OGURTSOV, V.I., inzh.

Consideration of the effect of synchronous motors during short-circuits in the self-needs power supply system of large thermal electric power plants. Elek.sta. 34 no.2:59-61 F '63.
(MIRA 16:4)

(Electric power plants)

OGURTSOV, V.

Devices for the automatic control of crackling drying in horizontal vacuum kettles. Mias.ind. SSSR 34 no.1:32-34 '63. (MIRA 16:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut myasnoy promyshlennosti.
(Drying apparatus) (Automatic control)

KUL'CHITSKIY, L.A.; VOLKOV, Yu.M.; DENISOV, V.P.; OGURTSOV, V.I.

Levels in the Li^7 nucleus appearing in its photodisintegration. Izv. AN SSSR. Ser. fiz. 27 no.11:1412-1418 N '63. (MIRA 16:11)

OGURTSOV, V.I. (Moskva)

Study of the self-start of synchronous motors using an analog computer. Elektrichestvo no.9:63-66 S '63. (MIRA 16:10)

OGURTSOV, V.I., inzh.; GORBATOV, V.M., inzh.

Automation of industrial refrigerating plants. Trudy VNIIMP no.14:75-82 '62. (MIRA 16:8)
(Ice--Manufacture)

OGURTSOV, V.I., inzh.; GORBATOV, V.M., inzh.

Automatic flash signaling thermometer. Trudy VNIIMP no.14: 67-74 '62. (MIRA 16:8)

(Thermometers) (Animal heat)

OGURTSOV, V., inzh.

Water-jet relay. Mias.ind.SSSR 31 no.1:20 '60. (MIRA 13:5)
(Compressors)

OGURTSOV, V., inzh.

Screening for refrigeration coil banks in cold storage chambers. Khol. tekh. 35 no.1:61 Ja-F '58. (MIRA 11:2)
(Cold storage warehouses)

AUTHORS: Ogurtsov, V., Engineer and Torskiy, G., Engineer.

TITLE: Foam concrete insulation of cold stores. (Penobetonnaya izolyatsiya kholodil'nikov).

66-1-11/26

PERIODICAL: "Kholodil'naya Tekhnika" (Refrigeration Engineering), 1957, No.1, pp.34-36 (U.S.S.R.)

ABSTRACT: The use of foam concrete in the building of thermally insulated cold stores dropped considerably during the last two years and this is attributed mainly in the incorrect technology used in producing foam concrete blocks and the incorrect methods of joining these blocks into the insulation structure, the main defect being an excessive moisture content during laying. The authors carried out experiments in a cold store in the Lvov area in which the thermal insulation in four storeys was effected in 1952, using a stronger vapour insulating layer consisting of a good quality bitumen. This improved very considerably thermal insulation and the condition of the bitumen layer was found to be very good after two years operation. The obtained results are entered in Tables 2 and 3 in terms of moisture content in wt.%, specific weight before drying and specific weight in the dry state. In Table 1 data are given of the specified and the real values of the coefficient of heat

Card 1/2

OGURTSOV, V., inzh.

Shielding evaporator banks in a cold storage plant. Khol.tekh. 33 no.4:66-67 O-D '56. (MIRA 12:1)
(Refrigerating and refrigerating machinery)

OGURTSOV, V., inzhener.

Removable attachment for electric trucks. Khol.tekh. 33 no.3:65 Jl-S '56. (Industrial electric trucks) (MIRA 9:10)

OGURTSOV, V., inzh.-mekhanik

Should a winch raise an anchor hanging on a fully veered out chain.
Mor. flot 20 no.9:28 S '60. (MIRA 13:9)
(Anchors)

OGURTSOV, S.V.; REZNICHENKO, V.A.; DEDKOV, A.I.

Standardization, intensification, and automatic control of the thermochemical reduction process with magnesium. Titan i ego splavy no.8:145-159 '62. (MIRA 16:1)
(Titanium—Metallurgy) (Automatic control)

The two-stage method of the ...

tion of the reducer is conducive to the development of large crystals. The author conclude that the further elaboration of this method could lead to both the decreased consumption of Na and Cl in the sodicthermic process and the considerable improvement of the quality of the end-product. There are 4 figures.

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it arises as an intermediate product in the first stage of the sodiothermic process and eliminates the formation of finely-dispersed Ti -- a possible source of metal contamination. The work was done in a laboratory reactor fitted with a distillation crucible and a feeder for the liquid reducing-agent which was added either rapidly (in 1 or 2 portions) or slowly in small successive increments. The experimental data show that a homogeneous crystalline mass of "black salt" may be obtained in all cases, particularly at 750 - 850°. The simultaneous addition of all reagents gives a fine sponge. But coarser dendritic material -- with crystal dimensions of up to 25 mm and having the properties of "iodide" Ti (H_B = 90) -- is formed on the addition of liquid Na to molten "black salt" at 650 - 750°. The slow rather than the rapid addition of Na also promotes the growth of coarser Ti. Structures identified by the authors include compact sponge consisting of a homogeneous mass of small grains, dendritic material, and acicular material with discrete Ti crystals whose size is increased by decreasing the rate of the reducer's input. However, in the event of an excess of NaCl over the amount required for the formation of "black salt", the rapid addi-

S/598/61/000/006/009/034
D228/D303

AUTHORS: Ogurtsov, S.V., Reznichenko, V.A., Karpenko, O.A., and Yegorov, S.I.

TITLE: The two-stage method of the sodiothermic preparation of titanium

SOURCE: Akademiya nauk SSSR. Institut metallurgii. Titan i yego splavy. no. 6, 1961. Metallotermiya i elektrokhimiya titana, 60 - 67

TEXT: In re-examining the two-stage method for the sodiothermic production of Ti the authors' aim was to secure information on the optimum temperature conditions for the formation of "black salt"- $13NaCl \cdot 3TiCl_3 \cdot 2TiCl_2$; the distribution of the reaction products during the prereduction of this compound; the influence of both the rate of Na input and the excess of NaCl on the crystallization of Ti; and the main structure of the resulting metal. "Black salt" crystallizes in one of the lower systems, and has a refractive-index and melting-point of 1.66 - 1.68 and 502 - 503° respectively;

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performed solely at the latter temperature. There also appears to be little difference in the fractional composition of sponge produced at high temperatures in the laboratory and sponge taken from the sides and center of industrial reactors. The study of the temperature distribution at three different levels in the reactor shows that the gaseous phase at first has the highest temperature; however, it falls well below the temperature of the reaction products towards the end of both the first and second stages of the process. The authors hence conclude that in low-temperature reactions the reduction proceeds through the intermediate layer of the titaneous chlorides. Above 800° this layer expands, and the gradual reduction of the $TiCl_4$ by Na occurs chiefly in the gaseous phase. Processes of the prereduction by Na of the titanous chlorides dissolved in molten NaCl obtain a considerable development at the very end of the reaction. There are 4 figures and 1 table.

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their positions corresponding to the original level of the liquid Na, the final level of the reaction products, and the level of the gaseous phase. Tests on the distribution of the reaction products in the interval 650 - 750° disclosed that the addition of liquid Na in the first and second periods of the reaction decreases the size of the void at the bottom of the beaker, which thus permits the more efficient use of the reactor's full volume; moreover the reaction volume increases as the amount of the original sodium charge decreases, since the sponge starts to grow above the level of the molten reducer. Above 800°, however, this effect is lessened, and the results of experiments conducted with the subsequent addition of liquid Na differ little from those where all the Na is initially added. As regards the fractional composition of the sponge, the authors' data indicate that Ti conglomerates somewhat more in the finer fractions at 650 - 750° than is the case in reductions carried out at >800°, the respective contents of the >30-mesh fraction being 55 % and 64 %. But on the addition of the reducer at 650 - 750° in the first half of the process -- and at >800° in the second period -- the fractional composition is the same as in tests

S/598/61/000/006/008/034
D228/D303

AUTHORS: Ogurtsov, S.V., Reznichenko, V.A., and Yegorov, S.I.

TITLE: Investigating the sodiothermic method of titanium preparation

SOURCE: Akademiya nauk SSSR. Institut metallurgii. Titan i yego splavy. no. 6, 1961. Metallotermiya i elektrokhimiya titana, 50 - 59

TEXT: In this work the authors' aim was to secure information on certain insufficiently-studied aspects of the sodiothermic method of $TiCl_4$ reduction: The effect of subsequent additions of the reducer on the distribution of the reaction products; the character of the temperature distribution with respect to the reactor's height; and the influence of thermal conditions on the sponge's fractional composition. Their apparatus consisted of a distillation crucible, a feeder with a stop-rod and leveler, and a reactor. The temperature was maintained at 650 - 750° or above 800° during the experiments. Three thermocouples were fitted to the side of the beaker,

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perature considerably raises the yield of coarse Ti; in high temperature processes the content of the >12-mesh fraction is 60 % as compared with 20 - 30 [illegible] at lower temperatures. Soaking for 3 hours at 900° also boosts the yield of coarse Ti. Na is believed to enter the reaction zone as a result of evaporation, and the reaction proceeds on the growing sponge's surface and in its upper part between the $TiCl_4$ and Na. Only mixing removes the crust on the Na b[illegible]ow 650°, but at this temperature the vapor-tension of Na is sufficient for it to penetrate the reaction mass; reduction occurs gradually with the formation of titanous chlorides as intermediate products. Above 800°, when the sponge is coated with molten NaCl, the vapor-tension of Na is much higher, so no transitional layer of lower chlorides is present. In conclusion the authors note the similarity of many of the features of the reduction of $TiCl_4$ by Na and Mg at elevated temperatures, though the latter results from the capillary rise of the liquid. A further difference may be that in the sodiothermic process Ti conglomerates into a sponge through the sintering of discrete grains -- hence the yield of the coarse fractions is greater at high temperatures. There are 7 figures.

