S/030/62/000/002/008/008
B105/B110

AUTHOR: Bulanzhe, Yu. D., Doctor of Physics and Mathematics

TITLE: Present movements of the terrestrial crust

PERIODICAL: Akademiya nauk SSSR. Vestnik, no. 2, 1962, 113 - 114

TEXT: The third interdepartmental conference on the present movements of the terrestrial crust dealt with the importance of the present movements of the terrestrial crust in geology and for the forecasting of earth quakes. The conference had been convened by the komissiya po sovremennym tektonicheskim dvizheniyam sektsii geodezii Mezhduvedomstvennogo geofizicheskogo komiteta pri Prezidiume Akademii nauk SSSR (Commission for Present Tectonic Movements of the Section of Geodesy of the Interdepartmental Geophysical Committee at the Presidium of the Academy of Sciences USSR) from November 14 - 18, 1961 in Moscow. It was attended by experts of the Academy of Sciences USSR), of the Academies of the Union Republics, the Gosudarstvennyy komitet Soveta Ministrov SSSR po koordinatsii nauchno-issledovatel'skikh rabot (State Committee of the Council of Ministers USSR for the Coordination of Scientific Research Work); the ministerstvo vysshego i srednego

Present movements of the ...

spetsial'nogo obrazovaniya SSSR (Ministry of Higher and Secondary Specialized Education USSR) and the corresponding ministries of the Union Republics, of the Ministerstvo geologii i okhrany nedr SSSR (Ministry of Geology and Preservation of Mineral Resources USSR) and other authorities. The work was conducted in plenary meetings and in the following sections: (1) geologic and geomorphologic section; (2) section of geodesy and oceanography; (3) geophysical section. The compilation of a map of the present vertical movements of the terrestrial crust in the western part of the European territory of the USSR is regarded as a success. The principles of the geophysical interpretation of elastic flows in the terrestrial crust that were developed at the Institut fiziki Zemli im. O. Yu. Shmidta (Institute of Physics of the Earth im. O. Yu. Shmidt) are mentioned. V. P. Shcheglov, Corresponding Member AS Uzbekskaya SSR, dealt with the movements of the continents in the light of present astronomical research. It is suggested that international centers should be established for the compilation of world maps of the present movements and that the data should be available to the members of the International Association for Geodesy and Geophysics. Among others, the following tasks are suggested: (1) compilation of a map of the present movements in the entire territory of the European part of

the USSR; (2) development of stationary polygons for comprehensive research; (3) development of new methods for the investigation of the motions; (4) establishment of special laboratories for the development of methods of astronomical determinations of the changes in the lengths and widths for solving the problems of the present movements of the continents.

S/030/62/000/005/006/006
B104/B108

AUTHOR: Bulanzhe, Yu. D., Doctor of Physical and Mathematical Sciences

TITLE: A naval quartz gravimeter

PERIODICAL: Akademiya nauk SSSR. Vestnik, no. 5, 1962, 88-89

TEXT: In the 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) the naval quartz gravimeter ГАЛ-П (GAL-P) was developed and tested. It is designed for submarines, for use on drift ice and in the calm arctic and antarctic seas. The sensitivity system of the gravimeter consists of elastic quartz threads and is immersed in a viscous organosilicon liquid. An electric thermostat controls the temperature. The gravimeter indications are recorded on a photographic film. The instrument is mounted in a Cardan's suspension with special shock absorbers. Gravimetric measurements made on the sea with 3 - 4 instruments showed a maximum random error of ±1.5 mgl. The systematic error in the measurement range of 2.5 - 3.0 gl is less than

Card 1/2

A naval quartz gravimeter

S/030/62/000/005/006/006
B104/B108

1 mgl. This accuracy of the instrument is maintained for several months. Data: graduation in recording 10 to 20 mgl/mm; at 25°C the zero shift within 24 hours is 0.6 - 0.9 mgl; the temperature coefficient is 2 mgl/deg; power consumption 50 w; the weight is 25 kg. A small series of such instruments is being produced at the above institute. There is 1 figure.

Card 2/2

BULANZHE, Yu.D.

International classification of literature on earth tides. Geofiz. biul. no.11:70-74 '62. (MIRA 15:8)
(Classification--Books--Tides)

BULANZHE, Yu.D.; MESHCHERYAKOV, Yu.A.

Study of recent crustal movements. Geofiz.biul. no.12:3-6 '62.
(Earth--Surface) (Geology, Structural) (MIRA 16:5)

BULANZHE, Yu.D.

Fifth Conference of the Representatives of European and Asiatic Countries. Geofiz.biul. no.12:39-42 '62. (MIRA 16:5)
(Geophysics--International cooperation)

BULANZHE, Yu.D.

Secular variations of gravity. Geofiz.biul. no.12:74-80 '62.
(MIRA 16:5)
(Gravity—Secular variations)

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)

DOLGINOV, Sh. Sh. and BULANZHE, Yu. D.

Present state of magnetic measurement techniques.

Title: Conference on problems of marine magnetic surveys (held in Moscow in April 1962.

Source: Okeanologiya, v. 3, no. 4, 1963, p. 752

GERASIMOV, I.P., akademik, otv. red.; BULANZHE, Yu.D., doktor fiziko-matem. nauk, otv. red.; MESHCHERYAKOV, Yu.A., kand. geogr. nauk, otv. red.; VERSTAK, G.V., red.; GUSEVA, A.L., tekhn. red.

[Recent crustal movements] Sovremennye dvizheniia zemnoi kory; sbornik statei. Moskva, Izd-vo AN SSSR. No.1. 1963. 382 p.

(Earth--Surface) (MIRA 17:1)

ACCESSION NR: AT4024453 S/3010/63/000/013/0041/0042

AUTHORS: Avsyuk, Yu. N.; Bulanzhe, Yu. D.

TITLE: Base gravimetric stations in Antarctica

SOURCE: AN SSSR. Mezhduvedomstvenny*y geofizicheskiy komitet. Geofizicheskiy byulleten', no. 13, 1963, 41-42

TOPIC TAGS: gravimetry, gravimeter, base station, base gravimetric station, La Costa gravimeter

ABSTRACT: The Mirny station has been established as the primary base station for all Soviet work in Antarctica. The bench mark, a concrete slab in the cosmic-ray building, is at 66° 33.2' S. lat., 93° 00.9' E. long., and at an elevation of 20.7 m. The value of g at this station, determined by D. Sparkman with a La Costa gravimeter and tied to the value at Washington, is 982 407.4 ± 2.0 mgal (on the Potsdam base). The authors have verified this value through several Soviet stations, checking the gravity difference between these stations and the Mirny*y station on the one hand and between these stations and the Amundsen-Scott station of the U.S.A. on the other, and they agree with the Sparkman determination within 3.0 mgal, which they consider to be within the limits of measurement error. They

Card 1/2

ACCESSION NR: AT4024453

therefore accept Sparkman's value as a preliminary base value, subject to the refinements of more detailed work. Orig. art. has: 1 table.

ASSOCIATION: Mezhduvedomstvenny*y geofizicheskiy komitet AN SSSR (Interdepartmental Geophysical Committee AN SSSR)

SUBMITTED: 00 DATE ACQ: 16Apr64

SUB CODE: AS NO REF SOV: 000 ENCL: 00

OTHER: 000

Card 2/2

L 32563-66 EWT(l)/EWP(e)/EWT(m)/EEC(k)-2/EWP(h)/EWA(h) GW/WH

ACC NR: AR5014703 SOURCE CODE: UR/0270/65/000/005/0030/0031

AUTHOR: Bulanzhe, Yu.D.; Popov, Ye.I.; Tulin, V.A.

ORG: none

TITLE: Automatic processing of gravimetric observations

SOURCE: Ref. zh. Geodeziya. Otdel'nyy vypusk, Abs. 6.52.194

REF SOURCE: Sb. Vychisl. tekhn. v upravlenii. M., Nauka, 1964, 212-215

TOPIC TAGS: gravimetry, gravimeter, gravimetric analysis, aerial survey, data processing

TRANSLATION: The Aerogravimetric Laboratory of the Institute of the Physics of the Earth of the SSSR Academy of Sciences has developed a strongly damped gravimeter, based on the elastic properties of twisted quartz glass thread. The measurement of the force of gravity acceleration is made by the variation of the thread angle of twist. It is determined by the deflection angle of the pendulum. The instrument is used in naval gravimetry survey on submarines and surface ships, as well as for experimental work on aircraft. The time spent for processing of recordings, during which the effect of turbulent accelerations is excluded, significantly exceeded the time of observation. The special features and the conditions for automatic processing

Card 1/2

L 32563-66

ACC NR: AR5014703

of gravimetric data were studied. By observation from low-speed submarine or surface vessels, the automatic computor has only to perform the operation of averaging the record for a given period of time. In observation from an airplane the functions of the computor are more complex. Computing slipping average values of gravimeter indications or the current values of integral from the function, which represents the motion of elastic system pendulum in time, can be considered as a preliminary problem in this case. The device transforming the movement of the gravimeter pendulum into an analogy or code system must have an accuracy of 2'.5. The most comprehensive way of taking readings is the method in which the measurement unit of the pendulum swing is the change of the distance between two blocks, reflected from the elastic system speculum. Other known methods (for example the volume one) will hardly secure the necessary accuracy. B.U.

