

CHERDASSKIY, A.Kh., kand.tekhn.nauk

Semiconductor thermoelectric generators. Mekh. i elek. sots.
sel'khoz. 16 no.4:54-55 '58. (MIRA 11:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut elektrifikatsii
sel'skogo khozyaystva.
(Electric batteries)

BELEVTSEV, Ya.N.; FOMENKO, V.Yu.; NOTAROV, V.D.; MOLYAVKO, G.I.; MEL'NIK, Yu.P.; SIROSHTAN, R.I.; DOVGAN', M.N.; CHERNOVSKIY, M.I.; SHCHERBAKOVA, K.F.; ZAGORUYKO, L.G.; GOBOSHNIKOV, B.I.; AKIMENKO, N.M.; SEMERGEYEVA, Ye.A.; KUCHER, V.N.; TAKHTUYEV, G.V.; KALYAYEV, G.I.; ZARUBA, V.M.; NAZAROV, P.P.; MAKSIMOVICH, V.L.; STRUYEVA, G.M.; KARSHENBAUM, A.P.; SKARZHINSKAYA, T.A.; CHEREDNICHENKO, A.I.; GERSHOYG, Yu.G.; PITADE, A.A.; RADUTSKAYA, P.D.; SHILKINSKIY, S.I.; KAZAK, V.M.; KACHAN, V.G.; STRYGIN, A.I., red.; LADIYEVA, V.D., red.; ZHUKOV, G.V., red.; YEPATKO, Yu.M., red.; SHCHERBAKOV, B.D., red.; SLENZAK, O.I., red. izd-va; RAKHLINA, N.P., tekhn. red.

[Geology of Krivoy Rog iron-ore deposits] Geologiya Krivorozhskikh zhelezorudnykh mestorozhdenii. Kiev, Izd-vo Akad. nauk USSR. Vol.1. [General problems in the geology of the Krivoy Rog Basin. Geology and iron ores of the deposits of the "Ingulets," Rakhmanovo, and Il'ich Mines] Obshchie voprosy geologii Krivbassa. Geologicheskoe stroenie i zheleznye rudy mestorozhdenii rudnikov "Ingulets," Rakhmanovskogo i im. Il'icha. 1962. 479 p. (Krivoy Rog Basin--Mining geology) (MIRA 16:3) (Krivoy Rog Basin--Iron ores)

CHERDOVSKIKH, P.P., inzh.

Study of the distribution of electrical current in the tub of an electric-arc steel smelting furnace by means of metal models. Izv. vys. ucheb. zav.; energ. 5 no.6:60-69 Je '62. (MIRA 15:6)

1. Kuybyshevskiy industrial'nyy institut imeni V.V.Kuybysheva.
Predstavlena kafedroy teoreticheskoy i obshchey elektrotekhniki.
(Electric furnaces)

CHEKOVSKIKH, P. P., inzh.

Study of the distribution of electric current in a three-phase
ore smelting furnace using models. Izv vys ucheb zav; energ
7 no. 1:46-53 Ja '64. (MIRA 17:5)

1. Kuybyshevskiy politekhnicheskiy institut imeni V. V.
Kuybysheva. Predstavlena kafedroy teoreticheskoy i obshchey
elektrotekhniki.

CHERDOVSKIKH, Petr Prokof'yevich, ispolnyayushchiy obyazannosti dotsenta

Determination of partial currents in a three-phase rectangular
ore smelting furnace using a model. Izv. vys. ucheb. zav.; elektro-
mekh. 7 no.2:139-145 '64. (MIRA 17:4)

1. Kafedra teoreticheskoy i obsnchey elektrotehniki Kuybyshevskogo
politekhnicheskogo instituta.

CHERDYNTSEV, D. V.

③ 4

Making expanded slag in a centrifuge. J. D. Rozovskii,
A. I. Mishuris, and D. V. Cherdvntsev. *Stroitel. Prom.*
32, No. 5, 36-8 (1954). Blast-furnace slag was expanded in
a four-stage centrifugal disintegrator (described), in which
molten slag at not less than 1350° was simultaneously mixed
with water and mechanically disintegrated, the final prod-
uct being discharged in chunks. Blades of the machine
fail by oxidation and their life is increased by the use of heat-
resistant steels. The percentage of water added is impor-
tant; best results were obtained with 150-350 l. per ton of
slag. Hotter slags produce a more porous and lighter ma-
terial. It results in about 14% of fines on crushing and is
well suited for concrete making. J. D. Gat

ACC NR: AP6031523

SOURCE CODE: UR/0292/66/000/009/0035/0037

AUTHOR: Birfel'd, A. G. (Engineer); Vasil'yeva, N. P. (Candidate of technical sciences); Pisarev, A. L. (Candidate of technical sciences); Cherdyntsev, G. A. (Engineer)

ORG: none

TITLE: Magnetic logic elements and devices in contactless control systems

SOURCE: Elektrotehnika, no. 9, 1966, 35-37

TOPIC TAGS: magnetic circuit, logic circuit, *transistorized amplifier, electronic circuit/ELM-400 logic circuit*

ABSTRACT: The Kalininskiy Electric Apparatus Factory has begun producing the new ELM-400 series of magnetic logic elements. The plug-in encapsulated modules (55 x 22 x 32 mm) were designed to operate at 400 cps using two-phase power in an environment with an ambient temperature range from -35 to +50 C and relative humidity up to 98%. The line includes: 1) an inverter (ELM-400-IN) which may realize the NOT or OR functions depending on the connections used (its fan-out is 6); 2) a signed repeater (ELM-400-P) which shifts the signal by one half period but leaves it logically intact (fan-out is 6); 3) an input transformer coupling circuit (ELM-400-VI); and 4) an input inverter coupling circuit (ELM-400-VIN). The ELM-400 line complements the LT general industrial application series. A special 1-kv power inverter feeds the 400-cps contactless logic elements from a 50-cps power source. The factory also

Card 1/2

ACC NR: AP6031523

produces 50-cps magnetic amplifiers capable of delivering up to 550 va to actuating mechanisms and 400-cps amplifiers with maximum output power of 90 w. Transistorized power amplifiers (90 w maximum) are also manufactured, as are thyristor circuits which may control high-power systems such as 3-phase 10 kw/380 v induction motors. Orig. art. has: 6 figures. [WA-81]

SUB CODE: 09/ SUBM DATE: none

Card 2/2

ZUBKOV, A.A.; STEPANOV, B.A.; CHERDYNTSEV, I.Ye.

Draining of copper cement concentrates. Izv. AN Uz. SSR. Ser.
tekh. nauk 8 no.5:75-77 '64. (MIRA 18:2)

1. Sredneaziatskiy filial Gosudarstvennogo nauchno-issledovatel'-
skogo instituta tsvetnykh metallov.

GLAZKOV, Ye.N.; KUZ'MINA, R.N.; CHAZOVA, L.A.; CHERDYNTSEV, I. Ye.

Combined systems for dressing copper-bismuth ores of Central
Asia. Izv. AN Uz. SSR. Ser. tekhn. nauk 9 no. 6:40-43 '65
(MIRA 19:1)

1. Sredazniprotsvetmet. Submitted May 20, 1965.

CHERDYNTSEV, S. G., Cand Biol Sci (diss) -- "The tonus of the cerebral hemispheres and the activity of the thyroid gland of rabbits". Tomsk, 1959.

12 pp (Tomsk State Med Inst) (KL, No 11, 1960, 131)

PUGACHEV, A.G.; CHERDINTSEV, S.G.

Effect of conditioned reflex activity on the function of the
thyroid gland in normal and diseased rabbits. Uch. zap. TGPI
20:15-25 '61. (MIRA 15:7)
(Thyroid gland) (Conditioned response)

CHERYNTSEV, S.G. (Tomsk)

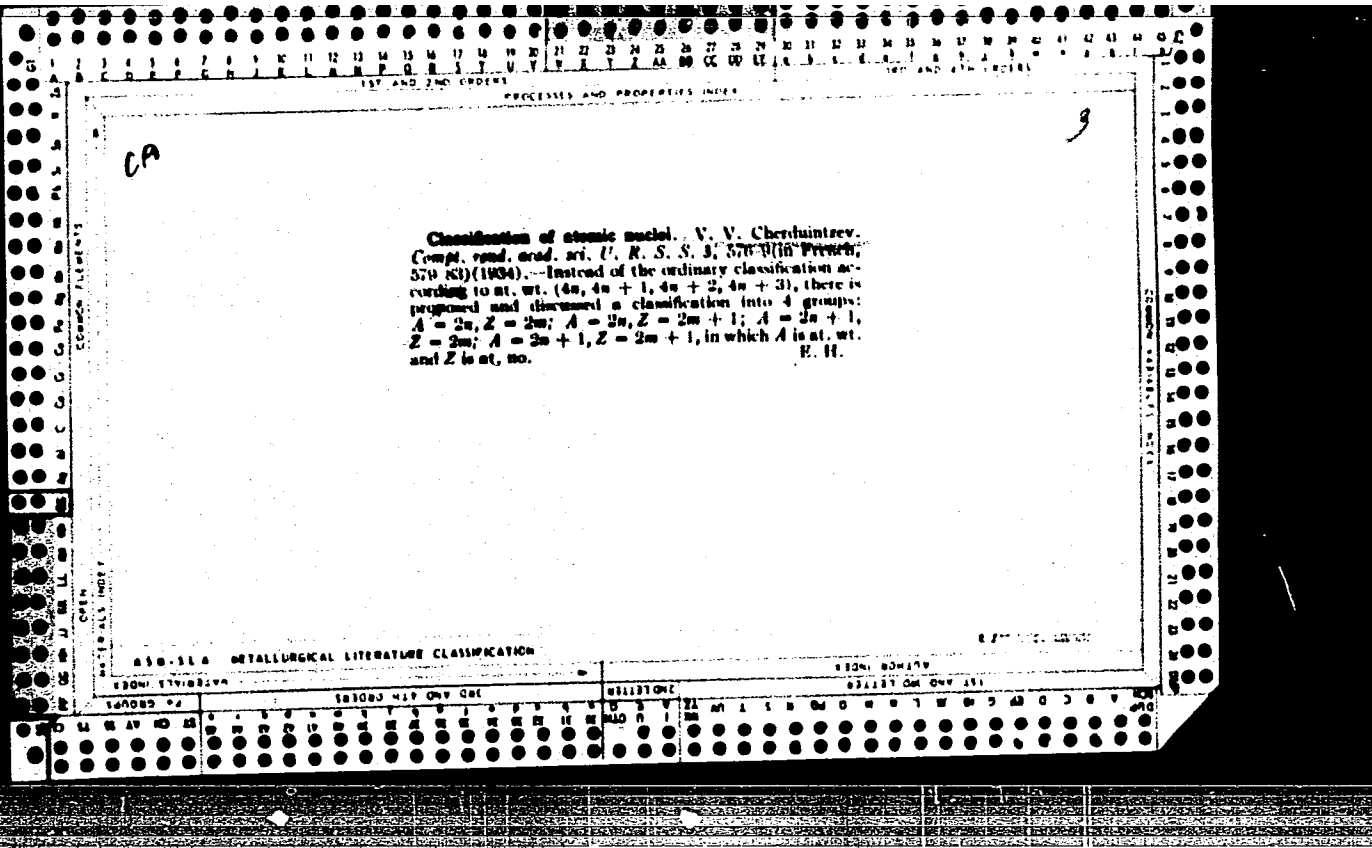
Mechanism of the functional connection between the thymus gland
and the thyroid gland. 14a Probl.endok. i gorm. 8 no.2:30-35
Minsk'62. (MIRA 16:7)