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occurs at <[illegible]00° under isothermic conditions; in exothermic reactions the process starts at 500 - 550°; however, mixing of the reaction products lowers the critical temperature to 320° and 270° respectively. Distribution of reaction products. Na is coated with a crust of Ti and chlorides at 550°, which impedes the continuance of the reaction. At 650°, after 30 % of the $TiCl_4$, has been consumed, reaction products with a Ti content of 12 - 13 % grow above the original level of the molten Na in which cavities appear, being coated with a pyrophoric layer of chlorides; some $TiCl_3$ is formed on the surface of the sponge when [illegible]0 % of the $TiCl_4$ has been reduced. Above 800° the sponge grows up the beaker's sides, the respective Ti content of the reaction products and sponge after 30 - 70 % of the $TiCl_4$ has been consumed being 21 - 29 % and 13 - 20 %. Influence of $TiCl_4$ consumption on the yield of sponge. More of the reducer is used up in the sodiothermic process than in the case in the magnesiothermic process. The optimum consumption of $TiCl_4$ is 97 - 100 % of its stoichiometric quantity for the reduction process; the consumption of Na per 1 g of sponge is also at a minimum in this event. Particle coarsening. The increase of the reaction tem-

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S/598/61/000/006/007/034
D228/D303

AUTHORS: Ogurtsov, S.V., Revyakin, A.V., and Reznichenko, V.A.

TITLE: Study of the physico-chemical bases of the reduction of $TiCl_4$ by sodium

SOURCE: Akademiya nauk SSSR. Institut metallurgii. Titan i yego splavy. no. 6, 1961. Metallotermiya i elektrokhimiya titana, 41 - 49

TEXT: Despite the industrial use of the sodiothermic process for producing metallic Ti, no data have been published on the theoretical aspects of the reduction of $TiCl_4$ by Na, so the authors studied this question in particular: 1) The distribution of reaction products at different temperatures; 2) The role of mixing; 3) The influence of both the consumption of $TiCl_4$ on the yield of sponge and soaking the reaction products on the grain coarsening; and 4) The reaction mechanism. The experiments were conducted with purified Na in an argon-filled beaker fitted with a rotatable mixer. Temperature influence. The results of various tests show that no reduction

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Basic conditions for the ... S/598/61/000/006/001/034
D245/D303

rate of $TiCl_4$ and specific pressure. Detailed results are shown in diagrams. The authors conclude that automation of the process can best be effected by optimum programming of $TiCl_4$ feed. There are 4 figures.

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S/598/61/000/006/001/034
D245/D302

AUTHORS: Ogurtsov, S.V., Reznichenko, V.A., Ustinov, V.K., Kozhevnikov, V.N., and Dedkov, A.I.

TITLE: Basic conditions for the magnesiothermal process of producing titanium

SOURCE: Akademiya nauk SSSR. Institut metallurgii. Titan i yego splavy. no. 6, 1961. Metallotermiya i elektrokhimiya titana, 3 - 13

TEXT: A series of experiments was carried out in a laboratory reactor to study the distribution of reaction components in the formation and growth of Ti sponge and the factors governing the reaction of $TiCl_4$ with Mg. In all experiments, the following were recorded: Furnace temperature before insertion of retorts, furnace heating rate, Ar temperature and pressure in the retort at the beginning of the process, amount of $MgCl_2$ formed and pressure over the tanks containing $TiCl_4$. The Mg was completely fused prior to the process. An exponential relation was found between the feed

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(3-4% of the liquid supplied) react only very slowly and their role in the process is insignificant. By varying the rate of supply or the proportion of $TiCl_4$ supplied, the process can be controlled with respect to both sponge formation and rate of reaction. There are 6 figures.

Study of the kinetic...

to ensure greater accuracy, was pushed against the wall inside the reaction vessel at the level of molten Mg. In order to study the influence of temperature on the rate of reaction, the processes were commenced at various temperatures (700, 750, 800, 850 and 900°C). To elucidate the influence of the rate of supply of $TiCl_4$ on the rate of reaction, the liquid was supplied in portions of 2, 5, 10 and 15 cm^3. For studying the kinetics of reactions occurring during and at the end of the thermal Mg process, the same method was used as that for studying the initial period of the process. It was found that the mechanism of reduction of $TiCl_4$ by Mg is autocatalytic. In the middle of the process, the surplus of the sponge, being the catalyst, receives a considerable boost and the apparent energy of activation of the process is still further depressed. The rate of the process depends on temperature, rate of supply of $TiCl_4$ and development of the sponge surface. As the rate of supply of tetrachloride is increased, so the catalyst surface and the yield of Mg in the reaction zone increase, as a result of which the rate of the process increases. The gaseous residues of the evaporating tetrachloride

S/598/60/000/004/014/020
D217/D302

AUTHORS: Ogurtsov, S.V. and Reznichenko, V.A.

TITLE: Study of the kinetic characteristics of processes occurring during the reduction of titanium tetrachloride by magnesium

SOURCE: Akademiya nauk SSSR. Institut metallurgii. Titan i yego splavy. No. 4, Moscow, 1960. Metallurgiya titana, 132-139

TEXT: The kinetics of $TiCl_4$ reduction by Mg in the initial period of reaction, using 20, 40 and 60% $TiCl_4$ were investigated. The study was carried out in a laboratory reactor; an apparatus was constructed by V. Kozhevnikov, in which the temperature and pressure could be simultaneously recorded on one strip diagram. The apparatus consisted of two parts: an electron potentiometer for temperature recording and a balanced alternating current bridge. The pressure transmitting element was made in the form of a U-shaped mercury manometer. The temperature was measured by means of a chromel-alumel thermocouple which, in order

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REZNICHENKO, V.A.; OGUERTSOV, S.V.; LOPATIN, G.S.; MELIKBEKOVA, S.A.

Studying the process of titanium recovery by the magnesiothermic method. Titan i ego splavy no.4:122-131 '60. (MIRA 13:11)
(Titanium--Metallurgy) (Thermochemistry)

between specific pressure and the rate of $TiCl_4$ supply which may be viewed as the reaction characteristic of the reduction process. By applying this reaction characteristic, it is possible to select the optimum rates of $TiCl_4$ supply to ensure maximum efficiency and a high recovery of Mg. Application of cooling enables $TiCl_4$ to be supplied at high average rates at any given temperature. There are 4 figures.

interrupted and the reactor cooled to room temperature in an argon atmosphere. The reacting mass was cut longitudinally into two portions. One portion was used for photography and from the other, samples of the products of reaction were taken from various points and analyzed for Mg, Cl_2, Ti, and in an aqueous extract, for Mg and Cl_2. To study the distribution of metallic Ti, particularly with small tetrachloride consumptions (2-15%), the method of taking color prints in chromotropic acid was used. The results obtained in laboratory investigations were verified under production conditions. It was found that the production of metallic Ti by the thermal Mg method is a complicated physico-chemical process. The distribution of the products of reaction during the process and the formation and growth of Ti sponge are the same under laboratory as under production conditions. The formation of the profile of the growing Ti sponge can be controlled by varying the rate of supply of $TiCl_4$.

Soaking the products of reaction after the end of the process had no effect on the grain size of Ti. The conglomeration of Ti particles into sponge is due to their adhesion to Mg. There exists a relationship

S/598/60/000/004/013/020
D217/D302

AUTHORS: Reznichenko, V.A., Ogurtsov, S.V. Lopatin, G.S. and Melikbekova, S.A.

TITLE: Study of titanium production by the thermal magnesium method

SOURCE: Akademiya nauk SSSR. Institut metallurgii. Titan i yego splavy. No. 4. Moscow, 1960. Metallurgiya titana, 122-131

TEXT: The purpose of this work was to study the nature of processes occurring during reduction of $TiCl_4$ both under laboratory and close to production conditions. First of all, the distribution of the products of reaction was studied. The work was carried out in a laboratory reactor in the following sequence: 150-160 g of etched Mg was charged into the reaction vessel, the pressure reduced to $1 \cdot 10^{-3}$ mm Hg and purified argon passed to a residual pressure of 20-30 mm Hg. This procedure was repeated 3-4 times. Definite portions of $TiCl_4$ were transferred to the reactor at 750°C. After each transfer, the process was

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Investigation of Processes Occurring in the Metallothermic Production of Metallic Titanium

melting point 502 to 503°C, refractive index 1.66 to 1.68 was discovered in this work. Based on this compound the author proposes a two-stage process: Production of "black salt" using cheap reducing agents or incomplete chlorination of titanium-containing materials; reduction of the salt with sodium at 550 to 600°C, which gives a pure titanium. Fig.5 shows typical structures obtained. Titanium crystals in the reactor are shown in Fig.6. A considerable part of the metal can be obtained in the form of 20 to 25 mm dendrites with the properties of the "iodide" metal. The type of metal depends on the proportion of sodium chloride used. Acknowledgments are made to V.A.Peznichenko for directing the work and valuable advice. There are 6 figures, 1 table and 7 references: 3 Soviet, 3 English and 1 Japanese.

