

L 19750-65

ACCESSION NR: AT4048344

rings. In this article, an effort is made to analyze the conditions underlying the formation of gas pores in titanium castings and to establish techniques directed at the total elimination of gas porosity. The view is advanced that melted metals may be regarded as liquid bodies laced with a large number of shock fronts. An expression is proposed for the intensity of gas blister origination, an analysis of which shows clearly that melting and teeming of metal in a vacuum have a favorable effect on the possibility that such gas holes will develop. It is also shown that when castings are prepared in a vacuum there are better chances for the formation of stable gas holes, all other conditions being equal, than when the metal is air-cooled. A metal smelted under the most ideal conditions and containing a minimal quantity of gases may be affected by gas inclusions which penetrate into the metal from the mold. The reactions possible with the mold materials normally used in the USSR (electrocorundum, magnesite and, occasionally, zirconium dioxide) are considered. High-refractory materials which contain no oxygen are recommended by the author for use as mold materials. Particular attention, in this regard, is called to graphite, widely used for this purpose abroad. Additional heating (and not merely the placing of the substance in a vacuum) is seen as necessary if the gases are to be completely removed. It is established in the paper that firing and vacuuming of the mold, when carried out separately, cannot result in a complete

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elimination of absorbed gases. Total removal of gases from the form is possible only with high-temperature firing (i.e., calcination) in a vacuum. However, if the mold is transported, after such firing, to the site of melting and pouring and comes into contact with the atmosphere, the positive results of this technique may be completely negated. This is true even in the case of graphite molds. The combining of the firing and pouring arrangements in a single unit is, therefore, very desirable. It is shown in the article that crystallization under excess pressure leads to no liberation of gases. Two methods are found to be possible for the elimination of gas porosity in titanium castings: 1) prevention of the gases from entering the metal during all stages of metallurgical processing; 2) use of excess pressure in the crystallization of the castings. Centrifugal teeming is to be used for complex (i.e., irregularly shaped) thin-walled titanium castings. The use of a vacuum-compression arrangement is also recommended. In this set-up the titanium is melted in a vacuum, with teeming and crystallization effected under an excess pressure of several atmospheres. The final section of the paper deals with the determination of the pressure value necessary for the complete elimination of gas porosity in titanium castings. Orig. art. has: 4 figures and 5 formulas.

ASSOCIATION: None

Card 3/4

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ACCESSION NR: AT4048344

SUBMITTED: 20May64

ENCL: 00

0
SUB CODE: MM

NO REF SOV: 004

OTHER: 001

Card 4/4

L 29758-65 EWT(m)/EWP(t)/EWP(b) IJP(c) JD/JJ/MLK

ACCESSION NR: AT4048345

S/0000/64/000/000/0167/0171

B

AUTHOR: Kaplunovskiy, G. A.; Kukkonen, E. Ya.; Demidova, A. A.; Magnitskiy, O. N.; Gulyayev, B. B. (Doctor of technical sciences, Professor)

TITLE: The effect of a gaseous medium during melting and teeming on the quality of cast chromium

18

SOURCE: AN SSSR. Komissiya po tekhnologii mashinostroyeniya. Gazy* v litom metalle (Gases in cast Metals). Moscow, Izd-vo Nauka, 1964, 167-171

TOPIC TAGS: cast chromium, gas saturation, chromium melting, chromium teeming, chromium brittleness, oxygen adsorption, hydrogen adsorption, nitrogen adsorption, rare earth admixture

ABSTRACT: After noting that the principle cause of chromium brittleness is gaseous impurities, the authors report the results of studies aimed at selecting the optimal technological conditions for the smelting of chromium, from the point of view of ensuring a minimum gas content in the cast metal. The metal was smelted in an OKB-498m high-vacuum induction furnace in a rammed crucible of zirconium dioxide. As the basic material, unrefined chromium was employed with the following composition: C, 0.024-0.030%; H₂, 0.3% O₂.

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ACCESSION NR: AT4048325

0.002-0.050% N₂. The experimental melts were made in an inert argon atmosphere, since due to the high chromium vapor pressure at the melting temperature (63.5 mm Hg), it is not possible to melt the metal in a vacuum. For the purpose of decomposing the nitrides and removing the adsorbed gases, the chromium was aged at 750, 1200 and 1400C for 30 minutes at each temperature, and also in the melted state. The chromium was poured into a metal mold in order to exclude any effect of the mold material on the gas content in the castings. Further details regarding the technique of the experiment are given in the paper. Conditions which ensure the absence of coronal discharge in the vacuum at high voltages were also determined during the development of specific smelting conditions. The process of melting 5 kg of chromium lasted up to 5 minutes. A table is given showing the content of oxygen and nitrogen in the cast chromium as a function of temperature and duration of exposure. Oxygen content was found to increase somewhat, in comparison with the base content, together with the time of aging. The nitrogen content decreased with aging for 30 minutes at 750-1200C. Experiments showed that the optimal aging regime for chromium is 1200C and 30 minutes. In the cast metal the hydrogen content stood at 0.0004-0.0009%. It was also found that, all other conditions being equal, the content of non-metallic admixtures of the oxide type is approximately half as high (0.30%) after the fourth melting as after the first (0.66%). For the purpose of studying the effect of the material of the mold on the gas-saturation of the chromium, samples were poured into

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molds of different refractory materials, and a table is given in the article illustrating the dependence of the oxygen content in the castings on the mold material used. The authors indicate that the microhardness of the chromium is not changed by the mold material. The use of rare-earth elements to enhance the mechanical properties of cast chromium is discussed in some detail. Data are presented which indicate that the content of non-metallic inclusions in cast chromium without admixtures reaches 0.661%, while an analysis of the non-metallic inclusions showed the presence of oxides of the Cr_2O_3 type and oxides of the rare-earth elements. In this way, the rare-earth elements are found to have a refining effect. The article concludes with a brief discussion of a special study which was made to determine the optimal argon pressure for high-quality stock. The authors show that the structure of chromium, smelted and tamped at an argon pressure of 600 mm Hg, is finer than that of chromium poured at 300, 60-90, and 1.2 mm. According to some writers, a fine-grain structure reduces the temperature threshold of chromium brittleness. Orig. art. has: 3 figures and 3 tables.

ASSOCIATION: None

SUBMITTED: 20May64

ENG: 00

SUB CODE: MM

NO REF SOV: 002

OTHER: 000

Card 8/8

L 21523-65 EWT(m)/EPP(n)-2/EWP(t)/EWP(b) Pu-4 LJP(c)/AS(mp)-2/AFWL/SSD/AFETR/
 ASD(f)-2/ASD(m)-3 JD/JG
 ACCESSION NR AM1040600 BOOK EXPLOITATION S/

Gulyayev, B. B.; Magnitskiy, O. N.; Damidova, A. A. B+/

Refractory metal casting (Lit'ye iz tugoplavkikh metallov), Moscow, Izd-ro
 "Mashinostroyeniye", 1964, 291 p. illus., biblio. 2,800 copies printed.

TOPIC TAGS: metallurgy, refractory metal casting, chromium, titanium, molybdenum,
 niobium, refractory metal 27

PURPOSE AND COVERAGE: This book covers Soviet and foreign experience and results of
 research in the casting of refractory metals. Casting from chromium, titanium, zirconium,
molybdenum, niobium and other refractory metals is examined. The basic sections of
 the book deal with melting and pouring, interaction of metals with gases, refrac-
 tory and molding materials, design of vacuum equipment, development of casting pro-
 cesses, cast mechanical and service properties of cast refractory metals. The book
 is intended for engineers and technicians in industry and research organizations.
 It can also be useful to students in casting specialties.