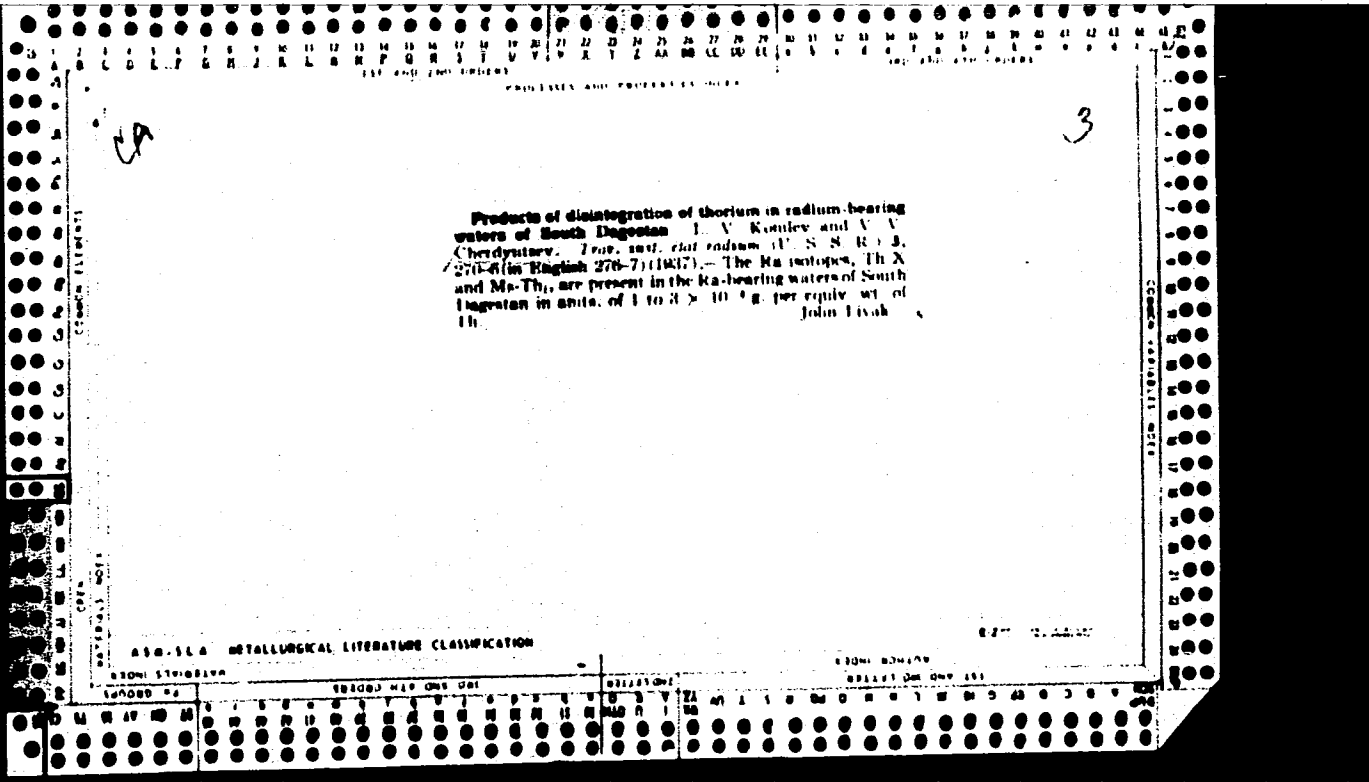
1. Iz kafedry anatomii i fiziologii (zav.-dotsent A.G.Pugachev)
Tomskogo gosudarstvennogo pedagogicheskogo instituta.
(THYMUS GLAND) (THYROID GLAND)

CHERDINTSEV, S.G., kand. biolog. nauk (Tomsk)

Mechanism of the effect of aminazine on the thyroid gland.
Probl. endok. i gorm. 9 no.5:35-39 S-0'63 (MIRA 16:12)

1. Iz kafedry anatomii i fiziologii Tomskogo pedagogicheskogo instituta.





LIST AND 2ND ORDER PROCESSES AND PROPERTIES INDEX 1ST AND 3RD ORDER

3

The contents of radioactive elements of the thorium group in the waters of the oil fields of the Turkmen S. S. R.
V. V. Cherdynarev and A. A. Popov. Izv. Akad. Nauk SSSR Ser. Khim. Nauk 1987, 11, 270-271 (in English 28-31, 1987)

An investigation of the oil fields in the Turkmen S. S. R. in disintegration products of Th reveals that Th X is present in the amt. of $5.1 \times 10^{-10}\%$ and Ac-Th in amts. up to $2.1 \times 10^{-10}\%$. In the vast majority of cases Ra-Th was absent and in only two cases was it present in amts. of 20.6 and $7.7 \times 10^{-10}\%$. John Livak

A10-11A METALLURGICAL LITERATURE CLASSIFICATION

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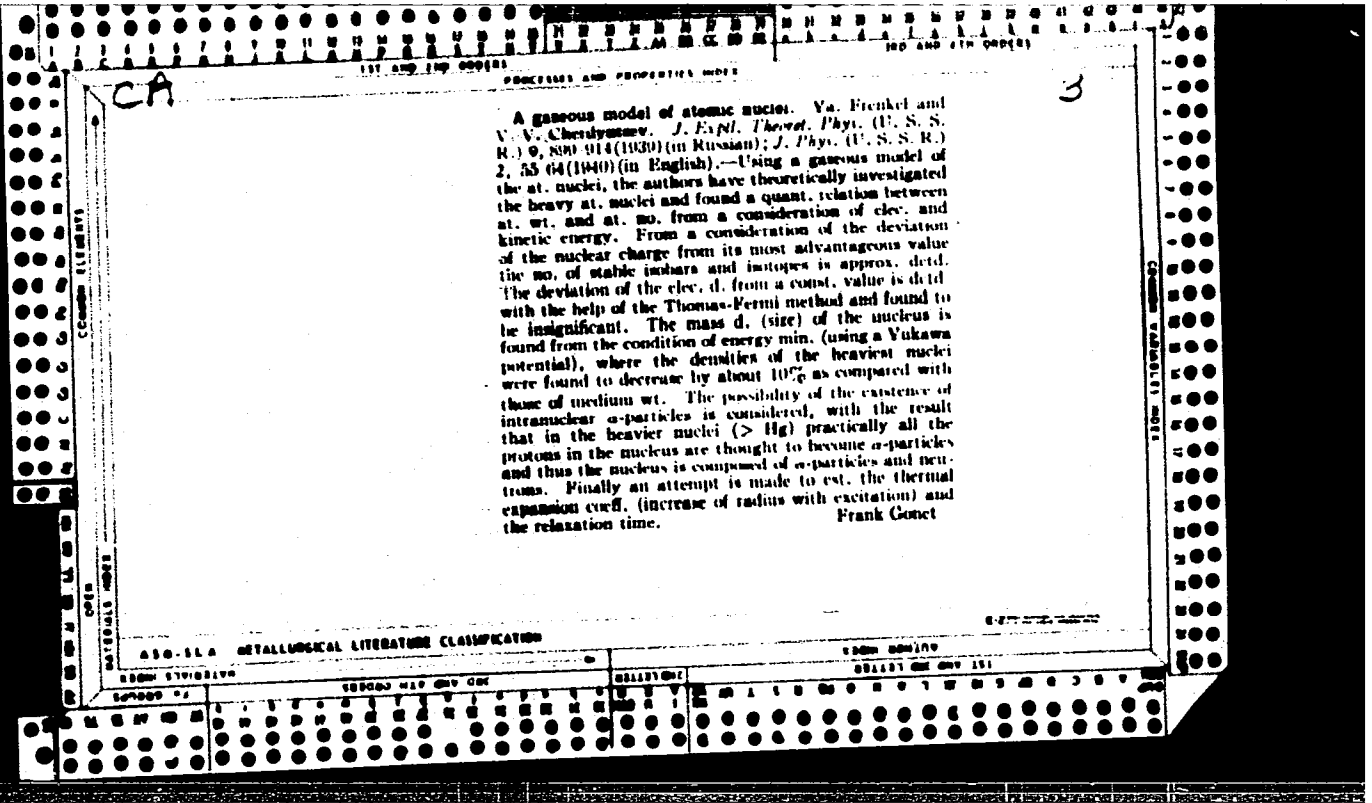
PROCESSES AND PROPERTIES

