LEBEDINSKIY, A. I.

Gurevich, L. E. and Lebedinskiy, A. I.- "The magnetic field of sun spots," Trudy Yubileynoy nauch. sessii (Leningr. gos. un-t), Sektsiya fiziko. mat., Podsektsiya astronomii, Leningrad, 1948, p. 21-24

SO: U-3600, 10 July 53, (Letopis 'Zhurnal 'nykh Statey, No.6, 1949).

LEBEDINSKIY, A. I.

Gurevich, L. E. and Lebedinskiy, A. I. - "The pulsations of the Cepheids Part I," Astron. zhurnal, 1949, Issue 2, p. 97-103, - Bibliog: 5 items.

SO: U-3736, 21 May 53, (Letopis 'Zhurnal 'nykh Statey, No. 17, 1949).

First of two articles gives a brief introduction of cepheids, also known as pulsating stars. Lists people who have studied this phenomenon. Part II will present mathematical proofs of some of the statements made in Part I. PA 42/49T4

LEBEDINSKIY, A. I. PA 170T97

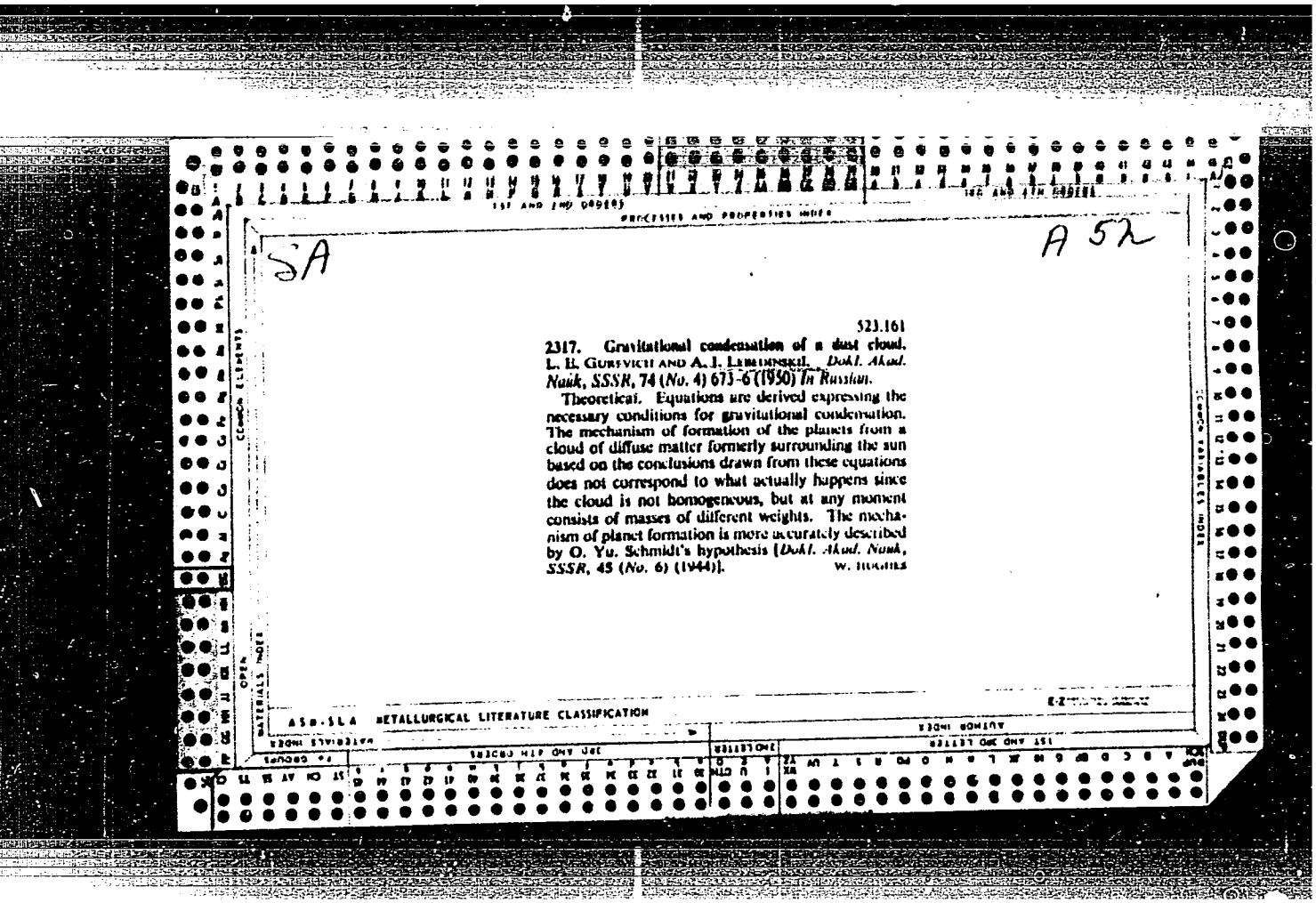
USSR/Physics - Astronomy Nov/Dec 50

"The Formation of the Planets," L. E. Gurevich, A. I. Lebedinskiy, Leningrad State U imeni Zhdanov

"Iz Ak Nauk SSSR, Ser Fiz" Vol XIV, No 6, pp 765-803

Three reports delivered at meeting of the Depart of Physicomath Sci, Acad Sci USSR, 21 - 23 Jun 50 in Riga: "I. Gravitational Condensation," "II. Law Governing Distances of Planets and Their Rotation," and "III. Structure of the Primordial Cloud and Separation of the Planets Into the Inferior and Superior Planets."

170T97



SA

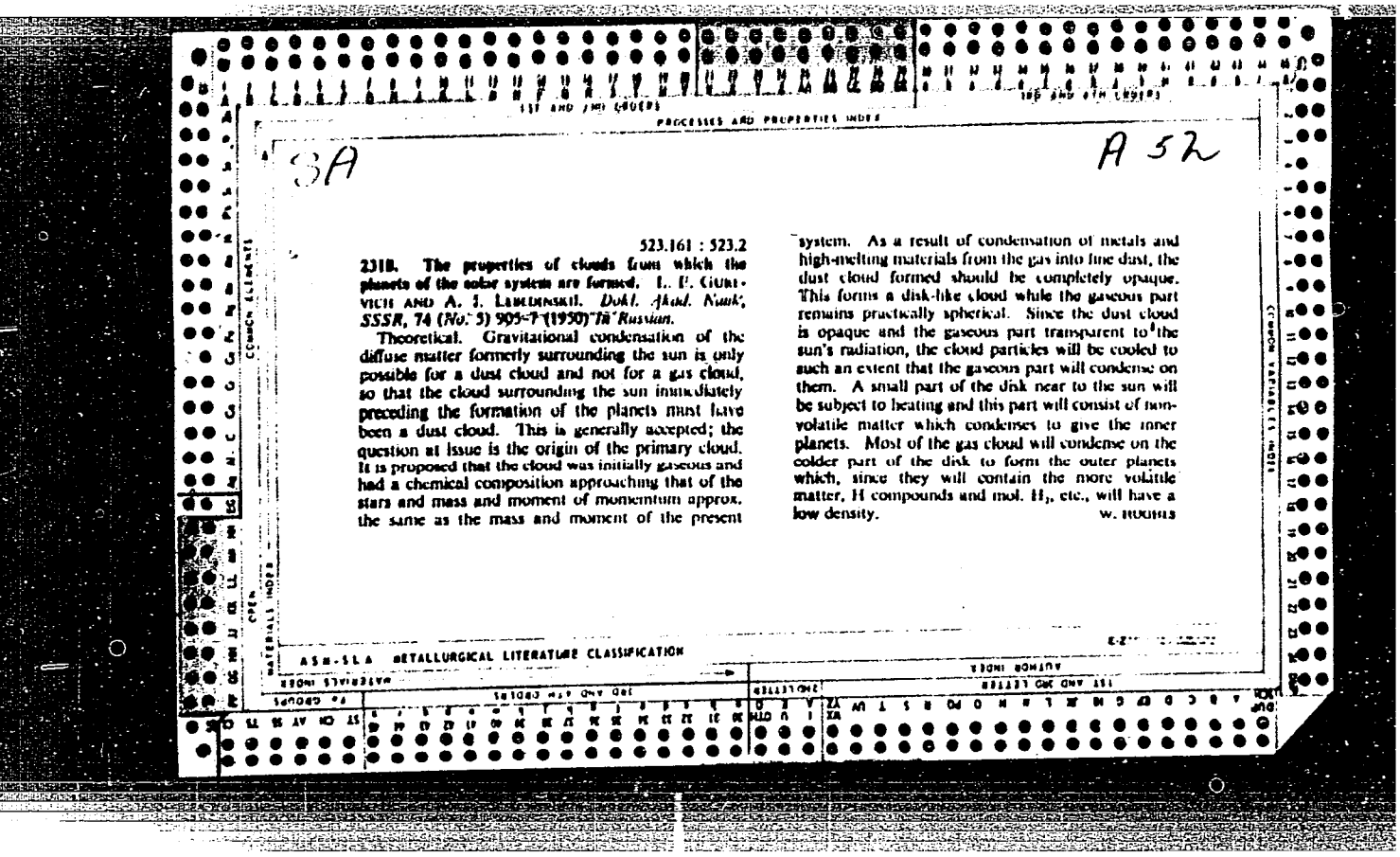
A 52

523.161

2317. **Gravitational condensation of a dust cloud.** L. E. Gurevich and A. I. Lebedinskii. *Dokl. Akad. Nauk, SSSR*, 74 (*No.* 4) 673–6 (1950) *In Russian.*

Theoretical. Equations are derived expressing the necessary conditions for gravitational condensation. The mechanism of formation of the planets from a cloud of diffuse matter formerly surrounding the sun based on the conclusions drawn from these equations does not correspond to what actually happens since the cloud is not homogeneous, but at any moment consists of masses of different weights. The mechanism of planet formation is more accurately described by O. Yu. Schmidt's hypothesis [*Dokl. Akad. Nauk, SSSR*, 45 (*No.* 6) (1944)]. W. Hughes

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



3A

A 52

523.161 : 523.2

2318. The properties of clouds from which the planets of the solar system are formed. L. F. Ciurkovich and A. I. Lebedinskii. *Dokl. Akad. Nauk, SSSR*, 74 (No. 5) 905-7 (1950) In Russian.

