

ADLEROVA, E.; BLAHA, L.; BOREVICKA, M.; ERNEST, I.; JILEK, J.O.; KAKAC, B.;  
NOVAK, L.; RAJSNER, M.; PROTIVA, M.

Synthetic experiments in the group of hypotensive alkaloids. VI.  
Some notes on the preparation of alicyclic components in the  
synthesis of compounds of the reserpine type. Coll Cz Chem 25 no.1:  
221-236 Ja '60. (EEAI 9:12)

1. Forschungsinstitut für Pharmazie und Biochemie, Prag.  
(Alkaloids) (Hypotension)  
(Alicyclic compounds) (Reserpine)

BOREVSKAYA, B. D.

Borevskaya, B. D. - "On the pathogenesis of alimentary dystrophy", (Report to the IX the Session of the Institute, June 1946), Trudy Medinstituta (Izhef. gos. med. in-t), Vol. VI, 1948, p. 207-10.

SO: U-4110, 17 July 53, (Letopis 'Zhurnal 'nykh Statey, No. 19, 1949).

BOREVSKAYA, B.D.

Borevskaya, B.D. - "Change of sugar content in the blood and the amount of seropolypase in dying and gravely ill patients," Trudy Medinstituta (Izhev. gos. med. in-t), Vol. VII, 1948, p. 51-58

SO: U-3950, 16 June 53, (Letopis 'Zhurnal 'nykh Statey, No. 5, 1949).

BOREVSKAYA, B.D.

Borevskaya, B.d. - "Change in the level of calcium and potassium in the blood of drying and seriously ill patients," Trudy Medinstituta (Izhev. gos. med. in-t), Vol. VII, 1949, P. 119-21

SO: U-3950, 16 June 53, (L'atopis 'Zhurnal 'nykh Statey, No. 5, 1949).

BOREVSKAYA, B. D.

36851. Narusheniye vneshne-sekretornoy funktsii podzheludochnoy zhelezy pri krupoznoy pnevmonii. Trudy Med. in-ta (Izhev. gos. med. in-t), t. IX, 1949, c. 50-52

SO: Letopis' Zhurnal'ykh Statey, Vol. 50, Moskva, 1949

BOREVSKAYA, B.D., dotsent

Changes in the external secretion of the pancreas in exudative pleuritis. Trudy Izhev.gos.med.inst. 13:323-327 '51. (MIRA 13:2)

1. Iz kafedry diagnostiki i chastnoy patologii s terapiyey Izhevskogo meditsinskogo instituta. Zaveduyushchiy kafedroy - prof. A.Ya. Gubernits.

(PLEURISY)

(PANCREAS--SECRETIONS)

BORNEVSKAYA, B.D., dotsent

Changes in liver function in exudative pleuritis. Report No.1:  
Protein metabolism disorders in exudative pleuritis. Trudy Izhev.  
gos.med.inst. 13:328-334 '51. (MIRA 13:2)

1. Iz kafedry diagnostiki i chastnoy patologii s terapiyey Izhevskogo  
meditsinskogo instituta. Zaveduyushchiy kafedroy - prof. A.Ya. Guber-  
grits.

(PLEURISY)

(LIVER)

(PROTEIN METABOLISM)

BOREVSKAYA, B.D., dotsent

Changes in liver function in exudative pleuritis. Report No.2: Content of residual nitrogen, of nitrogen of urea, and of nitrogen of polypeptides in the blood in exudative pleuritis. Trudy Izhev.gos.med. inst. 13:335-342 '51. (MIRA 13:2)

1. Iz kafedry diagnostiki i chastnoy patologii s terpiyey Izhevskogo meditsinskogo instituta. Zaveduyushchiy kafedroy - prof. A.Ya. Gubernits.

(PLEURISY)

(LIVER)

(NITROGEN IN THE BODY)



BOREVSKAYA, B.D., dotsent

Changes in liver function in exudative pleuritis. Report No.3:  
Disturbance of the carbohydrate metabolism in exudative pleuritis.  
Trudy Izhev.gos.med.inst. 13:343-349 '51. (MIRA 13:2)

1. Iz kafedry diagnostiki i chastnoy patologii s terapiyey Izhevskogo  
meditsinskogo instituta. Zaveduyushchiy kafedroy - prof. A.Ya. Guber-  
grits.