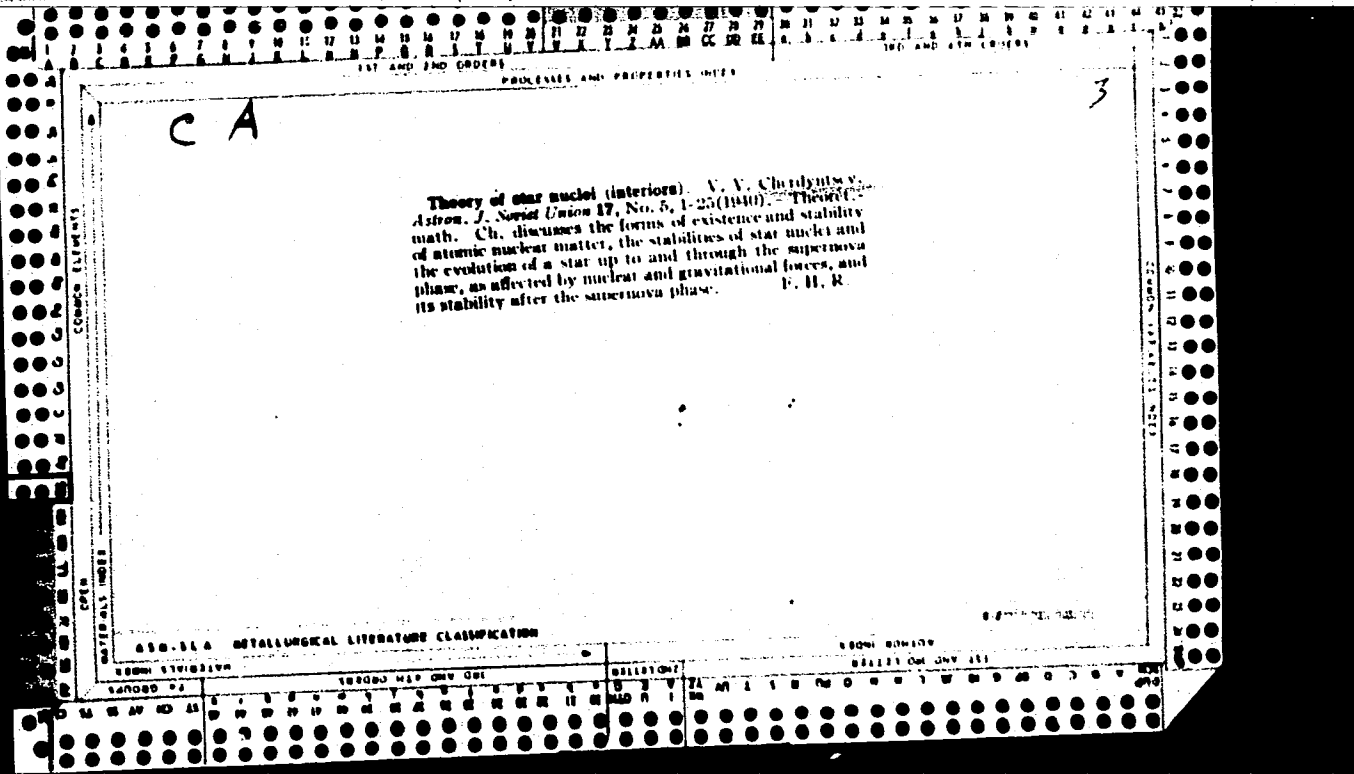
CA

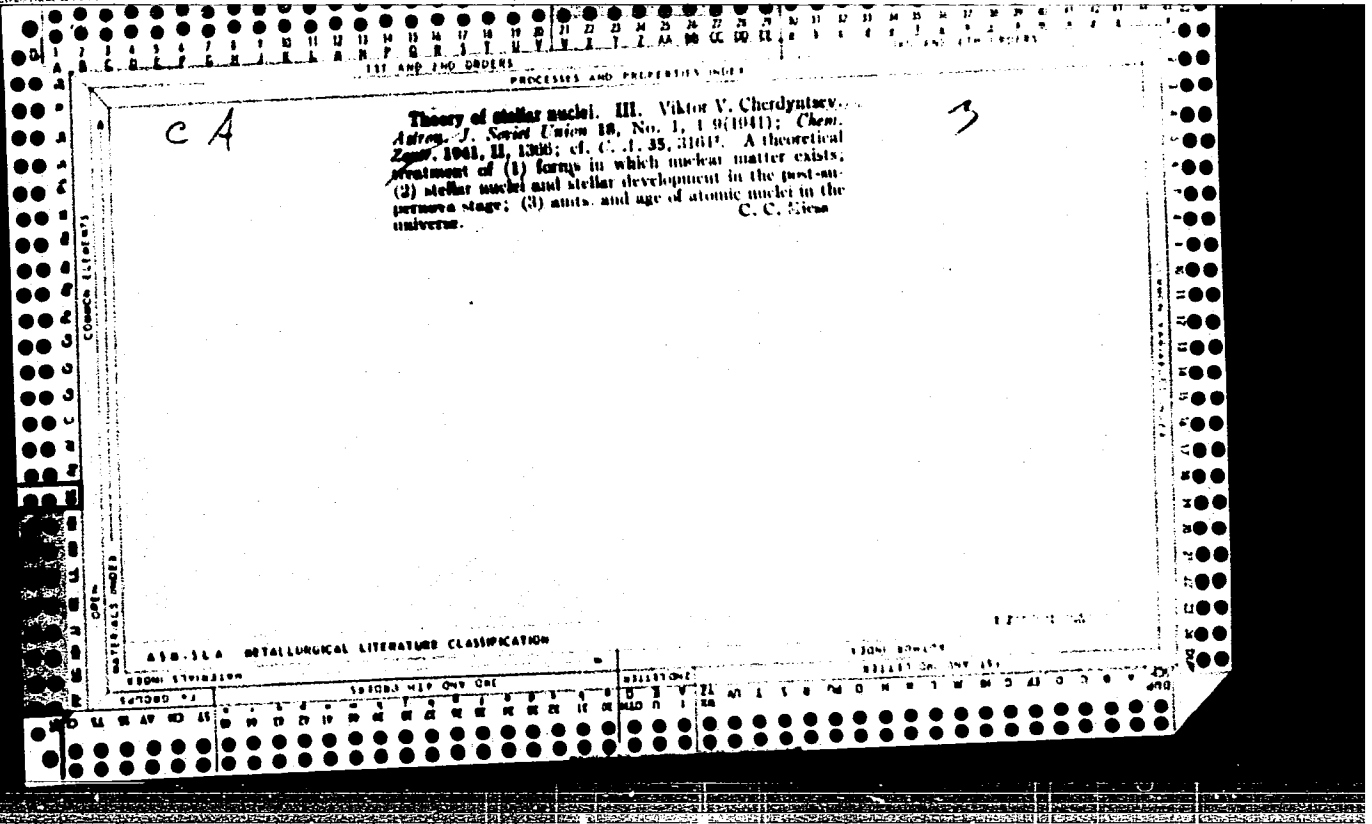
3

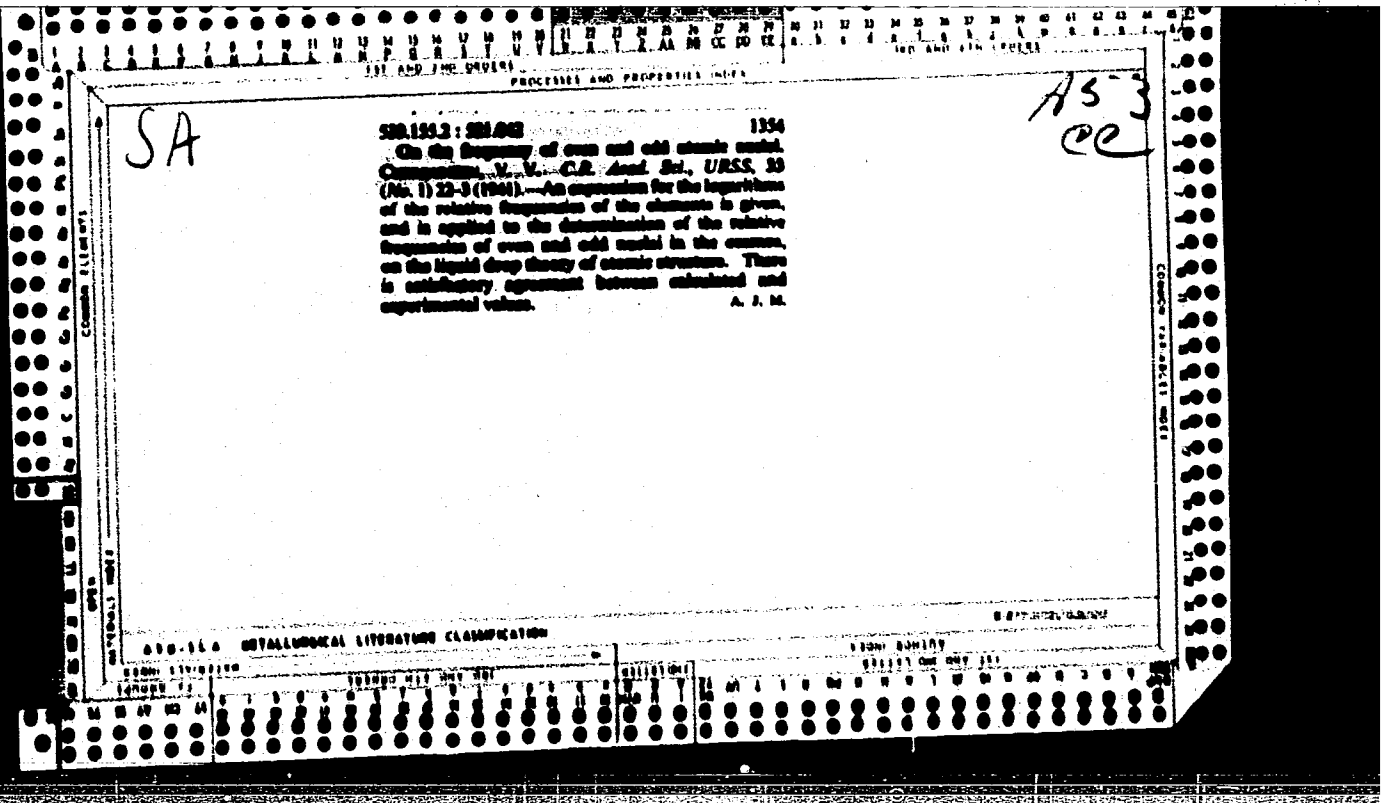
"Free competition" of nuclear processes. V. V. Cherdynaryev. *J. Exptl. Theoret. Phys. (U. S. S. R.)* 8, 1234-40(1938).—Using Planck's model of nuclear disintegration as evapn. of particles from the solid surface, Ch. develops a thermodynamic theory of free competition between various nuclear processes. The relative probabilities of the sep. processes and the widths of the energy levels agree with those experimentally found by Rutherford, Lewis and Bowden (*C. A.* 28, 36²) for Ra, Ag, Cd, Rh, Mn and P without the introduction of any arbitrary consts. Theory of complex multiple nuclear transformations. *Ibid.* 1241-4.—Theoretical-mathematical. The occurrence of successive secondary disintegration processes does not alter the values of the probability of the primary disintegration process or of the resonance scattering in the Breit and Wigner theory. F. H. Rathmann

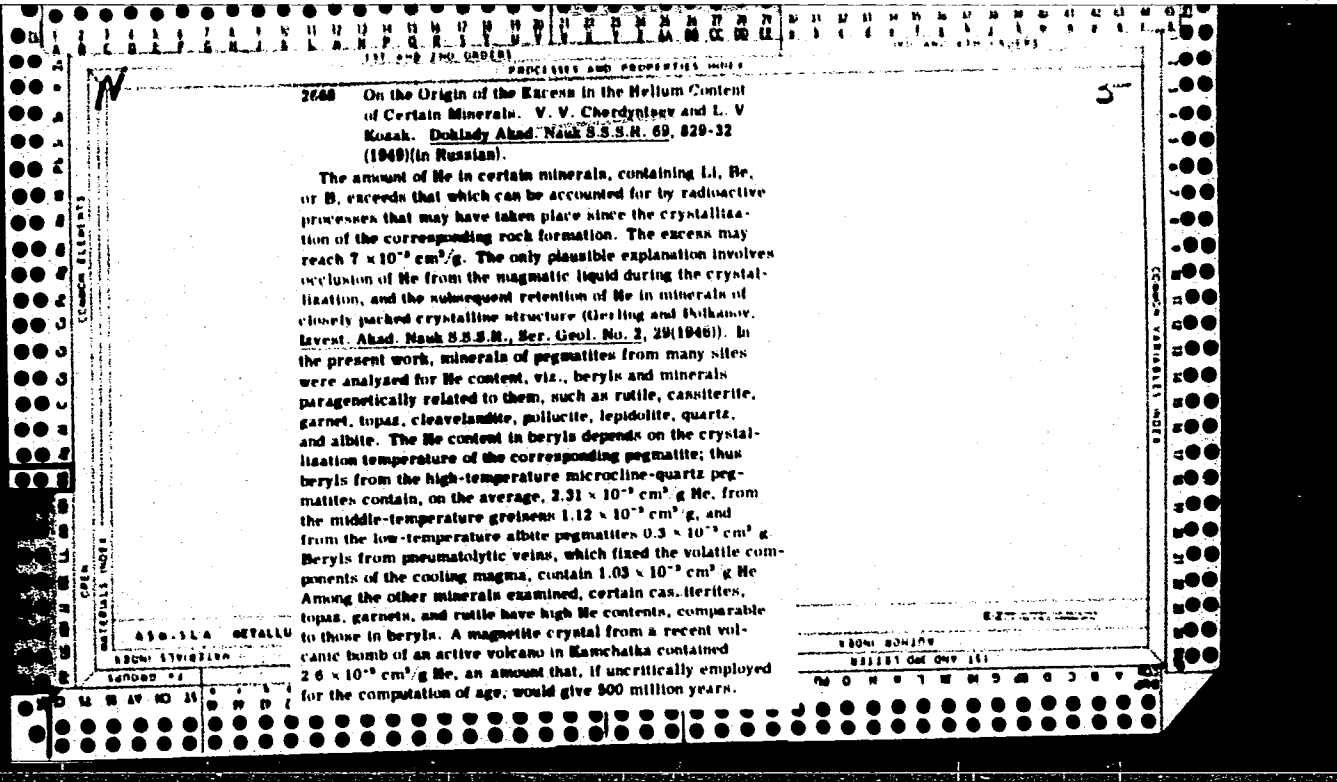
ASB S.L.A. METALLURGICAL LITERATURE CLASSIFICATION











CHERDYNTSEV, V.V.

STARIK, I.Ye., redaktor; SHCHERBAKOV, D.I., akademik, redaktor; VINOGRADOV, A.P., akademik, redaktor; POLKANOVA, A.A., akademik, redaktor; SHATSKIY, N.S., akademik, redaktor; BARANOV, V.I., professor, redaktor; PEKARSKAYA, T.B., kandidat geologo-mineralogicheskikh nauk, redaktor; CHERDYNTSEV, V.V., redaktor; POLYAKOVA, T.V., tekhnicheskij redaktor.