Theoretical. Gravitational condensation of the diffuse matter formerly surrounding the sun is only possible for a dust cloud and not for a gas cloud, so that the cloud surrounding the sun immediately preceding the formation of the planets must have been a dust cloud. This is generally accepted; the question at issue is the origin of the primary cloud. It is proposed that the cloud was initially gaseous and had a chemical composition approaching that of the stars and mass and moment of momentum approx. the same as the mass and moment of the present system. As a result of condensation of metals and high-melting materials from the gas into fine dust, the dust cloud formed should be completely opaque. This forms a disk-like cloud while the gaseous part remains practically spherical. Since the dust cloud is opaque and the gaseous part transparent to the sun's radiation, the cloud particles will be cooled to such an extent that the gaseous part will condense on them. A small part of the disk near to the sun will be subject to heating and this part will consist of non-volatile matter which condenses to give the inner planets. Most of the gas cloud will condense on the colder part of the disk to form the outer planets which, since they will contain the more volatile matter, H compounds and mol. H_2, etc., will have a low density.

W. Rounds

LEBEDINSKIY A. I.

USSR/Astronomy - Planets 21 Oct 50

"Law Governing Planets' Distances and Rotation," L. E. Gurevich, A. I. Lebedinskiy, Leningrad State U imeni Zhdanov.

"Dok Ak Nauk SSSR" Vol LXXIV, No 6, pp 1061-1064

Derives general "Bode" formula for distance of nth planet to the Sun, which involves av eccentricity e:

$$R_n = \frac{1 + e}{1 + 2e} R_1 (1 + 2e)^n$$

Submitted 25 Jul 50 by Acad O. Yu. Shmidt.

172T2

LEBEDINSKIY, A. I.

USSR/Astronomy - Cosmogony 1 Jul 52

"Hypothesis Concerning the Formation of Stars," A. I. Lebedinskiy, Leningrad State U imeni A. A. Zhdanov

"Dok Ak Nauk SSSR" Vol LXXIX, No 1, pp 41-44

Author bases his hypothesis on Jeans' inequality $\frac{4\pi}{3}\gamma\rho R_o^2 \gg 3\frac{A}{\mu}T_o$ where γ is the gravitational const, A - gas const, μ - mol weight. If big masses condense they may sep into smaller ones, each satisfying Jeans' inequality. Author attempts to find limit of max mass condensing into a star. He tentatively assumes max mass of hydrogen star equal to 100 solar masses. Submitted 3 May 51 by Acad O. Yu. Shmidt.

210T1

USSR/Astronomy - Mass of Stars, Maximum 21 Jul 51

"The Greatest Possible Masses of Solitary Stars and the Formation of Red Systems," A. I. Lebedinskiy, Leningrad State U imeni Zhdanov

"Dok Ak Nauk SSSR" Vol LXXIX, No 3, pp 415-418

Discusses the problem concerning the evolution of a cloud of diffuse matter which is slowly and gradually being converted into a star. Also discusses the causes of the instability of supermassive stars and some incorrect assumptions of

211T1

LEBEDINSKIY, A. I.

Eddington. Gives criteria and inequalities governing upper limits of mass, density, radius, etc." Submitted by Acad O. Yu. Shmidt 2 Jun 51.

211T1

LEBEDINSKIY, A. I.

USSR/Astronomy - Nova

Mar/Apr 52

"Velocities of the Envelopes Hurled Out by Novae," A.I. Lebedinskiy, Leningrad State U imeni Zhdanov

"Astron Zhur" Vol XXIX, No 2, pp 135-143

Examines qualitatively the process of a peripheral explosion due to a flare of a nova, by proceeding from analogy with the well-studied processes of ordinary explosions. Schematically represents the distribution of pressure in the star. During a flare in a nova a sudden release of energy occurs in its depths; the transfer of this energy from bowls to surface of star is effected by wave condensation in the space of several tens of minutes, the wave in passing from high to low densities being accelerated to finally reach high velocities. Submitted 22 Jun 51.

216T61

216T61

USSR/Astronomy - Cosmogony 21 Apr 52

"The Forming of Stars at the Present Time," L. E. Gurevich, A. I. Lebedinskiy, Leningrad State Pedagogical Inst imeni A. I. Gertsen

"Dok Ak Nauk SSSR" Vol LXXXIII, No 6, pp 813-816

State that star forming cannot be an act that occurs once but rather represents a multiple prolonged repeating process which is connected with the evolution of the Galaxy. The authors' theory of star formation in the process of gravitational condensation leads to the conclusion that stars that are forming must rotate with a speed close to limit of centrifugal stability and the conversion of a forming star into a normal slowly rotating star requires the loss of mass. Submitted by Acad O. Yu. Shmidt 5 Mar 52.

223T58

LEBEDINSKIY, A. I.

223T58

LEBEDINSKIY, A. I., and GUREVICH, L. Ye.

Spirals develop into elliptic Galaxies. II All-Union Conference of Cosmogony May 1952. V. 8 (52) 99-102.

USSR/Astronomy - Gravitational Condensation 1 May 52

"Gravitational Condensation of Stellar Gas and Formation of Stellar Clouds," A. I. Lebedinskiy, Leningrad State Pedagogic Inst imeni A. I. Gertsen

"Dok Ak Nauk SSSR" Vol LXXXIV, No 1, pp 33-36

Considers the case of condensation of a stellar gas in a planar-parallel layer, which may be considered external parts of our Galaxy, where the Sun is located. A considerable part of stars in the Galaxy is united in various stellar systems: spherical and open clusters and stellar clouds. The question arises: Are all stellar systems made up of stars possessing a common origin, or can stars with neg energy join into systems? In latter case arises the problem of gravitational instability and stellar dispersion. Submitted by Acad O.Yu. Shmidt 12 Mar 52.

224T65

224T65

LEBEDINSKIY, A.I.

LEBEDINSKIY, A. I.

USSR/Astronomy - Diffused Nebulae 11 May 52

"Dynamics of Diffused Nebulae," A. I. Lebedinskiy, Leningrad State Pedagogical Inst imeni Gertsen

"Dok Ak Nauk SSSR" Vol 84, No 2, pp 249-252

Analyzes peculiarities of distribution of diffused matter spread over a space of hundreds of parsecs. Refers to his previous works (cf. "Dok Ak Nauk SSSR" Vol 84, No 1, 1952 and Vol 79, No 3, 415, 1951) and concludes that diffused matter may be distributed only in irregular form. Received 3 Mar 52.

231T61

USSR/Astronomy - Stellar Associations 21 May 52

"Stellar Associations," A. I. Lebedinskiy, Leningrad State Pedagogic Inst imeni A. I. Gertsen

"Dok Ak Nauk SSSR" Vol LXXXIV, No 3, pp 467-470

The hypothesis that hot giants are stars that have captured diffused matter (Lebedinskiy, "Dok Ak Nauk SSSR" Vol LXXIX, No 1, 1951; Lebedinskiy and L. E. Gurevich, "Dok Ak Nauk SSSR" Vol LXXXIII, No 6, 1952) gives the possibility of constructing a rational classification of open clusters and galactic subsystems and explaining the peculiarities of assocns of hot stars. Shows that the evolution of clusters proceeds

225T36

LEBEDINSKIY, A. I.

In the direction 4-3-2 according to W. Becker's lumination-spectrum diagram for the main types of open clusters enumerated from 1 to 4 (Sterne und Sternsysteme, Dresden und Leipzig, 1950, p 154). Submitted by Acad O. Yu. Shmidt 5 Mar 52.

225T36

LEBEDINSKIY, A. I.

PA 245T31

USSR/Geophysics - Northern Lights 11 Oct 52

"Radiant and Arc Forms of Northern Lights," A. I. Lebedinskiy, Leningrad State Pedagogical Inst imeni Gertsen

"Dok Ak Nauk SSSR" Vol 86, No 5, pp 913-916

Assumes that northern lights are produced in the upper atmosphere, which consists of plasma. Radiative auroras are generated by electron impact and are strong in luminosity, while arc-shaped lights are due to excitation by ions and are weak in visibility. Submitted by Acad O. Yu. Shmidt 11 Aug 52.

245T31

LEBEDINSKIY, A.

3

USSR

523.2

19. Recent Soviet theories on the origin of the solar system. A. LEBEDINSKY. *J. Brit. Astron. Assoc.*, 63, 274–7 (July, 1953).

A review of Soviet researches on the birth of the solar system carried out during the last decade, including *inter alia* the cosmogonic theory of O. Y. Schmidt (1944) in which the pre-planetary cloud is formed of cosmic gas and dust captured by the sun during the latter's passage through an extensive, rarefied nebula. Of the various theories which have emerged in the past 150 years, Schmidt's hypothesis can alone explain the main features of the solar system as now observed. In comparison with earlier work, an essential distinction of the new theory is a quantitative assessment of the part played by the conversion of the kinetic energy of the dust particles into heat, and the subsequent emission into space.

D. R. BARBER

LEBEDINSKIY, A. I.

USSR/Astronomy - Interstellar Dust 21 Sep 53

"Dust and Gas in Interstellar Space," A.I. Lebedinskiy, Leningrad State Pedagog Inst im Gertsen

DAN SSSR, Vol 92, No 3, pp 507-510

Analyzes adsorption of H atoms to a dust particle with successive formation of H_2 mol, followed by release of a certain amt of energy, which, he assumes, propagates as a wave with velocity of sound. Derives corresponding eqs and tabulates energies and temps of formation of various mols. Presented by Acad O.Yu. Shmidt 15 Jul 53.

268T72

LEBEDINSKII, A.I.

RT-952 (Dynamics of diffuse nebulae) Dinamika diffuznykh tumannostei.
DOKLADY AKADEMII NAUK SSSR, 92(5): 911-914, 1953.

LEBEDINSKIY, A.L.

Hypothesis of star formation. Vop.kosm. 2:5-149 '54. (MIRA 8:5)
(Stars)

Lebedinskiy, A. I.

USSR/ Astronomy - Slitless spectrographs

Card 1/1 Pub. 22 - 14/62

Authors : Lebedinskiy, A. I.

Title : Some applications of the wide-angle mirror camera

Periodical : Dok. AN SSSR 102/3, 473 - 475, May 21, 1955

Abstract : A description is given of a wide-angle camera assembly with a mirror slitless-spectrograph and its applications to taking pictures of fast changing shapes (aurora borealis, corona, bands, etc.). One Germ. reference (1951). Spectrograms.

Institution : .....

Presented by: Academician O. Yu. Shmidt, March 24, 1955

GUREVICH,L.E.; LEBEDINSKIY,A.I.

On the causes of stellar flares. Dokl. AN SSSR 103 no.4:569-572 Ag'55.
(Stars, New) (MLRA 8:11)

LEBEDINSKIY, A.I.