SUB CODE: 09, 08

Card 2/2

L 25617-65 EWT(1) GW
ACCESSION NR: AP5004552 S/0030/65/000/001/0104/0106

15
10
B

AUTHOR: Bulanzhe, Yu. D. (Doctor of physico-mathematical sciences)

TITLE: Investigation of contemporary motions of the earth's crust (Fourth interdisciplinary conference)

SOURCE: AN SSSR. Vestnik, no. 1, 1965, 104-106

TOPIC TAGS: geoactivity, geophysical research, earth crust, earthquake

ABSTRACT: The problem of observing the motion of the earth's crust was discussed in the fourth interdisciplinary conference at Tallinn, October 12-16, 1964. It was called by the Mezhduvedomstvennyy geofizicheskiy komitet pri Prezidium Akademii nauk SSSR (Interdisciplinary Geophysical Committee at the Praesidium of the Academy of Sciences SSSR), the Geomorfologicheskaya komissiya pri Otdelenii nauk o Zemle Akademii nauk SSSR (Geomorphological Commission of the Division of Earth Sciences, Academy of Sciences SSSR), instituty Fiziki i astronomii i Geologii Akademii nauk Estonskoy SSR (Institutes of Physics, Astronomy, and Geology, Academy of Sciences, Estonian SSR), and Pribaltiyskaya neotektonicheskaya komissiya (Near-Baltic Neotectonic Commission). Only qualitative explanations could be given for such crust movements. An understanding of physico-chemical processes within the earth

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L 25617-65
ACCESSION NR: AP5004552

was considered necessary before any quantitative estimates could be made. For example, crust deformations under heavy loads, such as those created by large water reservoir formation in river deltas, might shed some light on the physical properties of the earth. A systematic investigation is now under way in various Soviet territories, such as the Crimean polygon, Ashkhabad, Kamchatka, and other places, with geological, geomorphological and geophysical tools. Observations are made from variations in terrestrial surface slopes and 2- to 4-meter horizontal shifts in the vicinity of Ashkhabad. Plans were made in the conference to draw compound maps of vertical and horizontal crust movements in eastern Europe and to prepare polygons for intensive geological studies in various Soviet countries during the forthcoming three years.

ASSOCIATION: none

SUB CODE: ES

SUBMITTED: 00

ENCL: 00

NO REF SOV: 000

OTHER: 000

2/2

BULANZHE, Yu.D., prof., otv. red.

[Apparatus and experimental methods for gravimetric research] Apparatura i metody eksperimental'nykh issledovanii po gravimetrii. Moskva, Nauka, 1965. 108 p. (MIRA 18:3)

1. Akademiya nauk SSSR. Institut fiziki Zemli.

BULANZHE, Yu.D., doktor fiz.-matem. nauk

Study of the recent movements of the earth's crust; 4th inter-departmental conference. Vest. AN SSSR 34 no.1:104-106 Ja '65. (MIRA 18:2)

BULANZHE, Yu.D., doktor fiz.-matem. nauk

Symposium on the study of the figure of the earth held in Prague. Vest. AN SSSR 35 no.2:86 F '65. (MIRA 18:3)

BULANZHE, Yu.D., prof.

Does gravity change with time? Zem.i vsel. 1 no.2:7-13 Mr-Ap '65.
(MIRA 18:8)

BULANZHE, Yu.D., otv. red.

[Apparatus and methods for marine gravimetric observations] Apparatura i metody morskikh gravimetricheskikh nabliudenii. Moskva, Nauka, 1965. 132 p. (MIRA 19:1)

1. Akademiya nauk SSSR. Institut fiziki Zemli.

ACC NR: AT6011158 SOURCE CODE: UR/3197/65/000/002/0338/0343

AUTHOR: Bulanzhe, Yu. D.

ORG: Institute of the Physics of the Earth, AN SSSR (Institut fiziki zemli AN SSSR)

TITLE: Study of the contemporary movements of the earth's crust at permanent polygons [test areas]

SOURCE: AN EstSSR. Institut fiziki i astronomii. Sovremennyye dvizheniya zemnoy kory. Recent crustal movements, no. 2, 1965, 338-343

TOPIC TAGS: earth crust, geophysic research facility, gravimetry, seismology, epeirogeny, tectonics

ABSTRACT: Study of the contemporary movements of the earth's crust requires multidiscipline investigations including geology, geochemistry, geophysics, geomorphology, geodesy, astronomy, and other geosciences. Of particular importance is the study of the variations of geophysical fields which are the result of processes occurring in the Earth's interior. Since large-scale multidiscipline research is very complicated and expensive, the author proposes that studies of this type be carried out at special permanent polygons (test areas) located in regions with

Card 1/2 UDC: 550.342

ACC NR: AP6017986 (N) SOURCE CODE: UR/0413/66/000/010/0086/0086

INVENTOR: Bashilov, I. P.; Bulanzhe, Yu. D.; Dubovik, A. B.; Yerofeyev, V. I.; Kevlishvili, P. V.; Kobrin, L. V.; Kogan, B. Ya.; Kuz'min, A. I.; Popov, Ye. I.; Mikhaylov, N. N.; Churbakov, A. I.; Shileyko, A. V.

ORG: None

TITLE: An automatic device for determining acceleration due to gravity on a movable base. Class 42, No. 181833 [announced by the Institute of Physics of the Earth imeni O. Yu. Shmidt, AN SSSR (Institut fiziki Zemli AN SSSR)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 10, 1966, 86

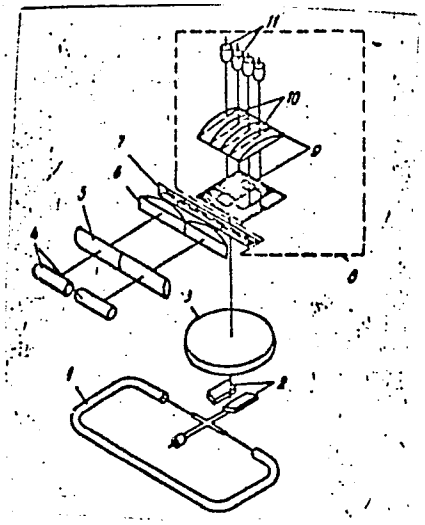
TOPIC TAGS: gravity, electron optics, electronic equipment, gravimeter

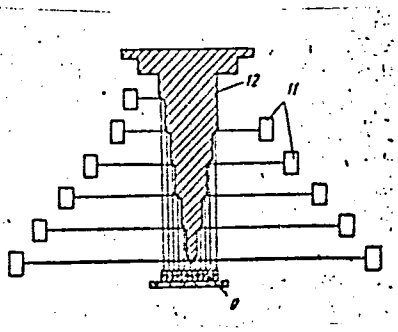
ABSTRACT: This Author's Certificate introduces an automatic device for determining acceleration due to gravity on a movable base, using a strongly damped elastic gravimeter system. The installation contains a meter for acceleration due to gravity, a system of mirrors, lens, light source, two condensers and a slotted prism. Accuracy of measurement is improved, and processing of the resultant information is sutomated by using an electron-optical converter which changes angles of turn of a pendulum to digital code. This converter is made in the form of a code mask with lenses attached. A prism is mounted behind the lenses with metallic mirrors and photocells.

UDC: 531.768.08:528.026

Card 1/2

ACC NR: AP6017986





1—accelerometer; 2—system of mirrors; 3—objective lens; 4—light source; 5 and 6—condensers; 7—slotted prism; 8—electron-optical converter; 9—code mask; 10—lenses; 11—photocells; 12—prism with metallic mirrors

SUB CODE: 09, 08/ SUBM DATE: 14May64

Card 2/2

ACC NR: AR6024298 SOURCE CODE: UR/0270/66/000/004/0035/0035

AUTHOR: Bulanzhe, Yu. D.

TITLE: Investigation of present motions of the Earth's crust on stationary platforms

SOURCE: Ref. zh. Geodeziya, Abs. 4.52.289

REF SOURCE: Sb. Sovrem. dvizheniya zemn. kory. No. 2. Tarty, 1965, 338-342

TOPIC TAGS: earth crust, earth gravity, earth magnetic field

ABSTRACT: The nature of present motions of the Earth's crust can be comprehended only by studying the mechanisms which govern the physicochemical processes occurring in the Earth's interior. These studies are to be made in combination with other sciences, such as geology, geochemistry, geophysics, geomorphology, geodesy, and astronomy. Of special importance are the studies of variations in the geophysical fields which, together with deformations of the crust, are caused by the physicochemical processes occurring in the Earth's interior. In view of the complexity and high costs of such large-scale operations it is suggested that the studies be made on special stationary platforms located in geologically different regions. As the first step the following operations are proposed: gravimetric and magnetometric surveys, seismic surveys and depth sounding, determination of the velocity of thermal currents and magnetotelluric sounding. Next the following systematic studies are recommended:

Card 1/2 UDC: 551.241

ACC NR: AR6024298

observation of vertical and horizontal crust motions, investigation of deformations and seismic and thermal regimes of the crust, and observation of slow variations in the gravity and the magnetic field. The following platforms have been or are being established in the Soviet Union: Crimea, Ashkhabad, Baskunchak, Garm, Alma Ata, and Petropavlovsk-on-Kamchatka. It is noted that the creation of similar platforms in the Caucasus, on Kola peninsula, and in the region of Baikal is of special scientific interest. [Translation of abstract] A. Pevnev

SUB CODE: 08

Card 2/2

BULASH, Mikhail Alekseyevich, kand. ekonom. nauk; DEMCHENKO, V.P., kand. ekon. nauk, otv. red.; TUBOLEVA, M.V.[Tubolieva,M.V.], red.

[Decisive factor in the development of mankind; development and consolidation of the international socialist economic system] Vyrishal'nyi faktor rozvytku liudstva; rozvytok ta zmitsnennia svitovoi sotsialistychnoi sistemy hospodarstva. Kyiv, 1961. 47 p. (Tovarystvo dlia poshyrennia politychnykh i naukovykh znan' Ukrains'koi RSR, Ser.4, no.4) (MIRA 14:9)
(Communist countries—Economic conditions)

BULASH, M.

In the branch of the academic institute staffed with volunteers.
Vop. ekon. no.9:156-157 S '63. (MIRA 16:9)

1. Uchenyy sekretar' Ukrainskogo otdeleniya Instituta ekonomiki mirovoy sotsialisticheskoy sistemy AN SSSR, Kiyev.
(Ukraine--Economic research)
(Mutual economic assistance council)

BULASHEVA, L.K.

A bounded Cuachy problem. Izv. AN Kazakh. SSR. Ser. fiz.-mat. nauk 3 no.1:65-71 Ja-Ap '65. (MIRA 18:5)

BULASHEVA, Ye.D.

