere requires calculation of the quadrature which depends on the parameter. It is shown in this paper that it is possible to develop this integral into series on the basis of the introduced parameter and to limit the calculations to the first terms. Thus, the resistance coefficient of the sphere is calculated on the basis

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Resistance of a Non-orientated Body During its Movement in a Rarified Gas.

of a simple formula by means of a tabulated function. This can be convenient for analysis for a number of investigations proposed to be carried out in the upper atmosphere. If the length of the free travel of molecules of a current is larger than the characteristic dimensions of the body, the heat exchange and the aero-dynamic forces acting on the body can be calculated on the basis of the kinetic gas theory. Disregarding the distortion of the incident flow by reflected molecules, compared with the flow at infinity, permits considerable simplification of the theory. The main difficulties occurring in the given case are caused by the character of the reflection of the molecules and by the cumbersome calculations required for complicated shapes. The assumption that a Maxwell distribution of the thermal movements of the molecules takes place leads to the relations expressed by eq. (1), p.1525, which are based on work by other authors Refs. [1-3]. Calculation of the resulting aero-dynamic force due to the reflected molecules is reduced to calculating the normal pressure by means of formulae (12) and (13), p.1525. The full frontal resistance of the non-orientated body can be calculated by means of the eq. (17), p.1526. The resistance coefficient of

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LIDOV, M. L.

33-4-9/19

AUTHOR: Lidov, M. L.

TITLE: Automodel motions of a gas with spherical symmetry in a field with a gravitating centre. (Avtomodel'nyye dvizheniya gaza so sfericheskoy simmetriyey v pole gravitiruyushchego tsentra).

PERIODICAL: Astronomicheskiy Zhurnal, 1957, Vol. 34, No.4, pp.603-608 (USSR)

ABSTRACT: In a previous paper (Ref.1) the present author gave a solution of the problem of a central outburst in the Roche model for the adiabatic coefficients $\gamma = 5/3$ and $\gamma = 3/2$. A special solution was found which was a function of one independent variable (automodel solution). In the present paper a more general formulation of the automodel problem is given for the non-stable motion of a gas in the field of a gravitating centre using ideas from dimensional analysis. Two integrals of the system of ordinary equations for any value of the adiabatic coefficient are given corresponding to the problem considered in Ref. 1. For $\gamma = 4/3$ an exact solution was obtained using a quadrature. The method was based on the book by L. I. Sedov (Ref. 2). Figures 1, 2, 3 show the distribution of velocity density and pressure for

Card 1/2

LIDOV, M.

Scouts of the universe. Rabotnitsa 35 no.8:22-23 Ag '57. (MLRA 10:9)

1. Nauchnyy sotrudnik Komissii po mezhplanetnym soobshcheniyam pri Astronomicheskom sovete Akademii nauk SSSR.
(Artificial satellites)

Lidov, M.L.

29(0) PHASE I BOOK EXPLOITATION SOV/1658

Akademiya nauk SSSR

Iskusstvennyye sputniki zemli, vyp. 1: Rezul'taty nauchnykh issledovaniy, provedennykh po programme MGG pri pomoshchi pervogo i vtorogo iskusstvennykh sputnikov zemli (Artificial Earth Satellites, Nr 1: Results of Scientific Studies Carried Out in Accordance With the IGY Program by Means of the First and Second Artificial Earth Satellites) Moscow, Izd-vo AN SSSR, 1958. 95 p. 3,500 copies printed. [Microfilm and Zerox Copy]

Resp. Ed.: L.V. Kurnosova; Ed. of Publishing House: D.M. Alekseyev; Tech. Ed.: T.V. Polyakova.

PURPOSE: This collection of articles is the first in a series to be published regularly and is intended to disseminate to the scientific community data collected in investigations performed by means of artificial earth satellites.

COVERAGE: This collection includes papers covering scientific data obtained from the first and second Soviet artificial earth satellites. Among the areas reported on are measurements of cosmic radiation, atmospheric density, electron concentration in the ionosphere, and biological studies of an animal occupant of a satellite. Papers on the motions and perturbations of satellite orbits and optical and Doppler methods of satellite tracking are also included. Coverage of the individual articles is given in the Table of Contents.

Lidov, M.L. Determination of the Density of the Atmosphere From the Observed Decelerations of the First Artificial Satellites 9

This paper presents equations relating the elements of a satellite orbit to atmospheric density. The analytical procedures used in reducing observed data on the evolution of the satellite orbit are given including an evaluation of the approximations used in obtaining solutions to the equations involved. It was assumed that in the range of altitudes considered (228-368 km) the variation of density with altitude could be approximated by the exponential function $\rho_z \rho_\pi e^{-\frac{z - z_\pi}{H}}$ where ρ is the density at altitude z, ρ_π is the density at the perigee altitude z_π, and H is the altitude of the homogeneous atmosphere. It is shown that comparatively broad assumptions regarding the variation of H lead to uncertainties of less than 15 percent in the density for the range of altitudes considered. The approximation suggested by Okhotsimskiy was used to simplify the calculation procedure. Tabulated values of the density at different altitudes are given for a range of values of K, a parameter in the relationship between H and the altitude. The values of H presented may serve to verify assumptions regarding temperature and molecular weight of the atmosphere at the altitudes considered. The authors thank D.Ye. Okhotsimskiy for his advice and V.I. Krasovskiy for his discussion of the results, and O.S. Ryzhina who programmed and carried out the necessary calculations on an automatic computer. There are 8 references, 4 of which are Soviet, 3 English, and 1 translation into Russian.

Lidov, M.L.