TABLE OF CONTENTS [abridged]:

Foreword -- 3

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L 24523-65
ACCESSION NR AMU040600

- Ch. I. General characteristics of refractory metals -- 5
- Ch. II. Interaction of refractory metals with the surrounding medium at high temperatures -- 31
- Ch. III. Equipment for melting and pouring refractory metals -- 100
- Ch. IV. Technology of preparing castings from refractory metals -- 165
- Ch. V. Properties of castings based on refractory metals -- 249

SUB CODE: MM

SUBMITTED: 14 Feb 64 NR REF SOV: 103

OTHER: 096

Card 2/2

ACC NR: AP6021798

(A)

SOURCE CODE: UR/0413/66/000/012/0062/0062

INVENTORS: Mikhaylov, A. S.; Oleshchuk, M. F.; Slonimskiy, Ye. V.; Magnitskiy, O. N.

ORG: none

TITLE: A chamber for hand welding in a controlled atmosphere. Class 21, No. 182810

SOURCE: Izobreteniya, promyshlennyye obratzay, tovarnyye znaki, no. 12, 1966, 62

TOPIC TAGS: welding, metal welding, welding equipment, welding technology

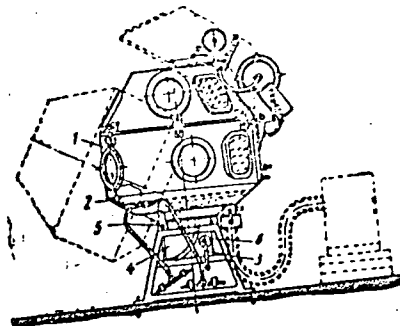
ABSTRACT: This Author Certificate presents a chamber for hand welding of chemically active materials in a controlled atmosphere. The chamber consists of a casing with a lid (see Fig. 1). To provide for turning the welded product into a position (necessitated by the technical requirements and the shape of the object) without opening the lid, the chamber is provided with a mechanism for turning the welded object horizontally, and also with a mechanism for turning the casing through a certain angle in respect to the vertical axis.

Card 1/2

UDC: 621.791.753.9.039.

ACC NR: AP6021798

Fig. 1. 1 - casing of the chamber; 2 - holders;
3 - hand-operated reducer; 4 - worm
gear sector; 5 - axle; 6 - handle



Orig. art. has: 1 figure.

SUB CODE: 13/ SUBM DATE: 21May64

Card 2/2

ACC NR: AR6035410

SOURCE CODE: UR/0137/66/000/009/A010/A010

AUTHOR: Magnitskiy, O. N.; Bronzova, N. I.

TITLE: Role of surface phenomena when filling thin-wall castings of titanium alloys

SOURCE: Ref. zh. Metallurgiya, Abs. 9A64

REF SOURCE: Sb. Poverkhnostn. yavleniya v rasplavakh i voznikayushchikh iz nikh tverd. fazakh. Nal'chik, 1965, 613-619

TOPIC TAGS: titanium alloy, metal surface, surface property, metal casting, refractory product

ABSTRACT: The authors studied the regularities of the variation of the surface properties of titanium alloys when alloying elements Al, Sn, Nb, and Zr are introduced and when the alloys are in contact with various refractory materials. To study the wetting ability and the surface tension, the falling-drop method was used: a sample placed in a vacuum chamber was molten by means of a magnetic field, and the resultant drop was allowed to fall on a substrate made of refractory material. The contact angle and the surface tension σ were determined from the contour of the solidifying drop. When alloying elements are introduced into the titanium, the value of σ increases and the wetting ability becomes worse, that is, the conditions for filling thin-wall castings become worse. From among the refractory materials used for casting titanium alloys (graphite, magnesite, electrocorundum, and zirconium), graphite had the best wetting ability and zirconium the worst. On a preheated graphite substrate.

Card 1/2

UDC: 669.295.5-154: 531.61

ACC NR: AR6035410

Ti spread in such a thin layer that the contact angle could not be measured. If difficulties are encountered when using graphite as a molding material, it is necessary to employ magnesite. The most effective means of overcoming the surface tension, which hinders the filling of the molds, is centrifugal casting of the metal. 4 illustrations, 2 tables. Bibliography, 7 titles. (From RZh Mash.) [Translation of abstract]

SUB CODE: 11

Card 2/2

MAGNITSKIY, S. V.

SAVEL'YEVA, L.; MAGNITSKIY, S.V., inzhener, tekhnicheskiy konsul'tant;
KORNILOVA, M., redaktor; HIRSNAOVA, N., tekhnicheskiy redaktor

[Excellent shoes for the buyer!] Pokupateliu - otlichnuiu obuv'!
[Moskva] Izd-vo VTsSPS Profizdat, 1954. 63 p. (MLRA 8:4)

1. Master 3-go tufel'nogo tsekha Moskovskoy obuvnoy fabriki
"Parizhskaya Kommuna."
(Shoe industry)

MAGNITSKIY, V.A.; LAVRENT'YEVA, L.L.

Effectiveness of antibacterial therapy in tuberculosis without
hormonal preparations and combined with these preparations.
Sov. med. 27 no.12:37-40 D'63 (MIRA 17:4)

1. Iz kafedry tuberkuleza (z av. - prof. I. Ye. Kochmova)
II Moskovskogo meditsinskogo instituta imeni Pirogova.

MAGNITSKIY, V. A.

Acad. Sci., Inst Theor. Geophysics (-19.6-)

"About one of the possible ways of the reformation of the earth's crust,"

Iz. Ak. Nauk USSR, Ser. Geogr. i Geofiz. No. 1-2, 19.

MAGNITSKIY, V. A.

"Reductions of Gravitational Force. in Order to Study the Geological Structure of the Earth's Crust," Works of the Central Scientific-Research Institute of Geodesy, Aerial Surveying, and Cartography. No. 51. Gravimetric Studies, 1948, p. 46.

Abstract, W-13387, 7 Sep 50

PA 66T64

USSR/Geophysics
Gravimetry

May/June 1948

"Research on the Extensive Undulations of a Geoid
by Joint Utilization of Geodesic and Gravimetric
Data," V. A. Magnitskiy, Geophys Inst, Acad Sci
USSR, 4 pp

"Iz Ak Nauk SSSR, Ser Geograf i Geofiz" Vol XII,
No 3

Discusses problem of obtaining the height of geoid
by simultaneous use of data obtained by geodesic
and gravimetric means. Submitted method permits
obtaining wide waves of geoid without use of any

66T64

USSR/Geophysics (Contd)

May/June 1948

type of hypothesis on the structure of the earth's
crust. Submitted by Academician L. S. Leybenzon
24 Apr 1947.

66T64

MAGNITSKIY, V. A.

MAGNITSKIY, V. A.

Magnitskiy, V. A. - "On degree measurement relations", Sbornik nauch.-tekhn. i
pribovod. statey po teorii, kartografii, topografii, aeras"yenko i inzhenerii,
Issue 21, 1961, p. 76-77.

SO: 1-4110, 17 July 63, (Letipis 'Zhurnal 'nykh Statey, No. 17, 1963).

MAGNITSKIY, V. A.

PA 66T55

USSR/Geology
Tectonics
Stratification

Mar/Apr 1948

"On the Possible Character of Deformations in the Deep Layers of the Earth's Crust and the Layers Below the Crust," V. A. Magnitskiy, 20 pp

"Byul Mosk Obsh Ispy Prirod, Otdel Geolog" Vol XIII, No 2

Tests conducted to compare gravimetric and seismic data on the nature of the deformations deep in the layers of the earth. Tests were based on Maxwell's theory on elastic-viscous deformations, tests conducted by Indian scientists to determine the

USSR/Geology (Cont'd)

Mar/Apr 1948

propagation of ultrahigh-frequency waves through liquid, tests on the deformation of materials due to high pressures and prolonged tensions, and analyses of data collected by gravimetric means from past data.

66T55

MAGNITSKIY, V. A.

Magnitskiy, V. A. "On the reduction of gravity," Trudy Tsentral'nogo nauchno-issledovatel'skogo instituta geodezii, aerofotogrammetrii i kartografii, Issue 51, 1945, p. 40-41

SC: U-3264, 10 April 1953, (Letopis 'Zhurnal 'nykh Statey, No. 6, 1945)

MAGNITSKIĬ, V. A.