(PLEURISY)

(LIVER)

(CARBOHYDRATE METABOLISM)

BOREVSKAYA, B.D., dotsent

Changes in liver function in exudative pleuritis. Report No.4:Disturbances in pigment and cholesterol metabolism, in prothrombin formation, and changes in the biliary tract in exudative pleuritis. Trudy Izhev. gos.med.inst. 13 '51. (MIRA 13:2)

1. Iz kafedry diagnostiki i chastnoy patologii s terapiyey Izhevskogo meditsinskogo instituta. Zaveduyushchiy kafedroy - prof. A.Ya. Gubergrits.

(PLEURISY)

(LIVER)

BOREVSKAYA, B. D.

"Characteristic Disturbances of Liver Function Related to Changes in Metabolism During Certain Diseases of the Respiratory System." Dr Med Sci, Voronezh State Medical Inst, Voronezh, 1954. (KL, No 8, Feb 55)

SO: Sum. No. 631, 26 Aug 55 - Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (14)

ГОДУШНАЯ, Белла Давыдовна

GO GUSHNAYA, Bella Davydovna (Ishhevsk State Med Inst), Academic degree of Doctor of Medical Sciences, based on her defense, 1 March 1956, in the Council of Muzomakh State Med Inst, of her dissertation entitled: "Failure of the function of the liver connected with the metabolism changes in certain respiratory ailments (Inflammation, lung cyst, emphysema, pleurisy)."

For the Academic Degree of Doctor of Sciences

Dopleten' Ministerstva Vysshogo Obrazovaniya SSSR, List No. 7, 21 March 1956  
Decision of Higher Certification Commission Concerning Academic Degrees and Titles.

JPRS 512

BOREVSKAYA, B.D., doktor med.nauk (Izhevsk)

Pain syndrome in the heart region in some diseases of organs of  
the abdominal cavity. Vrach.delo no.12:1311 D '56.

(MIRA 12:10)

1. Propedevticheskaya terapevticheskaya klinika Izhevskogo  
meditsinskogo instituta.

(ABDOMEN--DISEASES) (HEART)

EXCERPTA MEDICA Sec 19 Vol 2/12. Rehabilitation DEC 59

2594. A trial of transcerebral sodium bromide iontophoresis in the treatment of gastric and duodenal ulceration (Russian text) BOREVSKAYA B. D. Sov. Med. 1957, 5 (118-119)

A 3% solution of sodium bromide was used. Two active electrodes were placed on the eyes, and a third one on the nape of the neck. A current of 3-6 ma. was used for 30-40 min. at a time, and a course consisted of 18-20 sessions. It was thought that prolonged iontophoresis with current of low intensity would facilitate the transformation of cortical excitation into cortical inhibition. Forty-eight peptic ulcer patients were treated by this method, with the exclusion of all other medications. The treatment was as a rule well tolerated and disappearance of pain, dyspeptic manifestations and insomnia was observed in 23 cases. Marked improvement took place in 17 cases. In 4 cases the improvement was insignificant, while in a further 4 cases the first few sessions were followed by exacerbation of the clinical condition. The method is simple and easy to apply. (S)

2595. The future of obstetrics in the USSR

BOREVSKAYA, B.D., doktor meditsinskikh nauk; GLUSHKOVA, M.A.; MIKHEYEVA, M.I.

Some factors indicating renal function and chloride metabolism during systematic intake of Novo-Izhevsk mineral water. Urologiia 22 no.6:50-54 N-D '57. (MIRA 11:2)

1. Iz propedevticheskoy terapevticheskoy kliniki (zav. - prof. A.Ya., Gubergrits) Izhevskogo meditsinskogo instituta.  
(KIDNEY FUNCTION TESTS, eff. of drugs on mineral water from Novoizhevsk)  
(CHLORIDES, metab. eff. of Novoizhevsk mineral water)  
(MINERAL WATER, eff. Novoizhevsk mineral water, on renal funct. & on chloride metab.)

BOREVSKAYA, B.D., doktor med. nauk.

Condition of the liver in exudative pleurisy. Probl. tub. 35 no.6:60-64  
'57. (MIRA 12:1)

1. Iz propedevticheskoy terapevticheskoy kliniki (zav. - prof. A.Ya.  
Gubergrits) Izhevskogo meditsinskogo instituta.

(PLEURISY, physiol.

liver in exudative pleurisy (Rus))

(LIVER, in various dis.

pleurisy, exudative (Rus))



GUBERGRITS, Aleksandr Yakovlevich; Primala uchastiye BOREVSKAYA, B.D.