[Transactions of the third session of the Committee for Determining the Absolute Age of Geological Formations, March 25-27, 1954] Trudy tret'ei sessii, 25-27 marta 1954. g. Moskva, 1955. 260 p. [Microfilm] (MLRA 9:1)

1. Akademiya nauk SSSR. Komissiya po opredelniya absolyutnogo vozrasta geologicheskikh formatsii. 2. Chlen-korrespondent AN SSSR (for Starik). (Geological time)

CHERDYNTSEV, V. V.

17
 Emanation in minerals and the determination of absolute geological age. N. D. Kostin and V. V. Cherdynstev. *Dokl. Akad. Nauk S.S.S.R.* 1955, No. 1, 23-8. — A working equality between the emanation coeffs. of Ac (K_{Ac}) and Rn (K_{Rn}) was established for the majority of primary minerals (monazite, uraninite, samarskite, and tantalite). For the secondary minerals (petrified bones) $K_{Rn} > K_{Ac}$. The emanation coeff. of thoron (K_{Th}) was not equal to the K_{Rn} and was often $> K_{Rn}$. With an increase in temp. from 20 to 1000° the emanation coeffs. and the ratio K_{Rn}/K_{Th} increased. This is probably related to the greater diffusion rate of Rn in the minerals. The coeffs. decreased sharply after annealing, probably because of disturbances in the cryst. lattice. Because of the fact that Rn was emanating faster than Ac at higher temps., the method of Wickman (C.A. 38, 4220) for the calcn. of emanation coeffs. on the basis of the ratio of Pb isotopes may give lower results.

A. P. Kotloby

RW
JPC

2
3

15-57-8-11528

Translation from: Referativnyy zhurnal, Geologiya, 1957, Nr 8,
p 206 (USSR)

AUTHORS: Cherdyntsev, V. V., Meshkov, V. I.

TITLE: Variations of the Neutron Flow at the Earth's Surface
(O Kolebaniyakh neytronnogo potoka u zemnoy poverkh-
nosti)

PERIODICAL: Byul. Komis. po opredeleniyu absolyut. vozrasta geol.
formatsiy AN SSSR, 1955, Nr 1, pp 61-63.

ABSTRACT: The authors give a comparison of the intensity of the
neutron flow at some points of the earth's surface in
the high mountain area of Kazakhstan. The data reveal
a considerable variation of the density of the neutron
flow depending on geological conditions. The maximum
measured density was $3 \cdot 10^3$ neutrons $\text{cm}^{-2} \cdot \text{day}^{-1}$.

Card 1/1

no name

CHERDIA/204/11

19 19
 Determination of isotopic composition of uranium in stone
 meteorite Staroe Pes'yanoe. I. I. Simonov, V. V. Cher-
~~novskii, G. G. Taneyva, and A. P. Kotioby~~
 Komitetu Obščedelen. Absolutn. Formazul.
 Izvad. Nauk S.S.S.R. 1955. N. 1. The α and β
 activities of meteorite, compared with those of terrestrial
 U, were found to be, resp. $\alpha, 171.4 \pm 1.5, \beta, 44.2 \pm 0.9$ disintegrations per
 gram per second. A. P. Kotioby

11/1

RNF mt

CHERDYNTSEV, Viktor Viktorovich; GRIGOROVA, V.A., redaktor; MURASHOVA, N.Ya.,
tekhnicheskiy redaktor

[Distribution of chemical elements] Rasprostranennost' khimicheskikh
elementov. Moskva, Gos. izd-vo tekhniko-teoret. lit-ry, 1956. 360 p.
(Geochemistry) (Chemistry) (MLRA 9:10)

Cherdyntsev, V. V.,

USSR/ Geology - Geochemistry

Card 1/1 Pub. 22 - 36/54

Authors : Cherdyntsev, V. V., and Abdulgafarov, K. K.

Title : Helium content in certain stony meteorites

Periodical : Dok. AN SSSR 106/2, Jan 11, 1956

Abstract : Stony meteorites belonging to the collection of the Committee of Meteorites at the Academy of Sciences, USSR were investigated to determine their helium content. An unusually high helium content was discovered in the Staroye Pes'yanoye achondrite of the Hovardite type. The origin of the helium in the stony meteorite is explained. Other meteorites of the collection showed a very low helium content. Eleven references: 3 USSR, 2 USA and 6 Germ. (1930-1953). Table.

Institution : Kazakh State University im. S. M. Kirov

Presented by: Academician V. G. Fesenkov, March 31, 1955

CHERDYNTSEV, V.V.

STARIK, I.Ye., otvetstvennyy red.; SHCHERBAKOV, D.I., akademik, red.;
BARANOV, V.I., prof., red.; SHATSKIY, N.S., akademik, red.;
POLKANOV, A.A., akademik, red.; VINOGRADOV, A.P., akademik, red.;
AFANAS'YEV, G.D., red.; GERLING, B.K. prof., red.; PEKARSKAYA,
T.B., kand.geol.-min.nauk, red.; TUGARINOV, A.I., red.;
CHERDYNTSEV, V.V., red.; POLYAKOVA, T.V., tekhn.red.

[Proceedings of the fourth session of the Commission for the
Determination of the Absolute Age of Geological Formations,
May 12-14, 1956] Trudy chetvertoi sessii Komissii po opredeleniyu
absolyutnogo vozrasta geologicheskikh formatsii; 12-14 maia 1955 g.
Moskva, 1957. 297 p. (MIRA 11:1)

1. Akademiya nauk SSSR. Komissiya po opredeleniyu absolyutnogo
vozrasta geologicheskikh formatsiy. 2. Chlen-korrespondent
AN SSSR (for Starik, Afanas'yev).
(Geology, Stratigraphic)

CHERDYNTSEV, F.V.

Stability of universal world constants. *Biul.Kon.po opr.abs.vozr.*
geol.forn. no.2:35-37 '57. (MIRA 10:4)

1. *Kazakhskiy gosudarstvennyy universitet.*
(Geological time) (Radioisotopes—Decay)

15-1957-10-14194

Translation from: Referativnyy zhurnal, Geologiya, 1957, Nr 10,
p 133 (USSR)

AUTHORS: Cherdyntsev, V. V., Shmonin, L. I., Strashnikov, N. S.,
Asanova, O. L.

TITLE: Investigation of the Actinium-Radium Ratio in Minerals
(Issledovaniye aktiniy-radiyevogo otnosheniya v mineralakh)

PERIODICAL: Byul. Komis. po opredeleniyu absolyutn. vozrasta geol.
formatsiy. AN SSSR, 1957, Nr 2, pp 41-65

ABSTRACT: Tests were made on the constancy of the ratio of activity between the uranium and the actinium series in a large number of minerals. Data were also obtained on the ability of some products of the actinium series to migrate under natural conditions. In the test for Ac/Ra in the primary minerals--various oxides, aluminum silicates, titanates, zirconates, niobate-tantalates, phosphates, tungstates, and asphaltites--it was shown that the ratio in these minerals is normal. In secondary minerals, Ac/Ra may deviate markedly from the normal.

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15-1957-10-14194

Investigation of the Actinium-Radium Ratio in Minerals

This deviation is explained by the complex processes of migration of the radioactive elements. For the majority of secondary minerals, it was observed that $Ac/Ra \approx 1$. It is possible that this value is, in many cases, due to the accumulation of the radioactive elements of the parent rocks. In many secondary minerals in the zone of oxidation, Ac/Ra is controlled by the migration of Ac and Ra. In some cases $Ac/Ra \approx 1$. This relationship may occur only if the decay products of U migrate. Spring deposits show a very large fluctuation of Ac/Ra (0.03-17). In some primary minerals $Ac/Ra \approx 1$, although the age of the minerals is known to be older than needed to establish equilibrium in the uranium series and between uranium and actinium. Such minerals are said to be anomalous. The majority of the anomalous minerals studied are only weakly active, their content of radioactive elements being below the average for the earth's crust. An anomalously high Ac/Ra occurs in many primary minerals, chiefly of hydrothermal origin. The largest anomalies ratio is found in minerals which, to the eye, are well preserved, and it is also found in many minerals that are stable in the zone of oxidation.

Card 2/3

15-1957-10-14194

Investigation of the Actinium-Radium Ratio in Minerals

Secondary alteration of minerals in the zone of oxidation does not produce an increase but more commonly a decrease in the anomalous value. The anomaly coefficient, on the average, increases in weakly active mineral varieties. The cause is anomalies in primary minerals is essentially different from the increase in Ac/Ra that occurs in young secondary minerals. These anomalies are explained both by the more rapid accumulation of Ac than Ra in young uranium minerals and by the ability of Ra to migrate. Anomalous minerals encountered in geochemical associations do not display enrichment in the radioactive elements. The authors have shown that it is possible to determine the age of young minerals by the ratio of Ac to Ra.

Card 3/3

K. N. Ryabicheva

CHERDYNTSEV, V. V.
USSR/Physica Chemistry - Some Questions Concerning
Subatomic Structure of Matter.

B-2

Abs Jour : Referat Zhur - Khimiya, No 1, 1958, 35.
Author : V.V. Cherdyntsev.
Inst : Radium Institute, Academy of Sciences of USSR.
Title : Fission and Stability of Heavy Atom Nuclei.
Orig Pub : Tr. Radiyev. in-ta. AN SSSR, 1957, 5, No 2, 21-30
Abstract : No abstract.

Card 1/1

CHERDYNTSEV, V.V.

Determination of thoron in the air trapped in the soil. Trudy
Radiy. inst. AN SSSR 6:34-40 '57. (MIRA 11:2)
(Thoron) (Radioactivity--Measurements) (Soil research)

CHERDYNTSEV, V.V.

21(8) p-4 PHASE I BOOK EXPLOITATION SOV/1316

Akademiya nauk Kazakhskoy SSR. Institut yadernoy fiziki

Trudy, t. 1 (Transactions of the Institute of Nuclear Physics, Kazakh SSR Academy of Sciences. v.1) Alma-Ata, Izd-vo AN Kazakhskoy SSR, 1958. 2,000 copies printed.

Ed.: Osadchiy, F. Ya.; Tech. Ed.: Alferova, P.F.; Editorial Board of Series: Griman, I.G., I.G. Dem'yanikov (resp. ed.), T.P. Diogenova, and S.K. Kalinin.

PURPOSE: This volume of the "Trudy" is intended for specialists (Physicists, physicochemists, physicist-metallurgists, etc.), scientists, engineers, teachers, and postgraduate students (aspiranty).

Coverage: This volume of the "Trudy" contains results of research performed at the "Institut yadernoy fiziki" (Institute of Nuclear Physics) in the years 1954-1956. The first article is concerned with the interaction of cosmic-ray particles with nuclei of

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Transactions of the Institute (Cont.)

SOV/1316

various substances, and with the nature of secondary particles. Particular attention is given to the generation of mesons in showers. The next article discusses the motion of charged particles from the point of view of the general theory of relativity. A series of articles presents the problems of changes in the plasticity, strength, and hardness of alloys at various temperatures in relation to their chemical and phase compositions. Data are given on the properties of alloys during crystallization with reference to hot-shortness. Separate problems of the theory of shaping are also included. Spectrum analysis is discussed as applied to the study of arc performance and to the determination of rare earth elements in minerals. The text also describes quantitative x-ray spectrum analysis based on the various spectrum series.

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Transactions of the Institute (Cont.) SOV/1316

Novikov, I.I., and L. I. Dautova. Study of the Equilibrium Diagram of the System: Copper - Nickel - Silicon 274

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AVAILABLE: Library of Congress

Card 6/6

TM/rj
4-6-59

CHERDYNTSEV, V. V.

Cherdyntsev, V. V., Koshkarova, L. L., Ostanenko, V. F. - The Examination of the Neutron Flow of the Earth's Crust.