SUBMITTED: May 10, 1960

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Investigation of Processes Occurring in the Metallothermic Production of Metallic Titanium

surface and its amount on the active titanium-sponge surface. The work showed that the process could be standardized and a series of tests with the same overall quantity of titanium tetrachloride, in the same reactors, were undertaken to find the optimum conditions. In the second section, the author deals with the sodium-thermic process (S.I.Yegorov and O.A.Karpenko, engineers, participated in this work). A laboratory reactor with a stirrer was used. Studies of the reaction of sodium with titanium-tetrachloride at 300 to 650°C and above showed that completion was possible only at 650°C and above. With vigorous stirring the process could be conducted at lower temperatures. Distribution of material in the reactor was studied at two temperature ranges, above and below 801°C; the effects depend on reactor size. The author discusses similarities and differences between the magnesium and sodium processes; similarity is greatest when the sodium process is conducted at high temperatures. In the sodium process the titanium can be assumed to conglomerate by sintering of individual grains. A new compound $13NaCl \cdot 3TiCl_3 \cdot 2TiCl_2$ ("black salt").

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Investigation of Processes Occurring in the Metallothermic Production of Metallic Titanium

linear (Fig.2B). As a criterion of reactor efficiency the author proposes the duration of the process when it is always at the maximum rate expressed as a percentage of the actual duration. The kinetics of the process were studied in a laboratory reactor provision being made for combined recording of temperature and pressure against time (Fig.3). Experiments were made with different starting temperatures (700 to 900°C) and different volumes of tetrachloride additions (2 to 15 cm3); Fig.4 shows logarithms of reaction velocity as functions of the reciprocal values of the absolute temperature, indicating apparent activation energies decreasing from 25700 cal/mol for the 2 cm3 additions to 10750 for both 10 and 15 cm3 additions. In further tests reactions were carried out isothermally at 700 to 900°C using different percent tetrachlorides and different additions; at later stages of the reaction the activation energy was of the order of 8400 cal/mol and this decrease the author attributes to the autocatalytic nature of the process. The rate controlling factor he considers to be the rate of rise of magnesium to the reaction

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16.3100

AUTHOR: Ogurtsov, S.V. (Moscow)

TITLE: Investigation of Processes Occurring in the Metallothermic Production of Metallic Titanium

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo, 1960, No.4, pp.39-53 + 1 plate

TEXT: The author deals first with the magnesium-thermic method of producing titanium from the tetrachloride. His own previous investigations (with others, Ref.3,4) extended beyond those of some other authors (Ref.2). He now outlines his views on processes occurring in the reactor. He suggests that the reaction centre is in the top part of the sponge (Fig.1); the development of the sponge can be controlled by regulating the tetrachloride supply. The higher the rate of the process the higher the proportion of fine fractions; particle conglomeration into the sponge is due not to sintering of individual primary grains but rather to their cementing together by magnesium. Discussing the rules governing the process the author shows that in logarithmic coordinates the relation between specific pressure (i.e. pressure related to unit liquid input), and the rate of the input (Fig.2a and b) becomes

Scientific Conference on the Metallurgy, Chemistry and Electrochemistry of Titanium

results of the process of production of titanium by the magnesium thermite method (S.V. Ogurtsov, V.A. Reznichenko, V.K. Ustinov, V.I. Kozhevnikov, A.I. Dedkov); On the two stage method of production of titanium by the sodium thermite method (V.A. Reznichenko, S.V. Ogurtsov); Production of a high purity titanium (V.I. Batashev); The influence of the content of chlorine in a high purity titanium sponge on the process of smelting and on the quality of the metal produced (G.M. Vaynshteyn); The production of titanium and its alloys by refining of black anodes (Academician I.P. Bardin, A.D. Khromov, V.I. Lukashin); On the theory of refining of titanium (V.A. Sukhodskiy); Production of titanium by electrolysis of titanium dioxide in fluoride-chloride melts (I.P. Bardin, A.A. Kazayn); Electrolytic production of titanium from chloride-fluoride melts (V.M. Ioffe, N.N. Rozanov, N.A. Lyubimova); Electrolytic refining of titanium waste products (V.M. Lozovatskiy); and a number of other reports.

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There are no figures, tables or references.

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E071/E135

Scientific Conference on the Metallurgy, Chemistry and Electrochemistry of Titanium

Thermodynamic investigations of titanium compounds (F.B. Khalimov and V.A. Reznichenko); An investigation of the process of reduction of iron-titanium concentrates with carbon (M.B. Rapoport); Some hydrodynamic and kinetic features of the process of chlorination of titanium dioxide in molten chlorides (Kim Men-rin); Oxidation of titanium tetrachloride with oxygen (G.S. Moynov, B.N. Melent'yev, V.A. Rezhnichenko); Utilisation of ilminite concentrates for the production of titanium dioxide pigment by the sulphuric acid method (M.L. Borodina, S.B. Shaykevich, N.A. Gubarova); An investigation of some properties of the system $TiCl_4$ - $AlCl_3$ - $FeCl_3$ (N.K. Druzhinina); An Investigation of phase equilibria liquid-vapour in systems formed by titanium tetrachloride with chloroanhydrides of mono- and trichloroacidic acids (G.V. Seryakov, S.A. Vaks, L.S. Sidorina); Determination of the summary content of carbon in titanium tetrachloride (G.V. Seryakov, S.A.Vaks, I.M. Golovanov); Basic conditions for standardised

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S/180/60/000/02/028/028
E071/E135

AUTHOR: Ogurtsov, S.V.

TITLE: Scientific Conference on the Metallurgy, Chemistry and Electrochemistry of Titanium

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo, 1960, Nr 2, pp 167-168 (USSR)

ABSTRACT: The conference took place on January 14-20 1960 in Moscow in the Institute of Metallurgy, Academy of Sciences, USSR. It was organised by the Committee for Coordination of Scientific Research on Titanium. About 400 representatives of academic and research institutions and works participated in the conference. The conference was divided into four sections: 1) raw materials and smelting of ores; 2) chemical technology and chlorination; 3) metallothermic methods of smelting titanium; and 4) electrolysis. The following papers were read:
Metallurgical evaluation of some new deposits (B.B. Dmitrovskiy); State and prospects of improving the technology of smelting of ilminite concentrates (V.A. Rezhnichenko and V.I. Solov'yev);

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REZNICHENKO, V.A.; OGURTSOV, S.V.

Reduction kinetics of tetrachloride of titanium by magnesium.
Titan i ego splavy no.2:82-91 '59. (MIRA 13:6)

1. Institut metallurgii AN SSSR.
(Titanium--Metallurgy) (Magnesium)

OGURTSOV, S.V.

Reznichenko, V.A., and S.V. Ogurtsov (Institute of Metallurgy, Academy of Sciences USSR). Kinetics of the Magnesium Reduction of Titanium Tetrachloride, p. 82. Titan i yego splavy. vyp. II: Metallurgiya titana (Titanium and Its Alloys. No. 2: Metallurgy of Titanium) Moscow, Izd-vo AN SSSR, 1959. 179 p.

This collection of papers deals with sources of titanium; production of titanium dioxide, metallic titanium, and titanium sheet; slag composition; determination of titanium content in slags; and other related matters. The sources of titanium discussed are the complex sillimanite ores of the Kyakhtinskoye Deposit (Buryatskaya ASSR) and certain aluminum ores of Eastern Siberia. One paper explains the advantages of using ilmenite titanium slags for the production of titanium dioxide by the sulfuric acid method. Production of metallic titanium by thermal reduction processes (hydrogen, magnesium, and carbon reduction) is the subject of several papers, while other papers are concerned with the electrolytic production of titanium. Other subjects dealt with are interaction of titanium with water vapor and with hydrogen and the determination of titanium in slags.

Ogurtsov S.S.

OGURTSOV, S.S.

Compressionless uniflow sprayer designed for operation with a solution having a velocity of 7-9 cm. Rats. i izobr. predl. v stroi. no.2:81-84 '57. (MIRA 11:1)
(Spraying equipment) (Plastering)

OGURTSOV, V.P., red.

[Electric welding and heating equipment and electric furnaces] Svarochnoe i termicheskoe elektrooborudovanie i elektropechi. Izd. ofitsial'noe. Moskva, Izd-vo Standartov, 1964. 93 p. (MIRA 17:12)

OGURTSOV, Sergey Alekseyevich

[Geographic names; aid for geography teachers, students of the geography and biology faculties, as well as correspondence school students specializing in geography] Geograficheskie nazvaniia; posobie dlia uchitelei geografii, studentov fakul'teta geografiia, biologiia i studentov zaochnogo otdeleniia spetsial'nosti geografiia. Omsk, Omskii gos. pedaog. in-t, 1961. 107 p.
(MIRA 17:9)

OGURTSOV, S.A.

M.V.Pevtsov's unknown photographs. Izv. Omsk. otd. Geog. ob-va no.5:182-183 '63. (MIRA 17:5)

OGURTSOV, Sergey Alekseyevich; IOFFE, M.K., red.; MEL'NIKOV, V.I., tekhn.red.

[Mikhail Vasil'evich Pevtsov, geographer and traveler] Mikhail Vasil'evich Pevtsov; geograf-puteshestvennik. Omsk, Omskoe knizhnoe izd-vo, 1960. 54 p. (MIRA 14:1)
(Pevtsov, Mikhail Vasil'evich, 1843-1902)

OGURTSOV, S.A.

Some data on the biography of M.V. Pevtsov, an explorer of Central Asia. Izv.Vses.geog.ob-va 88 no.6:545-546 N-D '56. (MLRA 10:2)

(Pevtsov, Mikhail Vasil'evich, 1843-1902)

OGURTSOV, S.

YERMOLAYEV, A.;KAL'NEV, F.;MIKHAYLOV, M.;NEUPOKOYEV, A.;OGURTSOV, S.;
POLOSUKHIN, V.;PUZAKOVA, V.;RYBAL'CHENKO, N.;SKURIKHIN, I.