AUTHOR: Lidov, M.L. (Moscow)

47-58-1-2/35

TITLE: Artificial Earth Satellites (Isskustvennyye sputniki zemli)

PERIODICAL: Fizika v Shkole, 1958, " 1, pp 6-21 (USSR)

ABSTRACT: The goal in launching earth satellites is to obtain new data on conditions in the upper layers of the atmosphere. Until now our knowledge of the atmosphere in the higher layers was based only on indirect observations. Such satellites are of prime importance in studying the dispersion of cosmic rays over the different parts of the earth. A table which calculates the "life-span" of a satellite rotating around the earth at different heights, is given. Speciąl devices in these satellites will help to study the temperature variations in space and to ascertain the ability of the earth's surface to reflect various kinds of rays. As the final destruction of artificial satellites is unavoidable at present, the study of their orbit is useful to help scientists to develop a method to brake their re-entry speed. A slow spiralling course would serve the purpose and avoid the excessive friction which causes the destruction of the satellite.

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LIDOV, M.L.

Determining atmospheric density by observed deceleration of the first artificial earth satellites. Isk.sput.Zem. no.1: 9-20 '58. (MIRA 12:2)

(Artificial satellites)
(Atmosphere, Upper--Rocket observations)

AUTHOR: Lidov, M. Ye.

SOV/20-120-6-16/59

TITLE: On Limit Solutions in the Vicinity of a Singular Point (O predel'nykh resheniyakh vblizi osoboy tochki)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 120, Nr 6, pp 1224 - 1227 (USSR)

ABSTRACT: In the paper under review the solution of non-linear equations in the vicinity of a singular point is investigated at a test problem. Information concerning the construction of the limit solutions in the general case is presented. The author proceeds from the equations of the one-dimensional not yet steady adiabatic motions of an ideal gas (Ref 1). When the exponent of the adiabatic curve is 7, the automodel-like problem of a heavy punctiform explosion in a medium of constant density ρ_1 possesses a simple solution which is given. When the complete, non-linear system of partial differential equations is linearized in the vicinity of this solution it is possible to solve the not automodel-like problem of a heavy punctiform explosion in a medium with a definite initial density distribution. A start for the solution of this system of dif-

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On Limit Solutions in the Vicinity of a Singular Point

ferential equations is written down. As a result of the linearization presented a system of ordinary equations with constant coefficients is obtained. Three special cases are investigated. A treatment similar to that employed hitherto leads to a method of the construction of the limit solutions in the more general case of spatial perturbations of a one-dimensional automodel-like motion in order to obtain the solutions in the vicinity of the center. In this case the author as a practical foothold considers one-dimensional spherical-symmetric automodel-like problems. The dimensionless solution of the axially symmetric equations of unsteady adiabatic motions of an ideal gas are set up in the form of series. The determination of the coefficients is outlined in short. The equations and boundary conditions in the vicinity of the center can be simplified also in the case of perturbations in the vicinity of one-dimensional automodel-like motions with a plane or an axial symmetry. This can also be done in the general case of spatial perturbations. There are 2 references, which are Soviet.

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Submitted: Feb 1958

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E032/E314

AUTHOR: Lidov, M.L.

TITLE: Evolution of Artificial-satellite Orbits Under the Action of Gravitational Perturbations Due to External Bodies

PERIODICAL: Akademiya nauk SSSR, Iskusstvennyye sputniki zemli, 1961, No.8, pp.5-45

TEXT: Published papers on the evolution of artificial-satellite orbits have been concerned with the detailed analysis of the effect of non-central contributions to the Earth's gravitational field on the satellite orbit, and the braking effect of the Earth's atmosphere. Some workers have also considered finer effects associated with the rotation of the Earth's atmosphere. Changes in the latus rectum due to the gravitational attraction by the Moon and the Sun were only estimated approximately. These estimates showed that for low-lying orbits the latter effects could not be measured with existing apparatus. However, detailed analysis of the orbit of Vanguard I showed (Ref.1 - P. Musen et al, Science, 131,

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935, 1960) that the observed evolution of the latus rectum could not be explained without taking into account the attraction of the Earth and the Sun, and even the light pressure. The first case, where the gravitational attraction of the Moon and the Sun had a great effect on the satellite orbit, was that of the Soviet Automatic Interplanetary Station which was launched on October 4, 1959. Lunar and solar gravitational effects are equally important for satellites of the type of "Explorer VI". In studying the evolution of artificial-satellite orbits, it is, as a rule, necessary to investigate a relatively wide (in the general case, five-dimensional) region of the possible values of the parameters. The use of exact solutions of systems of differential equations in this connection, even when these solutions are obtained with the aid of fast computers, would require a very considerable amount of time and labour. It is therefore useful to develop approximate analytical methods. F.T.Geyling (Ref.5 - J. Frankl. Inst., 269, 375, 1960) has reported this type of work. The aim of the present work was to derive the

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simplest possible formulae for the approximate investigation of the evolution of a sufficiently wide class of satellite orbits. The basic assumption employed is that the ratio of the height of the apocentre to the distance between the perturbing body and the central body around which the satellite is orbiting is sufficiently small. This assumption limits the class of orbits which can be investigated by this method. However, for an Earth satellite for which the height of the apogee is 50 000 km, the secular variations in the orbit elements can be calculated to within 1-3%. Another assumption which is used in the derivation of formulae for the changes in the orbit elements is that these changes are small. The overall problem is formulated as follows. Suppose that at a certain instant of time the following osculating elements of the orbit of a satellite, moving in the field of a central point with a constant gravitational potential μ, are given:
p - parameter of the osculating ellipse; e - its eccentricity; ω - angular distance of the pericentre from the node; i - inclination of the orbit; ϑ - true anomaly;
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$u = \omega + \vartheta$, and Ω - longitude of the ascending node. The angles i, ω, Ω and u are measured relative to the plane OXY, which moves together with the central body. The XYZ frame does not rotate in absolute space. The motion of the satellite in the field of the central point is subject to perturbations due to gravitating points characterised by the gravitational constants $\mu_k (k = 1, 2, \ldots)$. The positions of these points relative to the central body are given by the radii vectors $r_k(t)$. The effect of the mass of the satellite on the central and perturbing bodies is neglected and the perturbing points are assumed to move over elliptical orbits around the central point. In that case, $r_k(t)$ is determined by the elements p_k, e_k, ω_k, Ω_k, u_k and i_k. It is also assumed that the satellite latus rectum and the perturbations are such that the osculating orbit does not depart during a single revolution of the satellite from an elliptical orbit with fixed