Analysis of the effectiveness of therapeutic and preventive care based on materials of the medical-sanitary squad. Sov.zdrav. 15 no.5 supplement:8-9 O '56. (MIRA 10:1)

1. Zaveduyushchaya Stalingradskim gorzdravotdelom.
(INDUSTRIAL HYGIENE
morbidity among factory workers, lowered rate in Russia)
(VITAL STATISTICS
same)

KUZNETSOV, Petr Vasil'yevich; BULASHEVICH, D.N., redaktor; LARIONOV, G.Ye., tekhnicheskiy redaktor

[Installation of high tension distributors] Montazh raspredelitel'nykh ustroistv vysokogo napriazheniia. Izd. 2-oe, perer. Moskva, Gos. energ. izd-vo, 1956. 223 p. (MLRA 9:9)
(Electric switchgear)

BULASHEVICH, D.N.

KUZNETSOV, Petr Vasil'yevich; SMIRNOV, A.D., inzhener, redaktor; SOLOV'YEV, P.F., inzhener, redaktor; BULASHEVICH, D.N., redaktor; VORONIN, K.P., tekhnicheskiy redaktor.

[Installation of distributing equipment up to 35 kw] Montazh raspredelitel'nykh ustroistv napr‡azheniem do 35 kv. Moskva, Gos. energ.izd-vo, 1957. 272 p. (Spravochnik elektromontera, No.3)
(MIRA 10:11)
(Electric power distribution)

BULASHEVICH, Dmitriy Nikolayevich; YURENKOV, Viktor Dmitriyevich; KOZHEMYAKIN, V.G., inzh., retsenzent; BRANDENBURGSKAYA, E.Ya., red.; LARIONOV, G.Ye., tekhn.red.

[Capacitive take-off of power from an electric transmission line] Emkostnyi otbor moshchnosti ot linii elektroperedachi. Moskva, Gos.energ.izd-vo, 1959. 135 p. (MIRA 13:5)
(Electric lines)

KUZNETSOV, Petr Vasil'yevich; SMIRNOV, A.D., inzh., red.; SOLOV'YEV, P.F., inzh., red.; BULASHEVICH, D.N., red.; VORONIN, K.P., tekhn. red.

[Electrician's handbook] Spravochnik elektromontera. Pod red. A.D.Smirnova i P.F.Solov'eva. Moskva, Gos.energ.izd-vo. No.3.[Installation of distribution devices with voltages up to 35 kv.] Montazh raspredelitel'nykh ustroistv napriazheniem do 35 kv. 1957. 272 p. (MIRA 15:1)
(Electric engineering)

BULASHEVICH, D.N., inzh.

Determination of parameters and operating characteristics of capacitor power takeoff systems. Trudy VNIIE no. 20:5-43 '65 (MIRA 19:1)

Capacitor voltage transformers. Ibid.:59-91

BULASHEVICH, G.A., gornyy inzhener; GORDEYEV, V.P., gornyy inzhener; PERMYAKOV, V.M., gornyy inzhener

Improving boring and blasting operations in strip mines of the Noril'sk Combine. Vzryv. delo no.47/4:63-73 '61. (MIRA 15:2)

1. Gornometallurgicheskiy opytno-issledovatel'skiy tsekh Noril'skogo kombinata.

(Noril'sk region--Blasting) (Boring)

I 45704-66

ACC NR: AR6017571 SOURCE CODE: UR/0196/66/000/001/I045/I045

AUTHOR: Bulashevich, D. N.

REF SOURCE: Tr. Vses. n.-i. in-ta elektroenerg., vyp. 20, 1965, 59-91

TITLE: Capacitor voltage transformers

SOURCE: Ref. zh. Elektrotekhnika i energetika, Abs. 1I297

TOPIC TAGS: electric transformer, electronic transformer, electric capacitor

TRANSLATION: The advantages of capacitor voltage transformers over inductor voltage transformers are considered. An analysis of capacitive power selection (yield) for measurement purposes is given. The conversion scheme is analyzed, expressions for errors are derived, and the effect of various factors on summary error in the transformer is described. The operating characteristics of capacitor voltage transformers are examined and areas of application are suggested. 12 figures, 13 references.

SUB CODE: 09/ ~~SUBM DATE: none~~

UDC: 621.314.222.8

Card 1/1

BULASHEVICH, M.Ye. (Moskva).

Use of synthetic and vegetable estrogens in livestock farming. Usp. sovr. biol. 43 no.2:208-223 Mr-Ap '57. (MLRA 10:6)
(STILBENEDIOL) (STOCK AND STOCKBREEDING)

86434

S/181/60/002/011/020/042
B006/B056

6.3000 (1024, 1035, 1140)

AUTHORS: Korovin, L. I. and Bulashevich, T. Yu.

TITLE: Oscillations of the Absorption Coefficient of Tellurium in a Magnetic Field Running Along the Optical Crystal Axis

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 11, pp. 2795-2804

TEXT: An analysis of the absorption spectrum of tellurium single crystals in polarized light within the region of absorption by free carriers makes a construction of the hole band of tellurium possible. As already shown, the hole band is not degenerate and has either one extremum in the center of the Brillouin zone or two centers symmetrically arranged on the optical axis (C_3). Measurements of the absorption coefficient carried out by V. M. Korsunskiy and M. P. Lisitsa indicate that the second probability is more probable. The authors of the present paper study oscillations of the absorption coefficient in a magnetic field, which are due to direct transitions of electrons from the filled valence band to the hole band. Contrary to Refs. 5, 6, the dispersion law in the lower band is assumed to be not only quadratic but also linear with respect to the irreducible

Card 1/3

quantum number of the terms. Besides, the mutual position of the bands differs from their position in transitions into the conduction band. This entails an extraordinary dependence of the oscillations on light frequency. The absorption spectrum of infrared radiation in tellurium single crystals is calculated for a magnetic field that is parallel to the symmetry axis of the crystal. The calculations are carried out in single-electron approximation by the method of the effective mass. The present paper consists of two parts. Chapter 1 derives expressions for oscillations without taking account of collisions between electrons and phonons or impurity ions. This simplification causes the absorption coefficient to tend to infinity at certain frequencies. In Chapter 2, these collisions are taken into account by the phenomenological introduction of a half-width of the electron levels in the hole band. Thus, not only the position of the oscillation peaks on the frequency curve may be determined, but also the shape of the absorption peaks may be described. The results are finally discussed. Professor A. I. Ansel'm is thanked for discussions. There are 1 figure and 7 references: 4 Soviet and 3 US.

86434

Oscillations of the Absorption Coefficient of Tellurium in a Magnetic Field Running Along the Optical Crystal Axis

S/181/60/002/011/020/042
B006/B056

ASSOCIATION: Institut poluprovodnikov AN SSSR Leningrad
(Institute of Semiconductors of the AS USSR, Leningrad)

SUBMITTED: June 28, 1960

Card 3/3

BULASHEVICH, Ye. A.

AID P - 2784

Subject : USSR/Chemistry

Card 1/1 Pub. 152 - 12/19

Author : Bulashevich, Ye. A.

Title : A new laboratory method for preparation of phosphorus pentachloride by chlorinating red phosphorus in carbon tetrachloride

Periodical : Zhur. prikl. khim. 28, 4, 431-433, 1955

Abstract : A detailed description of the method is given. The phosphorus pentachloride obtained contained a very slight amount of phosphorus trichloride and 25-40% carbon tetrachloride. One diagram, 12 references (2 Russian: 1930-1947).

Institution : None

Submitted : Jl 12, 1952

BULASHEVICH, Ye. A.; TOLKACHEV, S. S.

Preparation of aluminum oxide dihydrate. Vest. LGU 19 no.10: 123-124 '64. (MIRA 17:7)

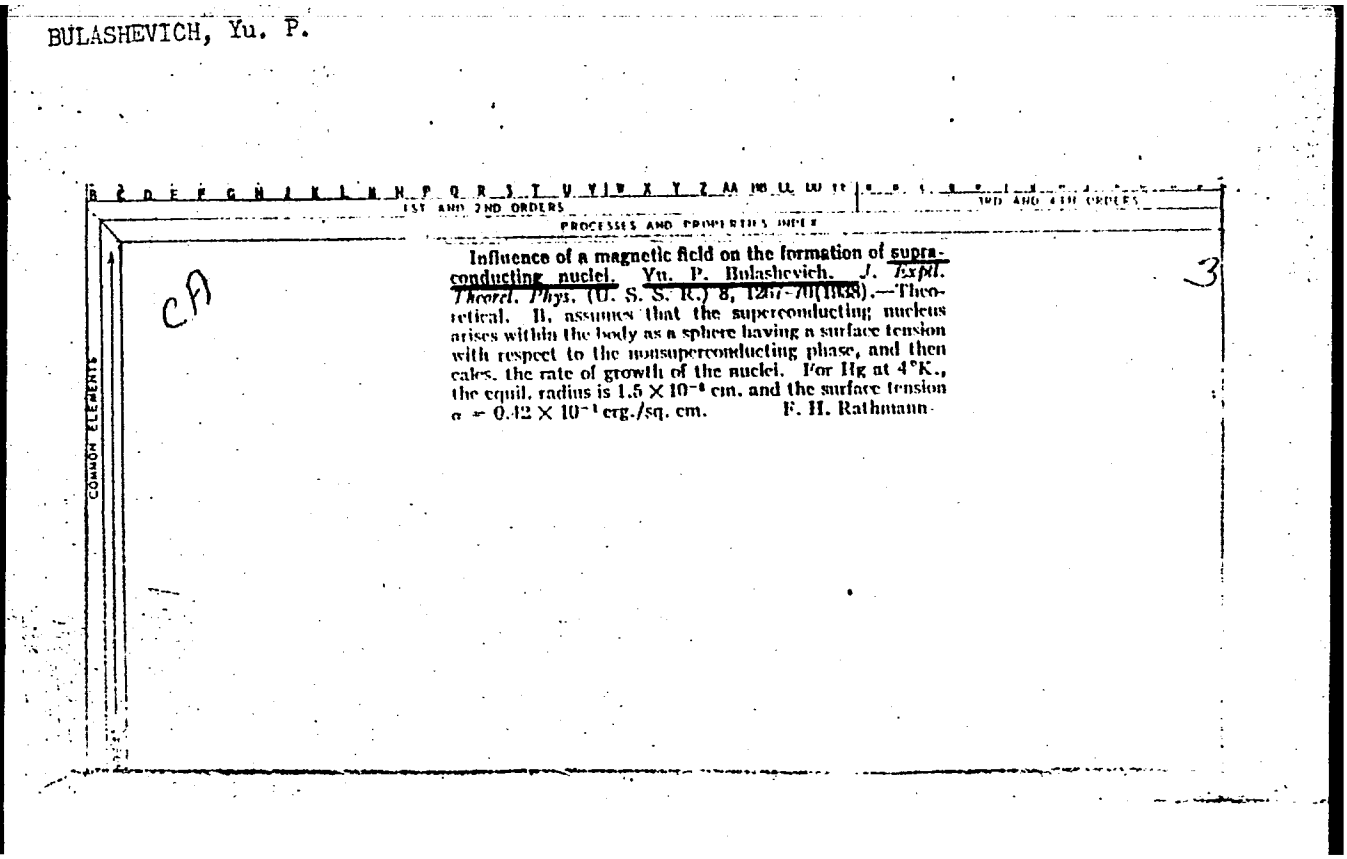
BULASHEVICH, YU. L.