The Sixth Session of the Committee for Determining the Absolute Age of Geologic Formations at the Department of Geologic-Geographical Sciences (OGGN) of the USSR Academy of Sciences at Sverdlovsk in May 1957

Izv. Ak Nauk SSSR, Ser. Geol., No. 1, 1958, p. 115-117 author Pekarskaya, T. B.

80310

SOV/81-59-7-23070

5.5500

Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 7, pp 144 - 145
(USSR)

AUTHORS: Shmonin, L.I., Cherdvntsev, V.V., Tartakovskiy, D.I.

TITLE: The Determination of Boron Content by Means of Irradiation With Slow Neutrons 19

PERIODICAL: Uch. zap. Kazakhsk. un-ta, 1957, Vol 30, pp 7 - 11

ABSTRACT: A method was described for determination of B based on its raised ability (in comparison with other elements by a factor of some hundred) to absorb slow neutrons with the emission of α -particles and Li^7 nuclei according to the reaction: $\text{B}^{10} + n = \text{He}^4 + \text{Li}^7$, the quantity of which is practically proportional to the B content in the analyzed sample. A layer (3 - 5 mg/cm^2) of the finely-ground material to be analyzed is irradiated by neutrons from a Ra-Be-source (~ 0.15 Curie) moderated in a block of paraffin 7 cm thick, and the number of α -particles and Li^7 nuclei which are emitted by the sample in a time unit, is measured by means of a counter installation with a pulse ionization chamber. The content

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80310

SOV/81-59-7-23070

The Determination of Boron Content by Means of Irradiation With Slow Neutrons

of B is found from a calibration graph plotted with the application of standards made of CaCO_3 with additions of determined quantities of H_3BO_3 . In the case of a proper radioactivity of the analyzed samples exceeding 0.5 pulses per min, an allowance is made for the counting rate without irradiation by neutrons. The mean error of B determination at a content of $\geq 1\%$ is $\pm 10\%$; the determination lasts ~ 0.5 hour. In the case of a decrease of the B content to 0.1% , the mean error rises to $\pm 30\%$ and the determination takes several hours. ✓

A. Nemodruk

Card 2/2

CHERDYNTSEV, V.V.; SUYAROVA, O.V.

Investigation of the earth's neutron flux. Trudy Inst. iad. fis.
AN Kazakh. SSR 1:166-171 '58. (MIRA 12:2)
(Neutrons)

~~CHEMISTOV, V.V.~~

Isolating radionuclides and their desintegration products from natural
formations. Biul.Kom. po opr.abe.vozr.geol.form. no.3:6²-64 '58.

(MIRA 12:11)

(Radioactive substances)

CHERDYNTSEV, V.V.

AUTHORS: Naydenov, B.M., Cherdyntsev, V.V. 11-58-5-4/16

TITLE: Change in the Isotopic Lead Composition During the Precipitation of Natural Minerals (Izmeneniye izotopnogo sostava svintsa pri vydelenii iz prirodnykh mineralov)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Geologicheskaya, 1958, Nr 5, pp 40-49 (USSR)

ABSTRACT: The authors studied the possibility of changes in the relation between the radioactive and the resistant lead isotopes during the transition of this element into liquid solutions of natural minerals. Three resistant isotopes of lead are the final product of the disintegration of the radioactive series, and the correlation of the lead isotopes is important for determining the absolute age of geologic formations. The lead method is the most reliable for this purpose, although it often gives different results in the calculation of the geologic age on the basis of the correlation of different isotopes. Latest research has been concerned with determining the age of secondary minerals which - during their formation - trapped the lead from primary radio-active minerals. Based on the study of the isotopic composition of the lead, they do not take into

Card 1/3

11-58-5-4/16

Change in the Isotopic Lead Composition During the Precipitation of Natural Minerals

consideration the possibility of the variation of this composition during the isolation of the lead from the minerals. The authors studied the variation of the relative content of radioactive isotopes of the lead as follows: the product of uranium desintegration - RaD and the product of the thorium desintegration - ThB during their isolation from natural minerals, that is the specific activity of RaD/Pb and ThB/Pb, where Pb is the total lead of the mineral. The authors describe in details their procedure and calculations and come to the following conclusions: 1) the ore lead is able to isolate from primary minerals in a larger quantity than its radiogenous and radio-active isotopes; 2) RaD is extracted from the uraninite in a larger degree than the radiogenous resistant lead isotopes; 3) ThB is lixiviated more than RaD 4) due to the degree of capacity of transition into a liquid phase from primary minerals, the following series of isotopes is set: Ore lead and ThB > RaD > radiogenous Pb; 5) Pb is found in lesser quantities in comparison with radioactive elements in most minerals.

Card 2/3

11-58-5-4/16

Change in the Isotopic Lead Composition During the Precipitation of
Natural Minerals

There are 4 tables, 2 figures, and 9 references, 5 of which
are Soviet, 1 German and 3 American.

ASSOCIATION: Alma-Atinskiy gosudarstvennyy universitet (The Alma-Ata
State University)

SUBMITTED: 19 December 1956

AVAILABLE: Library of Congress

Card 3/3 1. Geology 2. Minerals-Development 3. Lead isotopes-Effects

3(8), 21(8)

AUTHORS:

Kashkarov, L. L., Cherdyntsev, V. V.

SOV/7-58-7-5/13

TITLE:

Neutron Radiation ~~of Minerals and the~~ Formation of He²¹⁴
in the Earth Atmosphere (Neytroye izlucheniye
mineralov i proiskhozhdeniye ~~He²¹⁴~~ v zemnoy atmosfere)

PERIODICAL:

Geokhimiya, 1958, Nr 7, pp 632 - 641 (USSR)

ABSTRACT:

A ring system of 10 neutron counters (1804-8 was used for determination; the device (1804-8) served as amplifier and recording instrument. The bottom was lowered as much as possible by a paraffin embedment and a case consisting of a cadmium foil and lead. 10 samples of uranium and 11 samples of thorium minerals were examined (Table 1), furthermore mixtures of minerals with beryl, fluorite, Al₂O₃, MgO, SiO₂, and BaSO₄ (Table 2). In the case of ferrithorites the medium neutron yield is 0.9 - 0.2 neutrons per 10⁶ alpha particles, in the case of uraninites 0.39-0.05 neutrons to 10⁶ alpha particles. About 40% of the neutrons from uranium minerals originate from

Card 1/3

Neutron Radiation of Minerals and the Formation of ~~Ne²¹~~ SOV/7-58-7-3/13
in the Earth Atmosphere

spontaneous fission. The remaining neutrons originate mainly from the reaction $O^{16}(\alpha, n)Ne^{21}$. In ferrithorites the neutrons are formed mostly according to the following process: $F^{19}(\alpha, n)Ne^{22}$. The probability of a (α, n) -reaction decreases according to the following order: $Be > F > Al > Mg >$ medium composition of ferrithorite $> O > S$. At least one quarter of the Ne^{21} of the earth atmosphere is formed by the (α, n) -reaction in the earth crust. The authors thank L.I. Shmonin, Docent, for his advice, and B.M. Naydenov and R. Sh. Yenikeev, Kafedra eksperimental'noy fiziki Kazakhskogo gosudarstvennogo universiteta (Chair of Experimental Physics of Kazakh State University) for their help in selecting the material. There are 3-figures, 5 tables, and 12 references, 7 of which are Soviet.

Card 2/3

Neutron Radiation of Minerals and the Formation of Ne^{12} SOV/7-58-7- 3/13
in the Earth Atmosphere

ASSOCIATION: Kazakhskiy gosudarstvennyy universitet im.S.M.Kirova,
Alma-Ata (Kazakh State University imeni S.M.Kirov,
Alma-Ata)

SUBMITTED: July 9, 1958

Card 3/5

ABDULGAFAROV, K.K.; CHERDYNTSEV, V.V.

Studying the effect of temperatures on the separation of radioactive emanations and helium from native minerals. Izv.vys. ucheb.sav.; geol.i razv. 1 no.9:107-117 S '58.

(MIRA 12:9)

1. Kazakhskiy gosudarstvennyy universitet im. S.M.Kirova.
(Radioactive substances) (Helium)

CHERDYNTSEV, V.V.; ASYLBAEV, U.Kh.

Thorium and other radioelement contents of natural waters. Izv.
vys.ucheb.zav.; geol.i razv. 1 no.9:125-129 S '58.
(MIRA 12:9)

1. Kazakhstanskiy gosudarstvennyy universitet.
(Radioactive substances)

CHERDYNTSEV, V.V.

PHASE I BOOK EXPLOITATION NOV/3403

Soveshchaniye po voprosam kosmogonii. 6th, Moscow, 1957

Vnegalakticheskaya astronomiya i kosmologiya: tudy sovetskaya (Extragalactic Astronomy and Cosmology: Translated from the 6th Conference on Problems of Cosmogony, June 3-11, 1957) Moscow, AN SSSR, 1959. 273 p. Errata slip inserted. 1,500 copies printed.

Sponsoring Agency: Akademiya nauk SSSR.

Ed. of Publishing House: L.V. Samsonenko; Tech. Ed.: G.M. Sherchenco; Editorial Board: D.A. Frank-Kamenetskiy (resp. Ed.) Professor; B.A. Vorontsov-Vel'yaminov, Corresponding-Member.

PURPOSE: The book is intended for astronomers and physicists studying problems of general cosmology.

COVERAGE: The book is a collection of papers on cosmogony read by scientists participating in a concert held in Moscow on June 5-11, 1957. The paper contains observational and theoretical work in extragalactic astronomy, gravitational theory, theory of spiral, irregular and shift radio astronomy, formation of chemical elements, thermodynamics of the universe, entropy, etc. No personalities are mentioned. There are references following most of the reports.

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Tsel'tsev, Ya.P. Problems of Statistical Physics and Thermodynamics of Gravitating Systems	214
Idlis, G.M. Structural Infinity of the Universe and the Problem of the Origin of the Universe (Summary of Report)	270
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CHEREDNICHENKO, A.F.

Nature of the changes in the nucleus and nucleolus in cells of the embryonic centers of the lymph nodes of dogs under the influence of leucocytic and normal sera. Trudy Inst. morf. zhiv. no.26:59-73 '59.
(Lymphatics) (Serum) (MIRA 13:3)

21(8), 3(8)

SOV/7-59-2-2/14

AUTHORS: Shmonin, L. I., Cherdyntsev, V. V., Kashkarov, L. L.,
Ostapenko, V. F. (Alma Ata)

TITLE: Investigation of the Neutron Flux of the Earth's Crust
(Issledovaniye neytronnogo potoka zemnoy kory)

PERIODICAL: Geokhimiya, 1959, Nr 2, pp 105-109 (USSR)

ABSTRACT: In 1957 measurements of the neutron flux were carried out in the ore districts of the following Soviet Republics: Kazakhskaya SSR (Akchatau, Vostochnyy Kounrad and others), Armyanskaya SSR (Kadzharan, Dastakert, Kafan), Gruzinskaya SSR (Kvaysa), Kirgizskaya SSR (Ak-Kul'). In order to eliminate the effect of secondary cosmic radiation, the measurements were carried out in mines. Proportional counters of the SNM-8 type with amplifier and recording device and filled with BF_3 were used in the measurements. Three types of measurements were taken: 1) Slow neutrons and the background were measured by means of a counting tube without filter; 2) A counting tube with a paraffin filter as a moderator was used to measure fast neutrons and the background; 3) For measurements of the background alone a cadmium filter was attached.