"The Problem of Classifying Local Gravitational Anomalies", *Izvestiya AN SSSR, Seriya Geograficheskaya i Geofizicheskaya*, Vol. 13, No 6, No./Dec 1949.

MAGNITSKIY, V. A.

23,17 MAGNITSKIY, V. A. Uravneniya Gradusnykh Izmereniy V Rasshirennom. Ioni anii. Zhurnal Nauch. - Tekhn. i Priklad. Staty Po Geologii, Kartografii, Aeroc'lenke i Gravitetrii, VII. 30, 1949, S. 21-27.

SO: Letopis, No. 33, 1949.

MAGNITSKIY, V.A.

Problem of the density and compressibility of the earth's crust.
Vop.kosm.1:15-33 '52. (MLRA 7:2)
(Earth--Internal structure)

MAGNITSKIY, V. A.

V. A. Magnitskiy, Osnoy fiziki zemli [Principles of Earth Physics], Geodezizdat, 22 sheets, 10,000 copies - 1953 - 290pp.

This book gives an exposition of the current ideas on the internal structure of the earth, the physical properties of the substances in the interior of the earth, and on the nature of the principal processes that occur there. The exposition is based on an interpretation of the main data of seismology, geothermics, theory of the shape of the earth, and gravimetry, in the light of the fundamental achievements of contemporary physics. In this connection the book also gives the necessary auxiliary information from the mechanics of continuous mediums, the kinematic theory of matter, and the modern theory of the solid body.

This is a textbook of the physics of the earth for students of the upper grades of the astronomical-geodesic specialty of geodesic institutes, and students of the geodesic specialties of state universities; it will be of interest for postgraduate trainee-students and scientific workers specializing in the field of geophysics and geology.

SO: U-6472, 23, Nov 1954

ZAKATOV, P.S.; MAGNITSKIY, V.A.

[Advanced course in geodesy; spheroid geodesy, principles of gravimetry and practical astronomy] Kurs vysshei geodezii: sferoidicheskaiia geodeziia s osnovami gravimetrii i prakticheskoii astronomii. Izd.2., ispr.i dop. Moskva, Izd-vo geodezicheskoi i kartograficheskoi lit-ry, 1953. 405 p. (MLRA 7:3)
(Geodesy)

MAGNITSKIY, V.A.

Conference on the connection between the problems of geology and geophysics and those of cosmogony. *Izv. AN SSSR. Ser. geofiz. no. 3:285-286 My* (MLRA 6:6)
Je '53. (Geology) (Geophysics) (Cosmogony)

Conference was held during the first part of Feb 53 by the Leningrad Branch of the All-Union Astronomical-Geodetical Society, Geographical Society of the USSR, and the Leningrad House of Scientists. Reports on geology and cosmogony were presented by S. Yu. Levin, B. L. Lichkov, D. G. Panov, O. YU. Shmidt and V. I. Lebedev. 258T94

MAGNITSKIY, V. A.

USSR/ Geology Literature

Card : 1/1 Pub. 46 - 13/16

Authors : Kropotkin, P. N.

Title : About V. A. Magnitskiy's book entitled "The Bases of the Physics of the Earth"

Periodical : Izv. AN SSSR. Ser. geol. 4, 133, July - August 1954

Abstract : Critique of the book by V. A. Magnitskiy entitled "The Bases of the Physics of the Earth", also used as an astronomical-geodetic handbook in higher educational institutions.

Institution :

Submitted : March 9, 1954

USSR/Geophysics - Physics of the earth (book review)

FD-277E

Card 1/2 Pub 45 - 12/13

Author : Yanovskiy, B. M., Dr. Phys.-Math. Sci. (reviewer)

Title : Book review. Osnovy fiziki Zemli [Principles of the physics of the Earth], by V. A. Magnitskiy; Geodesic Press, Moscow, 1953, 290 pages

Periodical : Izv. AN SSSR, Ser. geofiz., Sep-Oct 1955, 485-487

Abstract : Fifteen years have passed since the appearance of the last edition of P. N. Tverskiy's Kurs geofiziki [Course of geophysics], in which time many problems in the discipline of the physical processes occurring in the Earth's sphere have obtained new clarification and a whole new series of phenomena employed for practical purposes has been discovered; notions on the structure of the terrestrial sphere differ considerably from the notions of thirty years ago, and new hypotheses on the origin of the solar system, which influence opinions on the Earth's structure, have appeared, especially in connection with the structure of the Earth's mantle or crust, thanks to new methods of its investigation unknown earlier. Existing courses on individual branches of geophysics such as Osnovy seismologii i seismometrii [Principles of seismology and seismometry] by Ye. F. Savarenkiy

FD-2778

Card 2/2

Abstract : and D. P. Kirnos, Gravimetriya i gravimetriceskaya razvedka [Gravimetry and gravimetric prospecting] by Sorokin, Zemnoy magnetizm [Terrestrial magnetism] by B. M. Yanovskiy cannot be replaced by a general course of geophysics. The reviewed book admitted as a textbook by the Ministry of Higher Education does tend to fill the gaps in Soviet geophysical literature and gives a fuller notion of the Earth's structure.

AUTHOR: Magnitskiy, V. A.

60-55-26-6/16

TITLE: Physical State of Matter at Great Depths in the Earth's Interior
(O fizicheskom sostoyanii veshchestva v glubokikh oblastyakh zemnogo shara)

PERIODICAL: Trudy Geofizicheskogo inatituta Akademii nauk SSSR, 1955,
Nr 26, pp 61-85 (USSR)

ABSTRACT: An analysis of the basic physical properties and the possible physical state of matter at great depths in the Earth's interior leads to hypotheses on the nature of the basic physico-chemical processes occurring in the Earth's mantle which may have given rise to the two types of the Earth's crust, the continental and the oceanic. This is still one of the basic unsolved problems of geology and geophysics. There are 13 figures and 50 references of which 27 are Soviet, 19 English, 3 German, and 1 Italian.

AVAILABLE: Library of Congress

Card 1/1

MAGNITSKIY, V.A.

The nature of the transitional layer of the earth's shell at a depth of 400-900 kilometers. Izv.AN SSSR Ser.geofiz.no.6:700-703 Je '56. (MLRA 9:9)

1.Akademiya nauk SSSR, Geofizicheskiy institut.
(Earth--Internal structure)

PLAVITSKIY, V.A.

Melting point in the earth's crust. Vest.Mosk.un.Ser.biol.,zochv..
geol.,geog. 11 no.2:3-9 '56. (MIRA 10:10)

1. Kafedra geofizicheskikh metodov issledovaniya.
(Melting points) (Geochemistry)

MAGNITSKIY, V.A., professor.

Internal structure of the earth. Priroda 45 ne.7:3-15 J1 '56.
(Earth--Internal structure) (MLRA 9:9)

MAGNITSKIY, V.A.

BALAKINA, L.M.

X(10)

PHASE I BOOK EXPLOITATION

09/1963

Akademiya nauk SSSR, Komitet po geodesii i geofizike.

Teslay doklady na II General'noy assemblye Mezhdunarodnogo geodeticheskogo i geofizicheskogo soyuza. Mezhdunarodnaya assotsiatsiya seymologii i fiziki nedr zemli (Abstracts of Reports Submitted to the II General Assembly of the International Union of Geodesy and Geophysics. The International Association of Seismology and Physics of the Earth's Interior) Moscow, 1957. 102 p. /Parallel texts in Russian and English/ 1,500 copies printed.

No additional contributors mentioned

PURPOSE: This booklet is intended for geophysicists, especially those specializing in seismology.

COVERAGE: This collection of articles deals with the structure and composition of the Earth and phenomena related thereto. The majority of the articles concern studies of earthquakes and seismic waves. Other articles cover the structure of the Earth's crust and mountain roots; the elastic properties of rocks at high pressures; the piezoelectric effect of rocks and the method of modelling in tectonophysics. The collection also contains articles on the Earth's thermal history, the microseismic method of tracing storms and others.