BULASHEVICH, Yu.L.

Mapping graphitized rocks. Razved.i okh.nedr 23 no.2:59-60 F '57. (MLRA 10:5)

1.Gorno-geologicheskiy institut Ural'skogo filiala AN SSSR.
(Prospecting--Geophysical methods)

BULASHEVICH, Yu. P.



1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

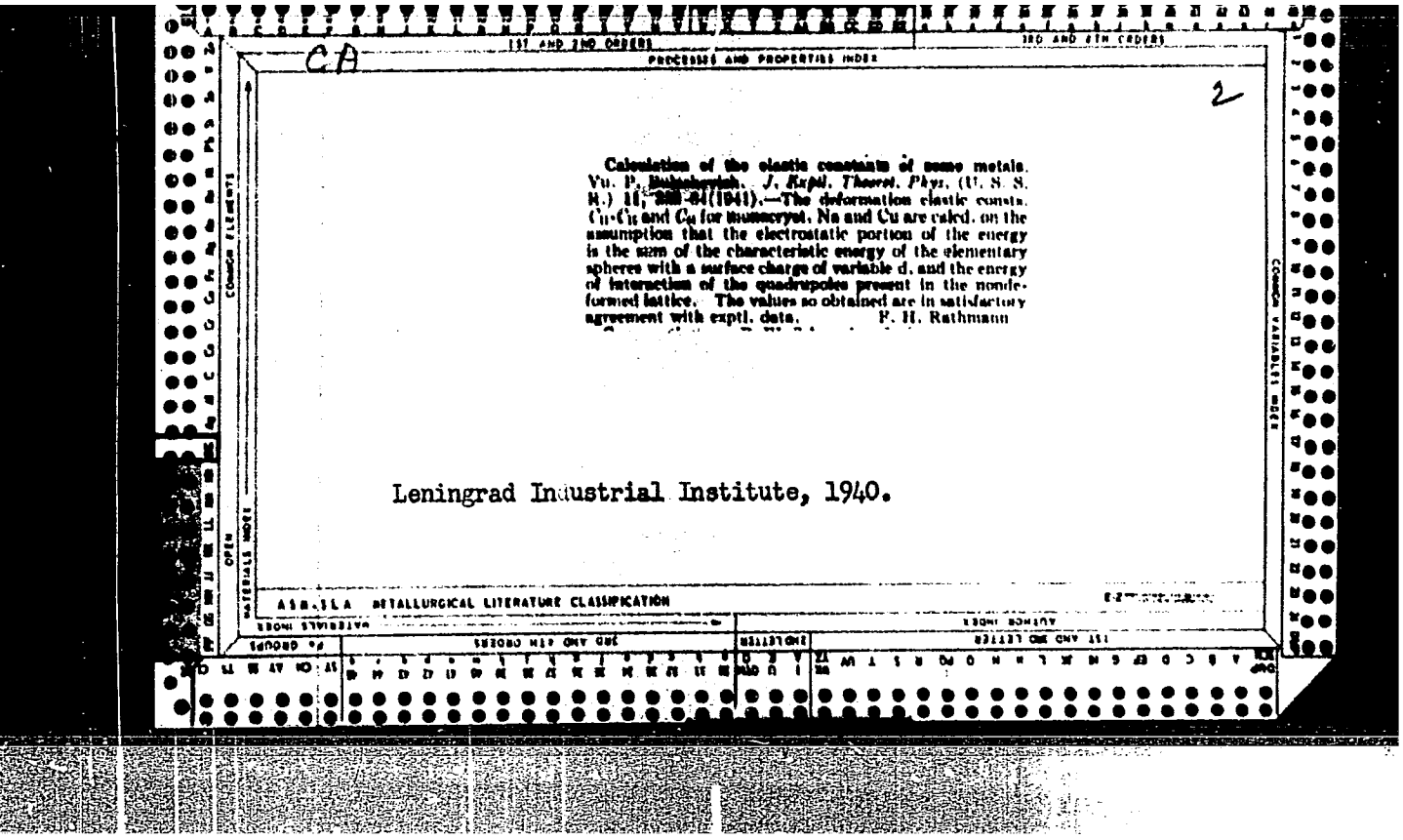
PROCESSES AND PROPERTIES INDEX

COMMON ELEMENTS

CA

3

Influence of a magnetic field on the formation of supra-conducting nuclei. Yu. P. Bulashevich. *J. Exptl. Theoret. Phys.* (U. S. S. R.) 8, 1267-70(1938).—Theoretical. B. assumes that the superconducting nucleus arises within the body as a sphere having a surface tension with respect to the nonsuperconducting phase, and then calcs. the rate of growth of the nuclei. For Hg at 4°K., the equil. radius is 1.5×10^{-4} cm. and the surface tension $\sigma = 0.42 \times 10^{-1}$ erg./sq. cm. F. H. Rathmann



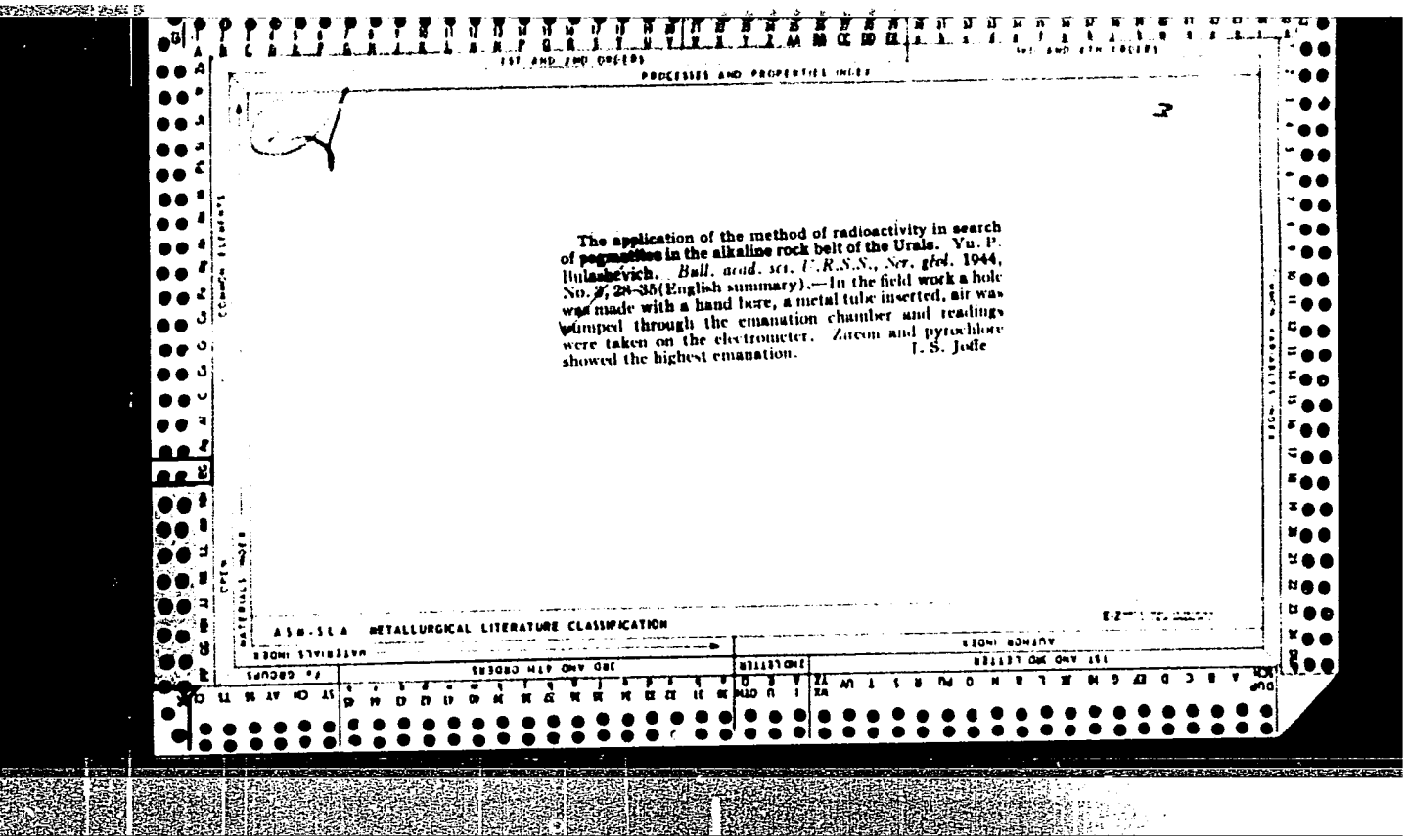
CA

2

Calculation of the elastic constants of some metals. Yu. P. Rubinshteyn. *J. Exptl. Theoret. Phys.* (U. S. S. R.) 11, 388-94(1941).—The deformation elastic consts. C_{11}-C_{12} and C_{44} for thermocryst. Na and Cu are calcd. on the assumption that the electrostatic portion of the energy is the sum of the characteristic energy of the elementary spheres with a surface charge of variable d. and the energy of interaction of the quadrupoles present in the nondeformed lattice. The values so obtained are in satisfactory agreement with exptl. data. F. H. Rathmann

Leningrad Industrial Institute, 1940.