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parameters corresponding to the values of the osculating elements at, say, the pericentre. The approximate formulae describing the evolution of the satellite's orbit are derived from the following equations of motion (D.Ye. Okhotsimskiy, T.M. Eneyev, G.P. Taratynova - Ref. 6 - UFN, 63, No. 1a, 33, 1957), in which the independent variable is the true anomaly ϑ :

$$\left.\begin{aligned}
\frac{dp}{d\vartheta} &= \frac{2r^3\gamma}{\mu} T, \\
\frac{de}{d\vartheta} &= \frac{r^2\gamma}{\mu}\left[S\sin\vartheta + \left(1+\frac{r}{p}\right)T\cos\vartheta + e\frac{r}{p}T\right], \\
\frac{d\omega}{d\vartheta} &= \frac{r^2\gamma}{\mu e}\left[-S\cos\vartheta + \left(1+\frac{r}{p}\right)T\sin\vartheta - e\frac{r}{p}W\operatorname{ctg} i\sin u\right], \\
\frac{d\Omega}{d\vartheta} &= \frac{r^3\gamma}{\mu p}W\frac{\sin u}{\sin i}, \\
\frac{di}{d\vartheta} &= \frac{r^3\gamma}{\mu p}W\cos u,
\end{aligned}\right\} \qquad (1)$$

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where $$\gamma = \frac{1}{1 + \frac{r^2}{\mu e} S \cos\theta - \frac{r^2}{\mu e}\left(1 + \frac{r}{p}\right) T \sin\theta}, \qquad (2)$$

In these expressions, S, T, W are the components of the perturbing acceleration along the radius vector, the perpendicularto this radius vector which lies in the plane of the osculating ellipse and the perpendicular to the plane of the osculating ellipse, respectively. The perturbing acceleration $\underline{F}^{(k)}$ experienced by a satellite at a distance r from the central body, which is due to the k-th gravitating point, is given by:

$$\underline{F}^{(k)} = \mu_k \left(\frac{\underline{r}_k - \underline{r}}{|\underline{r}_k - \underline{r}|^3} - \frac{\underline{r}_k}{r_k^3} \right) \qquad (3)$$

where r_k is the distance of the gravitating point from the

Evolution of ....

and on the second approximation

$$\left.\begin{aligned} S_2^{(k)} &= \frac{15}{2}\frac{\mu_k}{r_k^2}\frac{r^3}{r_k^2}\left[\xi^3\cos^3(\vartheta-\vartheta_\xi)-\frac{3}{5}\xi\cos(\vartheta-\vartheta_\xi)\right],\\ T_2^{(k)} &= -\frac{15}{2}\frac{\mu_k}{r_k^2}\frac{r^3}{r_k^2}\left[\xi^3\cos^2(\vartheta-\vartheta_\xi)\sin(\vartheta-\vartheta_\xi)-\frac{1}{5}\xi\sin(\vartheta-\vartheta_\xi)\right],\\ W_2^{(k)} &= \frac{15}{2}\frac{\mu_k}{r_k^2}\frac{r^3}{r_k^2}\xi_3\left[\xi^2\cos^2(\vartheta-\vartheta_\xi)-\frac{1}{5}\right]; \end{aligned}\right\} \quad (7).$$

In these expressions, $\xi = \sqrt{\xi_1^2 + \xi_2^2}$, ϑ_ξ is the true anomaly of the projection of the vector $\underline{r}_k$ onto the plane of the satellite's orbit and $\sin\vartheta_\xi = \xi_2/\xi$, $\cos\vartheta_\xi = \xi_1/\xi$. r_k is then expressed in the form $r_k = p_k/\Delta_k$ where p_k is the characteristic distance to the perturbing body and Δ_k is the given dimensionless positive function of time.

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When the orbit of the perturbing body is an ellipse, then p_k is the latus rectum and $\Delta_k = 1 + e_k \cos \vartheta_k$. Using the relation $r = p/\Delta$, where $\Delta = 1 + e \cos \vartheta$, the expression for S, T and W can be rewritten in the form:

(8)

Используя соотношение $r = \frac{p}{\Delta}$, где $\Delta = 1 + e\cos\vartheta$, можно выражения для S, T, W переписать в виде

$$\left.\begin{aligned} S_1^{(k)} &= 3\frac{\mu_k}{p_k^2}\frac{p}{p_k}\left[\beta_1\cos^2\vartheta + 2\beta_3\cos\vartheta\sin\vartheta - \frac{\beta_6}{3} + \beta_2\sin^2\vartheta\right]\frac{1}{\Delta}, \\ T_1^{(k)} &= -3\frac{\mu_k}{p_k^2}\frac{p}{p_k}\left[(\beta_1 - \beta_2)\cos\vartheta\sin\vartheta + \beta_3(\sin^2\vartheta - \cos^2\vartheta)\right]\frac{1}{\Delta}, \\ W_1^{(k)} &= 3\frac{\mu_k}{p_k^2}\frac{p}{p_k}\left[\beta_5\cos\vartheta + \beta_4\sin\vartheta\right]\frac{1}{\Delta}, \end{aligned}\right\}$$