Card 1/5

Kondorskaya, N.V. Travel Times and Some Dynamic Characteristics of Seismic Waves	58
Lyubimova, Ye.A. The Earth's Thermal History and Its Geophysical Consequences	63
Kedredev, S.Y., and B.A. Petrushevskiy. Methods and Experience in Zoning USSR Territory According to Seismic Intensity	66
Magnitskiy, V.A. Properties of the Earth's Mantle and the Physical Nature of the Intermediate Layer (Layer C)	70
Konakhov, F.I. Development of the Microseismic Method of Tracing Storms at Sea	74
Rybnov, L.N. Study of the Character of Decrease of P-Wave Amplitudes in the Shadow Zone on a Model	78
Solov'yev, S.I. The Energy and Intensity of Earthquakes	81
Savranskiy, Ye.P. Results of Seismic Studies in the USSR	

MAGNITSKIY, V. A., LYUBIMOVA, Ye. A., KEYLIS-BCROK, V. I., REZNICHENKO, Yu. V., and
BELOUSOV, V. V.

"Seismological Problems and Questions Concerning the Physical Structure of
the Earth's Depostis."

paper presented at the XIth General Assembly of the Int'l. Union of Geodesy and
Geophysics, Toronto, Canada, 3-14 Sept. 1957 (Izv. Ak Nauk SSSR - Ser Geog. 1958,
No. 2, pp 3-8 (USSR)).

MAGNITSKIY, V.A.; FEDYNS'KIY, V.V.

Geophysical problems at the 22d session of the International Geological Congress in Mexico. Vest. Mosk. un. Ser. biol., pochv., geol., geog. 12 no.1:25-34 '57. (MLBA 10:11)
(Mexico (City)--Geophysics--Congresses)

LYUSTIKH, Yevgeniy Nikolayevich; MAGNITSKIY, V.A., doktor tekhn.nauk, otv.
red.; REZANOV, I.A., red. izd-va; NOVICHKOVA, N.D., tekhn. red.

[Criticism of the geotectonic contraction hypothesis] Kritika
geotektonicheskoi kontraktsionnoy gipotezy. Moskva, Izd-vo
Akad.nauk SSSR, 1958. 44 p. (Akademii nauk SSSR. Institut
fiziki Zemli. Trudy, no.3) (MIRA 12:2)
(Geology, Structural)

KROPOTKIN, Petr Nikolayevich.; LYUSTIKH, Yevgeniy Nikolayevich.; POVALO-
SHVYKOVSKAYA, Nina Nikolayevna.; MAGNITSKIY, V.A., prof., otv. red.;
PERMYAKOVA, A.I., red.;GUR'YANOV, V.P., tekhn. red.

[Gravity anomalies on continents and oceans and their significance
for geotectonics; outline of the gravimetry of foreign countries]
Anomalii sily tiazhesti na materikakh i okeanakh i ikh znachenie
dlya geotektoniki; ocherk po gravimetrii zarubezhnykh stran.
[Moskva] Izd-vo Mosk. univ., 1958. 75 p. (MIRA 11:11)
(Gravity)

MAGNITSKIY VA

3(1)

P7

PHASE I BOOK EXPLOITATION SOV/1415

Voprosy kosmogonii, t. 6 (Problems in Cosmogony, Vol. 6) Moscow,
Izd-vo AN SSSR, 1958. 357 p. 2,000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Astronomicheskiy sovet.

Ed. of Publishing House: Rakhlin, I. Ye.; Tech. Ed.: Polenova, T.P.;
Editorial Board: Kukarkin, B.V. (Resp. Ed.) Doctor of Physical
and Mathematical Sciences, Pariyskiy, N.N. (Deputy Resp. Ed.)
Candidate of Physical and Mathematical Sciences, Baranov, V.I.,
Doctor of Physical and Mathematical Sciences, Belousov, V.V.,
Doctor of Geological and Mineralogical Sciences, Levin, B. Yu.,
Doctor of Physical and Mathematical Sciences, Masevich, A.G.,
Candidate of Physical and Mathematical Sciences, Safronov, V.S.
(Scientific Secretary) Candidate of Physical and Mathematical
Sciences.

PURPOSE: This book is intended for students and scientists of
cosmogony and cosmic physics.

Card 1/9

Problems in Cosmogony

SOV/1415

COVERAGE: This book, consisting of articles and conference reports, is devoted to a discussion of intragalactic formations and phenomena, and speculations on approaches to extragalactic investigations. Individual articles discuss the origin and development of stars, planets and nebulae, and the forces and phenomena affecting them, the terrestrial planets, the solar system as a whole, gaseous nebulae, the origin of elements, magnetism, and other natural phenomena and problems of cosmogony. According to V.A. Magnitskiy, the evolution of the Earth's continents and oceans is not due to oceanic expansion and the subsidence of continents but rather the reverse. V.I. Baranov evaluates the age of the Earth to be between 4-5 billion years, basing this estimate on a determination of the absolute age of the oldest minerals, rocks, meteorites and chemical elements by radioactive methods. B. Yu. Levin finds that the deviation of the Moon from an equilibrium shape is due to an essential oblateness and not to the presence of large tidal bulges; and that the Moon's oblateness definitely indicates its solidification in a state of free rotation. V.S. Safronov submits a theory that planetary growth is due to the simultaneous accretion of small particles and large bodies falling on planets. H. Alfven, the Swedish scientist,

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Problems in Cosmogony

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discusses the role of electromagnetic forces in the origin and development of the solar system. Kipper and Tiyt examine the significance of the bi-quantum transition $2P \rightarrow 1S$ in a hydrogen atom in relation to the physics of planetary nebulae with the theory supported by the discovery of radio emission of 2.74 cm waves by optically thick planetary nebulae. The state of modern physics of planetary nebulae is briefly reviewed by V.V. Sobolev. G.A. Gurzadyan states that the dynamics of planetary nebulae are concerned with 1) planetary origin and 2) the evolution of its form and structure under the forces acting upon the gaseous envelope surrounding a hot star. He shows that two-envelope nebulae cannot form as a result of repeated outbursts of the central nucleus, thus proving the existence of one-envelope planetary nebulae. He provides a summary for the quantitative theory of the origin of the second envelope due to tearing-off by L_{α} radiation pressure. I.N. Minin examines the field of L_{α} - radiation in planetary nebulae which expands with the velocity gradient and is divided into 2 parts: the ionized and non-ionized. A theoretical interpretation is

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Problems in Cosmogony

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given for the formation of two-envelope nebulae. T.A. Agekyan develops an equation to express the acceleration of a star due to its interaction with a system of fixed dust clouds which takes into account gravity and light pressure. S.A. Kaplan presents the basic principles developed and the results obtained in magnetic gas dynamics, i.e., the existence of the "adherence" integral, magnetic line forces of "entanglement" and "un-entanglement," the increase of magnetic energy in gasomagnetic shock waves, and the concept of gasomagnetic turbulence. P.G. Parkhomenko, discussing the preservation of continuance (abundances) in the formation of elements, contends that in a thermonuclear medium, at temperatures higher than 10^8K , photodisintegration will obstruct radiative capture of nucleons by the nuclei of light elements so that these nuclei will remain in a state of "freezing." He demonstrates that if the temperature falls to 10^6K the lifetime of the nucleus between two adjacent captures will be in the order of 10^4 years. During this interval total rarefaction and cooling of the medium may occur. In another article Parkhomenko evaluates the mass of a cosmic body in equilibrium in which observed continuance (abundances) of elements and isotopes could arise. Pikel'ner underlines the importance of studying the synthesis of complex