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SOV/7-59-2-2/14

Investigation of the Neutron Flux of the Earth's Crust

Results are listed in tables 1 and 2: besides geological formation, location, and genesis, the activity (in $\mu\text{r/h}$) and flux of slow and fast neutrons (in $\text{n/cm}^2/\text{h}$) are given. Gamma activity and the intensity of the neutron flux are usually proportional. In the Aktyuz deposit the intensity increases to 32.4 fast neutrons/ cm^2/h and 28.2 slow neutrons/ cm^2/h . A dependence of the intensity on humidity was observed in the Vostochnyy Kounrad mine. There are 2 tables and 7 references, 2 of which are Soviet.

ASSOCIATION: Kazakhskiy gosudarstvennyy universitet im. S. M. Kirova
(Kazakh State University imeni S. M. Kirov)

SUBMITTED: June 10, 1958

Card 2/2

AUTHORS: Cherdyntsev, V.V., and Suyarova, O.V. SOV/11-59-2-9/14

TITLE: Some Data on the Influence of Geological Conditions on the Formation of the Earth's Neutron Flux (Nekotoryye dannyye o vliyanii geologicheskikh usloviy na formirovaniye neytronnogo potoka zemli)

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya geologicheskaya, 1959, Nr 2, pp 115-118 (USSR)

ABSTRACT: The existance of the neutron flux in the Earth's crust is determined indirectly by numerous reactions of artificial transformations: 1) the accumulation of He³ in the spodumenes for the count of splitting the lithium; 2) an artificial division of AcU with the formation of isotopes of krypton and xenon; 3) the accumulation of xenon in the ancient tellurous minerals, of argon and neon in the uraninites; 4) the formation of Pu²³⁹, Np²³⁷ and other isotopes of the neptunian series in radioactive minerals. The formation of products of nuclear transformation cannot be explained uniquely by the presence in the minerals of radioactive elements capable of spontaneous splitting with the emission of neutrons. The main component of the neutron

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SOV/11-59-2-9/14

Some Data on the Influence of Geological Conditions on the Formation of the Earth's Neutron Flux

flux of the Earth being the neutron of (α, n)-reactions, and beryllium being the mineral generating the neutrons, the authors studied the neutron flux in the zones of beryllium mineralization, in the laboratory and on a 3,400 m high glacier. In the zones of the pegmatite beryllium mineralization and in the non-active zones of the pneumatolytic beryllium mineralization, no increased neutron flux was found. The flux was composed mainly of flow neutrons from the atmosphere, as far as could be judged from experiments with screening the plates by a cadmium filter. The fast neutrons were beyond the measuring limits. Also, in the laboratory and on the glacier, no measurable flux of slow neutrons was found. Only in the zone of beryllium mineralization with an increased activity was a considerable increase of the neutron flux found. Presumably it was a result of a combination of two factors: 1) a sufficiently strong flux of alpha-particles; 2) the presence of the matter capable of generating the neutrons. According to the authors, that

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SOV/11-59-2-9/14

Some Data on the Influence of Geological Conditions on the Formation of the Earth's Neutron Flux

was the only known case in which an increase of the Earth component of the neutron flux could be conditioned by geological conditions. There are 3 tables and 3 references, 1 of which is Soviet and 2 American.

ASSOCIATION: Kazakhskiy gosudarstvennyy universitet im. S.M. Kirova, g. Alma-Ata (The Kazakh State University imeni S.M. Kirov, Alma-Ata)

SUBMITTED: December 19, 1956

Card 3/3

S/081/62/000/011/017/057
E032/E114

AUTHORS: Cherdyntsev, V.V., Shmonin, L.I., and
Ostapenko, V.F.

TITLE: Determination of small quantities of thorium with the
aid of neutron irradiation

PERIODICAL: Referativnyy zhurnal, Khimiya, no.11, 1962, 142,
abstract 11 D97. (In the Collection: Nauchn. rabot
Kafedry optiki i Kafedry eksperim. fiz. Kazakhsk. un-t,
no.2, 1960, 13-16).

TEXT: To determine small quantities of thorium (down to 10^{-4} g)
in extracts of some minerals, use was made of a method based on
the recording of fragments from the fission of thorium nuclei
during irradiation by neutrons from a Ra-Be source. Thorium is
removed from solution by co-precipitation with cerium oxalate and
the precipitate is placed in an ionization chamber. It is then
irradiated with a beam of fast neutrons and a number of fission
events is recorded. In the presence of U measurements are made
of the number of fission events produced by fast and partly
slowed-down neutrons.

Card 1/1 [Abstractor's note: Complete translation.]

S/081/62/000/009/013/075
B158/B101

AUTHORS: Cherdyntsev, V. V., Isabayev, Ye. A.

TITLE: Isotopic composition of uranium in nature

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 9, 1962, 56, abstract
9B361 (Sb. nauchn. rabot Kafedry optiki i Kafedry eksperim.
fiz. Kazakhsk. un-t, no. 2, 1960, 37-41)

TEXT: A procedure is developed for determining the isotopic composition of certain radioactive minerals in the earth's crust according to the impulse spectrum obtained on an α -analyzer. Its accuracy is within $\pm 3\%$.

The U^{235} content was arrived at from the impulse count of five channels in the region 4.35-4.45 Mev. Using the method of neutronometry to determine the U^{235} from the number of fission fragments under the effect of neutrons slowed down in paraffin, and photographing the impulse spectrum, the extent to which magnetite became enriched with U^{235} and Ac was established. Most of the weakly active minerals gave the normal

Card 1/2

Isotopic composition of...

S/081/62/000/009/013/075
B158/B101

U^{235} : U^{238} ratio. [Abstracter's note: Complete translation.]

Card 2/2

81.6000

S/058/62/000/003/033/092
A061/A101

AUTHORS: Kahskarov, L. L., Ivanenko, V. M., Cherdyntsev, V. V., Mozhayeva,
V. G., Nurgozhin, N. N., Khomenko, G. S., Gafurov, V. O.

TITLE: Non-conservation of parity in nuclear fission by cosmic ray μ -mesons

PERIODICAL: Referativnyy zhurnal, Fizika, no. 3, 1962, 50, abstract 3B415
("Sb. nauchn. rabot Kafedry optiki i Kafedy eksperim. fiz. Kazakhsk.
un-t.", 1960, no. 2, 43 - 57)

TEXT: A device for measuring the spatially asymmetric departure of neutrons
emitted when slow cosmic ray μ^- -mesons are captured by atomic nuclei is described.
Provisional results are presented.

vc

[Abstracter's note: Complete translation]

Card 1/1

CHERYNTSEV, V.V.

S/169/62/000/005/003/093
D228/D307

AUTHORS: Chedyntsev, V. V. and Suyarova, O. V.

TITLE: Investigating neutron radiation in nature and other nuclear processes according to the alpha-particle run distribution

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 5, 1962, 9, abstract 5A44 (Sb. nauchn. rabot Kafedry optiki i Kafedry eksperim. fiz. Kazakhsk. un-t, no. 2, 1960, 155-160)

TEXT: In the investigation of terrestrial neutron radiation for separating the tracks of α -particles, arising as a result of the reaction (n, α) that occurs when terrestrial neutrons react with boron, a method is proposed from the particles of natural radioactive elements; it is based on the measurement of α -particle runs of a variable nature. The energy of the boron reaction α -particles equals 1.5 Mev and corresponded to an average run of about 10μ in the nuclear emulsions used to record them. For natural α -radia-

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Investigating neutron radiation ...

S/169/62/000/005/003/093
D228/D307

tion the run of α -particles in the emulsion amounts to an average of 20 - 25 μ . It is estimated that one recorded α -particle corresponds to the passage of 160 neutrons through the emulsion. Data are given about the neutron flow at the ground surface and in subterranean workings, and considerations are expressed about the nature of this flow. The suggested method was employed in the study of the radiation of "anomalous" minerals, containing an elevated quantity of actinium. Molybdenum M-17 (M-17), containing 6.8×10^{-6} g/g U and possessing an Ac/Ra ratio 9.4 times higher than in the usual equilibrium minerals, served as the main specimen of an anomalous mineral. It was established that anomalous minerals contain a considerable excess of particles with runs of less than 8 μ . Tracks of short-run particles, differing from those of α -particles in their greater width (up to 1.5 - 2 μ) and grain density, were detected as a result of investigating 2900 tracks of anomalous mineral preparations. The mean run length of the new type of tracks, which are practically identical to the tracks of division fragments, comprises about 10 μ . The resulting data corroborate the

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Investigating neutron radiation ... S/169/62/000/005/003/093
D228/D307

hypothesis about the presence of a new type of radiator in anomalous minerals; however, they cannot be considered to prove it absolutely, since the nuclear plate method is not very suitable for diagnosing tracks with a small run. [Abstracter's note: Complete translation.]

Card 3/3

23328 S/058/61/000/005/010/063
A001/A101

24.6900 (1191, 1538, 1559)

AUTHORS: Cherdyntsev, V.V., Kashkarov, L.L., Ivanenko, V.M., Kudashev, Ye.F.

TITLE: Asymmetry of neutrons from μ -meson reaction in lead

PERIODICAL: Referativnyy zhurnal. Fizika, no. 6, 1961, 77, abstract 6B250 ("Tr. Mezhdunar. konferentsii po kosmich. lucham, 1959, v. 2", Moscow, AN SSSR, 1960, 346)

TEXT: Asymmetry in neutron distribution produced in weak interaction of (μ^- , n) type relative to direction of a μ -meson flux was studied on cosmic μ -mesons. The installation was located at an altitude of 3,860 m above sea level under a 7-m thick ground layer and consisted of two sections of neutron counters immersed into paraffin and separated by a 330-kg heavy lead block. Experiments discovered an excess of upward neutrons, i.e., opposite to direction of the μ -meson flux, and the ratio of upward neutrons to downward ones was 1.186 ± 0.024 . It follows hence that the quantity $P/\beta\omega = 0.09 \pm 0.01$, where P is meson polarization degree, equal to 0.15-0.20; ω is coefficient of asymmetry; β is a quantity dependent on the properties of the nucleus.

[Abstracter's note: Complete translation]

V. Guzhavin

Card 1/1

CHERDYNTSEV, V.V.; SHMONIN, L.I.; OSTAPENKO, V.F.; KHALDEYEV, O.D.;
KASHKAROV, L.L.

Neutron radiation of the earth. Geokhimiya no.3:261-267 '60.
(MIRA 14:5)

1. Kazakhskiy gosudarstvennyy universitet imeni S. M. Kirova,
Alma-Ata.

(Neutrons)
(Nuclear geophysics)

S/007/60/000/004/005/005
B002/B055

AUTHORS: Cherdyntsev, V. V., Isabayev, Ye. A., Surkov, Yu. A.,
Orlov, D. P., Usatov, E. P.

TITLE: Excess U^{235} in magnetite with increased actinium content

PERIODICAL: Geokhimiya, no.4, 1960, 373-374

TEXT: The magnetite in a pegmatite vein was found to have a high content of U^{235} and actinium. The contents of radioelements was 1.3 ppm of uranium and 10 ppm of thorium. The Ac/Ra ratio exceeds the normal value by a factor of 4.3 ± 0.3 . The age of the minerals is approximately 100 million years with certainty, however, less than 300 million years. The present publication reports the results obtained in determinations of the U^{235}/U^{238} ratio. From the ratio of the number of fission fragments produced by thermal neutron irradiation to the α -activity of the sample, the

Card 1/3

Excess U^{235} in magnetite with...

S/007/60/000/004/005/005
B002/B055

U^{235}/U^{238} ratio was found at 1.18 ± 0.06 , which after correction for the presence of other radioelements alters to 1.30 ± 0.10 . Determinations of the α -spectra in the alpha-spectrometer at Kazakhskiy universitet (Kazakh University) yielded a ratio $U^{235}/U^{238} = 1.60 \pm 0.13$, and, in the alpha spectrometer of the Institut geokhimii im. V. I. Vernadskogo AN SSSR (Institute of Geochemistry imeni V. I. Vernadskiy AS USSR), a value of 1.5 ± 0.1 . The latter determination was carried out by Yu. A. Surkov. A last series of measurements in the alpha analyzer KazGU (Kazakh State University), carried out by D. P. Orlov gave a value of 1.40 ± 0.15 . This excess of U^{235} in the magnetite with increased actinium content can only be explained by the existence of a transuranic isotope in nature up to the present day, which decays to actinium and the odd-numbered uranium isotope. E. K. Gerling is mentioned in the publication. There are 1 figure, 1 table, and 9 references: 9 Soviet-bloc and 3 non-Soviet-bloc.