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(9)

$$S_2^{(k)} = \frac{15}{2}\frac{\mu_k}{p_k^3}\frac{p^3}{p_k^2}\left[\gamma_1\cos^3\vartheta + 3\gamma_3\cos^2\vartheta\sin\vartheta + 3\gamma_6\cos\vartheta\sin^2\vartheta + \gamma_2\sin^3\vartheta - \frac{3}{5}\alpha_1\cos\vartheta - \frac{3}{5}\alpha_2\sin\vartheta\right]\frac{1}{\Delta^2},$$

$$T_2^{(k)} = -\frac{15}{2}\frac{\mu_k}{p_k^3}\frac{p^2}{p_k^2}\left[-\gamma_3\cos^3\vartheta + (\gamma_1 - 2\gamma_6)\cos^2\vartheta\sin\vartheta + (2\gamma_3 - \gamma_2)\cos\vartheta\sin^2\vartheta + \gamma_6\sin^3\vartheta - \frac{1}{5}\alpha_1\sin\vartheta + \frac{1}{5}\alpha_2\cos\vartheta\right]\frac{1}{\Delta^2},$$

$$W_2^{(k)} = \frac{15}{2}\frac{\mu_k}{p_k^3}\frac{p^2}{p_k^2}\left[\gamma_4\cos^2\vartheta + 2\gamma_7\cos\vartheta\sin\vartheta + \gamma_5\sin^2\vartheta - \frac{\alpha_3}{5}\right]\frac{1}{\Delta^2}.$$

where

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Здесь были введены обозначения:

$$\begin{aligned}
&\alpha_1 = \xi_1\Delta_k^4, && \alpha_2 = \xi_2\Delta_k^4, && \alpha_3 = \xi_3\Delta_k^4,\\
&\beta_1 = \xi_1^2\Delta_k^3, && \beta_2 = \xi_2^2\Delta_k^3, && \beta_3 = \xi_1\xi_2\Delta_k^3,\\
&\beta_4 = \xi_2\xi_3\Delta_k^3, && \beta_5 = \xi_1\xi_3\Delta_k^3, && \beta_6 = \Delta_k^3,\\
&\gamma_1 = \xi_1^3\Delta_k^4, && \gamma_2 = \xi_2^3\Delta_k^4, && -\gamma_3 = \xi_1^3\xi_2\Delta_k^4,\\
&\gamma_4 = \xi_1^2\xi_3\Delta_k^4, && \gamma_5 = \xi_2^2\xi_3\Delta_k^4, && \gamma_6 = \xi_2^2\xi_1\Delta_k^4,\\
&\gamma_7 = \xi_1\xi_2\xi_3\Delta_k^4.
\end{aligned} \qquad (10).$$

It follows from Eqs. (2) and (6) that the maximum value of γ-1 is of the order of magnitude of $(\mu_k/\mu)(a/r_k)^3/e$, in the case of small eccentricities and $(\mu_k/\mu)(a/r_k)^3/(1-e)$ in the case of eccentricities approaching unity (a is the semimajor axis). In many cases, one can assume that $\gamma = 1$ and this approximation is, in fact, used in the present paper. The next assumption

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is that in determining the secular variation in the elements the various component perturbations can be evaluated separately and the total effect can be obtained as a simple sum, e.g. $\Delta p = \sum \Delta p_i$, etc. Finally, it is assumed that the quantities α_i, β_i and γ_i can be written down in the form of the series

$$\left.\begin{aligned} \alpha_i &= \alpha_i^* + \left(\frac{d\alpha_i}{dt}\right)^* \Delta t + \frac{1}{2}\left(\frac{d^2\alpha_i}{dt^2}\right)^* (\Delta t)^2 + \ldots, \\ \beta_i &= \beta_i^* + \left(\frac{d\beta_i}{dt}\right)^* \Delta t + \frac{1}{2}\left(\frac{d^2\beta_i}{dt^2}\right)^* (\Delta t)^2 + \ldots, \\ \gamma_i &= \gamma_i^* + \left(\frac{d\gamma_i}{dt}\right)^* \Delta t + \frac{1}{2}\left(\frac{d^2\gamma_i}{dt^2}\right)^* (\Delta t)^2 + \ldots, \end{aligned}\right\} \quad (11)$$

and it is sufficient to retain only two terms in each of these expansions ($\Delta t = t - t^+$, where t^+ is a certain fixed instant

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of time). The remainder of the paper is concerned with:
a) derivation of formulae for the variation in the orbit elements per orbital revolution of the satellite;
b) calculation of the parameters α_i, β_i, γ_i and their derivatives in the case where the perturbing body moves in an ellipse;
c) derivation of the formulae for the variation in the orbit elements for a number of orbital revolutions of the satellite;
d) analysis of the equations for the secular variations in the orbit elements;
e) estimate of oscillations in the height of the pericentre of the satellite's orbit;
f) method of calculation of the evolution of the artificial satellite's orbit using the approximate formulae;
g) comparison with results obtained by numerical integration on the differential equations.
It is shown that in the case of orbits of the type followed by Explorer VI, for which the height of the perigee is of the

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order of the Earth's radius and the height of the apogee is of the order of 50 000 - 70 000 km, the approximate formulae give the correct results to within less than 5%. It is concluded that the approximate formulae developed in the present paper can be used in the analysis of a sufficiently wide class of satellite orbits and, in particular, those which are followed in cosmic flights. Acknowledgments are expressed to D. Ye. Okhotsimskiy for a number of suggestions
There are 9 figures, 1 table and 10 references: 6 Soviet and 4 non-Soviet. The three English-language references quoted are: Ref. 1 - P. Musen et al - Science, 131, 935, 1960; Ref. 4: C.P. Sonett, E.I. Smith, D.K. Judge, P.J. Coleman - Phys. Rev. Lett., 4, 161, 1960: Ref. 5 - F.T. Geyling - J. Frankl. Inst., 269, 375, 1960.