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atoms from simpler ones and the efforts in search of non-equilibrium reactions. G.I. Naan reviews and analyzes cosmological paradoxes (gravitational, photometric, thermodynamic, expansion) pointing out that these are due to a tendency to attribute finite properties to infinity. Certain possibilities due to various mechanisms are offered, such as the conversion of a gravitational field into matter. On the whole the evolution of the Metagalaxy is seen as an "attenuated oscillation of the second order." Latest data on extragalactic astronomy open a way to these conclusions through observations. In addition to the articles, reports of the following conferences are given: the Conference on Variable Stars held in Budapest, August 1956, sponsored by the Hungarian Academy of Sciences; the Symposium on Electromagnetic Phenomena in Cosmic Physics at Stockholm, sponsored by the International Astronomical Union in conjunction with the International Union of Pure and Applied Physics and the International Union of Geodesy and Geophysics; the Conference on Fixed Stars held September, 1956 at the Byurakan Astrophysical Observatory (near Yerevan), sponsored

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by the Armenian Academy of Sciences; the Conference on the Physics of Planetary Nebulae held February 1957 in Leningrad, sponsored by the Committee on Cosmogony of the Astronomical Union of the Academy of Sciences of the USSR; a conference held in Moscow, December 1956, by the Committee on Cosmogony of the Astronomical Union of the AN SSSR, to discuss projects of studies in the USSR in cosmology and extragalactic astronomy; and, the Sixth Conference on Cosmogony, held in Moscow in June 1957, devoted to problems of extragalactic astronomy and cosmology. The articles are accompanied by brief summaries in English, German or French, and diagrams and bibliographic references.

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Ruskol, Ye. L. Conference of the Committee on Cosmogony
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velopment of Extragalactic Astronomy and Cosmogony

Tsitsin, F.A. The Sixth Cosmogonical Conference

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AVAILABLE: Library of Congress

MM/rj
4-16-59

Card 9/9

AUTHOR: Magnitskiy, V.A., Professor SOV-26-58-3-7/51

TITLE: The International Congress of Geophysicists (Mezhdunarodnyy kongress geofizikov) at the XI General Assembly of the International Geodesical and Geophysical Union in Canada (na XI general'noy assambleye mezhdunarodnogo geodezicheskogo i geofizicheskogo soyuza v Kanade)

PERIODICAL: Priroda, 1958, Nr 3, pp 44-49 (USSR)

ABSTRACT: A total of 41 Soviet delegates attended the congress. The assembly heard the following reports: Yu.V. Riznichenko, on the method of deep seismic sounding developed in the USSR on the suggestion of academician G.A. Gamburtsev; V.V. Byelousov, on the development of the geosynclines and foldings; V.I. Keylis-Borok, on a better investigation method of earthquake origination; Ye.P. Fedorov, on the influence of the earth structure on the nutation of its axis; B.I. Davydov and V.A. Magnitskiy, on the condition of matter at high pressure and the physical nature of the earth crust; on the shape of the earth and the development of large-scale geodesic networks based on the research of member correspondents of the AS USSR, F.N. Krasovskiy (deceased) and M.S. Molodenskiy; Professor B.M. Yanovskiy, on work in the field of geomagnetism in the USSR; G.S. Gorsikov, on the depth of the hearth of the Kiyuchevskiy Volcano; A.M. Obukhov and A.S. Monin, on problems

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JOV-11-11-3-7/51

The International Congress of Geophysicists at the XI General Assembly of the International Geodesical and Geophysical Union in Canada

of turbulence of the atmosphere; M.N. Koshlyakov, on the general circulation of the oceans; V.G. Kort, on the work of the sea section of the Soviet Antarctic expedition; G.A. Avsyuk, on Soviet achievements in the field of glaciology. There are 4 photographs.

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

1. Geophysics--USSR
2. Scientific reports--USSR

Card 2/2

AUTHOR: Magnitskiy, V. A.

NY 61884-7 11

TITLE:

Wave Guides in the Earth's Crust and Sub-Crust Layer
(O volnovodakh v zemnoy kore i podkorovom sloye).

PERIODICAL:

Ryulleten Moskovskogo obshchestva ispytateley prirody,
Otdel geologicheskii, 1958, Nr 4, pp 1^a-23.

ABSTRACT:

The article deals with wave guides in the Earth's crust and sub-crust layer and the causes of these wave guides, with the heterogeneity of the sub-crust layer and the relation of the Earth's crust to the underlying layers. The author states that the study of these problems is in its infancy, and that all data given have only preliminary validity which might undergo considerable changes in the near future. Graph 1 shows a scheme of the distribution of the velocities of seismic waves in the Earth's crust and in the upper sections of the shell according to P. Gutenberg. The first wave guides in the Earth's crust were discovered in 1953 by F. Press and M. Jung. There are various explanations given for the origin of these wave guides, quoting different

Card 1/2

Wave Guides in the Earth's Crust and Sub-Crust Layer NOV/5-58-4-3/43

formulas and tables the author explains the views held on this question by B. Gutenberg, H. L. Joder, I. Knaggs, D. Cross and D. Gilvarry.

There are 3 diagrams, 1 graph 1 table and 22 references, 6 of which are Soviet, 14 English and 2 Italian.

1. Earth
2. Geophysics
3. Seismic waves--Distribution
4. Seismic waves--Velocity

Card 2/2

AUTHORS: Magnitskiy, V. A. and Kalinin, V. A. SOV/49-59-1-10/23

TITLE: Properties of the Earth's Crust and the Physical Nature of the Transition Layer (Svoystva obolochki zemli i fizicheskaya priroda perekhodnogo sloya)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Geofizicheskaya, 1959, Nr 1, pp 87-95 (USSR)

ABSTRACT: The earth's crust is divided into three layers: an upper layer B, a transition layer C and a lower layer D. The whole crust is assumed to be in the solid state. Studies of the rate of change of the bulk modulus K with pressure p showed that the B- and D-layers may be regarded as uniform in structure. The exact nature of the transition layer C is not known, although it is of great importance in the theory of formation of the Earth's crust. It is known that the velocity of seismic waves rises rapidly with depth in the region of the transition layer C, i.e. between 400 and 900 km. Fig.1 shows the velocity of longitudinal waves at depths from 100 to 1400 km obtained by Jeffreys (Ref 12) and the velocity obtained by a different method by Gutenberg (Ref 13) down to depths of 600 km (dashed curve). This

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SOV/49-59-1-10/23

Properties of the Earth's Crust and the Physical Nature of the Transition Layer

figure shows clearly the rapid rise of the seismic wave velocities in the transition layer near 500 km. This change of velocity is due to a rapid change in the elastic coefficients such as K (bulk modulus) in the transition layer C. Fig.2 gives the ratio K/ρ , where ρ is the density as a function of depth. The authors suggest that it is possible to explain the properties of the C-layer by a transition from the predominantly ionic structure in the B-layer to predominantly covalent bonds in the D-layer. No assumptions are made about the chemical properties of the Earth's crust. This hypothesis has already been discussed by one of the authors (Ref 21). It is based on the following ideas. Ionic and covalent crystals predominate in the Earth's crust. Transition from the ionic to the covalent state is in principle possible by change of pressure and temperature, as shown by Pauling (Ref 22). There are practically no experimental data on ionic-covalent transitions because of great difficulties in distinguishing between the usual polymorphic transitions at high

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SOV/49-59-1-10/23

Properties of the Earth's Crust and the Physical Nature of the Transition Layer

temperatures and pressures and transition from one bond type to another. The authors examine in detail the existing geophysical and physical-chemical data on the Earth's crust and show that these data are in qualitative agreement with the authors' hypothesis on the nature of the C-layer. This hypothesis makes it possible to explain the increase in hardness on transition from the B to the D-layer since covalent crystals are generally harder. Increase of electrical conductivity observed in the C-layer may be due to deformation of the energy spectrum of electrons and to a transition from ionic to semi-conducting electron conduction. Acknowledgments are made to B.I. Davydov and V. N. Zharkov for their advice.

There are 6 figures and 33 references, 11 of which are Soviet, 17 English, 1 Italian, 1 Japanese, 1 Dutch, 1 Swiss and one a translation from English into Russian.