[Diagnostic significance of laboratory investigations] Diagnosti-  
cheskoe znachenie laboratornykh issledovani. Izd.2., ispr. 1  
dop. Moskva, Medgiz, 1960. 295 p. (MIRA 13:9)  
(DIAGNOSIS)

BOREVSKAYA, B.D., prof.

Disturbances in liver function following some diseases of the  
respiratory apparatus. Vrach.delo no.6:599-603 Je '60.

(MIRA 13:7)

1. Propedevticheskaya terapevticheskaya klinika Izhevskogo  
meditsinskogo instituta.

(RESPIRATORY ORGANS--DISEASES) (LIVER--DISEASES)

BOREVSKAYA, B.D., prof.; GUBERGRITS, Ye.A.

Treatment of chronic diseases of the bile ducts (cholangio-hepatitis) with artificial radioactive baths combined with dietary regimen. Vrach. delo no.11:133-135 N '61. (MIRA 14:11)

1. Propedevticheskaya terapevticheskaya klinika (zav. - prof. B.D.Borevskaya) Izhevskogo meditsinskogo instituta.  
(BILE DUCTS--DISEASES) (RADON--THERAPEUTIC USE)

BOREVSKAYA, B.D.; GUBERGRITS, A.Ya.; ZAKRZHEVSKIY, Ye.B.; FRANKFURT, A.I.

Ukrainian Academician M.M. Gubergrits; on the 75th anniversary  
of his birth and the 10th anniversary of his death. *Urap.arkh.*  
33 no.1:112-116 '61. (MIRA 14:3)  
(GUBERGRITS, MAK S MOISEEVICH, 1885-1951)

BOREVSKAYA, B.D., prof.; IVANOVA, L.A.; ANISIMOVA, D.V.

Intradermal novocaine block in pain syndrome in the clinical aspects  
of internal diseases. Sov. med. 25 no.9:122-125 S '61.

(MIRA 15:1)

1. Iz propedevticheskoy terapevticheskoy kliniki Izhevskogo gosudar-  
stvennogo meditsinskogo instituta.

(NOVOCAINE)

(PAIN)

(MEDICINE, INTERNAL)

BOREVSKAYA, B.D., prof.

Syndrome of reflex stenocardia in diseases of the organs of the abdominal cavity. Sov.med. 26 no.6:112-115 Je '62.

(MIRA 15:11)

1. Iz propedevticheskikh terapevticheskikh klinik Izhevskogo i Donetskogo meditsinskikh institutov.

(ANGINA PECTORIS) (ABDOMEN--DISEASES)

BOREVSKAYA, B.D., prof.

Results of clinical ~~analysis~~ and prevention of combined diseases of bile ducts and the liver. Kaz.med.zhur. no.3: 25-28 My-Je '63. (MIRA 16:9)

1. Propedevticheskaya terapevticheskaya klinika Izhevskogo meditsinskogo instituta.  
(BILIARY TRACT—DISEASES)

BOREVSKAYA, B.D., prof.

Normalization of disorders in the liver function in diseases of the biliary tract under the effect of treatment. Sov. med. 28 no.5:87-90 My '65. (MIRA 18:5)

1. Propedevticheskaya terapevticheskaya klinika No.2 Donetskogo meditsinskogo instituta.



BOREVSKAYA, B. L. i

42658. MINTS, YA. I., BOREVSKAYA, B. L. i RUMYANTSEVA, T. M. Vliyaniye  
Pnevmoentsefalografii na izmeneniye Biokhimicheskikh Svoystv Krovi Pri  
Bronkhal'noy Astme. Vracheb. Delo, 1948, No 11, STB, 975-80.

SC: Letopis' Zhurnal'nykh Statey, Vol. 7, 1949.

SOV/133-58-6-10/33

AUTHORS: Bystrov, S.N. and Borevskiy, V.M. Engineers

TITLE: A Scheme for Preparation of Mould Trains for Bottom Pouring of Metal (Potochnaya skhema podgotovki sostavov dlya sifonnoy razlivki)

PERIODICAL: Stal', 1958, nr 6, pp 513 - 514 (USSR)

ABSTRACT: The organisation of the mould preparation shop which serves two melting shops on the Chelyabinsk Metallurgical Combine is described. Some special features which are particularly recommended: cleaning of mould bottom with water, cleaning and coating of the walls, pre-heating of cold stands directly on bogies. There are 2 figures.

ASSOCIATION: Chelyabinskiy metallurgicheskiy kombinat  
(Chelyabinsk Metallurgical Combine)

1. Molds--Preparation 2. Molds--Maintenance

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BOREVSKIY, V.M.