2

S/7-342 551.594.51:551.521.6

Lebedinskii, A. I. (*Univ. of Moscow*), Electrical discharges and the interpretation of auroral types. (In: The airglow and the aurorae; a symposium. London, Pergamon, 1956. p. 222-224. fig., 3 refs., 5 eqs.) DWB—Discharge theories of auroral arcs and of auroral rays are presented, and numerical estimates of the characteristics of the discharges are made. *Subject Headings:* 1. Auroral theories · 2. Auroral emission—L—*Author's abstract*

LEBEDINSKIY, A.I.; KHOROSHEVA, O.V.

Motion of stars in associations. Astron.zhur.33 no.1:54-61 Ja-F '56. (MLRA 9:6)

1.Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.
(Stars)

LEBEDINSKIY, A.I.

523.43

26. PHYSICAL CONDITIONS ON MARS. A.I.Lebedinskiĭ. Doklad. Akad. Nauk SSSR, Vol. 103, No. 5, 795-8 (1956). In Russian.

A discussion of the atmospheric conditions on Mars in terms of the infrared carbon dioxide absorption spectra.

J.M.Hough

Moscow State Univ. im M.V. Lomonosov

SHMIDT, Otto Yul'yevich, akademik; LEBEDINSKIY, A.I., otvetstvennyy redaktor; KOZLOVSKAYA, S.V., redaktor izdatel'stva; RYLINA, Yu.V. tekhnicheskiy redaktor

[Four lectures on a theory of the origin of the earth] Chetyre lekstsii o teorii proiskhozdeniia zemli. Izd. 3-e, dop. [Moskva] Izd-vo Akad.nauk SSSR, 1957. 138 p. (MIRA 10:9)
(Cosmogony)

Name : LEBEDINSKIY, A.

Title : Professor

Remarks: Professor A. Lebedinskiy has written an article, "Triumph of the Human Mind", in connection with the October 4, 1957 launching of Sputnik No. 1, which demonstrates considerable knowledge of upper-stratospheric phenomena.

Source : N: Promyshlenno-Ekonomicheskaya Gazeta, No. 120, 6 October 1957, p.1, c.7

LEBEDINSKIY, A.I.

3

Infrared molecular absorption in the atmosphere of Mars and the physical conditions of its surface. A. I. Lebedinskiĭ (Univ. Moscow). *Mem. soc. roy. sci. Liège* 18, 174–80 (1957).—The Martian atm. is practically water free and hence is transparent to all infrared radiation except in the regions of CO_2 absorption. The effects of this radiation on the phys. conditions of the Martian surface are discussed.
Harry C. Allen, Jr.

ISAYEV, Sergey Ivanovich; PUSHKOV, Nikolay Vasil'yevich; LEBEDINSKIY, A.I., prof., doktor fiz.-mat. nauk, otvetstvennyy red.; SAMSONENKO, L.V., red. izd-va; POLENOVA, T.P., tekhn. red.

[Northern lights] Poliarnye siianiia. Zarisovki poliarnykh siianii G.N. Gamon-Gamana. Moskva, Izd-vo Akad. nauk SSSR, 1958. 111 p. (Auroras) (MIRA 11:9)

SHMIDT, Otto Yul'yevich, akademik [deceased]; KUROSH, A.G., doktor fiz.-matem. nauk, otv.red.toma; GRIGOR'YEV, A.A., akademik, red.; DELONE, B.N., red.; KALASHNIKOV, A.G., doktor fiz.-matem.nauk, red.; KOZLOVSKAYA, S.V., red.; LEBEDINSKIY, A.I., doktor fiz.-matem.nauk, red.; LEVIN, B.Yu., doktor fiz.-matem.nauk, red.; MAL'TSEV, A.I., red.; KHIL'MI, G.F., doktor fiz.-matem.nauk, red.; SHEVELEV, M.I., general-leytenant, red.; POLENOVA, T.P., tekhn.red.

[Selected works; mathematics] Izbrannye trudy; matematika. Moskva, Izd-vo Akad.nauk SSSR, 1959. 315 p. (MIRA 12:2)

1. Chlen-korrespondent AN SSSR (for Delone, Mal'tsev).
(Groups, Theory of)

KOGAN, Ya.B., red.-sostavitel'; ALEKSANDROV, akademik, otv.red.; KALASHNIKOV, A.G., doktor fiz.-mat.nauk, red.; GRIGOR'YEV, A.A., akademik, red.; DELONE, B.N., red.; KOZLOVSKAYA, S.V., red.; KUROSH, A.G., doktor fiz.-mat.nauk, red.; LEBEDINSKIY, A.I., doktor fiz.-mat.nauk, red.; LEVIN, B.Yu., doktor fiz.-mat.nauk, red.; MAL'TSEV, A.I., akademik, red.; KHIL'MI, G.F., doktor fiz.-mat.nauk, red.; SHEVELEV, M.I., geroy Sovetskogo Soyuza, red.; PROKOF'YEVA, N.B., red.izd-va; POLENOVA, T.P., tekhn.red.

[Otto IUl'evich Shmidt; his life and works. A collection devoted to a hero of the Soviet Union, Academician Otto IUl'evich Shmidt, 1891-1956] Otto IUl'evich Shmidt; zhizn' i deiatel'nost'. Sbornik, posviashchennyi geroiu Sovetskogo Soiuza akademiku Otto IUl'evichu Shmidtu, 1891-1956. Moskva, 1959. 469 p. (MIRA 12:12)

1. Akademiya nauk SSSR. 2. Chlen-korrespondent AN SSSR (for Delone).
(Shmidt, Otto IUl'evich, 1891-1956)

LEBEDINSKY, A. I.

"The composition of terrestrial corpuscular radioaction and possible mechanisms of its origin"
Lebedinsky, A. I., S. N. Vernov, A. E. Chudakov, I. P. Ivanenko

Investigations conducted during the flights of the Soviet earth satellites and the cosmic rocket have yielded the following data on the composition of "terrestrial corpuscular radiation", that is, particles revolving about the earth:

1. In the outer zone (1), the overwhelming majority of particles are electrons of energy 20 to 100 kev. If we represent the energy spectrum of these electrons in the region of maximum radiation in the form: $N(E)\ 1/E$, then 5. Extrapolation of such a soft spectrum into the region of lower energies shows that at E=5 to 10 kev, the total density of electron energy would exceed the energy density of the magnetic field $H^2/8$. For this reason, the electron spectrum in the region of low energies (several kilovalts) should either have a maximum or at least should be small at least in this region. The number of electrons of relatively high energies (5×10^6 ev) is negligibly small as compared with the number of electrons in the 20-100 Kev range. The overall energy released in the crystal of the scintillation counter from photons due to the bremsstrahlung of electrons is from two to three orders of magnitude in excess of the energy released by all high energy particles that produce an energy release in the crystal of over 4.5×10^6 ev per particle. The total energy of all electrons in the outwe zone is approximately equal to the energy released in aurorae during somewhat over one week.

report presented at the International Cosmic Ray Conference, Moscow, 6-11 july 1959

21(8)

AUTHORS: Vernov, S. N., Corresponding Member, AS USSR, Grigorov, N. L., Ivanenko, I. P., Lebedinskiy, A. I., Murzin, V. S., Chudakov, A. Ye.

SOV/20-124-5-17/62

TITLE: A Possible Mechanism of the Production of "Terrestrial Corpuscular Radiation" Under the Action of Cosmic Rays (Vozmozhnyy mekhanizm sozdaniya "zemnogo korpuskulyarnogo izlucheniya" pod deystviyem kosmicheskikh luchey)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 124, Nr 5, pp 1022-1025 (USSR)

ABSTRACT: By "terrestrial corpuscular radiation" the authors mean the fluxes of particles moving in the terrestrial magnetic field along closed orbits. According to the authors' opinion, the following radiation production mechanism deserves the most attention: Under the action of cosmic radiation, the earth, like any other celestial body, becomes a neutron source. The neutrons traverse the magnetic field without being disturbed as uncharged particles and attain great distances from the earth. The charged particles originating from neutron decay move in the magnetic field along the lines of force. The particle in the course of time reaches the region of high geomagnetic

latitudes, where fieldstrength increases considerably with increasing latitude. In this region the velocity vector of the particle will, as the particle approaches the earth, turn so long with respect to the vector $\vec{H}$, until at the latitude λ_{max} the angle between the velocity of the particle and the vector $\vec{H}$ becomes equal to 90°. At this point the particle returns and begins to move in the rear direction along the same magnetic line of force. If conditions are favourable, the decay products of the neutrons may perform 10^{8} and more oscillations between the northern and the southern turning point. Therefore, the intensity of the flux of these particles increases by the same amount. Experimental data indicate the existence of such a radiation. The present paper carries out a closer investigation in order to find out by what factors the intensity of these rays is determined. Calculation is followed step by step. The authors calculate the intensity of the "terrestrial

corpuscular radiation" for various heights and latitudes; the results obtained by these calculations are shown by a diagram. They lead to the following conclusions: Although the number of neutrons decaying in the earth is very small, they may cause intensive cosmic radiation. The experimentally determined intensity is by ~ 100 times lower near the equator than calculated intensity. According to experimental data there is no terrestrial corpuscular radiation in geomagnetic latitudes above 40°, but in the present paper $j(\lambda = 40^\circ) \sim j(\lambda = 0^\circ)$ is obtained. This means non-agreement by more than 10^5 times the amount. In order to reestablish agreement with the experiment, it is useful to assume an additional flux of particles from "magnetic traps", which are particularly strong in large latitudes. This may be due to the existence of electric fields. This assumption also appears to be confirmed by the data concerning the considerable increase of perturbations of the terrestrial magnetic field with increasing latitude. With increasing latitude, the interdictions imposed upon energy by Stoermer's theory are being disobeyed to an ever-increasing extent. The

mechanism discussed in the present paper must apply also in the neighborhood of astrophysical objects having a magnetic field. Therefore, the investigation of this radiation in the neighborhood of planets may be a means of observing weak magnetic fields. The authors thank D. V. Skobel'tsyn for his advice and M. S. Rabinovich for discussions. There are 2 figures and 7 Soviet references.

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

SUBMITTED: November 21, 1958

SHMIDT, Otto Yul'yevich [deceased]; LEBEDINSKIY, A.I., doktor fiz.-matem. nauk, otv.red.toma; LEVIN, B.Yu., doktor fiz.-matem.nauk, otv.red. toma; KHIL'MI, G.F., doktor fiz.-matem.nauk, otv.red.toma; KALASHNIKOV, A.G., doktor fiz.-matem.nauk, red.; GRIGOR'YEV, A.A., akademik, red.; DELONE, B.N., red.; KOZLOVSKAYA, S.V., red.; KUROSH, A.G., doktor fiz.-matem.nauk, red.; MAL'TSEV, A.I., akademik, red.; SHEVELEV, M.I., general-leytenant, Geroy Sovetskogo Soyuza, red.; NOVICHKOVA, N.D., tekhn.red.; KASHINA, P.S., tekhn.red.