ASM-TLA METALLURGICAL LITERATURE CLASSIFICATION



The application of the method of radioactivity in search of pegmatites in the alkaline rock belt of the Urals. Yu. P. Bulashevich. *Bull. acad. sci. U.R.S.S., Ser. géol.* 1944, No. 3, 28–35 (English summary).—In the field work a hole was made with a hand bore, a metal tube inserted, air was pumped through the emanation chamber and readings were taken on the electrometer. Zircon and pyrochlore showed the highest emanation. I. S. Joffe

550 18 [illegible]

On the Origin of Terrestrial Magnetism. V. [illegible] Bulashevich. (*Bull. Acad. Sci. U.R.S.S.*, [illegible], 1944, Vol. 8, Nos. [illegible], pp. [illegible]. In Russian.) According to Haalck's theory the existence of temperature and pressure gradients in the crust of the earth causes a partial movement of electrons from the central part of a metallic nucleus towards its periphery. The rotation of the redistributed charges, owing to the diurnal rotation of the earth, causes the appearance of the magnetic field. A formula is given for the magnetic moment M in which a coefficient β is determined by equating M to an observed value. Haalck's theory is based on erroneous conceptions of the behaviour of electrons in a metal and if β is calculated from theoretical considerations instead of an empirical comparison the formula for M will give a value [illegible] times too low.

Geophycial Section of Mining-geological Inst., Ural Branch of the Academy of Sciences.

CA

The theory of the interpretation of radioactive anomalies. Yu. P. Bulashevich. *Izvest. Akad. Nauk S.S.S.R., Ser. Geograf. i Geofiz.* 10, 469-81 (1946); *Chem. Zentr.* (Russian Zone Ed.) 1948, I, 1280.—The distribution of the emanation from sources of various kinds is treated mathematically. By making certain simplifying assumptions the equation is derived: $\Delta C - (\lambda/D)C = -Q/D$, in which Δ = the Laplace function, C = concn., λ = the disintegration const., D = the diffusion coeff., and Q = d. of the source of emanation. With the aid of the Dirac δ function and the Bessel functions, the distribution of the sources of emanation and the concn. of the emanation can be found. This offers an explanation of the observed anomalies in the distribution of emanation. M. G. M.

CA

Determination of the origin of the ionization of the air of the soil. Yu. P. Bolashevich. *Izvest. Akad. Nauk S.S.S.R., Ser. Geograf. i Geofiz.* 10, 510-51(1946). *Chem. Zentr.* (Russian Zone Ed.) 1948 I, 1289. On the assumption that the ionization of the air of the soil is caused by traces of radioactive minerals under the alluvium, a method is given for making allowance, in the calcn. of the strength of the emanation-producing substances, for the loss by diffusion in the atm.

M. C. Sloane

USSR/Geological Prospecting
Petroleum - Prospecting
Coal

Mar/Apr 1948

PA 41T43

"Use of the Theory of Neutron Core Sampling by Electrical Means in Prospecting for Oil and Coal Deposits," Yu. P. Bulashevich, Mining-Geol Inst, Sverdlovsk, 14 pp

"Izv Akad Nauk SSSR, Ser Geograf i Geofiz" Vol XII, No 2

Discusses method for calculating the retarding effect of fast neutrons. Delivered characteristic of the rock during neutron core sampling depends on the size of the neutron zone, and can change until it assumes a reverse characteristic. Presents a more effective

41T43

USSR/Geological Prospecting (Contd) Mar/Apr 1948

method of using neutron core sampling in surveying for petroleum and coal deposits. Submitted by Academician L. S. Leybenzon, 28 May 1947.

41T43

BULASHEVICH, Yu. P.

USSR/Geophysics - Carottage, Neutrons May/Jun 51

"Theory of the Neutron Carottage," Yu. P. Bulashevich, Mining-Geol Inst, Ural Affiliate, Acad Sci USSR

"Iz Ak Nauk SSSR, Ser Geofiz" No 3, pp 30-37

Derives soln for eq of diffusion of thermal neutrons taking into consideration stoppage of fast neutrons of source. Constructs curves showing distribution of neutron density around source for number of minerals and rocks that characterize presence of petroleum deposits. Discusses problem on conversion of neutron diagram in connection with variation in size of the sonde. Submitted 5 Feb 51 by Acad O. Yu. Shmidt.

186T41

BULASHEVICH, YU P.

FD-1789

USSR/Geophysics - Anomalies

Card 1/1 Pub 45-11/18

Author : Bulashevich, Yu. P.

Title : Anomalies in the case of stratum-shaped disturbing bodies

Periodical : Izv. AN SSSR. Ser. geofiz. 270-274, May-Jun 1955

Abstract : In the interpretation of anomalies of various force fields in geophysical prospecting widespread use has been made of the method of matching, based upon geological data and observed structure of the field without any assumptions as to the form of the body (stratum, ellipsoid, cylinder, etc.). In the present work the author analyzes the same mathematical expressions for areas where the form of the bodies are assumed beforehand to be stratum-shaped, without the nature of the anomaly being made definite; i.e. with definite limitations being placed on the type of anomaly, but not on the nature of the field. Eleven references; e.g. Yu. P. Bulashevich, "The relation between electrical and gravitational anomalies," Trudy Gorno-geol. in-ta UFAN SSSR (Works of Mining Geological Institute, Ural Affiliate, Academy of Sciences USSR), Symposium No 1, 1950.

Institution: Ural Affiliate of Academy of Sciences USSR, Mining-Geological Institute

Submitted : May 16, 1954

BULASHEVICH, Yu.P.

Calculating induced potential fields for spherical ore deposits. Izv.AN SSSR.Ser.geofiz. no.5:504-512 My '56. (MLRA 9:8)

1. Ural'skiy filial Akademii nauk SSSR, Gorno-geologicheskiy institut.
(Ore deposits--Electric properties)(Prospecting--Geophysical methods)

BULASHEVICH, Yu.P.; ZAKHARCHENKO, V.F.

Potential of a naturally polarized ellipsoidal body. Izv.AN SSSR Ser.geofiz. no.10:1174-1181 O '56. (MLRA 10:1)

1. Ural'skiy filial Akademii nauk SSSR Gorno-geologicheskiy institut. (Terrestrial electricity) (Ore deposits)

BULASHEVICH, Yu P.

CARD 1 / 2 PA - 1676

SUBJECT USSR / PHYSICS
AUTHOR BULAŠEVIČ, JU.P.
TITLE On the Self-Absorption of a Radiating Sphere.
PERIODICAL Žurn.techn.fis, 26, fasc.11, 2599-2600 (1956)
Issued: 12 / 1956

The derivation of the correction for the self-absorption of a radiating sphere, which was given by M.A.BAK et al. Zurn.techn.fis, 26, 379 (1956) can be considerably simplified. The density of the radiation current impinging at the point A and originating from a volume element $dv = 2\pi R^2 \sin\Theta \, d\Theta \, dR$ has the shape $dI = (Ke^{-\zeta\mu(R-R_1)}/R^2) \cos\Theta \, dv$. If this formula is integrated over R from R_1 to R_2 and within the corresponding limits over Θ, one obtains

$$I = (2\pi K/\zeta\mu) \int_0^{\arcsin \frac{a}{r}} \sin\Theta \cos\Theta \left[1-e^{-\zeta\mu(R_2-R_1)}\right] d\Theta.$$ One obtains

$R_2 - R_1 = 2r\sqrt{\cos^2\Theta - \alpha^2}$, and here it applies that $\alpha = \sqrt{1-(a/r)^2}$, where a denotes the radius of the sphere. With the substitution $x = \cos\Theta$ there follows

$$I = (2\pi k/\zeta\mu) \int_\alpha^1 (1 - e^{2\zeta\mu r\sqrt{x^2-\alpha^2}})x \, dx.$$ The computation of this interval is carried out elementarily and results in:

Žurn.techn.fis,26,fasc.11, 2599-2600 (1956) CARD 2 / 2 PA - 1676

$I/I_o = (3/4\mu a)\left\{1 - \frac{1}{2(\mu a)^2}\left[1 - (1 + 2\mu a)\, e^{-2\mu a}\right]\right\}$. Here I_o = $= (4/3)\pi a^3 (K/r^2)$ denotes the density of the radiation current in the case of lacking self-absorption.

The computation of the radiation intensity j which corresponds to measuring with a punctiform indicator is reduced to the above mentioned integral formula for I, but without the factor x in the function below the integral sign. This integral is taken in finite form in the special case of the spherical surface

$$j/j_o = (1/\mu a)\left[1 - \frac{1}{2\mu a}(1 - e^{-2\mu a})\right].$$

Here $j_o = 2\pi Ka$ denotes the intensity in the case of lacking self-absorption. The latter formula at $a \to \infty$ goes over into the known expression $j = 2\pi K/\mu$ for the radiation intensity on the surface of a radiating half-space.

INSTITUTION:

BULASHEVICH, Yu P

3(6,10); 9(6) pp 1,2,3,4 PHASE I BOOK EXPLOITATION SOV/1924

Akademiya nauk SSSR. Ural'skiy filial. Gorno-geologicheskiy institut.

Geofizicheskiy sbornik, no. 2. (Collected Papers on Geophysics, Nr. 2.) Sverdlovsk, 1957. 207 p. Issued also as Its Trudy, vyp. 30 Errata slip inserted. 2,400 copies printed.

Resp. Ed.: Yu.P. Bulashevich, Doctor of Physical and Mathematical Sciences; Ed.: I.M. Demin; Tech. Ed.: L.A. Izmodenova.

PURPOSE: This collection of articles is intended for field geophysicists and exploration party leaders.