Open letter to Comrade A. A. Ishkov, Minister of the Fishing Industry of the U.S.S.R. Sots trud no.3:121-122 Mr '57. (MLRA 10:4)

1. Inzhenery po tekhnormirovaniyu predpriyatiy Glav-komchatrybproma. (Fisheries)

OGURTSOV, P.

Personnel excess. Fin.SSSR 23 no.11:68-70 N '62. (MIRA 15:12)

1. Nachal'nik shtatnogo otdela Odesskogo oblastnogo finansovogo otdela.

(Odessa Province--Industrial management)

ACC NR: AP7007076

L. V. Shibayevaya and N. B. Nechurkinaya for processing the experimental data. Orig. art. has: 2 figures, 2 formulas and 1 table. [JPRS: 39,650]

Card 2/2

SOURCE CODE: UR/0048/66/030/010/1577/1580

ACC NR: AP7007076

AUTHOR: Denisov, Ye. V.; Dedenko, L. G.; Dubrovina, S. A.; Kotel'nikov, K. A.; Morozov, A. Ye.; Ogurtsov, O. F.; Sokolovskiy, V. V; Slavatinskiy, S. A.; Fetisov, I. N.

ORG: Physics Institute im. P. P. Lebedev, AN SSSR (Fizicheskiy institut AN SSSR)

TITLE: Nuclear cascade process in an ionization calorimeter [Paper presented at the All-Union Conference on Cosmic radiation physics, Moscow, 15-20 Nov 1965]

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 30, no. 10, 1966, 1577-1580

TOPIC TAGS: pi meson, calorimeter, proton

SUB CODE: 20

ABSTRACT: Results of the calculation of the nuclear cascade process in an iron absorber were correlated with experimental data obtained on the ionization calorimeter of the Tyan'-Shan' Cosmic Ray Station. It was established that at $E_0 = 300$ Bev approximately 30% of the energy spent being carried away by strongly ionizing particles ("black tracks"), and the rest by protons with an energy of $\sim$ 150 Mev ("grey tracks"). Errors in the measurement of $E_0 = 200$ Bev associated with fluctuations in the recording of strongly ionizing particles amounted to $\sim$ 12% ($\sim$ 11% for "black tracks" and $\sim$ 4% for "grey tracks"). In measurements by means of an ionization calorimeter of the energy transmitted to π^0 mesons, ionization produced by particles originating from nuclear splitting must be considered. The authors thank N. A. Dobrotin and V. S. Murzin for valuable critical observations, V. G. Ignat'yevaya, Z. G. Yereminaya,

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ACCESSION NR: AP4041035

voltage. In the latter case, the stabilization factor was experimentally found to be 20 with a supply voltage of 1,250±35 v. For the FEU-44 photomultiplier, the plateau length was 100 v with a slope of 0.03% per v and a max slope of 3.5%. Orig. art. has: 3 figures and 14 formulas.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR (Institute of Physics, AN SSSR)

SUBMITTED: 07Jun63 ENCL: 00

SUB CODE: NP NO REF SOV: 007 OTHER: 001

Card 2/2

ACCESSION NR: AP4041035 S/0120/64/000/003/0136/0138

AUTHOR: Anishchenko, Yu. V.; Ogurtsov, O. F.

TITLE: Compensating the variation of a multiplier-phototube gain due to supply-voltage variation

SOURCE: Pribory* i tekhnika eksperimenta, no. 3, 1964, 136-138

TOPIC TAGS: multiplier phototube, photomultiplier, nuclear radiation

ABSTRACT: Feedback and special-dynode-characteristic methods used for photomultiplier-gain stabilization in nuclear radiation measurements are considered unwieldy. Two simpler methods for the stabilization of the counting-rate characteristic of a scintillation counter are suggested: (1) Automatic control of the amplifier-stage gain by means of a tube with an extra-long grid-anode (transfer) characteristic (Soviet series K tube); (2) Control of the threshold voltage by establishing an automatic dependence of it on the photomultiplier supply

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ACCESSION NR: AP3008298

there are energy release axes. The matrix represents a system which memorizes and analyzes the pattern of the energy release in the calorimeter. If an axis does exist, the matrix forms a pulse, which in turn activates the assembly. The matrix is composed of memory cells numbered and arranged to correspond to those of the ionization chambers. Each cell is provided with a ferrite ring with eleven coils — one basic, two control, and eight axis coils. The latter are connected so as to duplicate all possible axes in the calorimeter. The analysis of the operation of the control system shows that its use greatly improves the selection of the energy release in the calorimeter. The system described has operated successfully for half a year at the Pamir Station of the Physics Institute of the USSR Academy of Sciences. The efficiency in registering electron-nuclear showers was twice that of the previous system. Orig. art. has: 2 figures.

ASSOCIATION: Fizicheskiy institut AN SSSR (Physics Institute, AN SSSR)

SUBMITTED: 03Nov62 DATE ACQ: 29Oct63 ENCL: 00

SUB CODE: PH NO REF SOV: 002 OTHER: 000

Card 2/2

ACCESSION NR: AP3008298 S/0120/63/000/005/0051/0053

AUTHOR: Kotel'nikov, K. A.; Ogurtsov, O. F.

TITLE: Control system for an assembly for the registration of nuclear interactions with energies of 100 Gev

SOURCE: Pribory* i tekhnika eksperimenta, no. 5, 1963, 51-53

TOPIC TAGS: nuclear interaction, nucleon nucleon interaction, electron nuclear avalanche, Wilson chamber, ionization calorimeter, memory cell

ABSTRACT: A new control system has been developed to increase the efficiency of an assembly consisting of a Wilson chamber and an ionization calorimeter designed for the investigation of nucleon-nucleon interactions with energies between 100 and 1000 Gev. This system utilizes the electron-nuclear avalanche in the calorimeter. The number of energy release axes is limited by the space resolution of the calorimeter with reference to the avalanches created by nuclear active particles passing within the solid angle of the assembly. A ferrite matrix is used for recording the processes where

Card 1/2

The use of plutonium α-sources ...

chamber, while the daughter element U^{239} is formed with a half-life of $7.13 \cdot 10^8$ years so that the decay products do not contaminate the chamber. Finally, tests have shown that radioactive aerosols are not formed above an open Pu^{239} α-source. The practical arrangement is illustrated in Fig.1. While the chamber is being tested the switch 2 is in position I and pulses due to α-particles are recorded on the screen of a CRO. The purity of the gas is deduced from the amplitude and form of the pulses. Under working conditions the switch is in position II, i.e. the α-source is kept at +600 V relative to the body of the chamber and all the electrons produced by the α-particles are collected by the specimen itself so that the operation of the chamber is unaffected by the presence of the source.
There are 1 figure and 6 references: 5 Soviet-bloc and 1 non-Soviet-bloc. The English-language reference reads as follows:
Ref.5: U.Facchini, A. Malvicini, Nucleonics, 1955, 13, No.4, 36.

ASSOCIATION: Fizicheskiy institut AN SSSR (Physics Institute AS USSR)

SUBMITTED: April 18, 1961

Card 2/2

33157
S/120/61/000/006/028/041
E032/E514

24.6830

AUTHORS: Kotel'nikov, K.A., Ogurtsov, O.F. and Khromykh, N.Ye.

TITLE: The use of plutonium α-sources in an "ionization calorimeter"

PERIODICAL: Pribory i tekhnika eksperimenta, no.6, 1961, 126-127

TEXT: It is pointed out that large arrays of ionization chambers are being widely used in cosmic ray studies to determine the energies of electron-nuclear showers produced by cosmic ray particles. It is necessary to maintain the purity of the working gas in these chambers. The purity is usually controlled with the aid of a 0.1-0.5 μC Co^{60} specimen and pulses due to this source are used to determine the working conditions. The present authors put forward a different method of controlling the operation of ionization chambers. In this method each ionization chamber contains an open Pu^{239} α-source deposited electrolytically on a stainless steel disc and having an activity of $5 \cdot 10^5$ disintegrations per minute. Pu^{239} has the advantage that in addition to the 5.1 MeV α-particles it gives only soft γ-rays which are easily absorbed by the walls of the

Card 1/2

OTTOCHEK, M.F.; OGURTSOV, N.N.