[Selected works; geophysics and cosmogony] Izbrannye trudy; geofizika i kosmogoniia. Moskva, Izd-vo Akad.nauk SSSR, 1960. 209 p. (MIRA 14:1)

(Cosmogony) (Geophysics)
(Schmidt, Otto IUl'evich, 1891-1956)

SHMIDT, Otto Yul'yevich, akademik [deceased, 1891-1956]; GRIGOR'YEV, A.A., akademik, otv.red.toma; SHEVELEV, M.I., general-leytenant, Geroy Sovetskogo Soyuza, otv.red.toma; DELONE, B.N., red.; KALASHNIKOV, A.G., doktor fiz.-matem.nauk, red.; KOZLOVSKAYA, S.V., red.; KUROSH, A.G., doktor fiz.-matem.nauk, red.; LEBEDINSKIY, A.I., doktor fiz.-matem.nauk, red.; LEVIN, B.Yu., doktor fiz.-matem.nauk, red.; MAL'TSEV, A.I., akademik, red.; KHIL'MI, G.F., doktor fiz.-matem.nauk, red.; MEYEROVICH, O.V., red.izd-va; KASHINA, P.S., tekhn.red.

[Selected geographical works] Izbrannye trudy; geograficheskie raboty. Moskva, Izd-vo Akad.nauk SSSR, 1960. 212 p. (MIRA 13:11)

1. Chlen-korrespondent AN SSSR (for Delone).
(Schmidt, Otto IUl'evich, 1891-1956)
(Arctic regions)

23936
S/035/61/000/006/018/044
A001/A101

3,2480

AUTHORS: Vernov, S.N., Chudakov, A.Ye., Lebedinskiy, A.I., Ivanenko, I.P.

TITLE: Composition of terrestrial corpuscular radiation and possible mechanisms of its origination

PERIODICAL: Referativnyy zhurnal. Astronomiya i Geodeziya, no.6 , 1961, 33, abstract 6A287 ("Tr. Mezhdunar. konferentsii po kosmich. lucham, 1959, v. 3", Moscow, AN SSSR, 1960, 54-58)

TEXT: Assuming that the outer radiation belt consists of electrons with energy spectrum $N(>E) \sim E^{-\gamma}$, the value of γ was determined to be ~ 5 for energies from 20 to 100 kev. Extrapolation of this spectrum to the region of lower energies (3 - 10 kev) would result in density of energy of particles which would exceed the density of energy of the constraining magnetic field. Therefore, either the spectrum of low-energy electrons must have a maximum or γ should be small. A weakening of the Earth's magnetic field was observed in the seat of a maximum filled trap. A fraction of auroras can be explained by leakage of particles from the outer belt into the atmosphere. The source of replenishment of the outer zone is solar corpuscular fluxes. At their motion, recombination is possible which gives

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A001/A101

Composition of terrestrial corpuscular radiation ...

rise to neutral atoms. Atoms ionized about or within the radiation belt give rise to electrons captured by the magnetic field in the outer zone. The inner radiation belt is restricted by the force lines starting from the Earth's surface at latitudes 30°-40°. It is filled up at β-decay of neutrons formed in the Earth's atmosphere by cosmic rays. At life time of protons in the belt being $\sim 10^{7}$ sec, the neutron mechanism is sufficient for filling up the inner zone up to intensity observed. A sharp fall off of intensity in the belt at the geomagnetic latitude 30° can be explained by three mechanisms: a) non-conservation of magnetic moment of particles, b) effect of magnetic disturbances, c) drift of low-energy particles from the Earth as a result of being affected by ring currents presumed to exist in the ionosphere.

V. Temnyy

[Abstracter's note: Complete translation]

Card 2/2

89063

S/555/60/007/000/001/007
B123/B201

3,1550(1057, 1062, 1129)

AUTHOR: Lebedinskiy, A. I.

TITLE: Hydrogen content in large planets

PERIODICAL: Voprosy kosmogonii, v. 7, 1960, 50-54

TEXT: An attempt has been made by the author to explain the fact that the chemical composition of giant planets differs from that of other planets. For his purposes, the author assumed heating of the outer part of the protoplanetary cloud to have been caused by the motion of solid components. A hypothesis put forth by him in 1950 explains why there is an excess of hydrogen in planets starting from Jupiter, and lack of it from Mercury to Mars. According to this hypothesis, the protoplanetary cloud was composed of hydrogen and, possibly, helium. Other elements were contained as small admixtures. Before this cloud was subjected to a high pressure, hydrogen and all its volatile compounds were in the gaseous phase. As condensation rose, dust began to concentrate in the equatorial plane, and formed a compact ring, like Saturn's, around the Sun. Because the Sun did not heat through to the outer zones of the ring, the light gases condensed on the

Card 1/3

Hydrogen content in....

dust. The heated part gave rise to the planets of the terrestrial group on the basis of sparingly fusible materials (rocks, metals) with moderate masses. The planets of the Jupiter group were formed from light matter adding to the dust. The various chemical compositions of the Jupiter group planets can only be explained by considering the energy equilibrium of dust at the periphery, where solar radiation was practically inexistent, and stellar radiation could not heat the dust to more than 3°K. Under these conditions, friction was apt to be the main source of thermal energy. The author has shown in two previous papers that the evolution of a dust system and that of a system of solid bodies exclude each other. The later paper has been published in the present periodical, Vol. 2, p. 5, 1954. When a flat disk, similar to a Saturn ring, arises, and the solid bodies act upon one another by gravitation, their volume is increased as the result of collisions of bodies of the subsystem. The equatorial diameter of the dust system is reduced by a decrease of the moment of momentum. The author considers the case where solid bodies and dust particles coexist in the subsystem. The energy of solid bodies is reduced by the friction on dust; it radiates into space as thermal energy. When bodies with comparable mass collide they are crushed in most cases, since, as a rule, their relative

Card 2/3

Hydrogen content in ...

S/555/60/007/000/001/007
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velocity is not less than several km/sec. The thus resulting small bodies go to augment the bigger bodies with which they collide, and the planetary bodies are formed on the expense of dust of the subsystem. Eventually, the disperse matter gets together to form the planets. The heat set free in the process varies from 0.1 to 100 erg/cm^{2}sec, depending on the distance from the Sun, and corresponds to a dust temperature of 5-30°K. The process of planet formation takes place in two stages. In the first one, the solid component accumulates, and as the next stage, the chemical composition undergoes a change, once the planet has grown sufficiently massive. The gas density passed through a maximum at some distance from the Sun; this explains the maximum in the Jupiter - Saturn zone. Moreover, a monotonic dependence of the density on the orbital radius is observed with the Jupiter satellites. It is concluded that the planetary satellites as well must have formed under the same law. There are 1 table and 2 Soviet-bloc references.

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

Card 3/3

LEBEDINSKY, A. I., [redacted], YA. I. [redacted], V.

"The Study of the Planetary Distribution of Aurorae,"

Report presented at the Intl. Conference on Cosmic Rays and Earth Storms, Kyoto, Japan, 4-15 Sept. 1961.

SHMIDT, Otto Yul'yevich [deceased], akademik; LEVIN, B.Yu., doktor fiz.-mat. nauk, otv. red.; LEBEDINSKIY, A.I., doktor fiz.-mat. nauk, otv. red.; KOZLOVSKAYA, S.V., red. izd-va; POLYAKOVA, T.V., tekhn. red.

[Origin of the earth and planets]Proizkhozhdenie zemli i planet. Moskva, Izd-vo Akad. nauk SSSR, 1962. 129 p. (MIRA 15:11)

(Solar system) (Nebular hypothesis)

33/62/03[illegible]03/007/010
E032/E114

3,2400

AUTHORS: Lebedinskiy, A.I., and Salova, G.I.

TITLE: The amount of free water on Mars

PERIODICAL: Astronomicheskiy zhurnal, v.39, no.3, 1962, 494-505

TEXT: In a previous paper it was shown that a considerable amount of water may exist on Mars in the form of ice carried down to the surface by dust and screened by it. This idea was later developed by V.D. Davydov. In the present paper the authors consider the amount of water present on Mars in free state; i.e. in the atmosphere or the polar caps. The amount of water is determined by estimating the upper limit of the amount of ice crystals in the Martian atmosphere from its turbidity, and the rate of evaporation of ice from the polar caps. Elementary calculations indicate that the thickness of the layer of snow or cloud at the polar caps is 0.01 g/cm^2 and that the total amount of water in free state on Mars is 2 x 10^{15} g. It is pointed out that the calculations of Vaucouleurs and Jansky are subject to errors. The former assumed that a considerable part of the solar radiation absorbed by snow is used in evaporating it, whereas the

Card 1/2

The amount of free water on Mars

present results indicate that the snow surface re-emits practically all the incident solar radiation and only a small fraction of it is used in evaporation. Janesh on the other hand ignored the most important item in the radiation balance equation; namely the emission of the surface. The present low result for the thickness of the layer of snow, or more accurately hoar frost or clouds, is in agreement with the results obtained by A. Dollfus.
There are 3 figures and 4 tables.

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

SUBMITTED: June 1, 1961.

Card 2/2

LEBEDINSKIY, A. I.

"Planetary Distribution of Aurorae."

report presented at the 13th Gen Assembly, IUGG, Berkeley, Calif, 19-31 Aug 63.

BAGARYATSKIY, B.A.; FEL'DSHTEYN, Ya.I.; LEBEDINSKIY, A.I., doktor fiz.-matem. nauk, otv. red.; MILYUTINA, Ye.N., red.