COVERAGE: These articles discuss many new techniques and some theoretical considerations involved in gravitational, magnetic, seismic, electrical and gamma radiation exploration methods. In 4 articles V.N. Ponomarev discusses various aspects of magnetometry; N.I. Khalevin - the study of elastic wave propagation; and G.M. Voskoboynikov - gamma radiation. Extensive bibliographies accompany each articles.

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Collected Papers (Cont.) SOV/1924

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AVAILABLE: Library of Congress

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BULASHEVICH, Yu.P.; VOSKOBOINIKOV, G.M.

Gamma-ray logging in Ural coal mines and the possibility of careless boring of a portion of exploratory boreholes. Izv. AN SSSR. Ser.geofiz. no.1:109-112 Ja '57. (MIRA 10:3)

1. Ural'skiy filial AN SSSR. Gorno-geologicheskiy institut.
(Prospecting--Geophysical methods) (Coal geology)

SOV/169-59-3-2292

Translation from: Referativnyy zhurnal, Geofizika, 1959, Nr 3, pp 33 - 34 (USSR)

AUTHOR: Bulashevich, Yu.P.

TITLE: The Analogy Principle for Simulating the Polarization of Ore Bodies by Current

PERIODICAL: Tr. Gorno-geol. in-ta, Ural'skiy fil. AS USSR, 1957, Nr 30, pp 53 - 59

ABSTRACT: The author shows that it is impossible to perform an unambiguous distinction between ore-bearing and rock anomalies when using the conventional electrical prospecting methods, since the anomalies of artificial constant and quasiconstant fields are connected only with the difference of the specific resistances and do not depend on the current passage mechanism. It is of great importance that a deposit behaves in a current field as an ideal conductor, beginning with some higher conductivity of the deposit compared to the conductivity of the enclosing rocks. In this case, the intensity of the anomaly is determined only

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The Analogy Principle for Simulating the Polarization of Ore Bodies by Current

by geometric factors - dimensions of the ore body, its shape and depth of occurrence, but not by the degree of difference in electric conductivity. Boundary values of the anomaly correspond to comparatively small differences in conductivity. Thus, high values of electroconductivity of pyrite occurrences are not the basis for a reliable distinction of ore anomalies. The author discusses the influence of the polarization in the zones near the electrodes on the observation results obtained by the method of induced polarization. A criterion is developed for the analogy between results of the simulation and field investigations. This criterion will be $1/\rho_a \cdot a \cdot J_o/J_{res} = \text{const}$ for spherical deposits, where ρ_a - resistance of the surrounding medium; a - radius of the deposit; J_o - current density in the normal field; J_{res} - density of the residual discharge current. The introduction of linear dimensions of the object into the criterion is connected with the fact that the anomaly from a sphere is proportional to the volume, i.e. a^3, in the residual field in the zones around the electrodes, while the field of induced polarization is proportional to the surface area. The assumption of an intense polarization of the zones around the electrodes and their discharge after

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The Analogy Principle for Simulating the Polarization of Ore Bodies by Current

switching off the feed current is of essential importance for the analogy criterion. Special experiments under laboratory and field conditions are recommended for checking the criterion developed and also for explaining the influence and extent of polarization zones around the electrodes.

A.A. Smirnov

BULASHEVICH, Yu.P.

Magnetic field in horizontal strata with heterogenous distribution of magnetic minerals. Trudy Gor.-geol. inst. no.30:100-104 '57. (MIRA 11:7)

(Magnetic fields)

SOV/169-59-2-1253

Translation from: Referativnyy zhurnal, Geofizika, 1959, Nr 2, p 35 (USSR)

AUTHOR: Bulashevich, Yu. P.

TITLE: The Equivalence of the Volume and Surface Radiation

PERIODICAL: Tr. Gorno-geol. in-ta, Ural'skiy fil. AS USSR, 1957, Nr 30, pp 146 - 151

ABSTRACT: The author proposes the method of substitution of the equivalent surface density (ESD) for the volume density of γ-emitters to simplify the computation of intensity of the γ-emission from volume sources. A formula connecting the magnitude of volume density with the ESD is derived for an emitting stratum covered by an inactive layer. The formulae are cited for the case of an emitting stratum of unlimited thickness, outcropping on the surface, and of an emitting thin layer. Examples are given for computing the intensity of γ-emission from an unlimited band, from a semiplane, and from an element of a circular ring. The author points out that the results are best in the case of limited bodies, when the volume density is substituted by the ESD. It is assumed for deriving the formulae and for calculations that the original and recorded γ-emissions are monochromatic.

A.A. Fedorov

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Y. P. BULASHEVICH

"GAMMA-EXPANTION METHOD OF EVALUATION OF RADIOACTIVITY ANOMALIES"

by Y. P. Bulashevich

Report presented at 2nd UN Atoms-for-Peace Confer nce, Geneva, 8-20 Sep 1958

AUTHOR: Bulashevich, Yu. P.

TITLE: Method of Determination of Emanating Coefficient of Rocks in Natural Strata (Metod opredeleniya koeffitsiyenta emanirovaniya gornykh porod v yestestvennom zaleganii)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Geofizicheskaya, 1958, Nr 11, pp 1383-1388 (USSR)

ABSTRACT: The concentration of emanation in the pore air depends not only on the radio-active elements but also on the coefficient of emanating and porosity, or more exactly on their relationship. Therefore, the emanating fields should be classified according to their Radon (or Thoron) content and the emanating coefficient. The emanating coefficient should be determined in the conditions of natural stratification of rocks. This can be done by means of combining the emanation and gamma intensity measurements performed for the same points. The method is simple. The pore concentration of emanation depends on the relative emanating coefficient and the percentage of initial radio-active element, while the intensity of gamma radiation depends only on content. From two equations describing this relationship, it is possible

Method of Determination of Emanating Coefficient of Rocks in Natural Strata

to exclude the content in order to find the emanating coefficient. To find the amount of concentration of emanation the equations (2.1) for Radon, R_n, can be used (Ref 2) where α_{Rn} - concentration coefficient of Radon, η - porosity, ρ - volume weight, q - content of radium. If the uran P_U content is substituted, the equation (2.2) is obtained. If the emanometer is scaled in emans, the initial electric current i_{Rn} gives the value of concentration, i.e.

$$i_{Rn} = C_{Rn}.$$

When the amounts of Thoron and Radon become equal, this current for each element can be expressed as

$$i_{Tn} = e\lambda_{Th} \frac{N}{A_{Th}} (k_{Tn} + k_{ThA});$$

$$i_{Rn} = e\lambda_U \frac{N}{A_U} k_{Rn}$$

Card 2/7 therefore, the transition coefficient can be calculated

Method of Determination of Emanating Coefficient of Rocks in Natural Strata

as $k = \frac{i_{Tn}}{i_{Rn}} \simeq 0.8$.

The assumption is made in this case that all the ions from the decomposition of Thoron remain in the camera of the emanometer. To find the relation of the initial current i_{Tn} to the content (in percentage) of Thoron in the formula (2.2), the Eq.(2.3) is used. The actual concentration of Thoron is found by eliminating the factor of ionisation (Ref 5) from i_{Tn} and the new equation defined:

$$C_{Tn} = \frac{k_{Rn}}{k_{Tn} + k_{ThA}} i_{Tn} = 0.42 i_{Tn} .$$

In order to determine the emanating coefficient, the percentage of thorium and uranium in formulae (2.2) and (2.3) should be substituted by the intensity of gamma radiation. Thus, the equation (3.1) is obtained where A, B and C - conversion coefficients (Table 1), I_o - residual ions. The determination of the emanating

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Method of Determination of Emanating Coefficient of Rocks in Natural Strata

coefficient in practice depends on the various conditions. The most common case is when only one radiating element is present. If $I = AP_U$ (4.1), then from (2.2) and (4.1) the relation (4.2) is obtained for uranium. Similarly, the relation (4.3) is obtained from (2.3) for gamma radiation of Thoron. By using the formulae (4.2) and (4.3) it is possible to find the different emanation characteristics. For instance, three types of Radon anomalies can be distinguished by taking account of the emanating coefficient

$\frac{\alpha_{Rn}}{\eta}$ greater than 1 (slow emanation),

greater than 5 (Radon aureole) and less than 1 (increased initial radiation). The first case of Radon anomaly is found in the layers of granite-gneiss and graphitic rocks. The measurements were made by the author (Ref 11) of ionisation currents and of the intensity of gamma radiation and some of the results are given in Table 2. According to this data the relationship of thorium and

Method of Determination of Emanating Coefficient of Rocks in Natural Strata

uranium in granite-gneiss rocks could be expressed as:

$$\frac{\alpha_{Rn}}{\alpha_{Rn}} = 0.8 \frac{P_{Rh}}{P_U} \frac{i_{Rn}}{i_{Tn}} ,$$

i.e. $\alpha_{Rn} \tilde{=} \alpha_{Tn}$.

The graphitic-carbonaceous-silicon slates are characterized by the high emanation of gamma radiation, the ratio of α_{Rn}/η being equal to 3.4. The emanation of Thoron in this case is small, similar to granite-gneiss rocks. In order to determine the emanating coefficient of exo-contact rocks in the granite intrusive layers, with the variable concentration of Radon showing some correlation to the gamma intensity, the measurements were carried out by means of the two lines method (L-1 and L-2). The results of one line (L-1) are shown in Fig.1 (1 - ionisation current of Radon, 2 - Thoron, 3- gamma intensity). In order to determine the distribution of

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Method of Determination of Emanating Coefficient of Rocks in Natural Strata

emanation with depth for the maximum points of C_{Rn}, two holes, 4 and 4.5 m deep, were drilled (Sh-1, Sh-2). The mean values of the ionisation current and gamma intensity are shown in Table 3. It is possible to determine the relative emanating coefficient of Radon at the maximum point by the application of the whole value of gamma intensity. Thus, for the point 2 of L-1 (Fig.1) with volume weight 2 g/cm^3 the ratio $\alpha_{Rn}/\eta = 1.7$ is obtained. It is possible to calculate this coefficient for Sh-1 by taking the mean concentration of Radon and the gamma intensity relative to L-1 (Table 3). The surplus of Radon will be 1650 emans and of gamma intensity 171 mkr/hr. Substituting these values into the formula (4.2) the relative emanating coefficient of Radon for Sh-1 was found to be 2.1. Similarly, the emanating coefficient can be calculated for Sh-2 and L-2. Generally, it can be stated that the measurements show that the relative emanating coefficient represents a constant value dependent on the kind of rock. When the calculation is based on Radon, the coefficient is equal

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to 0,24 for bituminous granite-gneiss, 3,4 for granite-carbonaceous-silicon slates and 1,8-2,1 for granite-gneiss in exo-contact granite intrusion layer. There are 3 tables, 1 figure and 11 references, all of which are Soviet.