Numbering machine for the simultaneous synchronic enumeration of motion-picture films and sound tracks. Tekh. kino i telev. no. 8:57-59 Ag '58. (MIRA 11:8)

1. Kiyevskaya kinostudiya khudozhestvennykh fil'mov im. A.P.Dovzhenko.
(Cinematography--Films)
(Numbering machines)

AUTHOR: Bovenko, V. G.; Rudakovskiy, L. G.; Ogurtsov, M. M. 47 B+1

ORG: none

TITLE: Results of seismic investigation of Yakutiya rivers

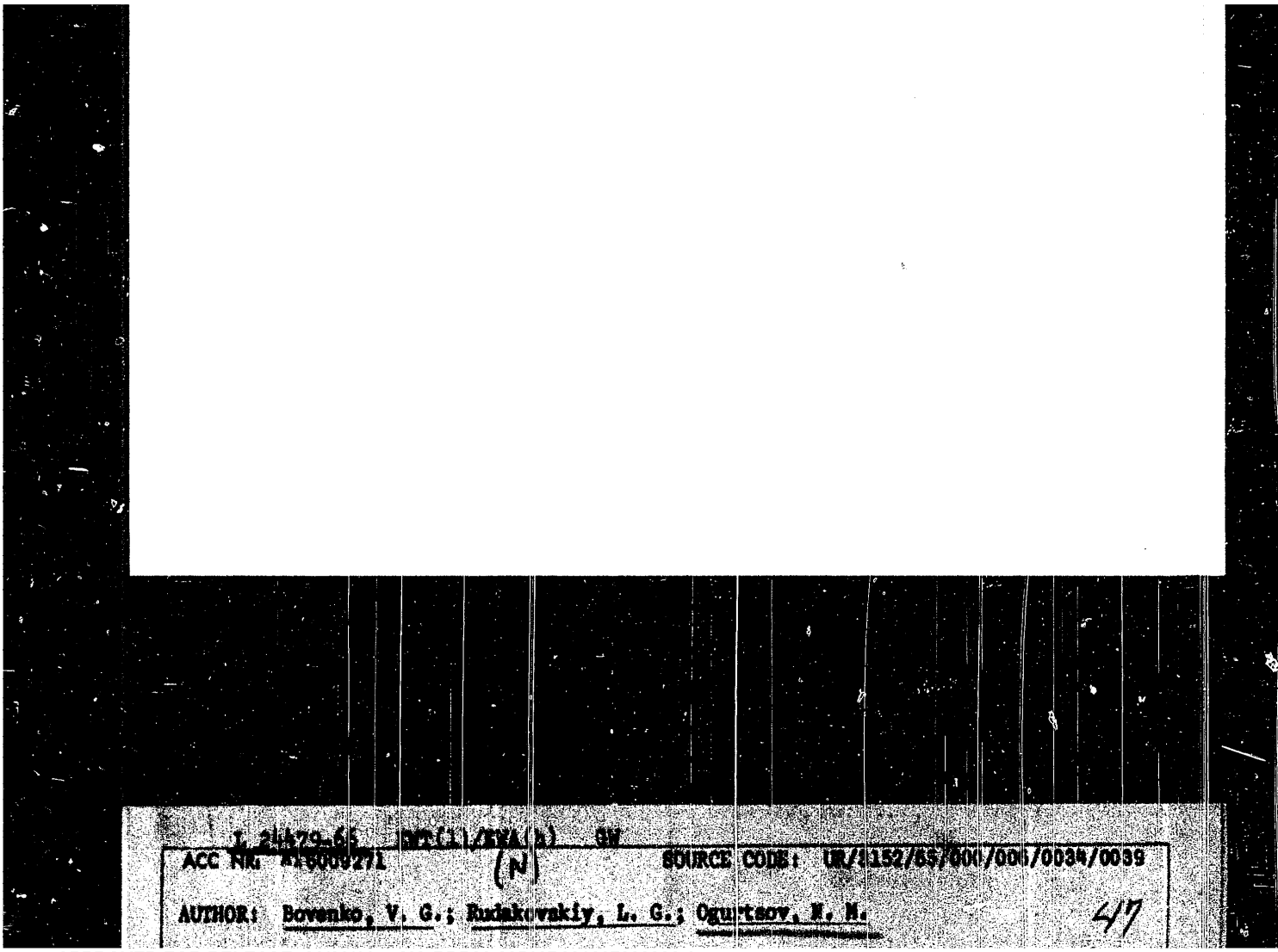
SOURCE: Razvedochnaya geofizika, no. 6, 1965, 34-39

TOPIC TAGS: seismic wave, reflected shock wave

ABSTRACT: Seismic reflection surveys of the Lena and Vilyu rivers in 1956, 1957 and 1962 are briefly described. Two seismic exploration groups used a 24 channel system with shot points located in the rivers. The charges were from 20 to 40 kg and the seismograph stations and the shot points were located by instrument surveys from land. A brief review of the data shows that 1) variations in the thickness and composition of permafrost zones affect the registration of seismic data; 2) the thickness of permafrost zones under the rivers varies from 200 to 500 m; 3) the presence of permafrost layers under the river floor is responsible for negative effects in the formation and registration of seismic pulses; 4) the quality of seismic data is greatly enhanced by the presence of thawed rocks on the river floor; and 5) reflections from the permafrost facets decrease the reliability of seismic data. Orig. art. has: 3 figures.

SUB CODE: 08/ SUBM DATE: 00/ ORIG REF: 000/ OTH REF: 000

Card 1/1 PB



ACC NR: AT6009271 (N) SOURCE CODE: UR/3152/65/000/006/0034/0039

AUTHOR: Bovenko, V. G.; Rudakovskiy, L. G.; Ogurtsov, N. N.

47

OGURTSOV, N.I.

Perfectly simple topological subgroups. Vop. mat. fiz. i teor. funk. no.1:118-123 '64. (MIRA 18:2)

OGURTSOV, N.I.

Topological semigroups on an interval. Ukr. mat. zhur. 12 no.2:212-215 '60. (MIRA 13:10)

(Topology)

OGURTSOV, N.I. [Ohurtsov, M.I.]

One class of topological semigroups on a two-dimensional sphere.
Dop.AN URSR no.11:1458-1460 '60. (MIRA 13:11)

1. Khar'kovskiy gosudarstvennyy universitet. Predstavleno akademikom AN USSR B.V.Gnedenko.
(Groups, Theory of)

OGURTSOV, N. A.

Dissertation defended for the degree of Candidate of Juridicial Sciences at the Institute of Government and Law

"Relationship Between Measures of Criminal Punishment and Measures of Social Influence and Education."

Vestnik Akad Nauk, No. 4, 1963, pp 119-145

OGURTSOV, M. [redacted]

G.F. Nikulin's portable combined woodworking tool. Zhil.-kom. khoz. 7 no.5:13-14 '57. (MLRA 10:6)

1. Nachal'nik proizvodstvennogo otdela Mosoblzhilsnaba.
(Woodworking machinery)

8795

S/049/60/000/010/001/014
E201/E414

An Estimate of Intensities of Seismic Waves Reflected From Very Weak Discontinuities

are acted upon by pulses of Heaviside unit function type. Normal incidence on a plane-layered medium is considered. It is shown that the first-approximation correction is of the same order, or even greater than the solution obtained with the zero-order approximation. The paper is entirely theoretical.
There are 2 Soviet references.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet im. A.A.Zhdanova (Leningrad State University imeni A.A.Zhdanov)

SUBMITTED: May 9, 1960

Card 2/2

87965

S/049/60/000/010/001/014
E201/E414

3.9300

AUTHOR: Ogurtsov, K.P.

TITLE: An Estimate of Intensities of Seismic Waves Reflected From Very Weak Discontinuities

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya geofizicheskaya, 1960, No.10, pp.1426-1431

TEXT: When a longitudinal wave is incident on a boundary (discontinuity) between two homogeneous media, reflected waves are always formed unless the velocities of propagation of longitudinal and transverse waves and the densities of the two media are the same. In some cases, when the difference between acoustical stiffnesses of the two media for longitudinal waves is very small or equal to zero, it may happen that a reflected longitudinal PP wave is of the same order of intensity as a transformed reflected PS wave. In such cases, the intensities of PP and PS waves should be found using the first approximation instead of the normally employed zero order (acoustical) approximation. The author deals with such a weak discontinuity (boundary) assuming that the media

Card 1/2

87955

S/049/60/000/010/001/014
E201/E414

...sov, K.P.

...n Estimate of Intensities of Seismic Waves Reflected From Very Weak Discontinuities

...AL: Izvestiya Akademii nauk SSSR, Seriya geofizicheskaya, 1960, No.10, pp.1426-1431

...T: When a longitudinal wave is incident on a boundary (discontinuity) between two homogeneous media, reflected waves are always formed unless the velocities of propagation of longitudinal and transverse waves and the densities of the two media are the same. In some cases, when the difference between acoustical stiffnesses of the two media for longitudinal waves is very small or equal to zero, it may happen that a reflected longitudinal PP wave is of the same order of intensity as a transformed reflected PS wave. In such cases, the intensities of PP and PS waves should be found using the first approximation instead of the normally employed zero order (acoustical) approximation. The author deals with such a weak discontinuity (boundary) assuming that the media

Card 1/2

OGURTSOV, K.

Tuning of high-frequency stages using magnetic cores. Radio no.7:46-48 '64. (MIRA 18:1)

OGURTSOV, K.I. (Leningrad)

Calculation of wave fields in elastic homogeneous media with plane-parallel interfaces. Prik. mat. i mekh. 26 no.2:350-355 Mr-Ap '62. (MIRA 15:4)

(Shock waves) (Elasticity)

USPENSKIY, I.N.; OGURTSOV, K.I.