Card 2/3

Excess U²³⁵ in magnetite with...

S/007/60/000/004/005/005
B002/B055

ASSOCIATION: Kazakhskiy gosudarstvennyy universitet im. S. M. Kirova
(Kazakh State University imeni S. M. Kirov). Institut geo-
khimii i analiticheskoy khimii im. V. I. Vernadskogo AN SSSR,
Moskva (Institute of Geochemistry and Analytical Chemistry
imeni V. I. Vernadskiy, AS USSR, Moscow)

SUBMITTED: February 24, 1960

✓
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Card 3/3

22461

S/186/60/002/001/015/022

A057/A129

21.3100

AUTHORS: Isabayev, Ye.A.; Usatov, E.P.; Cherdyntsev, V.V.

TITLE: Isotopic composition of uranium in natural objects

PERIODICAL: Radiokhimiya, v. 2, no. 1, 1960, 94 - 97

TEXT: In the present work the isotopic composition of uranium was investigated in some primary and secondary natural minerals (molybdenite, uraninite, magnetite, thorite, cinnabar and schroekingerite), as well as in water being in contact with granite mountain regions. Separation of uranium isotopes, namely of the U^{238} mother (UI) and the disintegration product U^{234} (UII) was already observed in natural objects by V.V. Cherdyntsev and P.I. Chalov [Ref. 1: Tr. III sessii Kom. po opred. absolyutn. vozrasta geolog. formatsiy (Proceedings of the third session of the Commission for the determination of the absolute age of geological formations), Izd. AN SSSR, 175 (1955)] and was later studied by Starik et al. [Ref. 2: Geokhimiya, 1, 5, 462 (1959)], V.I. Baranov et al. [Ref. 3: Geokhimiya, 1, 5, 465 (1959)] and P.I. Chalov [Ref. 4: Geokhimiya, 1, 2, 265, (1959)]. Being less firmly bound to the crystal lattice of the mineral, UII is often enriched in secondary uranium minerals or natural water, while a decrease

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in the UIII/UI ratio is observed in minerals exposed for a long time to the effect of natural water. The present experiments were carried out with an α -analyzer (designed by Ye.A. Isobayev) containing a six-electrode-electron impulse chamber as impulse indicator. The uranium samples were placed on six disk-shaped high-voltage electrodes, which were fixed on a cylinder. Rotating the latter the samples were brought into measuring position (without dismantling the camera), and the spectrum of the samples was immediately compared with the standard. Two amplitude analyzers were used, one with 19, the other with 50 channels. Uranium was extracted with ethyl ether from HNO_3 solutions of the ore and was electrolytically deposited. The intensity of the spectral lines of UIII and UI (see Figure) was determined from the area limited by the line, thus $2 \cdot 10^{-6}$ g uranium could be determined with 10% accuracy in 3 h. Actually the uranium content was $n \cdot 10^{-4}$ g and the accuracy of UIII/UI measurements was 1 - 3%. In some samples the relative U^{235} (AcU) content was determined, measuring the activity of fission fragments effected by neutrons from a Po-Be source. Revising previous determinations [Ref. 1; Ref. 5: Sbornik trudov KazGu. Optika, yadernyye protsessy, 63, Alma-Ata (Collection of proceedings of the Kazakhstan State University. Optics, nuclear processes, 63, Alma-Ata)(1959)], the isotopic composition of uranium in several molybdenites (having different excessive contents of Ac) was investigated.

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the ratio U^{III}/U^{VI} in schroekingerite (dobeite) from the same layer and in natural water from this region was determined, and the results were tabulated. The values for the ratio of U^{III}/U^{VI} and AcU are almost normal, independently from excessive Ac . In dobeites of the same layer differences in the normal ratio of U^{III}/U^{VI} and in the increased ratio ($U^{III}/U^{VI} = 1.06$) can be observed. A sharp increase to $U^{III}/U^{VI} = 3.08$ is observed in a mineral precipitated in sediments of drilling water. The content of U^{III} changes also considerably in natural water. In 29 water samples the ratio of U^{III}/U^{VI} is varying from 0.72 to 7.8 (in 9 samples between 3.0 to 3.5), but it never approached the equilibrium value. Geochemical and physico-chemical conditions, which determine the changes in U^{III}/U^{VI} ratio will be discussed in the following papers. The present authors thank D.P. Orlov, I.V. Samoylov, V. I. Ivanov and N.T. Toktoyarov for measurements, and I.P. Koshelev for the help in the present work. There is 1 figure, 2 tables and 6 Soviet-bloc references.

SUBMITTED: May 26, 1959

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A057/A129

21.3100

AUTHORS: Isabayev, Ye.A.; Asylbayev, U.Kh.; Cherdyntsev, V.V.

TITLE: Investigation of actinium in natural objects

PERIODICAL: Radiokhimiya, v. 2, no. 1, 1960, 98 - 103

TEXT: Two different methods for determination of small amounts of actinium in the presence of thorium were developed and previous data were checked concerning minerals with excessive actinium content among primary minerals. The characteristic of these "abnormal" minerals (being principally of the hydrothermal phase) was that often some paragenetically connected minerals of the same layer had an excessive actinium content. The origin of this actinium excess (possibly accumulated as fission product) will be discussed in a following publication. Since the excessive actinium content is observed in minerals with low activity a more sensitive measuring technique has to be applied. One of the two methods presented is based on measurements of AcC-activity in an active deposited sample by an α -analyzer. The latter was assembled by Ye.A. Isabayev and contains an argon-filled electron-impulse chamber and a 19-channel pulse-analyzer operating in electron commutation circuit. On the same deposited sample ThX (ThC line) and

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AcX (AcC line) could be determined with 50% accuracy for $5 \cdot 10^{-5}$ g actinium. Radium could be determined from RaC'. The active deposit sample was prepared by passing air through the radium-containing solution for 2 h at $800 \text{ cm}^3/\text{min}$ rate. Radioactive emanation was thus transferred into a special activation chamber. For radium determination the solution saturated with emanation was transferred in an evacuated chamber, where the active deposit was exposed for 2 h. The cylinder-shaped electrode was in both cases quickly removed into the chamber of the α -analyzer and measurements were carried out 5 min after the activation. The second method of actinium determination is based on pulse counting of total activity $A_n + A_{cA}$. The emanation was transferred with air into the counting chamber. The walls of the latter were surfaces of phosphors of two luminescence counters. Using a device constructed by U.Kh. Asvlbavev and L.I. Shmonin, pulses were recorded with 5 microseconds of retardation, corresponding to $A_n + A_{cA}$ decay. The background is represented by: $i = a(A_c + bTh)^2 + cTh$ ($a, b, c =$ parameters). The first term represents the number of false coincidence and the second the number of retarded pulses from Tn and ThA decay. Besides, the device counts pulses of single α -particles, i.e., activity $A_c + bTh$. Passing air through it at a rate of $100 \text{ cm}^3/\text{min}$, mainly thoron is measured, counting ~ 70 cpm for 1 mg Th, while the counting rate for 1 mg Ac is 100 times smaller. Increasing the rate of air

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flow to 1,300 cm³/min, the counting rate for 1 mg Th is 20.5 cpm, for 1 mg Ac 5.4 cpm, while the counting rate for retarded pulses is 0.15 and 1.25 cpm, respectively. Thus actinium can be determined even in the presence of greater thorium amounts. Both presented methods have nearly the same sensitivity. The second method was used in the present investigations only for Ac and Th determination. In the future the sensitivity of the device will be improved, and will be applied to determinations of small radon quantities. Detailed descriptions of the device will be given in a separate paper. In the present experiments 25 minerals were investigated, 15 of which were molybdenite samples. The measured activities (Table 1) demonstrate increased actinium content in 3 of the molybdenite samples. Uranium content changed in molybdenites from $3.0 \cdot 10^{-5}\%$ to $3.3 \cdot 10^{-3}\%$, while the ratio Th/U varied from 0.5 to 3.6, having a mean value of Th/U = 1.5. According to previous observations of the authors in minerals containing an actinium excess, considerable deviations in content of uranium or thorium isotopes from radioactive equilibrium were not observed. One of the pitchblende samples showed a sharp change in the ratio of isotopes, even in single mineral grains of the same 200 g lump. In two grains an increase in the ratio Ac/Ra to 9.4 ± 0.4 was observed, effected positively by migration withdrawal of uranium (Table 3). The polonium content is also considerable. This pitchblende sample is considered by

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the present authors as a good example for a mineral with changed isotope ratio. The authors thank T.I. Borisenko, K.Sh. Yenikeyeva and N.K. Kadyrov for the help, and V.S. Churikov for the molybdenite samples. There are: 1 figure, 3 tables and 3 Soviet-bloc references.

SUBMITTED: May 26, 1959

Table 3: Content of radioelements in different grains of pitchblende from one lump

sample	content of Ac in % of equivalent uranium	Ac/Ra	Io/U	Ra/U	Ac/U	Po/U
			according to data of α -analyzer			
1	3.0	9.4 ± 0.2	0.7	0.1	1.7 ± 0.8	0.8
2	1.8	8.7 ± 0.4	—	—	—	—
3	27	0.74 ± 0.05	~1	~1	—	~1
4	20	0.75 ± 0.05	—	—	—	—

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S/081/62/000/012/012/063
B168/B101

AUTHORS: Cherdyntsev, V. V., Orlov, D. P., Isabayev, Ye. A., Asylbayev,
U. Kh., Ivanov, V. I., Usatov, E. P., Borisenko, T. I.

TITLE: Variations in the isotopic composition of natural uranium

PERIODICAL: Referativnyy Zhurnal. Khimiya, no. 12, 1962, 115, abstract
12G16 (Tr. 9-y sessii Komis. po opredeleniyu absolyutn.
vozrasta geol. formatsiy, 1960, M.-L., AN SSSR, 1961, 306 - 312)

TEXT: The $U^{235} : U^{238}$ ratio in 14 different minerals was determined by
 α -spectrometry and neutronometry. Some minerals show a U^{235} surplus :
quartz lode $U^{235} : U^{238} = 1.6 \pm 0.1$ (α -spectrum), magnetite 1.5
(α -spectrum) and 1.35 (neutronometry). In the remaining 12 minerals the
observable effect of disturbance of the isotopic composition does not go
beyond the limits of the experimental error. [Abstracter's note: Complete
translation.]

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CHERDYNTSEV, V.V.; ASYLBAYEV, U.Kh.; ORLOV, D.P.; SHMONIN, L.I.; ISABAYEV, Ye.A.; KADYROV, N.B.

Uranium isotopes in nature. 1. ~~Actinum~~ radio ratio of minerals.
Geokhimia no.8:650-655 '61. (MIRA 17:3)

1. Geologicheskii institut AN SSSR, Moskva i Kazakhskiy gosudarstvennyy universitet, Alma-Ata.

S/026/62/000/006/003/004
D045/D114

AUTHOR: Cherdyntsev, V.V., Professor (Moscow)

TITLE: Argon - a determinant of the geological age

PERIODICAL: Priroda, no. 6, 1962, 42-44

TEXT: The development, special features and practical significance of the method of determining the absolute age of rocks according to the accumulation of argon in potassium minerals, are discussed. Academician V.G.Khlopin and Doctor of Chemical Sciences E.K.Gerling first showed that this method could be applied in practice. In the period 1948-61, it was developed at the Leningradskaya laboratoriya geologii dokembriya Akademii nauk SSSR (Leningrad Laboratory of Pre-Cambrian Geology of the Academy of Sciences USSR), where it was also used by Academician A.A.Polkanov for interpreting the history of Pre-Cambrian sediments in the Baltic Shield. For the discovery and development of this method, Polkanov and Gerling were awarded Lenin Prizes in 1962.