SUBMITTED: December 7, 1960

Card 14/14

LIDOV, M.L.; OKHOTSIMSKY, D.YE. (Moscow)

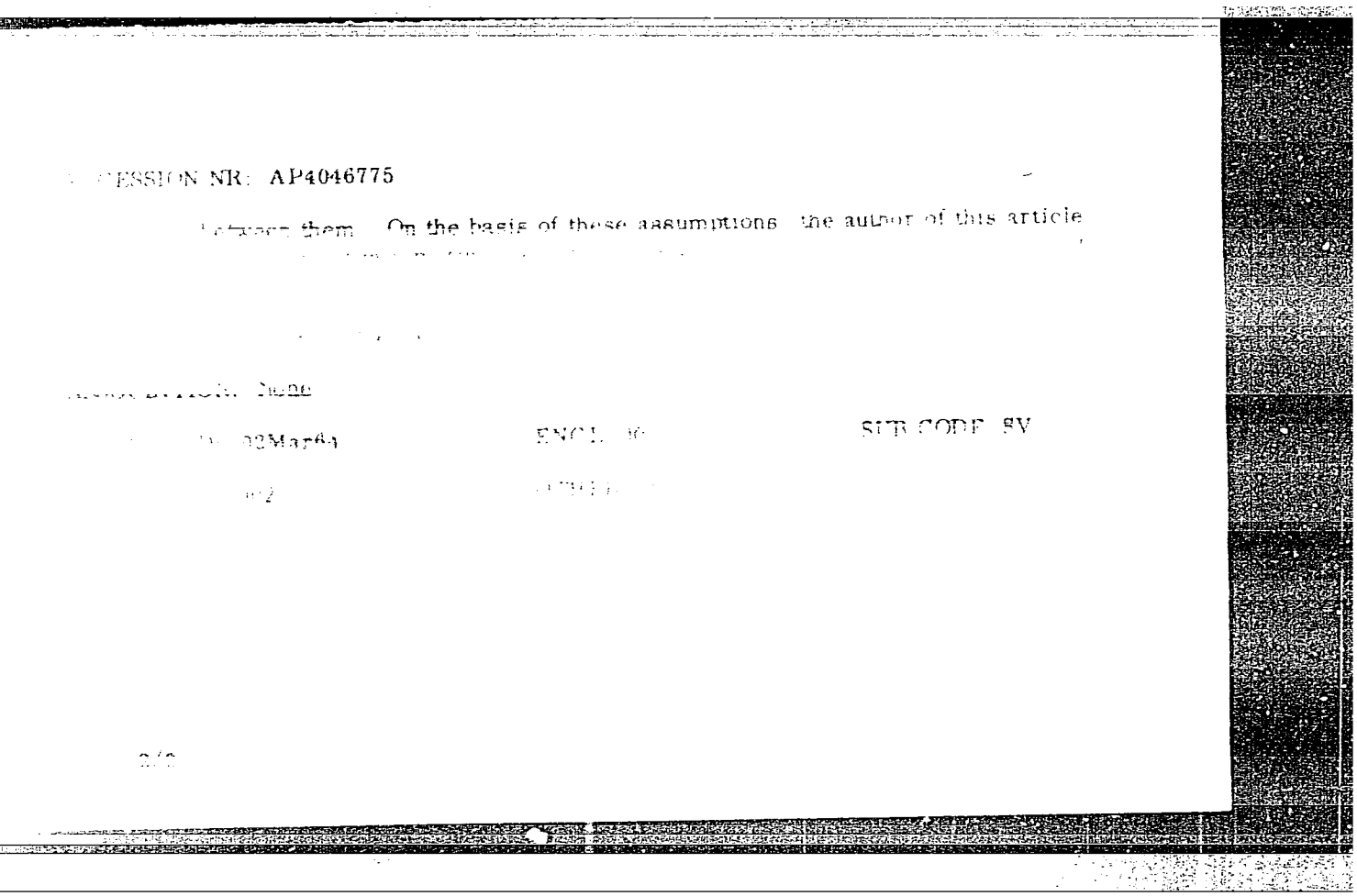
"On a method of investigating orbits in a restricted three-body problem".

report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow, 29 Jan - 5 Feb 64.

Kosmicheskiye issledovaniya, v. 2, no. 5, 1964, [illegible]

[illegible] least squares method, spacecraft trajectory, flight trajectory, [illegible]

[illegible] T. M. Eneyev (Kosmich. issled. 1, No. 1, 5, 1963). The [illegible] errors of the measured parameters actually correlate but the cor-



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them. On the basis of these assumptions the author of this article

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Po-4

AUTHOR: Lidov, M. L.; Okhotsimskiy, D. Ye.; Teslenko, N. M.

TITLE: ...tigation of one class of ... three body problem

SOURCE: Kosmicheskiye issledovaniya, v. 2, no. 6, 1964, 843-852

TOPIC TAGS: celestial mechanics, moon, three body problem, spacecraft trajectory, spacecraft orbit

ABSTRACT: The authors propose a method for investigating a class of trajectories for ... spacecraft from the earth to the moon in which a rather close approach to the ... made. This class of trajectories involves solutions of the spatial restricted ... problem. Since the flight trajectory should pass near both singular points of the ... centers of the earth and moon, the orbital parameters after approach to ... representation of the behavior of ... great withdrawal of the spacecraft from the moon there will be a sector of the ... trajectory close to a conical section — either to an ellipse situated within the earth's ... of influence or to a hyperbolic curve emerging beyond the limits of this sphere ... purpose of this article is a study of the parameters of trajectories in this section

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... the authors consider the dependence of the geocentric parameters of orbits ... the moon on certain initial parameters and of parameters determining ... complex tra... near trajectories are analyzed in detail. ... A. M. Mikish and ... who prepared the programs used in making ...tations for this study." Orig. art. has: 6 figures

ASSOCIATION: none

SUBMITTED: 10Aug64 ENCL: 00 SUB CODE: SV, AA

NO REF SOV: 000 OTHER: 000

Card 2/2

L 45257-66 EWT(1)/EEC(k)-2/FCC JKT/TT/DD/GW

ACC NR: AP6020934 SOURCE CODE: UR/0029/66/000/006/0008/0011

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B

AUTHOR: Lidov, M. L., (Doctor of Physical and Mathematical Sciences); Lebedinskiy, A. I., (Doctor of Physical and Mathematical Sciences, Professor); Vernov, S. N., (Corresponding Member of the Academy of Sciences SSSR)