[Collection of articles] Sbornik statei. Moskva, Nauka. No.12. 1965. 56 p. (MIRA 18:4)

1. Akademiya nauk SSSR. Mezhduvedomstvennyy geofizicheskiy komitet. IV razdel programmy MGG. Polyarnyye siyaniya.

L 2476-66 FSS-2/EWT(1)/FS(s)/EWA(d) TT/GW UR/0026/65/000/009/P002/P004

ACCESSION NR: AP5025243

AUTHOR: Keldysh, M. V. (Academician); Lebedinskiy, A. I. (Professor); Khodarev, Yu. K. (Engineer); Masevich, A. G. (Doctor of physico-mathematical sciences)

TITLE: First results of an important experiment [Preliminary evaluation of Zond-3 moon photos]

SOURCE: Priroda, no. 9, 1965, II-IV

TOPIC TAGS: moon, Zond 3, lunar topography, selenology, moon far side, lunar probe, lunar surface, selenography

ABSTRACT: A preliminary evaluation is given of the photographs of the far side of the moon obtained by Zond-3. The following observations are based on statements made by M. V. Keldysh, A. I. Lebedinskiy, Yu. K. Khodarev, and A. G. Masevich at a press conference held on 23 August 1965. Spectra of the lunar surface were photographed in the 3500—2500-Å wavelength range, and spectrophotometry was carried out in the ultraviolet range from 2700 to 1900 Å and in the infrared from 4 to 3 microns. The probe employed a specially devised small-size phototelevision system that ensured protection of the film against cosmic radiation. The camera had an objective with a focal length of 106.4 mm and a relative aperture of 1:8. Special film 25 mm in width and exposure times of 1/100 and 1/300 sec were used. The photographs were ex-

Card 1/2

L 2476-66

ACCESSION NR: AP5025243

amined at the Shternberg State Astronomical Institute under the direction of Yu. N. Lipskiy. They showed few extended dark depressions of the far side. The northern part of the moon facing the earth consists mostly of seas, while the far side is almost completely covered by a gigantic continent. So-called talassoids, extensive depressions whose floor is covered by craters, appeared on the far side. These formations are similar in size to the seas on the near side, but differ in coloration. A high degree of crater concentration is evident on the far side. The photographs also confirm the asymmetry of the moon relative to a plane dividing the near and far sides. It is concluded that, in general, the far side has fewer seas and is brighter and more mountainous than the near side. [DM]

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: AA

NO REF SOV: 000 OTHER: 000 ATD PRESS: 4105

BVK

Card 2/2

L 2962-66 FSS-2/EWT(l)/FS(v)-3/EWA(d) TT/GS/GW

ACCESSION NR: AT5023566 UR/0000/65/000/000/0065/0077

AUTHOR: Lebedinskiy, A. I.; Glovatskiy, D. N.; Tulupov, V. I.; Khlopov, B. V.; Fomichev, A. A.; Shuster, G. I.

TITLE: Infrared spectrophotometry of the Earth's thermal radiation

SOURCE: Vsesoyuznaya konferentsiya po fizike kosmicheskogo prostranstva. Moscow, 1965. Issledovaniya kosmicheskogo prostranstva (Space research); trudy konferentsii. Moscow, Izd-vo Nauka, 1965, 65-77

TOPIC TAGS: spectrophotometer, IR spectrum, instrumentation satellite, thermal radiation, atmospheric radiation, radiation intensity, radiation spectometer/Cosmos 45 satellite

ABSTRACT: Results and equipment used in an experimental study of the energy distribution of the Earth's thermal radiation are reported. A diffraction scanning spectrophotometer mounted on Cosmos-45 comprised the basic equipment. The spectrophotometer was designed to measure thermal radiation in two bands, 7—20 μ and 14—38 μ. The spectral resolution for the first band ranged from 1.4 μ for the 7-μ wavelength to 1.1 μ for the 18-μ wavelength. For the second band, the range was from 2.8 μ for

Card 1/3

L 2962-66

ACCESSION NR: AT5023566 O

the 14-μ wavelength to 2.1 μ for the 36-μ wavelength. The instantaneous field of vision of the optical system was 1°46' x 2°20', encompassing a radiating-surface area of 7.5 x 10 km at the average altitude of 250 km. The instrument was capable of field of vision scanning within ±8°30'. Spectral intensity measurements were carried out at $\lambda = 9.5 \pm 0.6$ μ for the first band and $\lambda = 18.5 \pm 1.35$ μ for the second. Semiconductor bolometers with a sensitive area of 1 mm^2 were employed as radiation sensors. Radiation detected by the bolometers was converted into electrical signals with a frequency of 27 cps. The signals were amplified and converted into d-c voltages proportional to the radiation flux. To measure cloud cover below the satellite, a photometer operating at 6000—8000 Å with a resolution of about 30 km was used. From the data obtained during the flight of Cosmos 45, the following conclusions concerning the intensity of the Earth's thermal radiation were drawn: 1) The intensity at the minimum of the absorption band near 15 μ is almost constant. 2) A close correlation between the intensities at the other wavelengths was noted. This provides evidence that the effective radiation levels differ but slightly for various regions of the spectrum within 8—35 μ. 3) The lower layers of the troposphere are the basic source of the thermal radiation leaving the Earth's atmosphere. 4) There is a strong variable intensity of the ozone band with its center at 9.6 μ. Orig. art. has: 14 figures. [GS]

ASSOCIATION: none

SUBMITTED: 2 SEP 65

Card 2/2

L 10587-66 FBD/EWT(1) GW/WS-2

ACC NR: AP6000308 SOURCE CODE: UR/0293/65/003/006/0917/0926

AUTHORS: Vakhnin, V. M.; Lebedinskiy, A. I. 55 55

47

B

ORG: none

TITLE: On the nature of radio noise radiation 12,55 from the surface of Venus 12,55

SOURCE: Kosmicheskiye issledovaniya, v. 3, no. 6, 1965, 917-926

TOPIC TAGS: Venus planet, cosmic radiation, cosmic radiation energy, gas discharge, radio astronomy

ABSTRACT: The increased level of radiowave radiation from Venus (600--700K) may be explained as "quiescent" or "glow" discharges in the upper atmosphere, creating a gain in radiated noise 200--300K above normal thermal radiation. Two hypotheses are advanced in explanation of the phenomenon: 1) the radiation comes from the surface of the planet which is heated by means of the "hotbed" effect in the atmosphere (see C. Sagan, Science, 133, No. 3456, 1961), and 2) the radiation is created by the motion of charged particles in heated and extremely rarefied layers of the Venusian ionosphere (C. Sagan, op. cit. and D. E. Jones. "Planet", Space Science 5, No. 2, 1961). A review of some of the literature pertaining to the study of the same problem is given. The authors present and discuss some of the data obtained during the operation of the Mariner-2 satellite. It is felt that the Mariner data are insufficient in detail. Several reasons are given in demonstrating that neither the hotbed nor the ionosphere

UDC: 523.42:523.164

Card 1/2

L 10587-66

ACC NR: AP6000308

hypothesis is completely sound on a theoretical basis. It is proposed that solar energy is transformed into radio noise by two means: ordinary hot body radiation and glow discharge radiation. The solar heat energy goes through a sequence of atmospheric flow energy, atmospheric electrical currents, and finally gaseous discharge radio noise. The surface temperature of Venus and the temperature characteristic of the radio noise are related in context with the authors' hypothesis. Supporting data on observed gas discharges from experiments are given. Orig. art. has: 3 figures and 10 equations.

SUB CODE: 03/ SUBM DATE: 26Feb65/ ORIG REF: 007/ OTH REF: 010

Card 2/2

L 2963-66 FSS-2/EWT(l)/FS(v)-3/FCC/EWA(d) TT/GS/GW

ACCESSION NR: AT5023567 UR/0000/65/000/000/0077/0088

AUTHOR: Lebedinskiy, A. I.; Krasnopol'skiy, V. A.; Kuznetsov, A. P.; Tozenas, V. A.

TITLE: Investigation of terrestrial atmospheric radiation in the visible and ultraviolet regions

SOURCE: Vsesoyuznaya konferentsiya po fizike kosmicheskogo prostranstva. Moscow, 1965. Issledovaniya kosmicheskogo prostranstva (Space research); trudy konferentsii. Moscow, Izd-vo Nauka, 1965, 77-88

TOPIC TAGS: atmospheric radiation, visible radiation, IR radiation, UV radiation, instrumentation satellite, satellite data analysis, radiation measurement, airglow/ Cosmos 45 satellite

ABSTRACT: Measurements of airglow and scattered solar UV radiation were made by Cosmos-45 in 1964. Scattered UV radiation was measured by a UV spectrophotometer (range, 2250—3100 Å; resolution, 15 Å; field of vision, 20 km in width) operating only on the day side of the Earth. Airglow was measured by a colorimeter (field of vision, 120 km in width) operating only on the night side. For switching the instruments and fixing on the underlying surface, a sensor which measured illumination at 0.6 to 0.85 μ was used. The colorimeter carried four light filters on a common axis mounted along a disk. One filter

Card 1/3

screened out UV radiation; its long-wave boundary was near 6000 Å. The second was used to investigate wavelengths at 2500 to 4000 Å, and two narrow-band filters with passbands of 100 Å filtered emission at 5577 Å and 3914 Å, respectively. An IR spectrophotometer recorded thermal radiation concurrently with the operation of the other two instruments. A correlation was found to exist between readings of the UV and IR spectrophotometers in the 9.65-μ ozone band. A correlation of intensities was also disclosed near the long-wave boundary of the UV spectrum at $\lambda > 3000$ Å and in the readings of the illumination sensor. These readings depended strongly on cloudiness because the albedo of clouds in the red zone is substantially greater than the albedo of the Earth's surface and of the clear atmosphere. The correlation confirms that at $\lambda > 3000$ Å, the noticeable part of atmospheric radiation is due to tropospheric dispersion and reflection occurring below the basic mass of the ozone layer. Conclusions were also reached on local, diurnal, and latitudinal variations of airglow. A difficulty arose in the evaluation because of the dependence of the readings on cloud cover. In making the measurements in space, it was necessary to include reflections of airglow from the atmosphere and glow of astronomical origin in addition to airglow itself. Consequently, results varied with atmospheric conditions by as much as a factor of two, with the minimum occurring during cloudless weather and the maximum during total cloudiness. The correlation of readings of one light filter (5577 Å) with the others indicated that the share of illumination from the stars and

L 2963-66
ACCESSION NR: AT5023567

zodiacal light was relatively small. A comparison of these readings (averaged) with the results of ground observations at 3200—4000 Å lead to the conclusion that night sky radiation at 2500—3000 Å is small and at 3200—4000 Å does not exceed star glow and zodiacal light. Measurements at 1700—2500 Å indicated that no night sky radiation exists in this region. Thus, results of measurements over the entire wavelength range (1700—4000 Å) confirmed the absence in the night sky of high-energy excitation processes. Orig. art. has: 7 figures. [JP]

ASSOCIATION: none

SUBMITTED: 02Sep65 ENCL: 00 SUB CODE: ES,AA

NO REF SOV: 004 OTHER: 008 ATD PRESS: 4109

BVK
Card 3/3

L 23449-66 FSS-2/EWT(1) TT/GW

ACC NR: AP6011690 SOURCE CODE: UR/0203/66/006/002/0185/0189

AUTHOR: Krasnopol'skiy, V. A.; Kuznetsov, A. P.; Lebedinskiy, A. I.