Mechanized coating of ingot molds. Metallurg 6 no.5:18-19 My '61.  
(MIRA 14:5)

1. Nachal'nik tsekha podgotovki sostavov Chelyabinskogo metallurgiche-  
skogo zavoda.

(Ingot molds)

KOLOSOV, Mikhail Ivanovich; SMIRNOV, Juriy Dmitriyevich; STROGANOV, Anatoliy Il'ich; TSIPUNOV, Aleksey Georgiyevich; BOREVSKIY, Vladimir Moiseyevich; SVET, Ye.B., red.; KOLBICHEV, V.I., tekhn. red.

[Interchangeable equipment for the pouring of steel] Smennoe oborudovanie dlia razlivki stali. Cheliabinsk, Cheliabinskoe knizhnoe izd-vo, 1961. 55 p. (MIRA 17:3)

BOREVSKIY, V.M.

Reducing metal losses during the pouring of steel. Metallurg  
7 no.10:29-31 0 '62. (MIRA 15:9)

1. Nachal'nik tsekha podgotovki sostavov Chelyabinskogo metallurgi-  
cheskogo zavoda.

(Steel ingots)

BOREVSKIY, Vladimir Moiseyevich; CHERNAKOV, Mikhail Georgiyevich;  
STROGANOV, A.I., red.; SVET, Ye.B., red.

[Organization of safety measures in a metallurgical plant]  
Organizatsia raboty po tekhnike bezopasnosti na metal-  
lurgicheskom zavode. Cheliabinsk, Cheliabinskoe knizhnoe  
izd-vo, 1962. 98 p. (MIRA 18:3)

BOREVSKIY, V.M.

Gas furnace for drying trumpets. Stal' 24 no.8:697-698 Ag '64.  
(MIRA 17:9)

1. Chelyabinskiy metallurgicheskiy zavod.

POREVSKIY, Vladimir Moiseyevich; STANKEVICH, Valeriy Antonovich

[Preparation of car trains with ingot molds for the  
pouring of steel] Podgotovka sostavov s izlozhnitsami  
dlia razlivki stali. Moskva, Izd-vo Metallurgiya,  
1964. 84 p. (MIRA 17:6)



AUTHOR: Borevskiy, V.I., Engineer.

104-2-6/38

TITLE: The influence of steam temperature changes on the operation of turbine thrust bearings. (Vliyanie izmeneniya temperatury para na rabotu upornogo podshipnika turbiny)

PERIODICAL: "Elektricheskie Stantsii" (Power Stations), 1957, Vol.28, No.2, pp. 28 - 33 (U.S.S.R.)

ABSTRACT: Thermal calculations show that reduction of the live steam temperature below the designed figure increases the reaction in turbine stages; this causes some increase in the axial thrust which is particularly noticeable in turbines with disc rotors. In order to avoid damage to the thrust bearings, works and operating instructions provide for considerable limitation of turbine output when the initial steam temperature is below the designed figure. In recent years a number of turbines designed for initial steam conditions of 29 atm. and 400 C have had superposed on them 25 MW back pressure turbines with initial steam conditions of 90 atm and 500 C, with a designed exhaust steam temperature of about 360 C. Under these conditions existing instructions require the original turbines to work at considerably reduced output. It was, therefore, decided to study the question experimentally.

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The influence of changes in the initial steam temperature

The influence of steam temperature changes on the operation of turbine thrust bearings. (Cont.)

104-2-6/38

on the magnitude of the axial thrust and the operation of thrust bearings was investigated on a number of medium pressure imported turbines and also on one high pressure turbine with reheat. The actual thrust on the turbines and temperatures on the individual thrust pads were measured by means of strain gauges and thermocouples inserted near the babbit; the set up is illustrated with sketches. Tests were carried out at rated steam temperature and it was found that the load was not uniformly distributed over the segments. Tests were also made at different steam temperatures and the results are given in the form of graphs. It is concluded that the axial thrust in the h.p. cylinder increases approximately in proportion to the steam consumption up to 105 t/h and then remains about constant up to 165 t/h. Therefore, the usual instructions to reduce the steam consumption to about 110 t/h gives hardly any relief to the thrust bearing.

The maximum axial thrust of 10 400 kg corresponds to a steam consumption of 125 t/h which is obtained with one overload valve partially open. This exceeds the maximum designed thrust by 40%.