ORG: none

TITLE: The battle for the Moon continues

SOURCE: Tekhnika-molodezhi, no. 6, 1966, 8-11

TOPIC TAGS: moon, space, lunar surface, lunar radiation, lunar landing /Geiger counter, Luna 9, Luna 10

ABSTRACT: The interviewer reviews briefly the history of lunar research, presents a table of chronology and facts and repeats questions and answers. Dr. M. L. Lidov stated that one of the problems solved by Luna 9 and Luna 10 was that of landing at the most favorable time, i.e., lunar daybreak. Another problem was the selection of the most "economical" trajectory along which to send the heaviest apparatus. He stressed the importance of human initiative in the

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1. LIDOV, V. P.

2. USSR (600)

4. Geology and Geography

7. Essays on the Physical Geography of Gorkiy District, S. S. Stankov. (Third revised edition, Gorkiy Regional Press, 1951). Reviewed by V. P. Lidov, Sov. Kniga, No. 7, 1952.

9. [redacted] Report U-3081, 16 Jan 1953, Unclassified.

LIDOV, V. P. PA 196T69

USSR/Geophysics - Physical Geography Mar/Apr 51

"From Experience Gained in Comprehensive Geographical Investigations," V. P. Lidov

"Iz Ak Nauk, Ser Geog" No 2, pp 71-80

Describes experience of Moscow State U and Geog Inst, Acad Sci USSR, during investigation of Cen Chernozem Belt, in connection with Stalin's plan to transform nature. These results cause the author to appraise unfavorably the article by A. M. Smirnov "Fundamentals of Geographical Science" ("Voprosy Filosofii" No 2, 1950).

196T69

GVODETSKIY, N.A. LIDOV, V.P.

Physical Geography

Discussion of the report of N.V. Dumitrashko,, L.G. Kamanin, and Yu. A. Meshcheryakov, "State and problems of contemporary geomorphology." N.A. Gvozdetskiy,, V.P. Lidov. Izv. AN SSSR Ser. geog. No. 1, 1952

Monthly List of Russian Accessions, Library of Congress, April, 1952 UNCL

LIDOV, V. P.

USSR/Geophysics - European USSR May 52

"The Future of the Central Chernozem Region,"
V. P. Lidov

"Priroda" Vol 41, No 5, pp 38-48

Describes Stalin plan for transformation of nature as it applies to the general territory of European USSR, particularly the central chernozem zone, including Tamboysk, Voronezh, Kursk, and Orlov oblasts. Stresses the problems of erosion and scoured nature of the land, which once was covered by glaciers.

230T60

LIDOV, V. P.; NIKOLAYEVSKAYA, YE. M.

Maps

Improtance of specialized maps for the geographer in solving the tasks of transforming nature, Izv. Vses. geog. obshch., 84, no. 4, 1952.

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

USSR/Geology - Erosion

Card 1/1 Pub. 45 - 11/17

Authors : Lidov, V. P.; Dik, N. Ye.; Nikolaevskiy, Ye. M.; Setunskaya, L. Ye.; and Khmelevaya, N. V.

Title : Classification of recent linear forms of erosion

Periodical : Izv. AN SSSR. Ser. geog. 3, 91-99, May - Jun 1954

Abstract : A study is made of the work of classifying forms of erosion along the following basic lines: establishing qualitative differences of the different types of forms depending on the intensity of the erosion processes, distinguishing between the types of forms in accordance with the stage of development in evolutionary sequence and showing the nature of the interacting rocesses on the bilges and slopes of the forms. Five USSR references (1950-1952). Tables.

Institution: .....

Submitted: .....

LIDOV, V.P.

Geomorphological research for the needs of agriculture. Vop.geog. 36:30-39 '54. (MLRA 8:4)
(Physical geography)

LIDOV, V.P.; DIK, N.Ye.; NIKOLAYEVSKAYA, Ye.M.; KHMELEVA, N.V.

Still more about boundaries of geographical regions. Izv.Vses. geog.ob-va 86 no.1:57-66 Ja-F '54. (MLRA 7:2)
(Geography)

LIDOV, V.P.

Principles of division into physical geographical districts.
Izv.Vses.geog.ob-va 86 no.2:169-177 Mr-Ap '54. (MLRA 7:6)
(Physical geography)

Lidov, V.P.

J-2

-USSR/Soil Science - Genesis and Geography of Soils.

Abs Jour : Ref Zhur - Biol., No 3, 1958, 10464

Author : Lidov, V.P., Didurenko, N.F.
Inst :
Title : Some Remarks on the Classification of Washed Out Soils.

Orig Pub : Pochvovedeniye, 1955, No 11, 80-85

Abstract : The soil erosion indices used in the classifications of A.S. Kozmenko (1948) and S.V. Naumova (1955) must be handled with extreme care under certain zonal conditions and with certain types of relief. It is recommended that the erosion in small channels and /razmoiny/ be taken into consideration and that areas with broken up microrelief be distinguished from those where the microrelief has been smoothed out. A classification of eroded soils must contain a description of the angles of surface incline as well as indices of the length of the slopes. For successful development of a unified classification of

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USSR/Soil Science - Genesis and Geography of Soils. J-2

Abs Jour : Ref Zhur - Biol., No 3, 1958, 10464

eroded soils, soil scientists, geomorphologists, and hydrologists must conduct research together toward unified objectives. This is as important as fixed observations.

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LIDOV, V.P., SETUNSKAYA, L.Ye., KHOKLEVA, N.V.

Quantitative studies of micro-relief associated with soil erosion. Izv.Vses.geog.ob-va 87 no.6:542-546 N-D '55. (MLRA 9:3)
(Erosion)

LIDOV, V.P.; SETUNSKAYA, L.Ye.