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SOV/49-59-1-10/23
Properties of the Earth's Crust and the Physical Nature of the
Transition Layer

ASSOCIATION: Akademiya nauk SSSR, Institut fiziki Zemli
(Ac. Sc. USSR, Institute of Earth Physics)

SUBMITTED: October 18, 1957

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PHASE I BOOK EXPLANATION SOV/44/90

Academiya nauk SSSR. Institut fiziki Zemli
Voprosy teoreticheskoy seismologii i fiziki zemlyakh near (Problems in the Theory
of Seismology and Physics of the Earth's Interior) Moscow, 1960, 112 p.
(Series: Itz. Trudy, no. 11 (178)) Errata slip inserted. 1,700 copies printed.
Sponsoring Agency: Akademiya nauk SSSR. Institut fiziki Zemli Lening O. Yu.
Shmidt

Ed.: V.A. Magnitskiy, Doctor of Technical Sciences, Ed. of Publishing House:
V.A. Kalinin; Tech. Ed.: S.O. Tikhomirova.

SCOPE: This collection of articles is intended for seismologists, geophysicists, and
seismologists.

CONTENTS: This issue of the Transactions of the Institute of Physics of the Earth
Lening O. Yu. Schmidt contains articles on theoretical problems in seismology and on
recent investigations in the field of earthquake mechanics. Four out of fourteen
articles in the collection have been abstracted. References accompany individual
articles.

Problems, Ye. A. Heat Transport by Fractures in the Earth's Mantle

Author: Ye. A. Magnitskiy, Doctor of Technical Sciences, Ed. of Publishing House:
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PHASE I BOOK EXPLANATION

S/169/61/000/009/008/056
D228/D304

AUTHOR: Magnitskiy, V. A.

TITLE: The correlation of the crust with material of the earth's mantle according to geophysical data

PERIODICAL: Referativnyy zhurnal. Geofizika, no. 9, 1961, 11, abstract 9A84 (V sb. Struktura zemnoy kory i deformatsii gornykh porod, M., AN SSSR, 1960, 32-38)

TEXT: The author proceeds from the following facts: (1) The congruence of the heat flow from the bowels of the earth in continental and oceanic areas; (2) the presence in the earth of two different types of crust--continental and oceanic; (3) the approximate isostatic equilibrium for sufficiently large sections of the crust; (4) the velocity of seismic waves in the crust and in the upper parts of the mantle to depths of several hundred kilometers. Since the crust was separated from the mantle in the process of the earth's development, it follows from the congruence of the heat flows on the continents and oceans that there were no major

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The correlation of...

S/169/61/000/009/008/056
D228/D304

(of the order of thousands of kilometers) horizontal displacements of large crustal blocks like those proposed in the mobilism hypotheses; the continents and oceans arose approximately in the places where they are situated at the present time. This also leads to the deduction about the different structure and chemical composition of the mantle's upper part beneath continents and oceans; the differentiation of material is more complete beneath the continents. The widely-held opinion that the mantle consists of dunite or peridotite encounters a number of difficulties. In particular, it is impossible to derive the crust from a mantle of such a composition. The author inclines to the proposal about the eclogite composition of the mantle put forward by Lovering (Ref. zh., geofiz., no. 6, 1959, 5582). To the series of advantages of the latter hypothesis the author adds the abrupt increase in the density of gabbro detected experimentally under pressures corresponding to depths of 400 - 600 km; gabbro and eclogite are chemically equivalent and differ only in their mineralogic composition, eclogite minerals having a higher density in accordance with their denser lattice. In the same tests, dunite did not show a corresponding increase in density. Two concrete variants for

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The correlation of...

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D228/D304

distinguishing the crust from the eclogite mantle are proposed. In conclusion it is shown that the hypothesis of the solution of part of the crust in the mantle (the conversion of continental crust into oceanic crust) encounters difficulties from the point of view of contemporary data. [Abstracter's note: Complete translation.]

✓

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1001/1001

On interpretation of main...

sufficient to produce the effect observed. A great deal can be learned from which such density variations are due to fluctuations in the distribution of radioactive elements in the mantle. Calculations show that an excess of radiogenic sources with heat liberation of 10^{15} cal/cm³ is sufficient to explain gravitational anomalies. Such a value of ΔP corresponds to approximately 5% of the presumed content of radioactive elements in the mantle. On the basis of calculations carried out the author draws the conclusion that the non-uniform distribution of radioactive elements in the Earth's body may be a source of great irregularities in the Earth's gravitational field.

V. Zharkov

[Abstractor's note: Complete translation]

Card 2/1

86391

S/020/60/135/002/015/036
B019/B077

3.9300
9.9865

AUTHORS: Magnitskiy, V. A. and Khorosheva, V. V.

TITLE: A Contribution to the Waveguide in the Earth Crust and Its Physical Properties

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 135, No. 2, pp. 305 - 307

TEXT: The results of an investigation of the waveguide in the upper regions of the earth crust, based on data of Soviet seismic stations, are presented in this paper. The data in Table 1 were obtained by evaluating 9 earthquakes. The hodograph equation applied to the P_a wave is $t = 0.85(\pm 0.08) + 0.223(\pm 0.001)\Delta$, where Δ is given in degrees and t in minutes; for the S_a wave it reads $t = 0.96(\pm 0.03) + 0.403(\pm 0.002)\Delta$. The velocities are calculated to be $8.30(\pm 0.03)$ km/sec (P_a) and $4.57(\pm 0.03)$ km/sec (S_a). It is found that the waves examined are cylindrical. If the temperature dependence of thermal conductivity is

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A Contribution to the Waveguide in the Earth Crust and Its Physical Properties S/020/60/135/002/015/036
B019/B077

taken into consideration, the waveguide can be explained as a thermal effect. 100 km below the continent the calculated temperature gradient is $18^{\circ}/\text{km}$, while at the same depth under the ocean it is $15^{\circ}/\text{km}$. The authors check the hypothesis of a velocity reduction due to an amorphization of the material. The value obtained for the rate of change in the velocity of the elastic waves, $dv/v \approx 6\%$, agrees with the observed data.

V. N. Zharkov is mentioned. There are 2 figures, 1 table, and 9 references: 3 Soviet, 3 US, 1 Italian, and 1 German.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov). Institut fiziki Zemli im. O. Yu. Shmidta Akademii nauk SSSR (Institute of Physics of the Earth imeni O. Yu. Shmidt of the Academy of Sciences USSR)

PRESENTED: June 7, 1960, by V. V. Shuleykin, Academician

SUBMITTED: June 5, 1960

Card 2/2

MAGNITSKIY, Vladimir Aleksandrovich, prof., doktor tekhn.nauk; FAYN-BOYM, I.B., red.; NAZAROVA, A.S., tekhn.red.

[Internal structure of the earth] Vnutrennee stroenie Zemli.
Moskva, Izd-vo "Znanie," 1961. 38 p. (Vsesoiuznoe obshchestvo po rasprostraneniю politicheskikh i nauchnykh znaniy. Ser.12, Geologiya i geografiya, no.7) (MIRA 14:5)
(Earth--Internal structure)

BROVAR, Vsevolod Vladimirovich; MAGNITSKIY, Vladimir Aleksandrovich;
SHIMBIREV, Boris Pavlovich; YURKINA, M.I., retsenzent;
MAKAROV, N.P., retsenzent; VIROVTS, A.M., retsenzent;
VASIL'YEVA, V.I., red. izd-va; SUNGUROV, V.S., tekhn. red.