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Argon- a determinant of the geological age

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They showed that there is an increased A^{40} content in potassium minerals, that nonradiogenic argon impurities can be easily excluded, and that there is an increase in the A^{40}/K^{40} ratio in old minerals, the age of which is known according to other data; hence they determined with sufficient accuracy the constant of argon formation. Much research conducted by Gerling and others was connected with the preservation of argon in minerals. Extensive experiments on argon release during the heating of minerals emphasized that biotites retain argon well. For the first time, it has been possible to establish the age of stony meteorites according to the argon content and to divide these meteorites into genetic groups. The first investigations in this connection were conducted by Gerling and T.G.Pavlova in 1951. Chondrites indicate an age of up to 4.8 billion years, while meteorites bearing traces of remelting appear to be much younger, probably because of argon losses. In achondrites, the helium and argon content is exceptionally high; they are probably the remnants of the primary atmosphere of a cosmic body. The argon method is most valuable from the point of view of dating rocks, particularly for substantiating the chronology of the Pre-Cambrian period. The combined

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Argon - a determinant of the geological age

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work of radiologists and geologists has shown that in the time interval from 1200-500 million years up to the present, a sort of lull in the Earth's history is observed, that the processes of rock formation and volcanism were weakly revealed, and that the rate of deposition of sedimentary rocks was extremely small. In the USSR, more than 20 laboratories, many of which are attached to industrial organizations, are using the argon method. Reference is made to the activation and isotopic dilution methods of determining the argon content.

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IVANOVA, I.K., otv. red.; KIND, N.V., otv. red.; CHERDYNTSEV, V.V.,
otv. red.; LAVRUSHIN, Yu.A., red.izd-va; ZUDINA, V.I.,
tekhn. red.

[Absolute geochronology of the Quaternary] Absolutnaia geo-
khronologiya chetvertichnogo perioda. Moskva, Izd-vo AN
SSSR, 1963. 158 p. (MIRA 16:12)

1. Akademiya nauk SSSR. Komissiya po izucheniyu chetvertich-
nogo perioda.

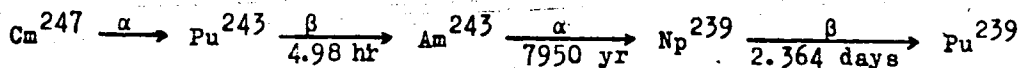
(Geological time)

S/007/63/000/001/001/001
B107/B186

AUTHORS: Cherdyntsev, V. V., Mikhaylov, V. F.

TITLE: A protogenic transuranium isotope

PERIODICAL: Geokhimiya, no. 1, 1963, 3-14

TEXT: Cm²⁴⁷ and its decay products Am²⁴³ and Pu²³⁹ were detected in six samples by alpha-spectrometry. Cm²⁴⁷ decays according to the scheme:

$\xrightarrow[24360 \text{ yr}]{\alpha} \text{U}^{235}$. The half-life of Cm²⁴⁷ is $>4 \cdot 10^7$ yr (references see below); in the present paper, a complicated alpha-spectrum was found between 4.2 and 4.6 Mev; gamma-radiation energy ranges from 90 to 250 keV and the half-life is estimated to be $2.5 \cdot 10^8$ yr. Lines of 5.15 Mev and 5.27 Mev from Pu²³⁹ and Am²⁴³ were found in the alpha-spectrogram. Two molybdenite samples of pegmatite from Transcaucasia were studied (V. V. Cherdyntsev,

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S/007/63/000/001/001/001
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D. P. Orlov, Ye. A. Isabayev, V. I. Ivanov, Geokhimiya, no. 10, 840, 1961); age according to Ye. M. Kolesnikov GIN AN SSSR: 23 million years. Four different fossil bones of paleolithic age were also studied. Uranium and thorium fractions were used to measure the alpha-spectra between 4.0 and 5.5 Mev. Preliminary measurements showed no spontaneous fission of Cm²⁴⁷. The concentration in the minerals reaches 10⁻⁸ %, and the ratio Cm²⁴⁷/U²³⁸ is 10⁻² activity units. The striking accumulation of U²³⁵ in the above molybdenites is possibly due to the curium content. There are 5 figures and 3 tables. The most important English-language reference is: H. Diamond et al. Phys. Rev., 105, 679, 1957. ✓

ASSOCIATION: Geologicheskii institut AN SSSR, Moskva (Institute of Geology AS USSR, Moscow)

SUBMITTED: October 5, 1962

Card 2/2

CHERDYNTSEV, V.V.; KAZACHEVSKIY, I.V.; KUZ'MINA, Ye.A.

Isotope composition of uranium and thorium in the supergene zone;
study of fossil bones, soils, and mollusk shells. *Geokhimiya*
no.3:254-265 Mar '63. (MIRA 16:9)

1. Geological Institute, Academy of Sciences, U.S.S.R., Moscow.
(Uranium isotopes) (Thorium isotopes)

CHERDYNTSEV, V.V.; MALYSHEV, V.I.; KAZACHEVSKIY, I.V.; BORISOV, I.V.

Isotopic composition of uranium and thorium in the zone of supergenesis.
Studies of the peat bog matter. Geokhimiia no.5:399-403 My '64.

(MIRA 18:7)

1. Geological Institute of the Academy of Sciences, U.S.S.R., Moscow.

KASHKAROV, L.L.; GAFUROV, V.G.; IVANENKO, V.M.; CHERDYNTSEV, V.V.

Polarization of μ -mesons in cosmic rays at an altitude of 3860 meters above sea level. Izv. AN SSSR. Ser. fiz. 29 no.9: 1761-1764 S '65. (MIRA 18:9)

1. Tadzhikskiy gosudarstvennyy universitet im. V.I. Lenina i Fiziko-tehnicheskoy institut AN Tadzhikskoy SSR.

KAZACHEVSKIY, I.V.; CHERDYNTSEV, V.V.; KUZ'MINA, Ye.A.; SULERZHITSKIY, L.D.;
MOCHALOVA, V.F.; KYUREGYAN, T.N.

Isotope composition of uranium and thorium in the supergene zone.
Natural waters. Volcanic sediments. Geokhimiya no.11:1116-1121 N
'64. (MIRA 18:8)

1. Geological Institute, Academy of Sciences of the U.S.S.R., Moscow.

CHERDYNTSEV, V.V.; IBRAYEV, T.A.; MOCHALOVA, V.F.

Metals and Semiconductors in Fossil Bones

Radioberyllium in fossil bones. Geokhimiia no.12:1240-1243 D '64.

(MIRA 18:8)

1. Geologicheskii institut AN SSSR, Moskva.

CHERDINTSEY, V.V.; ALEKSEYEV, V.A.; KIND, N.V.; FOROVA, V.S.; ZAVEL'SKIY, V.S.;
SULERZHITSKIY, L.D.; CHURIKOVA, I.V.

Radiocarbon data of the Laboratory of the Geological Institute
of the U.S.S.R. Geokhimiia no. 12:1410-1422 D '65
(MIRA 19:1)

1. Geologicheskiy institut AN SSSR, Moskva. Submitted April 20,
1965.

L 4487-66 EWT(m)/FCC/T IJP(c)

ACC NR: AP5024655

SOURCE CODE: UR/0048/65/029/009/1761/1764

AUTHOR: Kashkarov, L.L.; Gafurov, V.G.; Ivanenko, V.M.; Cherdynstev, V.V. 19
23

ORG: Tadjik State University im. V.I.Lenin (Tadjikskiy gosudarstvennyy universitet); Physicotechnical Institute, Academy of Sciences, Tadjik SSR (Fiziko-tekhnicheskii Akademiia nauk Tadjik SSR)

TITLE: Investigation of the polarization of cosmic ray muons at 3860 meters above sea level /Report, All-Union Conference on Cosmic Ray Physics held at Apatity 24-31 August 1964/ 19

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 29, no. 9, 1965, 1761-1764

TOPIC TAGS: secondary cosmic ray, muon, particle polarization

ABSTRACT: The polarization of cosmic ray muons was investigated at 3860 m above sea level at Pamir. Muons incident at zenith angles less than 20° were filtered through 110 g/cm² of lead (limiting muon energy 0.25 BeV) or 1100 g/cm² of earth and lead (limiting muon energy 2.5 BeV) and decay positrons from muons brought to rest in a 45 g/cm² lead absorber were counted separately in the upper and lower hemispheres. Positrons were counted for 4 μsec, starting 1.7 μsec after the presence of a stopped muon was indicated by a triple coincidence/anticoincidence. Backgrounds recorded without the absorber and with the absorber but with the delay increased from 1.7 to 20 μsec were equal. The efficiency of the positron counters was monitored with a γ-ray source.

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ACC NR: AP5024655

and the upper and lower trays were interchanged from time to time. The ratio C of the number of upward-going to the number of downward-going decay positrons was found to be 1.20 ± 0.06 for the lower energy muons and 1.33 ± 0.12 for the higher energy muons. The muon polarization P was calculated with the formula $P = 3(C - 1)/a(C + 1)$ where $a = 0.91$ is a factor dependent on the positron counter geometry. The polarizations of the lower and higher energy muons were found to be 0.30 ± 0.08 and 0.47 ± 0.14 , respectively. The polarization found for the lower energy muons is in satisfactory agreement with those found by other investigators at sea level but the polarization found for the higher energy muons exceeds the values found at sea level by other investigators for muons of similar energies by somewhat more than the experimental error. It is suggested that this discrepancy may be due to the presence of a larger fraction of muons of K-mesonic origin at the higher altitude. Orig. art. has: 2 formulas, 2 figures, and 1 table.

SUB CODE: NP/ SUBM DATE: 00/ ORIG REF: 008/ OTH REF: 007

PC
Card a/s

L 4491-66 EWT(m)/FCC/T IJP(c)

ACC NR: AP5024658

SOURCE CODE: UR/0048/65/029/009/1772/1773

AUTHOR: Bobodzhanov, I.B.; Ivanenko, V.M.; Kashkarov, L.L.; Cherdyntsev, V.V. 22ORG: Physicotechnical Institute im. S.U.Usarov, Academy of Sciences, TadzhSSR
(Fiziko-tekhnicheskiy institut Akademii nauk TadzhSSR); Tadzhik State University im.
V.I.Lenin (Tadzhiskiy gosudarstvennyy universitet) 23TITLE: Asymmetry of neutrons emitted by nuclei with different spins consequent to
absorption of negative cosmic ray muons /Report, All-Union Conference on Cosmic Ray
Physics held at Apatity 24-31 1964/ 79

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 29, no. 9, 1965, 1772-1773

TOPIC TAGS: secondary cosmic ray, muon, particle polarization, nuclear reaction, neutron

ABSTRACT: The anisotropy of neutrons emitted by Pb, Bi, Cu, and Fe targets under 10^{21} g/cm² of earth at Pamir (3860 m above sea level) consequent to absorption of negative cosmic ray muons was determined by a technique that has been described elsewhere by the authors and D.K.Ryazanov (Izv. geolog., Khim. i tekhn. nauk AN TadzhSSR, vyp. 1 (10), 9 (1963)). Correction was made for evaporation of neutrons from the paraffin moderator, for absorption of background neutrons in the target, and for geometric factors. Anisotropy of the emitted neutrons is due entirely to the polarization retained by the muons after absorption into K orbits. It was anticipated that the depolariza-

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