Cartographic research method and problems of division into fractional physical geographical regions. Vop.geog. no.39:70-79 '56. (MLRA 9:11)

(Physical geography) (Cartography)

LIDOV, V. P.

137-1958-3-4882

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 3, p 61 (USSR)

AUTHORS: Lidov, V. P., Blinova, V. A.

TITLE: Experience in Smelting Lead-copper Matte With Sodium Sulfide (Opyt plavki svintsovo-mednogo shteyna s sernistym natriyem)

PERIODICAL: Sb. nauchn. tr. Gos. n.-i. in-t tsvetn. met., 1957, Nr 13, pp 232-234

ABSTRACT: The shaft smelting of Pb-Cu matte was carried out under industrial conditions. The matte was composed of 19.2 percent Pb and 13.4 percent of Cu, with an addition of converter slag (composed of 2.4 percent Pb, 1.3 percent Cu, 14 percent ZnO, 36.8 percent FeO, 28.8 percent SiO_2, 10.61 percent CaO, and 6.54 percent Al_2O_3), some industrial sodium sulfide (approximately 70 percent Na_2S), and some Fe- scrap; the charge ingredients, namely: the matte, the converter slag, the sodium sulfide, and the Fe scrap, constituted, respectively, 57 percent, 35.3 percent, 6.2 percent, and 1.5 percent of the charge. In comparison with the smelting of an analogous charge, but without the addition of Na_2S, the weight relationship Cu:Pb in the matte obtained increased from 1.9 - 2.6 to 3.8 (5.4 percent of Pb instead

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LIDOV, V.P.; NIKOLAYEVSKAYA, Ye.M.; SABO, Ye.D.

Practical plan for studying erosion factors and predicting the occurrence of erosion. Izv.Vses.geog.ob-va 89 no.1:43-52 Ja-F '57. (MLRA 10:3)

(Erosion)

AUTHOR: Ya. Sh. SOV/130-58-9-16/21

TITLE: Conference on New Methods of Making Lead (Soveshchaniye po novym metodam polucheniya svintsa)

PERIODICAL: Tsvetnyye Metally, 1958, Nr 9, pp 72 - 75 (USSR)

ABSTRACT: A conference on new methods of lead production from concentrates was held at the Gintsvetmet on June 22-25, 1958. Since the last meeting in 1953, over 20 flowsheets and variants have been tested by various works and organisations and the purpose of the present meeting was to evaluate this work. Pre-prints of the following reports had been circulated: "On Electric Smelting of Lead Raw Materials" by A.P. Sychev, V.A. Mikheyev, D.A. Sushchinskiy of VNIItsvetmet, A.V. Yukov of Kavkazgiprotsvetmet; "On Precipitation and Reaction Smelting of Lead Concentrates" by V.P. Lidov, L.A. Blinova, M.P. Smirnov, L.N. Kudryashova of Gintsvetmet, I.K.Polyvyanyy et al. of the Institut metallurgii i obogashcheniya AN KazSSR (Institute of Metallurgy and Beneficiation of of the Ac.Sc. KazSSR); "On Hydrometallurgical Treatment" by A.N. Vol'skiy, R.A. Aracheva, A.M. Yegorov, P.S.Titov, F.M. Loskutov and V.S. Lovchikov of Mintsvetmetzoloto and A.V. Pomosov, A.I. Levin et al. of the Ural'skiy

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politekhnicheskiy institut (Urals Polytechnic Institute); on the "Electrolytic Production of Lead by Electrolytes of Fused Salts" by I.G. Gul'din, A.V. Buchinskaya, V.P. Barinova and V.K. Ruppul' of Gintsvetmet and Yu.K. Delimarskiy, I.D. Panchenko, Ye.B. Gitman and A.A.Kolotiy of IONKh Ac.Sc. Ukrainian SSR. The conference was opened by D.M. Yukhtanov, deputy director of Gintsvetmet, who discussed recent progress and noted that predictions that the lead industry would develop in the direction of the hydrometallurgical treatment of flotation concentrates had not been fulfilled; he said that the most highly developed of the new methods were electric smelting and electrolytis of fused material and that pyrometallurgy would retain its importance for a long time. In the discussion that followed, D.M. Chizhikov, corresponding member of the Ac.Sc. USSR, systematized and reviewed all known processes. P.A. Pozdnikov and A.A. Vlasova of UFAN described methods of treatment developed there; the high effectiveness of which was doubted by V.A.Karchevskiy of Giprotsvetmet and S.I. Sobol' of Gintsvetmet.

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A.M. Zykov of the Leningrad Polytechnic Institute criticised the reports presented as being insufficiently analytical. G.P. Vyatlev of the Ukrtsink Works recommended the adoption of electric instead of shaft smelting of secondary lead materials at the works. A.N. Vol'skiy, Corresponding Member of the Ac.Sc. of the Mintsvetmetzoloto described work he had directed there on sulphide oxidation and recommended more attention to safety aspects. V.F. Fedorov of the GNTK USSR drew attention to the comparative lack of work in the Soviet lead industry on new methods, but opposed the proposal by Gintsvetmet to build a new, large electric furnace at the Leninogorsk Works. P.I. Kravchenko of the Elektrotsink Works deplored the incompleteness of all the work reported at the conference. A.M. Lomov of Kavkazgiprotsvetmet considered the adoption of electric smelting of lead concentrates and I.D. Panchenko of IONKh of the Ac.Sc. Ukrainian SSR with electrolysis of fused salts. F.M. Loskutov, Professor, Doctor of Technical Sciences of Mintsvetmetzoloto reminded the conference that electric smelting is not applicable to all materials and disagreed with Kostin's suggestion that all Soviet works should be converted to

this practice; he also spoke against alkali treatment of lead-containing materials - a view opposed by G.G. Zapevalov of the Irkutskiy gorno-metallurgicheskiy institut (Irkutsk Mining-metallurgical Institute) who also stressed the need for economic evaluation. M.A. Chernyak of Giprotsvetmet doubted whether electric smelting could revolutionise the lead industry and urged more research on the alkali process and sintering. I.V. Paramonov of the Gosplan of the KazSSR criticised the research work reported but D.N. Klushin of Gintsvetmet said that this work had gone a long way to realise the aims set out at the previous conference though much effort had been wasted. Many speakers deplored the lack of central direction of research work. After putting on record their views on the proposed methods, the conference decided that effort should be concentrated on the study and development of a) electric smelting of primary lead raw materials without added fluxes and electric smelting of secondary materials; b) electrolysis of lead concentrates in fused electrolytes (for the rich materials of the "Elektrotsink" and Sikhali Works); c) electrolytic refining of lead in aqueous