Focused sources in a transversal-isotropic elastic medium. Vop. din. teor. raspr. seism. voln no.6:75-83 '62. (MIRA 16:7)
(Elasticity) (Seismic waves)

Exact asymptotic expressions...

in which

$$\theta = \frac{b}{\sqrt{r\left(\sum_q \gamma_q^2 r_q \operatorname{tg}^2 \theta_q\right)^3}}\left(\frac{\frac{3\gamma_m}{\cos\theta_m}\sum_q \gamma_q^2 r_q \frac{1}{\sin\theta_q}\operatorname{tg}^4\theta_q}{\sum_q \gamma_q^2 r_q \operatorname{tg}^2\theta_q} - \gamma_m^2 \operatorname{tg}^2\theta_m\right), \quad (26)$$

and ξ is found from (14). A more exact expression can be obtained by using (22) instead of (21). It is emphasized that these final expressions do not hold near the point of origin of the leading wave. There are 11 references: 10 Soviet-bloc and 1 non-Soviet-bloc.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet im. A. A. Zhdanova (Leningrad State University im. A. A. Zhdanov)

SUBMITTED: June 13, 1960

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Exact asymptotic expressions...

and more precisely

$$\zeta G_\nu(\zeta) \approx \zeta A_\nu(\zeta),\ (\zeta G_\nu(\zeta))' \approx (\zeta A_\nu(\zeta))' + \zeta B_\nu(\zeta)\alpha'_m + 2\zeta C_\nu(\zeta)\alpha_m\alpha'_m,$$

$$(\zeta G_\nu(\zeta))'' \approx \zeta B_\nu(\zeta)\alpha''_m + 2\zeta C_\nu(\zeta)\alpha'^2_m + 2\zeta C_\nu(\zeta)\alpha_m\alpha''_m. \quad (22)$$

Formula (21) applies when $\pi/2 - \theta$ is very small and formula (22) it is not very small. The separation of the principal parts of the expressions (12) and (13) in front of the $\{\}$ is pointless because expressions (18) - (20) involve all the various r_q values. Instead, an estimate is made with relatively small error as follows: Inserting (18) - (20) in (12) and (13) and using the equalities

$$\alpha'_m = \frac{\gamma_m}{\cos\theta_m},\ \alpha''_m = i\gamma_m^2 \operatorname{tg}^2\theta_m, \quad (23)$$

the authors obtain

$$\left.\frac{\partial u_0}{\partial t}\right|_{t\approx t_0} \approx \Theta\left(\operatorname{Re}\left[\zeta B_0(\zeta)\right]\ln|t-t_0| - \operatorname{Im}\left[\zeta B_0(\zeta)\right]\pi\varepsilon(t-t_0)\right), \quad (24)$$

$$\left.\frac{\partial u_1}{\partial t}\right|_{t\approx t_0} \approx -\Theta\left(\operatorname{Im}\left[\zeta B_1(\zeta)\right]\ln|t-t_0| + \operatorname{Re}\left[\zeta B_1(\zeta)\right]\pi\varepsilon(t-t_0)\right), \quad (25)$$

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Exact asymptotic expressions...

$$|\varphi^{IV}(\xi)| = 3\sum_q \gamma_q^4 r_q (4 + tg^2\theta_q)\, tg^4\theta_q, \quad (20)$$

enabling the factors in front of the $\{\}$ in (10)-(13) to be calculated without much difficulty. Even in the presence of only one boundary between two elastic media with differing properties, the calculation of the expressions inside the $\{\}$ is difficult because of terms such as $\xi G_v(\xi)$. However, in a special case, where e.g. the ray in the m-th layer makes an angle θ_m near to 90° with the normal, α_m is small and G_v can be calculated by means of (9). Multiplying the series by ξ and differentiating w.r.t. ξ and dropping terms small compared with $1/\alpha_m$, approximate expressions $\xi G_v(\xi)$, $(\xi G_v(\xi))'$ and $(\xi G_v(\xi))''$ can be found. There are two possibilities:

$$\xi G_v(\xi) \approx 0,\ (\xi G_v(\xi))' \approx \xi B_v(\xi)\,\alpha_m',\ (\xi G_v(\xi))'' \approx \xi B_v(\xi)\,\alpha_m'' \quad (21)$$

Exact asymptotic expressions...

where θ_q is the angle between the ray in the q-th layer and the normal. The author then simplifies the complex formulae (12) and (13) to a form which can be conveniently applied in certain cases of interest. Put r_q - the radial distance travelled in the q-th layer so that

$$h_q = r_q \operatorname{tg}\theta_q, \quad \alpha_q = i \operatorname{ctg} \theta_q \tag{17}$$

with $\xi = i(\gamma_q \sin \theta_q)^{-1}$, then the moduli of the derivatives of the function $\varphi(\xi)$ can be written in the form

$$|\varphi''(\xi)| = \sum_q \gamma_q^2 r_q \operatorname{tg}^2 \theta_q, \tag{18}$$

$$|\varphi'''(\xi)| = 3 \sum_q \gamma_q^3 r_q \frac{1}{\sin \theta_q} \operatorname{tg}^4 \theta_q, \tag{19}$$

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Exact asymptotic expressions...

$$\times \{\operatorname{Re} \zeta G_0(\zeta)\, \pi\varepsilon(t-t_0) + \operatorname{Im}\zeta\, G_0(\zeta) \ln|t-t_0|\} +$$
$$+ \frac{b|\varphi'''(\zeta)|}{|\varphi''(\zeta)|^{5/3} r^{1/3}} \{\operatorname{Re}(\zeta G_0(\zeta))' \ln|t-t_0| - \operatorname{Im}(\zeta G_0(\zeta))' \pi\varepsilon(t-t_0)\} -$$
$$- \frac{b}{|\varphi''(\zeta)|^{2/3} r^{1/3}} \{\operatorname{Re}(\zeta G_0(\zeta))'' \pi\varepsilon(t-t_0) + \operatorname{Im}(\zeta G_0(\zeta))'' \ln|t-t_0|\}, \quad (12)$$

$$\left.\frac{\partial u_1}{\partial t}\right|_{t\approx t_0} = \frac{b\,(|5|\varphi'''(\zeta)|^3 - 3|\varphi^{IV}(\zeta)||\varphi''(\zeta)|r - 9|\varphi''(\zeta)|^3)}{12|\varphi''(\zeta)|^{7/3} r^{2/3}} \times$$
$$\times \{\operatorname{Re}\zeta G_1(\zeta) \ln|t-t_0| - \operatorname{Im}\zeta G_1(\zeta)\, \pi\varepsilon(t-t_0)\} -$$
$$- \frac{b|\varphi'''(\zeta)|}{|\varphi''(\zeta)|^{5/3} r^{1/3}} \{\operatorname{Re}(\zeta G_1(\zeta))' \pi\varepsilon(t-t_0) + \operatorname{Im}(\zeta G_1(\zeta))' \ln|t-t_0|\} -$$
$$- \frac{b}{\varphi''(\zeta)|^{2/3} r^{1/3}} \{\operatorname{Re}(\zeta G_1(\zeta))'' \ln|t-t_0| - \operatorname{Im}(\zeta G_1(\zeta))'' \pi\varepsilon(t-t_0)\}, \quad (13)$$

in which ξ and t_0 are determined by

$$\zeta = \frac{l}{\gamma_q \sin\theta_q}, \quad t_0 = \frac{1}{b}\sum_q \frac{\gamma_q h_q}{\cos\theta_q}, \quad (14)$$

Card 6/10

Exact asymptotic expressions...

$B_\nu(\xi)$ and $D_\nu(\xi)$ are coefficients arising in the expansion of $G_\nu(\xi)$ in powers of α_m, not entering into the function $\varphi(\xi)$:

$$G_\nu(\zeta) = A_\nu(\zeta) + B_\nu(\zeta)\alpha_m + C_\nu(\zeta)\alpha_m^2 + D_\nu(\zeta)\alpha_m^3 + \ldots \qquad (9)$$

In the vicinity of a reflected or refracted wave-front, the following expressions give the discontinuous parts of the integral (2) and their derivatives:

$$u_0|_{t\approx t_*} \frac{2}{\sqrt{r\,|\varphi''(\zeta)|}} (\operatorname{Im} G_0(\zeta)\,\pi\varepsilon(t-t_0) - \operatorname{Re} G_0(\zeta)\ln|t-t_0|), \qquad (10)$$

$$u_1|_{t\approx t_*} = \frac{2}{\sqrt{r\,|\varphi''(\zeta)|}} (\operatorname{Re} G_1(\zeta)\,\pi\varepsilon(t-t_0) + \operatorname{Im} G_1(\zeta)\ln|t-t_0|), \qquad (11)$$

$$\frac{\partial u_0}{\partial t}\Big|_{t\approx t_*} = \frac{b\,(|5\,|\varphi'''(\zeta)|^2 - 3\,|\varphi^{IV}(\zeta)|\,|\varphi''(\zeta)|\,r + 3\,|\varphi''(\zeta)|^3)}{12\,|\varphi''(\zeta)|^{7/2} r^{5/2}} \times$$

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D242/D301

Exact asymptotic expressions...

$$\left.\frac{\partial^2 u_0}{\partial t^2}\right|_{t\approx t_0} = -\frac{b^2\sqrt{\gamma_m}}{r^{1/2}[\varphi'(\zeta)]^{1/2}}\left\{\mathrm{Re}\left[\left(\frac{1}{4r}+\frac{15|\varphi''(\zeta)|}{4[\varphi'(\zeta)]^2}\right)\zeta^2 B_0(\zeta)+\right.\right.$$

$$+\left.\frac{6\gamma_m}{\varphi'(\zeta)}\left(\frac{\zeta}{2}(\zeta^2 B_0(\zeta))'-\zeta^2 D_0(\zeta)\right)\right]\pi\varepsilon(t-t_0)+\mathrm{Im}\left[\left(\frac{1}{4r}+\frac{15|\varphi''(\zeta)|}{4[\varphi'(\zeta)]^2}\right)\zeta^2 B_0(\zeta)+$$

$$\left.+\frac{6\gamma_m}{\varphi'(\zeta)}\left(\frac{\zeta}{2}(\zeta^2 B_0(\zeta))'-\zeta^2 D_0(\zeta)\right)\right]\ln|t-t_0|\Big\}, \qquad (6)$$

$$\left.\frac{\partial^2 u_1}{\partial t^2}\right|_{t\approx t_0} = -\frac{b^2\sqrt{\gamma_m}}{r^{1/2}[\varphi'(\zeta)]^{1/2}}\left\{\mathrm{Im}\left[\left(\frac{3}{4r}-\frac{15|\varphi''(\zeta)|}{4[\varphi'(\zeta)]^2}\right)\zeta^2 B_1(\zeta)-\right.\right.$$

$$-\left.\frac{6\gamma_m}{\varphi'(\zeta)}\left(\frac{\zeta}{2}(\zeta^2 B_1(\zeta))'-\zeta^2 D_1(\zeta)\right)\right]\pi\varepsilon(t-t_0)-\mathrm{Re}\left[\left(\frac{3}{4r}-\frac{15|\varphi''(\zeta)|}{4[\varphi'(\zeta)]^2}\right)\zeta^2 B_1(\zeta)-\right.$$

$$\left.-\frac{6\gamma_m}{\varphi'(\zeta)}\left(\frac{\zeta}{2}(\zeta^2 B_1(\zeta))'-\zeta^2 D_1(\zeta)\right)\right]\ln|t-t_0|\Big\}, \qquad (7)$$

where

$$\zeta = i\gamma_m^{-1},\quad t_0 = \frac{1}{b}\left(\gamma_m r+\sum h_q\sqrt{\gamma_q^2-\gamma_m^2}\right); \qquad (8)$$