ORG: Moscow State University, Institute of Nuclear Physics (Moskovskiy gosudarstvennyy universitet Institut yadernoy fiziki)

TITLE: Measurements of the ultraviolet spectrum of the earth made by the satellite "Kosmos-65"

SOURCE: Geomagnetizm i aeronomiya, v. 6, no. 2, 1966, 185-189

TOPIC TAGS: solar ultraviolet radiation, ultraviolet spectrophotometer, diffractional monochromator, ozone concentration, spectral brightness, radiation intensity

ABSTRACT: Solar ultraviolet radiation reflected from the terrestrial atmosphere was measured with an ultraviolet spectrophotometer mounted on the artificial satellite "Kosmos-65." The spectrophotometer used was a double diffractional monochromator operating in the spectral range of 2250—3070 A. 2500 spectra were obtained during the flights. Spectra were recorded on motion-picture films. The distribution of energy in the violet spectrum changes with the zenithal distance of the sun and the geographical latitude. Local peculiarities caused by the ozone concentration appear. Longer waves in the ultraviolet range penetrate deeper into the atmosphere and increase the albedo intensity. Two kinds of spectra were obtained on cloudless days

UDC: 523.72:629.192.2

Card 1/2

ACC NR: AP6011690

in the equatorial zone: the typical spectrum and the spectrum of maximum intensity. The first consists of the usual spectra of tropical zones and the second seldom occurs. The intensity of radiation reflected by the atmosphere depends upon the quantity of ozone in a vertical column of the atmosphere. Spectra of the terrestrial atmosphere and the sun obtained under the same solution conditions have great structural similarity. The decrease in intensity in the atmospheric spectrum occurring with decrease in wavelength is greater than in the solar spectrum. The authors thank Yu. V. Yaremenko, V. I. Malin and M. B. Glot for their great help with this experiment. Orig. art. has: 4 figures, 1 table, and 1 formula. [EG]

SUB CODE: 04/ SUBM DATE: 24Nov65/ ORIG REF: 003/ OTH REF: 009/ ATD PRESS: 4232

Card 2/2 dda

ACC NR: AP6019461 (N) SOURCE CODE: UR/0384/66/000/001/0079/0081 81 B

AUTHOR: Vakhnin, V. M. (Candidate of physico-mathematical sciences); Lebedinskiy, A. I. (Professor)

ORG: none

TITLE: Radio noise and the temperature on Venus

SOURCE: Zemlya i vselennaya, no. 1, 1966, 79-81

TOPIC TAGS: radio noise, Venus probe, space temperature, glow discharge, rarefied gas

ABSTRACT: The use of radio signals emitted by Venus to study its surface temperature is discussed. A theoretical explanation of Venus' apparently high temperature surface (considering the "hot house effect", the ionospheric hypothesis and the contradiction of this hypothesis by the peculiarities of radio signals emitted from Venus) is presented. The electric glow discharge in rarefied gases in relation to the very slow speed with which the planet Venus rotates around its axis and the possible existence of high velocity global breezes which do not create disturbances are considered. It is proposed that the atmospheric current going through the upper layers of the atmosphere of the planet Venus creates a continuous glow discharge resulting in powerful radio noise and a low degree of luminescence. The proposed explanation is substantiated by experimental data and can be explained theoretically. If this interpretation is correct, then

Card 1/2

ACC NR: AP6019461 0

the surface temperature of Venus would be between 50-60°C. Orig. art. has: 3 figures.

SUB CODE: 03,17/ SUBM DATE: none

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

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

Card 1/2

L 45257-66

ACC NR: AP6020934

guidance and control of space vehicles and this spoke of a third major problem involving slowing down the space station. The braking process was controlled from Earth and was started 2 1/2 hr before the actual landing. The flight problems faced by Luna 9 and Luna 10 were similar enough but owing to a correction, Luna 10 moved to a flight trajectory along which it approached the Moon to within a minimum distance of 1000 km. Dr. A. I. Lebedinskiy discussed the special features of the lunar landscape as transmitted on television, explained the structure of the space station and its operation when taking pictures, also the topography of the moon. The objectives of Luna 10 were research on lunar space and lunar radiation. Academician S. N. Vernov, a specialist in cosmic rays, stated that the Geiger counter installed on Luna 9 recorded protons, electrons, and gamma-quanta with a strength sufficient to penetrate the hermetically sealed space station. Lunar radiation was found to be 10 times stronger than that of the Earth; it was found to be harmless to astronauts clad in space suits. Orig. art. has: 5 figures and 1 table. [GC]

SUB CODEL 14, 03, 18, 22/ SUBM DATE: none/

Card 2/2

ACC NR: AP7000546 SOURCE CODE: UR/0293/66/004/006/0838/0841

AUTHOR: Lebedinskiy, A. I.; Lozhnikov, A. A.; Tulupov, V. I.
ORG: none
TITLE: Measurements of lunar radiation flux in the infrared and visible regions of the spectrum by the Luna-10 satellite
SOURCE: Kosmicheskiye issledovaniya, v. 4, no. 6, 1966, 838-841
TOPIC TAGS: lunar radiation, lunar satellite, lunar surface / Luna-10 lunar satellite
ABSTRACT:

The lunar radiation flux in the infrared (IR) and visible spectral bands was measured by the Luna-10 satellite from a lunar orbit. The results have not yet been fully analyzed, and the data presented by the authors are only preliminary.

Radiation in the two spectral bands was of different origin. The visible band was used to measure radiation caused by heat from the Sun being reflected by the Moon's surface; the IR band measured the Moon — radiated heat which was emitted by the Moon's surface, the temperature of which varies from -150 to +120° C. Infrared and visible radiation coming directly from the Sun also contributed to the total measured in both bands.

Card 1/6 UDC: 629.195.3:523.37

A detector carrying two sensors (15 x 30-mm thin plates) mounted outside the Luna-10 body were utilized to separate different heat radiation contributions (see Fig. 1). The detector action was based on the variable resistance principle (i.e., changes in heat radiation varied the detector resistance). Detector resistance was measured by a circuit (such as a resistance bridge) and the results of these measurements were telemetered back to Earth. One of the sensors was covered with enamel, which absorbed 85—95% of the incident IR radiation and reflected 70—75% of the radiation in the visible band. The other sensor was covered with thin gold foil, which reflected 97—99% of the IR radiation and passed most of the visible radiation. Data taken simultaneously from both sensors will be used to isolate that portion of the total heat radiation which was contributed by the Moon. The satellite was rotating around its own axis with a period which was shorter than the detectors' thermal time constants, and the readings therefore represent the average values of thermal radiation. The sensors were sampled simultaneously every two minutes.

ACC NR: AP7000546

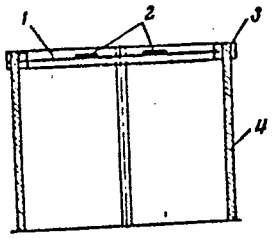
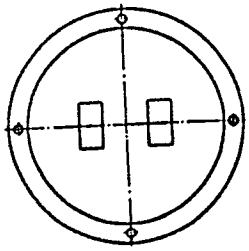


Fig. 1. Thermal radiation detector

1 - Heat insulator; 2 - sensors;
3 - clamping ring; 4 - stand.



Temperatures measured by the sensors (A, with enamel cover; B, with gold foil cover) during the 8th, 31st, and 49th measurement sessions are given in Fig. 2. In the 8th session the satellite crossed

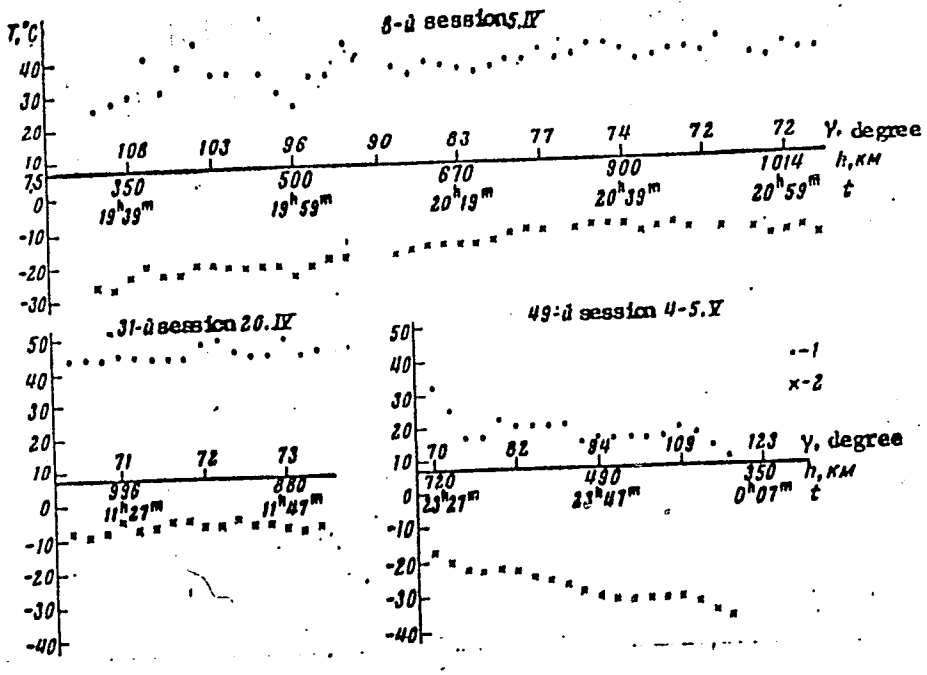
Card 3/6

from the dark to the sunlit portion of the Moon. During the 49th session, a crossing from the light to the dark portion was made. In the 31st measurement session the satellite was on the sunlit side of the Moon. The time marks in Fig. 2 indicate Moscow time. As expected, the temperatures on the light side of the Moon are higher than on the dark side. During crossings the sensors registered corresponding changes in temperature after a time delay associated with their thermal inertia.

The influence of thermal detector inertia was investigated by taking temperature measurements at different instants during a single session. The instants at which these measurements were taken varied from session to session. These readings are plotted and compared in the figure, illustrating the effect of thermal time delay on the sensor output.

From 2-3 May through 13 May the temperatures of both sensors declined noticeably. The A-sensor temperature decreased by 22° C and that of the B-sensor, by 50° C. After 13 May the temperatures again began to rise. The speculation that this phenomenon is associated with the changing orientation of the satellite with respect to the Sun is confirmed by the fact that the B-sensor, the more sensitive of the two to the Sun's rays, was affected more than the A-sensor.

ACC NR: AP7000546



Card 5/6

ACC NR: AP7000546

Fig. 2. Detector readings during sessions 8, 31, and 49

1 - B-sensor; 2 - A-sensor; Y - angle between a line extending from the Moon's center to the Sun and a line between the Moon's center and the Luna-10; h - satellite height.