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SOV/12-90-6-4/23

AUTHOR: Lidov, V.P.

TITLE: On Problems of Physical Geography in the Next Years (O zadachakh fizicheskoy geografii v blizhayshiye gody)

PERIODICAL: Izvestiya vsesoyuznogo geograficheskogo obshchestva, 1958, Vol 90, Nr 6, pp 531 - 533 (USSR)

ABSTRACT: The author refers to the article of I.P. Gerasimov "Thermal and Aquatic Conditions of the Earth's Surface, its Role in the Dynamics of Natural Processes, Geographical Diversities, and Methods of Transformation for Practical Purposes" (Izvestiya AS USSR, Geographical Series, Nr 4, 1956), which was written in conjunction with several authors and dealt with the fundamental problems of Soviet physical geography for the coming years. By way of discussion, the author of the present article expresses his views on the important problems raised in the article which, in his opinion, is a onesided outline. He quotes a number of questions on which he agrees with the authors as, e.g., on the importance of studying the thermal and aquatic conditions of the Earth's surface, that only the first steps have been taken to explain the general geographical laws, that it is necessary

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to expand and intensify scientific-theoretical research, to organize the special experimental work on a broader basis, to elaborate the observations made by the hydrometeorological stations, etc. But, he asks, who will take care of these matters, since according to the plan neither the soil scientists may be engaged in problems of physical geography nor the physico-geographers take up the study of geophysical problems. Criticizing I.P. Gerasimov's assertion that one of the most important means of a rapid rise in agriculture, is a rational distribution of agricultural production with due regard to the natural (thermal and aquatic) resources of the country, - the author states that because of methodologically wrong ositions, Gerasimov comes to the false conclusion that a thorough study of the thermal and aquatic conditions of the Earth's surface is the most important theoretical problem of physical geography at the present stage of its development. If one is to agree with this contention then what is the most important problem left to the climatologists and hydrologists? In his further considerations the author indicates the working-

On Problems of Physical Geography in the Next Years

out of scientific foundations for the division into districts as the most important theoretical problem of physical geography. Another important problem is the composition of geographical monographies on the republics and districts of the USSR. In reviewing the article of Gerasimov, the author finds that the problems of physical geography for the near future have been greatly narrowed on the one side, while on the other they have been much too generalized. At the end he states that the country now requires as never before good, complex geographical studies and thoroughly performed work on the physico-geographical zoning.

LIDOV, V.P.; SETUNSKAYA, L.Ya.

Results obtained from investigating erosion processes by applying the quantitative carthographic method on the basis of investigations in the Volga Upland. Trudy Inst.lesa 44:5-34 '59. (MIRA 12:9)

(Erosion)

LIDOV, V.P.; DIK, N.Ye.; NIKOLAYEVSKAYA, Ye.M.; KHMELEVA, N.V.

Bottom gullies and their development; based on studies in key areas of the right banks of the Don. Trudy Inst.lesa 44: 103-137 '59. (MIRA 12:9)
(Don Valley--Erosion)

LIDOV, V.P.

Some characteristics of erosion processes in ravine systems and phasic development of the interior morphology of ravines. Vest. Mosk. un. Ser. 6: Biol., pochv. 15 no.4:61-67 Jl-Ag '60. (MIRA 13:10)

1. Kafedra fiziki i melioratsii pochv Moskovskogo universiteta. (Erosion)

LIDOV, V.P.; NADEZHDINA, M.V.; PETRENKO, I.A.

Effect of light on the development of steppe vegetation in forest stands under conditions prevailing in West Kazakhstan Province. Vop.geog. no.48:223-241 '60. (MIRA 13:7)
(West Kazakhstan Province--Forest ecology)
(Plants, Effect of light on)

GAYEL', A.G.; LIDOV, V.P.

Problems in the study of soil erosion and its control. Nauch. dokl. vys. shkoly; biol. nauki no.4:178-185 '61. (MIRA 14:11)

1. Rekomendovana kafedroy fiziki i melioratsii pochv Moskovskogo gosudarstvennogo universiteta im. M.V.Lomonosova.
(SOIL CONSERVATION)

KOSOV, B. F.; LIDOV, V. P.

First intercollegiate conference on soil erosion and measures for its control. Nauch. dokl. vys. shkoly; biol. nauki no.3:210 '62. (MIRA 15:7)

(EROSION--CONGRESSES)

AFANAS'YEVA, T. V.; LIDOV, V. P.

Using aerial photographic materials in the investigation of soil erosion by water. Nauch. dokl. vys. shkoly; biol. nauki no.3: 194-198 '62. (MIRA 15:7)

1. Rekomendovana kafedroy geografii pochv Moskovskogo gosudarstvennogo universiteta im. M. V. Lomonosova.

(PHOTOGRAPHY, AERIAL) (EROSION)

LIDOV, V.P.; ORLOVA, V.K.; TYURDENEVA, S.A.

Dust storms in Stavropol Territory and measures for controlling them. Goeg. i khoz. no.12:29-39 '63. (MIRA 16:12)