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Exact asymptotic expressions...

in which b is the least velocity of propagation of transverse waves in the layer of the medium under consideration: q is the ratio of b to the velocity of wave propagation of a fixed type in the q-th layer along the seismic ray path and h_q is the thickness of the q-th layer. The stationary-phase method is now used to separate out from the integral (2) the "impulsive" part of the solution. In the vicinity of the main wave front the integrals (2) are continuous. The derivatives w.r.t. t by the method referred to are the following discontinuous expressions

$$\left.\frac{\partial u_0}{\partial t}\right|_{t\sim t_0} = -\frac{2b\sqrt{\tau_m}}{r^{1/2}[\varphi'(\zeta)]^{1/2}}(-\operatorname{Re}\zeta B_0(\zeta)\ln|t-t_0| + \operatorname{Im}\zeta B_0(\zeta)\pi e(t-t_0)), \tag{4}$$

$$\left.\frac{\partial u_1}{\partial t}\right|_{t\sim t_0} = -\frac{2b\sqrt{\tau_m}}{r^{1/2}[\varphi'(\zeta)]^{1/2}}(\operatorname{Re}\zeta B_1(\zeta)\pi e(t-t_0) + \operatorname{Im}\zeta B_1(\zeta)\ln|t-t_0|), \tag{5}$$

Card 3/10

Exact asymptotic e: ressions...

The present theory ·rely·extends this to the stratified case. A unit step is appli· at the origin at time t = 0 and the solution for the displaceme·s at radius r appears in the form

$$u_\nu = \int_0^\infty \left\{ \int_{\sigma-i\infty}^{\sigma+i\infty} G_\nu(\zeta)\, e^{k\varphi(\zeta)} d\zeta \right\} J_\nu(kr)\, dk, \quad \nu = 0,1, \qquad (2)$$

$G_\nu(\xi)$ is an algebraic function of the complex variable ξ the density and the elastic constants. It takes account of reflection and refraction at the boundaries and also the direction cosmics of the path from the origin to the receiver. $\varphi(\xi)$ is a finite sum of terms given by

$$\varphi(\zeta) = bt\zeta - \sum_q h_q \alpha_q, \quad \alpha_q = \sqrt{1+\gamma_q^2\zeta^2} \ (\arg \alpha_q = 0 \text{ при } \zeta > 0), \qquad (3)$$

Card 2/10

3,9300

22427
S/049/61/000/002/005/012
D242/D301

AUTHOR: Ogurtsov, K. I.

TITLE: Exact asymptotic expressions for the intensity of waves propagated in a parallel-layered elastic medium

PERIODICAL: Akademiya nauk SSSR. Seriya geofizicheskaya. Izvestiya, no. 2, 1961, 224-229

TEXT: In the particular cases where the wave front makes either a small angle with the boundary surface or a small angle to the normal to the boundary surface, otherwise cumbersome expressions for the displacement velocity assume especially simple forms. The paper is concerned only with demonstrating this point and contains no numerical work or confrontation of the results with experiment. The author refers to three previous papers by K. I. Ogurtsov and G. I. Petrashen (Ref. 4: Uch. Zap. LGU No 149 1951) by K. I. Ogurtsov, (Ref. 5: Uch. zap. LGU. No. 208, 1956) and A. G. Rudakov, K. I. Ogurtsov and M. A. Konovalova (Ref. 6: Sb. "Voprosy dinamicheskoy teorii rasprostraneniya seysmicheskikh voln." No. 2 LGU. 1959)

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A more precise definition...

at the time of repulsion of the second component of the frontal disintegration, is estimated as an example for a semispace in which the ratio of the speeds of propagation of the waves equals 0.5. The decrease in the error is inversely proportional to the distance from the source. 16 references. [Abstracter's note: Complete translation.]

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A more precise definition...

are given for the two major members of the frontal disintegrations for longitudinal and transverse waves. In Lemb's problem, the displacements at the front of the longitudinal wave are continuous in the case of a source acting in accordance with the law given by a single graded function (Heavyside's function); their time derivatives have a terminal fracture. At the front of the transverse wave, the vertical displacements have the same character as those in the longitudinal wave; the horizontal displacements are continuous, their time derivatives having a logarithmic nature at the front. For the center of expansion acting according to the same law, the displacements at the front of the longitudinal wave have a terminal fracture; at the transverse-wave front, the horizontal component has a terminal fracture, the vertical component having a logarithmic character. For smooth influences, it appears that the displacements in the longitudinal wave are linearly polarized, while the polarization in the transverse wave is nearly elliptical with the vertical plane of polarization. The error, permissible

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D228/D305

9.9815 (1109, 1327) 2406

AUTHOR: Ogurtsov, K. I.

TITLE: A more precise definition of the character of the boundary points of an elastic semispace for the two most prevalent influences

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 12, 1961, 27, abstract 12A271 (V sb. Vopr. rudn. geofiz., no. I. M., Gosgeoltekhizdat, 1960, 72-83)

TEXT: On the basis of two previous works (Uch. zap. LGU, 1951, no. 149 and 1956, no. 208), the author studies the displacements at the boundary of an elastic semispace around the fronts of longitudinal and transverse waves. A normally concentrated force, applied to the semispace surfaces (Lemb's problem), and an expansion center, situated at a certain depth that is small in comparison with the distance to the observation point, serve as the sources of the vibrations. Expressions

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Stress Waves in an Elastic Plate

and that the second is applicable only with restrictions.

Then by integration the author considers the case of an arbitrary dynamic stress P(t); now it is

$$(4.1) \quad \sigma_z^*(t) = \int_0^t \sigma_z(u)\, P'(t-u)\, du$$

The formula (4.1) is transformed for practical calculations.

The results are used for the discussion of several stress problems.

The author mentions G. J. Petrashen'.

There are 8 references: 7 Soviet and 1 English.

SUBMITTED: April 1, 1959

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(2.10) $$\sigma_z = -\frac{1}{\pi h^2 k}\frac{\partial}{\partial \tau}\left\{\varkappa_1 \frac{\alpha_g^2}{2\zeta R}\Big|_{\zeta=\zeta_1} - \varkappa_2 \frac{2\alpha\beta^2}{\zeta R}\Big|_{\zeta=\zeta_2}\right\},$$

where (2.11) $$\zeta_1 = \frac{k}{\sqrt{\tau^2 - k^2\gamma^2}}, \quad \zeta_2 = \frac{k}{\sqrt{\tau^2 - k^2}}$$ and

(2.1) $$\tau = \frac{bt}{h}, \quad k = \frac{z}{h}$$

(2.5) $$\varkappa_1 = \varepsilon(\tau - k\gamma), \quad \varkappa_2 = \varepsilon(\tau - k).$$

Expressions for $\sigma_r = \sigma_\theta$ and the stresses for reflected waves are transformed in the same way.

The expressions obtained are compared with the corresponding formulas of the acoustic theory and of the quasi-static theory. The author states that the first theory is not applicable in the considered case

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for direct waves (p + s) and reflected waves (pp + ps + sp + ss) on the symmetry axis (r = 0) can be expressed by certain line integrals; for the direct wave it is e. g.

$$(1.2)\quad \sigma'_D = \frac{1}{2\sqrt{\pi}\,bi}\,\frac{\partial}{\partial t}\int_{\ell}\left\{\frac{R^2}{2\zeta^2 R\left[bt\zeta - z\alpha\right]} - \frac{2\alpha\beta}{\zeta^2 R^2\left[bt\zeta - z\beta\right]}\right\} d\zeta$$

where a and b are the speed of propagation of the p- and s-waves

$g = 2 + \zeta^2$, $R = g^2 - 4\alpha\beta$, $\alpha = \sqrt{1 + \gamma^2\zeta^2}$, $\beta = \sqrt{1 + \zeta^2}$, $\gamma = \frac{b}{a}$. A more complicated expression is given for the reflected waves. After performance of the integration (theorem of residues) he obtains for the direct waves

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Ogurtsov, K. I.