The authors state that analysis and evaluation of the results will be published in the future. The authors thank A. D. Levchenko and V. V. Vernigor for assistance in the carrying out of the experiments. Orig. art. has: 5 figures. [FSB: v. 3, no. 1]

SUB CODE: 22,03 / SUBM DATE: 22Aug66

Card 6/6

LEBEDINSKIY, A.P.

17(6). DEVELOPMENT OF ANTI-DETONATING CHARACTERISTICS IN AUTOMOBILE ENGINE AIR-GASOLINES. Atroney, O.N. and Lebedinskiy, A.P. (Moscow: Acad. Sci. U.S.S.R., 1956, "Proceedings of Conference on Piston Engines (Trudy Konferentsii po Porshnevym Dvigatelyam), July 1956, 168-184).

LEBEDINSKIY, A. P.

1759. CORRESPONDENCE BETWEEN MOTOR VEHICLE ENGINES AND THE ANTI-DETONATION PROPERTIES OF MOTOR VEHICLE GASOLINES. Aronov, D.M. and Lebedinskii, A.P. (Trud. Lab. Dvig. (Proc. Lab. Engines, Moscow), 1955, (1), 33-50). A method is devised which enables engine designers and oil refiners to coordinate their products to the best advantage.

GAL'PERIN, M.Ya.; LEBEDINSKIY, A.P.; ZELENSKAYA, R.G.

Knock testing of automobile engines. Trudy lab.dvig. no.1:61-87 '55. (Automobiles--Engines) (MIRA 9:9)

LEBEDINSKIY, A.P.

ARONOV, D.M., kandidat tekhnicheskikh nauk; LEBEDINSKIY, A.P.

Technical and economic effectiveness of raising the octane number of automobile gasoline. Avt. i trakt.prom.no.10:5-11 O '56. (MLRA 10:1)

1. Nauchno-issledovatel'skiy avtomotornyy institut.
(Gasoline)

LUNEV, I.S.; LEBEDINSKIY, A.P.; SEMENOV, V.M.

Portable cathode ray oscillograph for the photorecording of deformations and vibrations. Priborostroenie no.10:18-20 O '56. (MLRA 9:12)

(Cathode ray oscillograph) (Strain gauges)

LEBEDINSKIY, A.P.

26(1,4) PHASE I BOOK EXPLOITATION SOV/2396

Akademiya nauk SSSR. Laboratoriya dvigateley

Teoriya, konstruktsiya, raschet i ispytaniye dvigateley vnutrennego sgoraniya (Theory, Construction, Design and Testing of Internal Combustion Engines) Moscow, Izd-vo AN SSSR, 1957. 209 p. (Series: Its: Trudy, Vyp. 3) Errata slip inserted. 4,000 copies printed.

Ed. of Publishing House: V. M. Klennikov; Tech. Ed.: A. A. Pavlovskiy; Editorial Board: M. D. Apashev, Doctor of Technical Sciences, K. G. Yevgrafov, V. A. Lur'ye, Candidate of Technical Sciences, and Yu. B. Sviridov, Candidate of Technical Sciences.

PURPOSE: This book is intended for technical personnel working with internal combustion engines.

COVERAGE: This collection of scientific papers deals with internal combustion engines. The book is divided into three parts. The first part deals with gas turbines, the second with reciprocating internal combustion engines, and the third with methods and equipment for investigations. No personalities are mentioned. References follow each article.

PART III. METHODS AND EQUIPMENT FOR INVESTIGATION

Lebedinskiy, A.P. Methods of Road-testing Automobile Engines 157

The author describes a method of road testing in which braking of the automobile tested is accomplished by a towing automobile. According to the author, this method makes it possible to regulate the braking intensity in a wide range of speeds and load. It is also recommended as an effective method for replacing stand tests in many cases.

AVAILABLE: Library of Congress

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Card 6/6

(1)

ARONOV, D.M., kandidat tekhnicheskikh nauk; LEBEDINSKIY, A.P.; GAL'PERIN, M.Ya.

Nonuniform performance of engine cylinders and gasoline octane requirements. Avt.i trakt.prom. no.4:3-8 Ap '57. (MLRA 10:5)

1. Nauchno-issledovatel'skiy avtomotornyy institut i Institut mashinovedeniya AN SSSR.
(Automobiles--Engines--Cylinders)
(Gasoline--Antiknock and antiknock mixtures)

KONEV, Boris Fedorovich; ARONOV, David Matveyevich; KUROV, Boris Alekseyevich; LEBEDINSKIY, Aleksandr Pavlovich; NILOV, N.A., inzh., retsenzent; YEGORKINA, L.I., red.; NAKHIMSON, V.A., red.; TIKHANOV, A.Ya., tekhn.red.; UVAROVA, A.F., tekhn.red.

[Automobile carburetor engines; characteristics and methods for their determination] Avtomobil'nye karbiuratornye dvigateli; kharakteristiki i metody ikh opredeleniia. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1960. 229 p. (MIRA 13:4)
(Automobiles--Engines)

LEBEDINSKIY, A.P.; GERSHMAN, I.I., kand.tekhn.nauk

Automobile engines using various fuels. Avt.prom. no.4:18-23 '60.
(MIRA 13:6)

1. Gosudarstvennyy soyuznyy ordena Trudovogo Krasnogo Znameni nauchno-issledovatel'skiy avtomobil'nyy i avtomotornyy institut.
(Automobiles--Engines)

LEBEDINSKIY, A. P.

Effect of antiknock qualities of fuel on the power and economic indices of engines. Avt. prom. 29 no.5:5-10 My '63. (MIRA 16:4)

1. Gosudarstvennyy soyuznyy ordena Trudovogo Krasnogo Znameni nauchno-issledovatel'skiy avtomobil'nyy i avtomotornyy institut.

(Motor fuels) (Motor vehicles—Engines)

LEBEDINSKIY, A. V., DIONEZOV, S. M., ZAGURULKO, L. T. and TURTSAYEV, Zh. F.

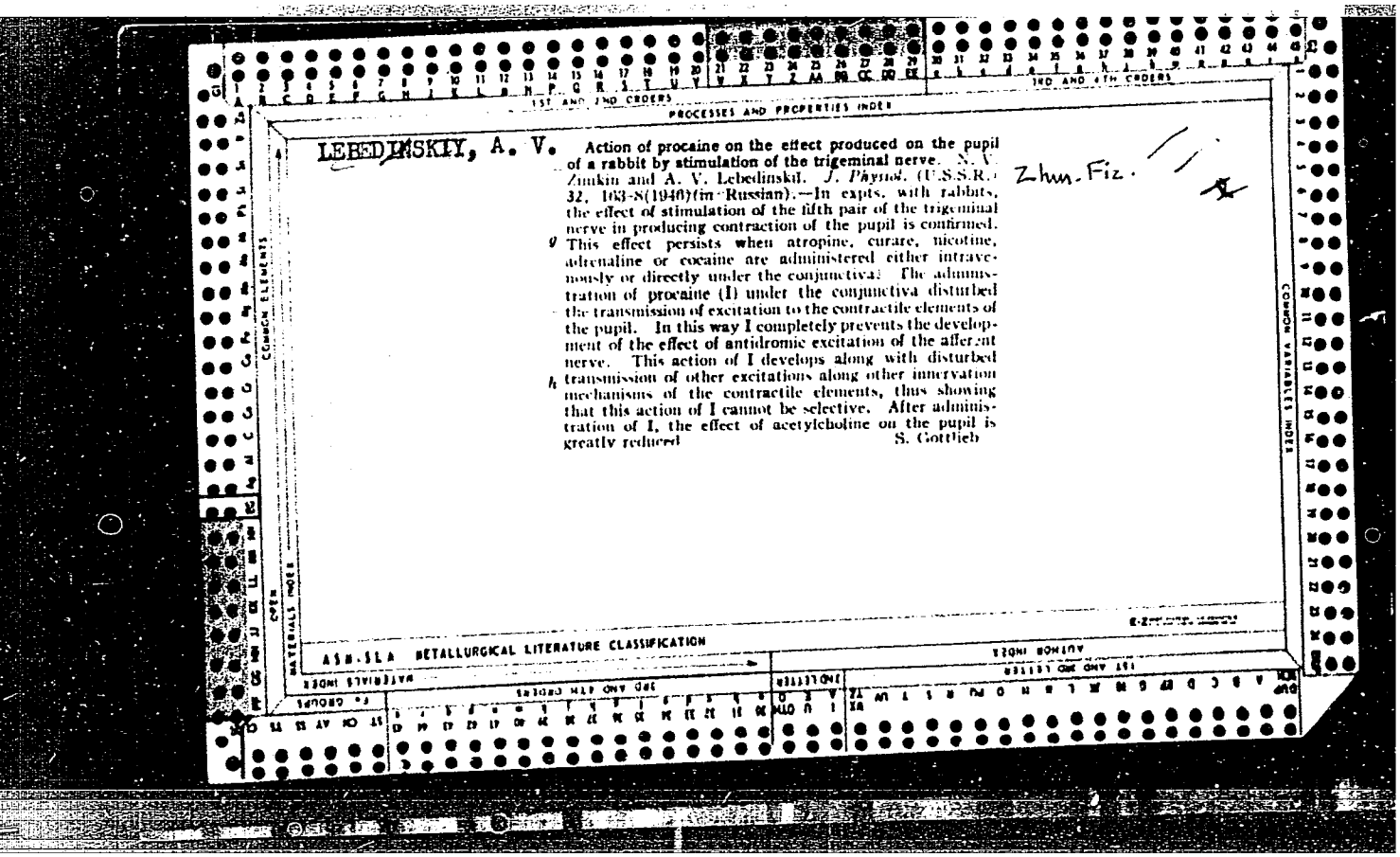
"The Effect of Physical Effort on the Dark-Adaptation of the Eye", Fiziolog. Zhurnal SSSR, Vol. 16, 5th Ed., 1933.

LEBEDINSKIY, A. V., DIONESOV, S. M. and TURTSAYEV, Zn. P.

"The Effect of Reflex Excitations (Cold) on the Light Sensibility of the Dark-Adapted Eye", Fiziolog. Zhurnal SSSR, Vol. 17, 1st. ed., 1934.

LEBEDINSKIY, A. V.

"New Investigations of the Problem of Interaction Between the Center and the Periphery of the Retina - Report at the Conference of the V.I.E.M.", 1937.