[Theory of the earth's figure] Teoriia figury Zemli. Pod
obshchei red. V.A.Magnitskogo. Moskva, Izd-vo geodez. lit-ry,
1961. 256 p. (MIRA 15:3)
(Earth—Figure) (Gravity)

3/025/01/000/003/009/012
A166/A127

AUTHOR: Magnitskiy V. A., Professor (see Association)

TITLE: Three questions - twenty-four answers

PERIODICAL: Nauka i zhizn', no. 3, 1961, 29

TEXT: The photographs of the reverse side of the Moon show an even greater contrast between the lunar and terrestrial surfaces than do those of the visible side. Clearly, the Moon has developed very differently from the Earth. Studies in a not too distant future, first by automatic stations, then by man himself, might help to solve many problems, e.g. whether there are lunar tremors resembling our earthquakes, of what nature the Moon's magnetism might be and what kind of rocks are predominant on the Moon. Studies on the lunar core should also shed light on the early stages of development of the Earth, since the Moon represents a physical state where the relief has not been eroded by

Card 1/2

Three questions - twenty-four answers S/025/61/000/003/009/012
A166/A127

the action of water and the atmosphere.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet imeni M. V.
Lomonosova (Moscow State University imeni M. V. Lo-
monosov)

Card 2/2

S/163/62/000/005/002/093
5228/3307

AUTHOR: Magnitskiy, V. A.

TITLE: The earth's mantle and crust

PERIODICAL: Referativnyi zhurnal, Geofizika, no. 5, 1961, 6, ab-
stract 5A26 (Sov. Geologiya, no. 5, 1961, 5-15)

TEXT: Data are cited about the structure and physical properties of the earth's mantle, an interpretation of the main peculiarities of its structure is given, and some questions of the crust's genesis and development are briefly considered. The available geophysical data give grounds for supposing that the mantle is composed of eclogite. It is possible, however, that the mantle's upper layer, starting from depths of about 100 km, consists of peridotite. The author emphasizes that this is only one of the possible hypotheses which may be used to explain the crust's origin and development. The materials constituting the crust may be formed through the melting of mantle matter, either of basalt, giving granite during subsequent development (if the mantle consists

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The earth's mantle ...

3/189/62/000/005/002/033
5228/2307

of peridotite), or of andesite (should the mantle be composed of eclogite), which is differentiated into granite and basalt. If the mantle's upper layer mainly consists of peridotite, a basaltic crust is formed on its differentiation; however, when the differentiation process covers great depths, the most acid light material, which gives lavas of andesitic or even basaltic composition on combining with the basaltic melt of the upper parts, rises from great depths. Out of the existing hypotheses of the crust's origin and development the author considers that the hypothesis of the original secretion of a continental crust over the whole of the earth's surface, followed by its more accurate definition on ocean territory, and the hypothesis of the gradual growth of the continental crust at the expense of the mantle's progressive differentiation and the additional reprocessing of the oceanic crust into a continental crust to be worthy of the most attention. 50 references. [Abstracter's note: Complete translation.]

Card 2/2

3/26/61/000/000/003/003
E045/E114

AUTHOR: Magnitskiy, V.A., Professor
TITLE: The project of the upper mantle
PERIODICAL: Priroda, no. 6, 1961, 46-47

TEXT: This article deals with research conducted on the structure of the upper layers of the earth's mantle. In the summer of 1960, a Soviet-proposed plan for the organization of comprehensive geophysical and geological research on the earth's upper mantle and its interrelation with the earth's crust was accepted at the assembly of the International Union of Geodesy and Geophysics. For the coordination of research, an international committee was elected, headed by V.V. Belousov, Corresponding Member of the AS USSR and President of the above mentioned Union. The two upper layers of the mantle, which extend to a depth of 700-900 km, were investigated because this part is closely connected with the earth's crust and with the processes occurring there. Among the methods of research the author stresses the specially effective Soviet-developed [C] (GSZ) deep seismic sounding method. Very valuable results are obtained by measuring inclinations of the earth's

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3/026/61/000/006/003/003
D045/D114

The project of the upper mantle

surface caused by internal phenomena. Magnitometric, gravimetric and deep drilling methods are mentioned as well as a method where repeated measurements are taken allowing slow movements and deformations in the crust to be studied. In laboratories, it is already possible to obtain pressures and temperatures corresponding to conditions in the upper mantle and theoretical physics has made a big step forward in the study of the structure of matter and the course of various processes occurring under these conditions. Drilling through the earth's crust into the mantle is considered the most important practical research task. In conclusion, the author stresses the tremendous value of coordinated efforts in the study of the upper mantle to cope soon with the progress made in space research. There are 2 Soviet-bloc references.

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

Card 2/2

ZVEREV, M.S.; SHARONOV, V.V., prof.; MAGNITSKIY, V.A., prof.; SHRUTKA, Guntram [Schrutka, Guntram], prof.; YURI, Garol'd [Urey, Harold G.], laureat Nobelevskoy premii (SShA); KOPAL, Zdenek, prof.; KOZEL, Karol, prof.; ROSH, Zhan [Rösch, J.]

Twenty-two answers to three questions. Nauka i zhizn' 28 no.3:23,25, 29, 30-32 Mr '61. (MIRA 14:3)

1. Chlen-korrespondent AN SSSR (for Zverev).
 2. Direktor astronomicheskoy observatorii Leningradskogo universiteta (for Sharonov).
 3. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova (for Mangitskiy).
 4. Venskiy universitet (Avstriya) (for Shrutka).
 5. Manchesterskiy universitet (Angliya) (for Kopal).
 6. Krakovskiy universitet (Pol'sha) (for Kozel).
 7. Observatoriya Pik-dyu-Midi (Frantsiya) (for Rosh).
- (Moon)

MAGNITSKIY, V.A., prof.

Upper mantle and its influence on the development of the earth's
crust. Vest. AN SSSR 31 no.11:18-24 N '61. (MIRA 14:11)
(Earth--Internal structure)

MAGNITSKIY, V.A., prof.

Upper mantle project. Priroda 50 no.6:46-47 Je 161. (MIRA 14:5)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.
(Earth--Internal structure)

S/169/63/000/003/034/042
D263/D307

AUTHORS: Davydov, B.I. and Magnitskiy, V.A.

TITLE: Problems of high pressures in the physics of the Earth's deeper layers

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 3, 1963, 7, abstract 3G32 (In collection: Eksperim. issled. v obl. glubinnykh protsessov, M., AN SSSR, 1962, 16-21)

TEXT: The main problem in the experimental study of the internal structure and composition of the Earth is the performance of investigations at high pressures. A graph is given which shows the propagation velocities of longitudinal seismic waves V_p in deeper parts of the Earth, in the B, C, D, E and F layers; the graph is constructed chiefly from seismological data. A graph of the density distribution within the Earth was constructed by Bullen from gravimetric data. M.S. Moledenskiy determined the actual densities. Pressure within the Earth depends little on the accepted rule of densities. According to the results of Gutenberg, at the bottom

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of the crust the pressure is 10^4 kg/cm², in the intermediate layer C it is $1.5 - 2 \times 10^5$ kg/cm², on the outer boundary of the core - 1.5×10^6 kg/cm² and at the center of the Earth - of the order of 3.5×10^6 kg/cm². Temperatures of the deep layers of the Earth can only be determined theoretically, on the basis of these or other assumptions. The calculations are also considerably complicated by the fact that little information is as yet available concerning the distribution of radioactive substances within the globe. At a depth of 100 km the temperature apparently reaches 1500°C and at the outer boundary of the core it is $4000-5000^\circ\text{C}$. Composition of the Earth and the nature of boundaries between various layers is at present only hypothetical, particularly below the B layer. Several authors propose that in the zone between B and D layers the chemical composition undergoes a change, and polymorphic transitions of minerals takes place. The problems can be solved by experiments in the field of high pressure physics. At the present time pressures of 150×10^3 atm have already been achieved, at temperatures of the order of 2000°C . One of the main directions of future studies should be an investigation of the properties of the more important rock-forming

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Problems of high pressure ...

minerals, e.g. olivine, enstatite, diopside, augite etc. under conditions corresponding to those in the depths of the Earth. Study of the chemical reactions and phase transitions at high pressures and temperatures is also of considerable interest. One of the main problems is a physical characteristic of the substance of the Earth's core.