ASSOCIATION: Ural'skiy filial AN SSSR, Institut geofiziki (Ural Branch of the Ac.Sc. USSR, Institute of Geophysics)

SUBMITTED: November 22, 1957

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BULASHEVICH, Yu. P.

21(4) PHASE I BOOK EXPLOITATION SOV/2714

International Conference on the Peaceful Uses of Atomic Energy. 2nd, Geneva, 1958

Doklady sovetskikh uchenykh; yadernoye goryucheye i reaktornyye metally. (Reports of Soviet Scientists; Nuclear Fuel and Reactor Metals) Moscow, Atomizdat, 1959. 670 p. (Series: Its: Trudy, vol. 3) 8,000 copies printed.

Ed. (Title page): A.A. Bochvar, Academician, A.P. Vinogradov, Academician, V.S. Yemel'yanov, Corresponding Member, USSR Academy of Sciences, and A.P. Zefirov, Doctor of Technical Sciences; Ed. (Inside book): V.V. Pereverzev and G.M. Pchelintseva; Tech. Ed.: E.I. Mazel'.

PURPOSE: This volume is intended for scientists, engineers, physicians, and biologists working in the production and peaceful application of atomic energy; for professors and students of schools of higher technical education where the subject is taught; and for people interested in atomic science and technology.

COVERAGE: This is volume 3 of a 6-volume set of reports on atomic energy, presented by Soviet scientists at the Second International Conference on the Peaceful Uses of Atomic Energy, held in Geneva from September 1 to 13, 1958. Volume 3 consists of two parts. The first part, edited by A.I. Zubov, is devoted to geology, prospecting, concentration and processing of nuclear source material. The second part, edited by G.L. Zverev, includes 27 reports on metallurgy, metallography, processing technology of nuclear fuels and reactor metals, and neutron irradiation effects on metals. The titles of the individual papers in most cases correspond word for word with those in the official English language edition on the Conference proceedings. See SOV/2081 for the titles of the other volumes of the set.

Tishkin, A.I., G.A. Tenenbaum, G.D. Gladyshev, L.V. Mil'nikov, V.A. Politkarpova, and M.S. Tayhul'skaya. Paragenetic Associations of Hydrothermal Uranium Minerals in Uranium Deposits of the Soviet Union (Report No. 2201) 110

Germanov, A.I., S.G. Batulin, G.A. Volkov, A.K. Lisitsin, and V.S. Serebrennikov. Some Regularities of Uranium Distribution in Underground Waters (Report No. 2499). 134

New Data on Uranium Minerals in the USSR (Report No. 2060) 160

Grammakov, A.G., N.V. Kvashnevskaya, A.I. Nikonov, M.M. Sokolov, [illegible] Bochevanov, S.A. Summ, and [illegible] Some Theoretical and Methodical Problems of Radiometric Prospecting and Survey (Report No. 2505) 199

Bulashevich, Yu. P. The Gamma-ray Emanation Method for Classifying Anomalies in Radioactivity (Report No. 2245) 218

Kovda, G.A., and M.L. Skrinichenko. Some Problems of Radiometric Uranium Ore Concentration (Report No. 2061) 227

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21(8)

AUTHORS: Bulashevich, Yu. P., Kartashov, N. P. SOV/89-6-5-23/33

TITLE: On the Shifting of the Equilibrium Between Radon and Its Decay Products in an Air Current (O sdvige ravnovesiya mezhdu radonom i produktami yego raspada v vozdushnom potoke)

PERIODICAL: Atomnaya energiya, 1959, Vol 6, Nr 5, pp 584-585 (USSR)

ABSTRACT: In a mine in which emanating rock is found, the exhaust air contains radon and its decay products. The shifting of equilibrium is calculated. Radon concentration may be calculated from $v\frac{\partial c}{\partial x} + \lambda c = \frac{ql}{S} = Q$ (1), where q denotes the quantity of radon yielded per unit area in the mine, v - the convection velocity of the exhaust air, c - radon concentration, λ - radon decay constant, l - perimeter of the excavation, S - the area of the excavation. The exhaust air is assumed to move in the x-direction. If $c = 0$ and $x = 0$, $c = \frac{Q}{\lambda}\left[1 - \exp(-\frac{\lambda}{v}x)\right]$ is calculated from (1). As $\frac{x}{v} = t$ (time during which the air volume element passes over the excavation), the following is obtained for the

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RaA-concentration (in analogy to the solution of equation (1)): $\frac{dc_A}{dt} + \lambda_A c_A = Q\left[1 - \exp(-\lambda t)\right]$. The RaA-concentration, which is in equilibrium with Rn, is obtained from $c_A = Q\left\{\frac{1-\exp(-\lambda t)}{\lambda_A - \lambda} + \frac{\lambda\left[1-\exp(-\lambda_A t)\right]}{\lambda_A(\lambda - \lambda_A)}\right\}$. Thus, as shifting coefficient η_A for RaA equilibrium the following is obtained: $\eta_A = \frac{\lambda_A}{\lambda_A - \lambda} + \frac{\lambda}{\lambda - \lambda_A}\frac{\left[1-\exp(-\lambda_A t)\right]}{\left[1-\exp(-\lambda t)\right]}$. The corresponding coefficients for RaB and RaC are derived in the same manner, and all three are recorded in form of curves in dependence on t (0 to 60 min). The sum coefficient η_{A+B+C} is formed graphically. If the η-values and Rn-concentration are known, it is possible from $c_i = \eta_i c$ $\mu\mu C/l$ to calculate the concentration of any decay product. In the case of nonuniform emanation, calculation of

On the Shifting of the Equilibrium Between Radon and Its Decay Products in an Air Current SOV/89-6-5-23/33

η is more complicated. At the air exhaust outlet a higher concentration may be expected than in the case of a homogeneous emanation. There are 1 figure and 5 references, 3 of which are Soviet.

SUBMITTED: January 6, 1959

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S/049/59/000/12/007/027
E032/E591

AUTHORS: Bulashevich, Yu. P. and Khayritdinov, R.K.

TITLE: On the Theory of Diffusion of Emanations in Porous Media

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya geofizicheskaya, 1959, Nr 12, pp 1787-1792 (USSR)

ABSTRACT: The present paper examines the basic equations of the theory of diffusion of radioactive emanations in porous media, and gives a general derivation of the diffusion equation, taking convection into account. The diffusion and convection currents are defined by Eqs (2.1) and (2.2), where c is the concentration of the emanation in the pores, D is the diffusion coefficient, η is the porosity, Q is the rate of liberation of the emanation into the pores per unit volume of the medium, λ is the decay constant of the emanation and v is the velocity of convective transport. The rate of change of the amount of the emanation in the pores in a volume τ can then be written in the form given by Eq (2.3). By transforming the surface integrals into volume integrals and equating

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the integrands, one obtains Eq (2.4). In the case of a uniform porous medium, and with v = const, Eq (2.5) is obtained. Eqs (2.4) and (2.5) also describe the case where the pores are filled by a liquid rather than by gas. If surface phenomena are excluded, then on the boundary between two porous media, the total diffusion and convection current density must be continuous and this is expressed by Eq (2.7). The normal velocity components on the separation boundary are subject to special boundary conditions. In particular, in the case of filtration of an incompressible liquid, Eq (2.8) must be obeyed. Bearing this equation in mind, the boundary condition (2.7) may be rewritten in the form given by Eq (2.9). If the diffusion of the emanation can be neglected in comparison with the convective transport, then $D_1 = D_2 = 0$, and the degree of equation (2.5) is reduced. Accordingly, Eq (2.9) gives a single sufficient condition on the separation boundary, namely, the condition given by Eq (2.10). In the absence of convection, Eq (2.9) leads to Eq (2.11).

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In this case, Eq (2.10) becomes an extra requirement. It is shown that this extra condition is satisfied in the case of a stationary distribution of the emanation. In the case of stationary diffusion, Eq (2.5) leads to Eq (2.12). The above equations, namely, Eq (2.12) and the boundary conditions, may be rewritten in the form given by Eqs (2.12) to (2.15), where $c^* = \eta c$ and $D^* = D/\eta$. In the majority of papers on the theory of the emanation method, use is made of Eq (2.13) and the boundary condition (2.15). However, the condition (2.14) is usually replaced by $c^*_1 = c^*_2$ and no indication is given as to which concentration is being considered, i.e. volume concentration or pore concentration. To check this point, an experiment has been carried out and it was found that if the dimensions of the micropores are greater than the mean free path of the diffusing atoms of the emanation, then the concentration in the pores is continuous across the separation boundary of two media with different porosity. It is pointed out

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that the numerical results obtained by Budde (Ref 8) are incorrect because his calculations were carried out on the basis of equations of the type given by Eq (4.1) with boundary conditions (4.2) and (4.3). It is shown, however, that under these boundary conditions the correct diffusion equation is

$$\Delta c - \frac{\lambda \eta}{D} c = 0.$$

The experimental work reported in the present paper was done on builders' sand with a density of 1.40 g/cm^3, porosity of 39% and humidity of 4%. The diffusion length was found to be 80 cm and the diffusion coefficient 0.54×10^{-2} cm^2/sec.
There are 1 figure and 10 references, 9 of which are Soviet and 1 German.

ASSOCIATION: Ural'skiy filial AN SSSR Institut geofiziki
(Ural Branch of the Ac.Sc., USSR, Institute of Geophysics)

SUBMITTED: April 4, 1959

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S/049/60/000/02/008/022
E131/E459

AUTHORS: Bulashevich, Yu.P. and Shulyat'yev, S.A.