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C 111/ C 333

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AUTHOR: Ogurtsov, K. I. (Leningrad)

TITLE: Stress Waves in an Elastic Plate

PERIODICAL: Prikladnaya matematika i mekhanika, 1960, Vol. 24, No. 3, pp. 438-446

TEXT: In the cylindric coordinate system r, ϑ, z the author considers a plate bounded by z = 0 and z = h. The boundary z = h is free of tension, on the boundary z = 0 there acts in the point r = 0, z = 0 a normal force $\varepsilon(t)$:

(1.1) $\varepsilon(t) = 0$ for $t < 0$; $\varepsilon(t) = 1$ for $t > 0$

At first there arise the direct longitudinal wave p and the transverse wave s. After these waves have reached z = h, p generates the reflected longitudinal wave pp and the transverse wave ps, while s generates the longitudinal wave sp and the transverse wave ss. The author restricts himself to these waves and does not consider the further reflections on z = 0, z = h etc. If the components of the displacement vector are taken from the book of reference (Ref.5), if one differentiates below the integral and if (Ref.6) is used, then the principal stress σ_z

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OGURTSOV, K.I.

Estimating the intensities of seismic waves reflected from very weak interfaces. Izv.AN SSSR.Ser.geofiz. no.10:1426-1431 O '60. (MIRA 13:9)

1. Leningradskiy gosudarstvennyy universitet im. A.A.Zhdanova.
(Seismic waves)

OGURTSOV, K.I.

report presented at the 1st All-Union Congress of Theoretical and Applied Mechanics, Moscow, 27 Jan - 3 Feb '60.

201. M. Ia. Mikhailov (Moscow): An experimental study of the load carrying capacity of thin-walled nickel tubes subjected to various combinations of tension, torsion, and internal pressure.

202. S. G. Mikhlin (Leningrad): Variational methods in the theory of elasticity.

203. A. A. Movchan (Moscow): The stability of motions of solids — Lagrange's theorem for solids and its inversion.

204. A. A. Movchan (Moscow): Axisymmetric hypersonic flutter of a circular cylindrical shell.

205. N. F. Morozov (Leningrad): On the uniqueness of the solution of the problem of large deflections of a circular plate under [illegible] symmetric loading.

206. Sh. M. Mikeladze (Tbilisi): The determination of the deformation of trusses without diagonals.

207. Kh. M. Mushtari, I. G. Teregulov (Kazan): A theory of moderately thick plates and shells.

208. A. G. Nazarov (Erevan): Some problems in the theory of seismic stability.

209. U. K. Nigul (Tallin): Vibrations of an elastic circular cylindrical shell under concentrated impact loading.

210. U. K. Nigul (Tallin): More accurate equations of motion for circular cylindrical shells.

211. V. A. Nikitin (Leningrad): Approximate treatment of cylindrical shells under concentrated loads.

212. S. N. Nikiforov (Moscow): Redistribution of reactions at the edge of a simply supported rectangular plate under gradually increasing loading.

213. W. Nowacki (Warsaw): Some dynamical problems of thermo-elasticity.

214. N. K. Noskov (Moscow): Investigation of the viscous behavior of elastic, visco-plastic materials in vibrations.

215. Ia. L. Nudelman, I. A. Klaisner (Odessa): Problems of the non-linear theory of elasticity.

216. I. F. Obraztsov (Moscow): An application of the [illegible] variational method to the design of [illegible] structures.

217. K. I. Ogurtsov (Leningrad): Complete computation of a wave field in homogeneous elastic media with parallel plane boundaries.

218. K. Okubo (Nagoya): The method of electroplating and its applications.

219. W. Olszak (Warsaw): Two-dimensional problems in the theory of plasticity of non-homogeneous and anisotropic media.

220. Ia. A. Osipov (Moscow): The state of stress in a deformed curved bar.

221. V. Ia. Pavilainen (Leningrad): A membrane theory for a toroidal shell.

222. V. P. Pavlov (Moscow): Creep, elastic properties and anisotropy of plastic laminates.

223. O. V. Palchinskii (Kharkov): A practical method of designing reinforced concrete structures with reference to creep.

224. Ia. G. Panovko (Riga): The problem of structural damping.

225. P. I. Perlin (Moscow): An approximate method for solving elastic-plastic problems.

226. P. I. Perlin, L. A. Shofman (Moscow): Application of the theory of rigid, plastic solids to problems of metal forming.

227. [illegible]: On the axisymmetric problems of the theory of elasticity.

228. D. E. Polshin (Moscow): A method for studying the plane field of relative volume strains in soils.

229. G. Ia. Popov (Novosibirsk): The application of some new methods of the theory of integral equations to the solution of contact problems of the theory of elasticity.

230. V. A. Postnov (Leningrad): Free and forced vibrations of frames taking into account shear deformations and energy dissipation.

231. V. N. Poturaev (Dnepropetrovsk): Investigation and calculation of internal friction in elastic members of vibrating machines.

232. W. Prager (Providence): An elementary discussion of definitions of stress rate.

233. N. I. Prigorovskii (Moscow): Photoelastic investigation of stresses in three-dimensional layered models.

OGURTSOV, K.I.; OZEROV, D.K.

Theoretical and experimental work during 1952-1953. Vop.din. teor.raspr.seism.voln. no.2:217-239 '59. (MIRA 13:5)
(Seismological research)

RUDAKOV, A.G.; OGURTSOV, K.I.; KONOVALOVA, M.A.

Dynamic characteristics of direct waves in finely stratified structures (shales). Vop.din.teor.raspr.seism.voln. no.2: 133-156 '59. (MIRA 13:5)
(Seismometry)

On the Intensity of Direct Longitudinal and Transverse Waves Propagated Along the Boundary of a Semispace.

then the intensities I_s and I_p on the wave fronts of the transverse and longitudinal waves can be determined using the table given on P.162 (3rd and 4th columns). The table gives these functions in terms of elastic constants and densities. The ratio of these intensities I_s/I_p can be obtained from Fig.5 where it is plotted as a function of V_s/V_p. Roughly speaking, the latter curve falls off exponentially. This ratio (I_s/I_p) can be as large as we please for $\sigma \sim 0.5$ and as small as we please for $\sigma \sim 0$. There are 5 figures, 1 table and 3 references, 2 Russian and 1 English.

ASSOCIATION: Academy of Sciences of the USSR Leningrad Branch of the Mathematical Institute im. V.A. Steklov.(Akademiya nauk SSSR, Leningradskoye otdeleniye Matematicheskogo instituta im. V.A.Steklova)

SUBMITTED: December 28, 1956.

AVAILABLE: Library of Congress.

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On the Intensity of Direct Longitudinal and Transverse Waves Propagated Along the Boundary of a Sem**space.**

although her calculations apply only to the special case of a harmonic oscillator and $\sigma = 0.25$, as mentioned above. The authors consider that the method given in this paper is convenient because of the possible physical interpretation. Using the simple formulae which constitute the solution of Lamb's problem for the unit step function source defined by:

$$\varepsilon(t) = \begin{cases} 0 & t < 0, \\ 1 & t > 0, \end{cases} \qquad (1)$$

it is possible to construct theoretical seismographs for any distance from the source for any value of V_s/V_p which depends on Poisson's ratio as given by the relation:

$$\gamma = \sqrt{\frac{1 - 2\sigma}{2(1 - \sigma)}} \, . \qquad (16)$$

If the wavelengths of the waves are sufficiently small compared with the distance of the given point from the source,

Obolentsev K.T.

AUTHORS: Obolentsev, K.T. and Surova, A.V. 49-58-2-2/13

TITLE: On the Intensity of Direct Longitudinal and T[illegible] Waves Propagated along the Boundary of a Semi-space. (O) intensivnostyakh pryamykh prodol'nykh i poperechnykh voln, rasprostranyayushchikhsya po granitse polu[illegible])

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Geofizicheskaya, 1958, Nr 2, pp.157-164 (USSR)

ABSTRACT: Calculations of the intensity of transverse and longitudinal non-stationary waves propagated along the boundary of an ideal elastic semi-space are reported for different values of Poisson's ratio and a graph is given of the intensity of these waves as a function of V_s/V_p (the ratio of the speeds of propagation of transverse and longitudinal waves). Analogous calculations have been carried out in (Ref.1) for a harmonic source and for $\sigma = 0.25$. The above problem was first considered by Lamb (Ref.2) and a large number of theoretical and experimental papers have been published on the subject. The authors have thought it useful to return to the problem first solved by Lamb in order to calculate and compare intensities of longitudinal and transverse waves in the above case. Such calculations and comparisons have been carried out by Kosminskaya (Ref.1),

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Quantitative Investigations of the Propogation of Waves in Simple Elastic Media. (Continued)

which are reflected from the free surface, are always shown to be less intense than direct waves.

(A. V. Manukhov)

OGURTSOV, K.I.

124-11-13091

Translation from: Referativnyy Zhurnal, Mekhanika, 1957, Nr 11, p. 116 (USSR)

AUTHORS: Ogurtsov, K. I., Uspenskiy, I. N., Yermilova, N. I.

TITLE: Quantitative Investigations of the Propogation of Waves in Simple Elastic Media. (Nekotoryye kolichestvennyye issledovaniya po raspostraneniyu voln v prosteyshykh uprugikh sredakh.)

PERIODICAL: V sb.: Vopr. dinam. teorii raspostr. seysmich. voln. 1. Leningrad, Gostoptekhizdat, 1957, pp 296-365

ABSTRACT: A study of the displacement field near wave fronts occurring in an unlimited elastic medium or in an elastic semispace and caused by different types of sources. Results are shown for computations of the wave intensities for a number of relationships of the elastic parameters of the medium.

The calculated data show that the ratio of the intensities of longitudinal and transverse waves is indirectly proportional to the ratio of the respective wave velocities, and that the relative intensity of conic waves (as compared to longitudinal and transverse waves) grows with the increase of the velocity ratio. Waves of the types PS or SB,

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A Dynamic Theory of the Propagation of Seismic Waves (Cont.)

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A Dynamic Theory of the Propagation of Seismic Waves (Cont.)

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