[Abstracter's note: Complete translation]

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MAGNITSKIY, V.A.; KALASHNIKOVA, I.V.

General trend of the development of the earth's crust. Izv.
AN SSSR.Ser.geofiz. no.8:993-996 Ag '62. (MIRA 15:8)

1. Institut fiziki Zemli AN SSSR.
(Earth--Surface)

IZOTOV, A.A.; BULANZHE, Yu.D.; MAGNITSKIY, V.A.; MESHCHERYAKOV, Yu.A.;
BLAGOVOLIN, N.S.

Establishment of the Crimean geophysical polygon for the study
of crustal subsurface geology and recent tectonic movements.
Geofiz.biul. no.12:82-84 '62. (MIRA 16:5)

(Crimea—Geophysical research)

LYUBIMOVA, Ye. A., MACHESHIY, V. A.

Seismotectonic strains and the energy of earthquakes. *Bull. Sov. Acad. Sci. Earth Planet. Phys.* (1974)

MAGNITKI, V.A. [Magnitskiy, V.A.]; KALASNIKOVA, I.V. [Kalashnikova, I.V.]
General direction of development of the earth crust. *Analele geol
geogr* 17 no.2:14-18 Ap-Je '63.

PROFOTKIN, F.N., otv. red.; KURKOVA, A.A., red.; KURKOVA, Ye.,
red.; KACHNICKIY, S.A., red.

Podstava: Institutia. Moskva, Izd-vo "Munka", 1974, 114 s.
(Ita: KACHNICKIY, S.A., red.; KURKOVA, A.A., red.; KURKOVA, Ye., red.)

1. Informatsionno-izdatel'skaya firma, Moskva, 1974

MAGNITSKIY, V.A.

Zonal melting as a mechanism for the generation of the earth's
crust. Izv. AN SSSR. Ser. geol. 29 no.11:3-8 N '64. (MIRA 17:12)

1. Institut fiziki Zemli AN SSSR, Moskva.

MAGNITSKIY, Vladimir Aleksandrovich; KUZ'MINA, N.N., ved. red.

[Internal structure and physics of the earth] Vnutrennee
stroenie i fizika Zemli. Moskva, Nedra, 1965. 378 p.
(MIRA 18:7)

L 22397-66 EWT(1) GN
ACC NR: AT6011139

SOURCE CODE: UR/3197/65/000/002/0047/0054

BT1

AUTHOR: Magnitskiy, V. A.

ORG: Institute of the Physics of the Earth (Institut fiziki Zemli)

TITLE: Physical nature of some types of vertical movements of the earth's crust

SOURCE: AN EstSSR. Institut fiziki i astronomii. Sovremennyye dvizheniya zemnoy kory. Recent crustal movements, no. 2, 1965, 47-54

TOPIC TAGS: geophysical conference, epeirogenic movement, crustal movement, crustal geophysics

ABSTRACT: Various characteristics noted in the rates, and changes in the rates, of vertical movements of the earth's crust are analyzed and evaluated. Theories advanced by the earth scientists of several nations are reviewed (relaxation theory, change in movement upward or downward with change in temperature and pressure during periods of sedimentation or erosion, and determination of the spectra of wave lengths of recent movements determined by repeated leveling). For the latter, harmonic analyses made by Soviet scientists of repeated leveling in the

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European USSR and Japan indicated that, even with limited data, typical wave-lengths could be identified. Other processes discussed were the process of magma melt development in the upper mantle which, over a period of 10^7 – 10^8 yr, was calculated as capable of producing mean rates of vertical movements of 0.01–0.001 cm/yr, and the process of transition from eclogites to basalts and vice versa (10^6 -yr process), capable of producing mean values for rate of movement of 0.1–1 cm/yr, making vertical movements in the 400–1000-m range possible. [ER]

SUB CODE: 08/ SUBM DATE: none/ ORIG REF: 008/ OTH REF: 003

Card 2/2 *dda*

MAGNITSKIY, V.P., inzh.

High-tensile wire bundles with H11-200 anchor bolts. Transp. stroi.
10 no.9:15-17 S '60. (MIRA 13:9)

(Girders)

MAGNITSKIY, Yu.A., inzh.

Investigating temperature systems and deformations in locomotive
fireboxes during servicing, forced operation, and cooling. Trudy
RIIZHT no.24:137-181 '58. (MIRA 11:9)
(Locomotives--Fireboxes)

MAGNITSKIY, Yu. A., Candidate Tech Sci (diss) -- "Temperature conditions and temperature deformations of a railroad firebox". Leningrad, 1959. 19 pp
(Min Transportation USSR, Leningrad Order of Lenin Inst of Railroad Transport Engineers im V. N. Obrastsov), 150 copies (KL, No 24, 1959, 138)

06196

SOV/115-59-11-74/76

24 (3)

AUTHOR: Magnitskiy, Yu.A.

TITLE: An Optical Method of Measuring the Deformation of Plane Walls

PERIODICAL: Izmeritel'naya tekhnika, 1959, Nr 11, pp 53-54

ABSTRACT: The author describes an optical noncontact method of measuring the deformation of thin walls by means of a theodolite. This method is used at the Rostovskiy institut inzhenerov zheleznodorozhnogo transporta (Rostov Institute of RR Transport Engineers) for measuring the temperature deformation of the plane stoker sidewalls of series L locomotives. After describing briefly the measuring arrangement (shown in a diagram) the author determines, the different errors possible with this method and their rating. There are 1 diagram and 1 table.

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MAGNITSKIY, Yu.A., inzh.

State of stress of the side walls of the locomotive firebox.
Vest.TSNII MPS 18 no.6:28-31 S '59. (MIRA 13:2)
(Locomotives--Fireboxes)

MA LKIN, S.A.; MAGNITSKIY, Yu.A.

Method of investigating the distribution of velocities and pressures
in a layer of grainy materials. Inzh.-fiz.zhur. no.5:96-99 My '60.
(MIRA 13:8)

1. Institut inzhenerov zheleznodorozhnogo transporta. Rostov-na-Donu.
(Granular materials)

MAGNITSKIY, Yu.A., inzh.

Effect of temperature drop between component parts of a boiler
drum on the stresses in it. Teploenergetika 7 no.3:48-51
Mr '60. (MIRA 13:6)

1. Rostovskiy instiut inzhenerov zheleznodorozhnogo transporta.
(Strains and stresses) (Boilers)

MAGNITSKIY, Yu.A.; KURKOV, M.F.

Projection method of analyzing indicator diagrams of the internal combustion engine. Avt.prom. no.9:28-30 S '61. (MIRA 14:9)

1. Rostovskiy-na-Donu institut inzhenerov zheleznodorozhnogo transporta.

(Indicators for gas and oil engines)
(Diesel engines--Testing)

MAGNITSKIY, Yu. A.

Using light filters in oscillographs. Izv. tekhn. fiziki (MIRA 1966)
(Light filters) (Oscillograph)

MAGNITSKIY, Yu.A.; KARMINSKIY, V.D.

Method for immediate measurement of mean indicated pressure in
the cylinder of a piston engine. Avt.prom. 29 no.10:6-8 0
'63. (MIRA 16:10)

1. Rostovskiy-na-Donu institut inzhenerov zheleznodorozhnogo
transporta.

MAGNITSKIY, Yu.A., kand. tekhn. nauk; BALIOZ, A.B., inzh.

Possibility for recording the processes taking place in an internal
combustion engine on color films. Trudy RIIZHT no.34:67-70 '61.
(MIRA 17:1)

MAGNITSKIY, Yu. A., kand. tekhn. nauk, dotsent

Plotting on a p. v. diagram the energy change in ideal gas processes. Izv. vys. ucheb. zav.; energ. 7 no.5:121-122 4y '64.
(MIRA 17:7)

1. Rostovskiy institut inzhenerov zheleznodorozhnogo transporta.
Predstavlena kafedroy teoreticheskikh osnov teplotekhniki.