TITLE: The Optimal Conditions of Activated Continuous Prospecting

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya geofizicheskaya, 1960, Nr 2, pp 253-262 (USSR)

ABSTRACT: The authors describe their research on the distribution of activated atoms along the axes of wells. The activation was effected by the generator of neutrons being in motion, stationary or pulsating. The relationship between this distribution and the speed of prospecting and the parameters of the medium were also considered. The amount of atoms of a radioactive isotope produced by the activation during the time t_o was calculated from Eq (1.1), where λ - constant of decaying, N_o - maximum possible number of activated atoms. The rate of activation per unit of a cylindrical layer is given as Eq (2.1), where z - coordinate of the observation point, vt - coordinate of the source of neutrons, L - parameter of the distribution, A - rate of activation. The expression (2.1) corresponds to the experimental distribution of the thermal neutrons. The

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experiments showed that in the case of a Po-Be in water and $r > 20$ cm, $\rho r^2 = ke^{-r/L}$ (ρ is the density of thermal neutrons), the migration distance is equal to 10 cm. The linear density of the activated atoms n can be determined from Eq (2.2), where ν is obtained from Eq (2.1). The initial conditions are defined by the relationships (2.3) to (2.10). Fig 1 shows the distribution of the activated aluminium in bauxite calculated from Eq (2.9) and (2.10) for different speeds of prospecting. It can be considered that the intensity of γ-radiation is proportional to the concentration of the radioactive isotope as shown by Eq (2.11). The optimal sounding is obtained when its length is equal to the distance between the generator of neutrons and the point of maximum concentration of activated atoms; this can be found from Eq (3.1) (see Fig 1). Fig 2 shows the relationship (2.10) calculated for the concentration of activated atoms Al in bauxite and the speed of prospecting for a constant sounding $d = 150$ cm. The optimal speed can be calculated from Eq (3.2) for the

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condition $(dn/dv) = 0$ and d = constant. The rate of activation produced by the pulsating generator of neutrons can be determined from Eq (4.1). In this case the conditions in front of the generator are described by Eq (4.2) and those behind it from Eq (4.3). The density of activated atoms at a distance d behind the generator can be calculated from the latter equation when $z = vt - d$. The expression (4.3) can be simplified when $d = 0$ and can be shown as Eq (4.7) and (4.8). If the activation is performed in respect to one out of many elements in a rock, the proportion of neutrons Q_o used for activation of that particular element can be calculated from Eq (5.1), (5.2) and (5.3), where τ_o is the mean lifetime of a thermal neutron in a rock, $\bar{\lambda}_o$ is the mean rate of capture of the thermal neutron, v is its mean velocity, ν_i is the density of i-atoms, σ_i is the corresponding rate of capture, N_o is the total number of thermal neutrons in a rock. The total number of activated atoms of aluminium in the bauxite zone of the hydrargillite structure can be

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calculated from Eq (5.8). Fig 4 shows the relationship between the proportion of neutrons used for activation of Al and the content of Al_2O_3. It can be seen from this figure that the magnitude I (Eq 5.10) increases faster than the concentration of Al_2O_3. There are 4 figures and 15 Soviet references.

ASSOCIATION: Ural'skiy filial AN SSSR Institut geofiziki (Ural Branch of the Academy of Sciences USSR, Institute of Geophysics)

SUBMITTED: June 27, 1959

BULASHEVICH, Yu.P.

"Nuclear geophysics"; collection of articles on the use of radioisotope emissions in petroleum geology. Izv. AN SSSR. Ser. geofiz. no.8:1223-1226 Ag '60. (MIRA 13:8)

(Prospecting—Geophysical methods) (Petroleum geology)
(Radioactivity)

BULASHEVICH, Yu P

PHASE I BOOK EXPLOITATION SOV/5592

Vsesoyuznoye soveshchaniye po vnedreniyu radioaktivnykh izotopov i yadernykh izlucheniy v narodnom khozyaystve SSSR. Riga, 1960.

Radioaktivnyye izotopy i yadernyye izlucheniya v narodnom khozyaystve SSSR; trudy Vsesoyuznogo soveshchaniya 12 - 16 aprelya 1960 g. g. Riga, v 4 tomakh. t. 4: Poiski, razvedka i razrabotka poleznykh iskopayemykh (Radioactive Isotopes and Nuclear Radiation in the National Economy of the USSR; Transactions on the Symposium Held in Riga, April 12 - 16, 1960, in 4 volumes. v. 4: Prospecting, Surveying, and Mining of Mineral Deposits) Moscow, Gostoptekhizdat, 1961. 284 p. 3,640 copies printed.

Sponsoring Agency: Gosudarstvennyy nauchno-tekhnicheskiy komitet Soveta Ministrov SSSR. Gosudarstvennyy komitet Soveta Ministrov SSSR po ispol'zovaniyu atomnoy energii

Eds. (Title page): N. A. Petrov, L. I. Petrenko, and P. S. Savitskiy; ed. of this volume: M. A. Speranskiy; Scientific ed.: M. A. Speranskiy; Executive Eds.: N. N. Kuz'mina and A. G. Ionel';

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Radioactive Isotopes and Nuclear (Cont.) SOV/5592

Tech. Ed.: A. S. Polosina.

PURPOSE : The book is intended for engineers and technicians dealing with the problems involved in the application of radioactive isotopes and nuclear radiation.

COVERAGE: This collection of 39 articles is Vol. 4 of the Transactions of the All-Union Conference of the Introduction of Radioactive Isotopes and Nuclear Reactions in the National Economy of the USSR. The Conference was called by the Gosudarstvennyy nauchno-tekhnicheskiy komitet Sovet Ministrov SSSR (State Scientific-Technical Committee of the Council of Ministers of the USSR), Academy of Sciences USSR, Gosplan SSSR (State Planning Committee of the Council of Ministers of the USSR), Gosudarstvennyy komitet Soveta Ministrov SSSR po avtomatizatsii i mashinostroyeniyu (State Committee of the Council of Ministers of the USSR for Automation and Machine Building), and the Council of Ministers of the Latvian SSR. The reports summarized in this publication deal with the advantages, prospects, and

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development of radioactive methods used in prospecting, surveying, and mining of ores. Individual reports present the results of the latest scientific research on the development and improvement of the theory, methodology, and technology of radiometric investigations. Application of radioactive methods in the field of engineering geology, hydrology, and the control of ore enrichment processes is analyzed. No personalities are mentioned. There are no references.

TABLE OF CONTENTS:

BULASHEVICH, Yu.P.; SEN'KO-BULATNYY, I.N.

Experimental testing of optimum conditions for continous activation logging. Izv. AN SSSR. Ser. geofiz. no.4:541-543 Ap '61. (MIRA 14:3)

1. Institut geofiziki Ural'skogo filiala AN SSSR.
(Radioactive prospecting)

DYAKDIN, I. G., BUTASEVICH, Yu. P. and V[illegible]ETKOV, G. M.

"Some problems in the theory of [illegible]."

report to be submitted for the Conference on Nuclear Geophysics, Krakow, Poland, 24-30 Sept 1962.

BULASHEVICH, Yu.P.; SEN'KO-BULATNYY, I.N.; DEYEV, L.L.

Gamma-spectrometric activation logging. Izv. AN SSSR. Ser. geofiz. no.9:1153-1157 S '62. (MIRA 15:8)

1. Ural'skiy filial AN SSSR, Institut geofiziki.
(Radioactive prospecting)

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ACCESSION NR: AT5022651 UR/2874/65/000/003/0003/0015

AUTHOR: Bulashevich, Yu. P.; Khalevin, N. I.; Timofeyev, A. N.; Kuznetsov, A. A.

TITLE: Selection of a site in the Urals for sinking a superdeep borehole

SOURCE: AN SSSR. Ural'skiy filial. Institut geofiziki. Trudy, no. 3, 1965. Geofizicheskiy sbornik, no. 4: Metodicheskiye voprosy rudnoy geofiziki Urala (Geophysical papers, no. 4: Methodological problems of mining geophysics of the Urals), 3-15

TOPIC TAGS: superdeep drilling, Moho discontinuity, Conrad discontinuity, gravity survey, seismic survey, seismic profile, aeromagnetic survey, magnetic survey, earth crust

ABSTRACT: Since 1961, several Soviet scientific organizations have carried out investigations in the Ural Mountains to determine the optimum location for drilling a superdeep borehole. The area covered extended along the range from 51°20' to 58°40' N. Lat. The announced purposes of these studies, both of scientific and industrial import, were as follows: 1) thickness, composition, and stratigraphic sequence of geological formations; 2) nature of the geosynclinal sediment—"granitic" transition zone; 3) thickness and composition of the "granitic" layer; 4) nature of the "gran-

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itic" layer—"basaltic" layer transition zone; 5) physicochemical changes in the rockes with depth; 6) types of igneous intrusions and ore bodies; 7) physical properties of the rocks and the nature of discontinuities (Conrad and Moho), and 8) changes in temperatures with depth and the thermodynamic conditions at great depths. Results of preliminary studies indicate that the most favorable site for the borehole will probably be in the Tagil-Magnitogorsk synclinorium in the Verkhotur'ye-Krasnoural'sk region where a number of industrial boreholes have already been drilled to a depth of 1.2 km. Final selection of the site, however, will require additional gravity and magnetic (terrestrial and aerial) surveys as well as deep seismic sounding and reflected-wave profiles. Orig. art. has: 6 figures. [ER]

ASSOCIATION: Akademiya nauk SSSR. Ural'skiy filial. Institut geofiziki (Ural Branch, Academy of Sciences, SSSR. Institute of Geophysics)

SUBMITTED: 00 ENCL: 00 SUB CODE: ES

NO REF SOV: 012 OTHER: 000 ATD PRESS: 4115

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BULAT, A.

J. KACZMAREK; A. BULAT

"Tables of suggested conditions for machine manufacturing." p. 95
(Mechanik, Vol 25 No 2 Feb 53 Warszawa)

SO: Monthly List of East European Accessions, Vol 2 No 9 Library of Congress Sept 53 Uncl