PROCESSES AND PROPERTIES INDEX

LEBEDINSKIY, A. V. Action of procaine on the effect produced on the pupil of a rabbit by stimulation of the trigeminal nerve. N. V. Zinkin and A. V. Lebedinskii. *J. Physiol.* (U.S.S.R.) 32, 103-8(1940)(in Russian).—In expts. with rabbits, the effect of stimulation of the fifth pair of the trigeminal nerve in producing contraction of the pupil is confirmed. This effect persists when atropine, curare, nicotine, adrenaline or cocaine are administered either intravenously or directly under the conjunctiva. The administration of procaine (I) under the conjunctiva disturbed the transmission of excitation to the contractile elements of the pupil. In this way I completely prevents the development of the effect of antidromic excitation of the afferent nerve. This action of I develops along with disturbed transmission of other excitations along other innervation mechanisms of the contractile elements, thus showing that this action of I cannot be selective. After administration of I, the effect of acetylcholine on the pupil is greatly reduced S. Gottlieb

Zhur. Fiz.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

LEBEDINSKIY, A.V., professor, doktor meditsinskikh nauk.

Analysis of functional states of the cerebral cortex in penetrating cranial wounds. Trudy Gos.inst.po izuch.mozga* (MLRA 7:2) 15:140-145 '47.
(Cerebral cortex) (Skull--Wounds and injuries)

*Works of the State Inst. for Brain Study

LEBEDINSKIY, Andrey Vladimirovich (Dr.), and MIKHEL'SON, N. I.

"Reselient-Viscous Properties of the Skeletal Muscle and its Changes under the Influence of Sympathetic Enervation." Zef. Zhur., Vol 33, No 4, 1947, p 505. Faculty of Physiology, Military Med Acad imeni Kirov.

SO: U-4396

LEBEDINSKIY, Andrey Vladimirovich and SAVVIN, N. G.

"On Relations of Sympathetic Enervation to the Reaction of Contracting Formations onEfferent Influences of Various Types." Zef. Zhur., Vol33, No 6, 1947, p 749. Chair of Physiology, Military Med Acad S. M. Korov.

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LEBEDINSKIY, A. V.

Nov 48

USSR/Medicine-Publications
Medicine-Water Supply

"New Books" ½ p

"Gig i San" No 11

Lists new books, giving authors, publishing dates and prices. Includes V.F. Kozhin's "Water Supply" and A. G. Ginetsinskiy and A. V. Lebedinskiy's "Fundamentals of Human and Animal Physiology."

PA 49/49T77

LEBEDINSKIY, A. V.

PA 3/50155

USSR/Medicine - Optics Nov/Dec 48
Eye, Adaptation of

"Contempory Representations of the Mechanism of Optical Adaptation to Darkness," A. V. Lebedinskiy, Leningrad, 22 pp

"Uspekhi Sovrem. Biol." Vol XXVI, No. 3 (6)

Theory that ocular adaptation is a process of increase in the sensitivity to light which occurs in weak illumination remains valid, but important details have been added and whole process of adaptation has been examined from various viewpoints. Compares and analyzes author's experiments and conclusions of many other authors.

3/50155

LEBEDINSKIY, A. V.

Assoc. Member, USSR Academy of Medical Science.

"I.P. Pavlov on the Trophic Role of the Nervous System." Izvestia, 1949, Lecture

Current Digest of the Soviet Press, Vol. 1 No. 36, 1949, page 55, (In [redacted] Library)

LEBEDINSKIY, A. V.

33468. K Stoletiyu So Dnya Rozhdeniya I. P. Pavlova. Voprosy Neyrokhirurgii, 1949, No. 5, c. 12-16, c. Portr.

SO. Letopis' Zhurnal'nykh Statey, Vol. 45, Moskva, 1949

LEBEDINSKIY, A. V.

Jan 49

USSR/Medicine - Intestines, Physiology
Medicine - Intestines, Sensitivity

"Problem of the Sensitivity of the Internal Organs" A. I. Bronshteyn, A. V. Lebedinskiy, V. M. Simenko, Chair of Physiol, Chair of Faculty Surg, Mil Med Acad imeni S. M. Kirov, 12 pp

"Fiziol. Zhur. SSSR" Vol XXXV, No 1

Conducted tests on four animals with abnormally small intestines to determine degree of expansion before pain became noticeable. Determined that the animal sensory reactions could be observed not only when intestine was moved, but also when an electric charge acted on interior walls of the intestine. Charge produces reactions by : (1) stimulating peristalsis of the intestine (direct current), and (2) irritation of the sensory nerve in the caecum (pulsed current).

PA 47/49T62

Lebedinskiy, A.V.

DYMSHITS, L.A.; LEBEDINSKIY, A.V.; PEYMER, I.A.; SHUL'TS, V.A.

Application of electroretinography in glaucoma. Vopr. klin. eksper. oft., Moskva no. 1:30-41 1952. (CIML 22:4)

1. Leningrad.

1. LEBEDINSKIY, A. V.; MOZZHUKHIN, A. S.

2. USSR (600)

4. Electrophysiology

7. I. P. Pavlov on the work of V. Yu. Chagovets. Fiziol. Zhur. 39, No. 2, 1953.

9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.

LEBEDINSKIY, A.V.

[Influence of ionizing radiation on the animal organism; as revealed by studies of Soviet investigators] O vliianii ioniziruiushchego izlucheniia na organizm zhivotnogo; po dannym rabot sovetskikh issledovatelei. Moskva, 1955. 35 p. (MIRA 14:6)

(RADIATION—PHYSIOLOGICAL EFFECT)

LEBEDINSKIY, A.V.

Radiatsionnaya Meditsina (Radiation Medicine), edited by A. V. Lebedinskiy, Moscow, Medgiz, 1955, 278 pp (from Sovyetskoye Meditsinskoye Referativnoye Obozreniye: Vnutrenniye Bolezni, No 24, 1956, p 98

The book is a handbook on the physics and the biological action of radioactive radiation, and consists of eight chapters covering the following material: physics and dosimetry of penetrating radiation, basic laws of radiation injury, pathologic physiology of radiation injuries of various systems of the organism, toxicology of radioactive substances, clinical aspects and therapy, radiation burns, clinicolaboratory methods of diagnosing radiation sickness, and pathologic anatomy of radiation injuries.

The book is intended for physicians and students. (U)

SUM. 1345

USSR/Human and Animal Physiology (Normal and Pathological). T
Effects of Physical Factors. Ionizing Emissions.

Abs Jour: Ref Zhur-Biol., No 17, 1958, 80118.

Author : Lebedinskiy, A.V.
Inst ;
Title : On the Influence of Ionizing Radiation on the Organs of an Animal (According to Data of the Work of Soviet Investigators).

Orig Pub: V.sb.: Deystviye oblucheniya na organism. M., Izd-vo AN SSSR, 1955, 43-77.

Abstract: Review. Problems are discriminated on the influence of ionizing radiation on the functional condition of the CNS, the morphological changes of the nerve cells, skeletal muscles and skin coverings, on the change of reflex and conditioned reflex reaction, the condition

Card :1/2

USSR/Human and Animal Physiology (Normal and Pathological). T
Effects of Physical Factors. Ionizing Emissions.

Abs Jour: Ref Zhur-Biol., No 17, 1958, 80118.

of the interoreceptors, as well as on the nucleic acid metabolism changes in the blood picture and the blood-forming organs and the permeability of the blood-brain barrier. Bib. 76 titles.

Card : 2/2

EXCERPTA MEDICA Sec.12 Vol.10/12 Ophthalmology Dec 56

1808. LEBEDINSKY A. V. and PEYMEV I. A. Dept. of Physiol., Milit. Med. Acad., Leningrad. *Polarization phenomena in the retina of the eye (Russian text) PROBL. FIZIOL. OPT. (Moscow) 1955, 11 (107-112) Tables 2 Illus. 3

The experiments were performed on enucleated eyes of the spring frog. The eye was put on a small gauze pad, moistened with Ringer's solution and placed in a small dark chamber. One chlorinated silver electrode was connected to the margin of the cornea, the other to the back-pole of the eye near the outlet of the optic nerve. The currents in the retina were registered by the loop oscillograph. The indifferent polarizing electrode was connected to the gauze pad, the active polarizing electrode was placed on the surface of the eye bulb between the electrodes connected to the oscillograph. The strength of the polarizing current was 20-100 μa. The electroretinogram taken during the illumination of the eye had been registered before the switching on of the polarizing current, during its action and after the switching off. The following results were obtained: during the passing of the direct current and polarization by the anode a distinct lowering of all the 3 peaks, 'A', 'B' and 'C', was observed; the lowering was, to a certain extent, proportional to the strength of the polarizing current. By polarization with the cathode a marked heightening of all the peaks was noticed, particularly of the peak 'B'. After the switching off of the polarizing current, while polarizing with the anode, a distinct increase of the waves was noticed, while, when using the cathode as polarizing electrode, a distinct decrease was noticed after switching off. The changes in the ERG, induced by the polarizing current, vanished only 3 min. after the switching off. The authors regard the results obtained as proof of the fact that the waves 'B' and 'C' of the ERG are the electrical expression of the activity of the ganglionic cells of the retina. The changes observed in the ERG during the polarization of the retina are considered to be changes in the functional state of the nerve cells.

Tron - Leningrad (XII, 2)

LEBEDINSKIY, A. V.

"Effects of Ionizing Radiation of the Nervous System of Animals," Meditsinskiy Ragotnik, Vol. 18, No. 66, 1955.

[Comment: This paper was presented by the author at the Geneva Conference on the Peaceful uses of Atomic Energy.]

Translation W-31506, Oct 1955.

LEBEDINSKIY, A. V.

A-4

USSR/General Division - Congresses. Sessions. Conferences.

Abs Jour : Ref Zhur - Biologiya, No 1, 1957, 88 K.

Author : A.V. Lebedinskiy, Editor.
Inst :
Title : Theses of the Plenary Reports Read at the All-Union Conference on Medical Radiology, Moscow, 1956.

Orig Pub : M., Medgis, 1956, 31 pp.

Abst : No abstract.

Card 1/1

LEBEDINSKIY, A.V.

KROTKOV, F.G.,redaktor; LEBEDINSKIY, A.V.,redaktor; IGNAT'YEV, A.I., redaktor; LANDAU, S.P.,redaktor; KHANOVA, T.M.,redaktor; BEL'CHIKOVA, Yu.S.,tekhnicheskiy redaktor

[Abstracts of reports at the conference on late sequelae of affections caused by ionizing radiation] Referaty dokladov na konferentsii po otdalennym posledstviiam porazhenii, vyzvannykh vozdeistviem ioniziruiushchei radiatsii. Pod red. F. G. Krotkova, A.V. Lebedinskogo, A.I. Ignat'eva. Moskva, Gos. izd-vo med. lit-ry, 1956. 82 p. (MLRA 10:4)

1. Russia (1923- U.S.S.R.) Komitet meditsinskoy radiologii. (RADIATION--PHYSIOLOGICAL EFFECT)