Card 2/3 The greatest measured thrust corresponds to an axial stress of about 23 kg/cm<sup>2</sup>. The thrust is distributed very non-uniformly

The influence of steam temperature changes on the operation of turbine thrust bearings. (Cont.)

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between the segments. Individual segments differ in temperature by 20 C, which corresponds to local pressure differences of about 20 kg/cm<sup>2</sup>. The rate of growth and the magnitude of the axial thrust when the temperature is changed depends on the rate of change of temperature and particularly on the operation of the flexible coupling between the h.p. and l.p. cylinders. The influence of the steam temperature is very slight with long term load over the range of 360 - 400 C. Turbine AT-25.1 may be operated at the reduced temperature of 360 C for a long time without harm to the thrust bearing without limiting the steam and electrical loads to less than the rated values, provided that the temperature is maintained steady at this value. A sharp drop in the temperature of steam supplied to the turbine is dangerous and should not be allowed. There are 10 figures and 2 Slavic references.

AVAILABLE:

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BOREVSKIY, Ye.I, insh.; RUBINSHTEYN, Ya.M., prof.

Efficiency of the VK-100-2 LMZ turbine with modernized blading.  
Elek.sta. 29 no.8:37-43 Ag '58. (MIRA 11:11)  
(Turbines)

**AUTHORS:** Trubilov, M.A. (Cand.Tech.Sc.) SOV/96-58-12-9/18  
Borevskiy, Ye.I. (Engineer)  
~~Prokhorov, G.M. (Engineer)~~

**TITLE:** Changes in the radial clearances in steam turbines during starting and operation. (Izmeneniya radialnykh zazorov v parovykh turbinakh pri puzte i ekspluatatsii)

**PERIODICAL:** Teploenergetika, 1958, No.12, pp. 48-55 (USSR)

**ABSTRACT:** A good deal of damage has been caused by fouling of the rotors and glands during the starting and operation of steam turbines; it has usually been attributed to failure to observe the starting instructions. In 1955-56 the All-Union Thermo-Technical Institute made tests on one of the turbines to elucidate the reasons for gland wear. The radial clearances were measured simultaneously at four places round the shaft by means of impulse nozzles, as illustrated in Fig.1; the nozzles approached the cylindrical surface of the shaft and discharged air or steam at a rate which denoted the clearances. The general principles of this method of gauging were described in an article by Rubinshteyn and Trubilov in Teploenergetika No.7. 1958. The test results are presented graphically in Fig.2. It will be seen that in a turbine the main redistribution of clearances took place during erection, the main reason being that the lower part of the turbine casing is not sufficiently rigid. As the diaphragms are installed it bends downwards, and when the more rigid upper half of the casing is bolted down, the bottom half is pulled upwards and

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Changes in the radial clearances in steam turbines during erection, starting and operation.

SOV/96-88-12-9/18

more into line again. When the turbine is heated up at low speed and no-load, a temperature difference arises between the upper and lower parts of the cylinder, causing the cylinder to bend, which reduces the lower clearance by a further half millimetre. Thus, when the turbine was started from the cold, the radial clearances underneath the shaft were almost 1.2 mm less than the values measured during erection. Conditions would naturally be worse when the turbine is started up from the partly-cold condition when temperature differences are liable to be greater. Somewhat later similar investigations of the radial clearances were made on an A201 50-MW turbine with initial steam conditions of 70 atm and 500°C. A sectioned drawing of the machine is in Fig.3. The measuring nozzles were fixed to the diaphragm of the 11th stage, located at about the middle of the length of the high-pressure cylinder. In this turbine, changes in the clearances occurred mainly as a result of disturbances of centring of the diaphragm. In the previous turbine the diaphragms were lifted upwards relative to the rotor axis when the bolts were pulled down and during heating up at low speed; in the A201 machine, displacement of the diaphragm in both vertical and transverse directions mainly occurred during changes in the load on the turbine. It will be seen from the readings plotted in Fig.4, that the vertical displacements coincided with changes in

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Changes in the radial clearances in steam turbines during erection, starting and operation. SOV 96-58-12-9/18

the load, whereas transverse displacement lagged behind load changes somewhat, as shown by the corresponding Fig. 5. The reasons for the observed changes in the clearances are discussed at some length. Measurements of the clearances were also made in the forward-end gland of an 85% 6-MW turbine. In this case the measuring needles were installed directly in the turbine casing, as shown in Fig. 7. Eccentricity of the rotor observed in this gland during testing of the turbine is shown charted in Fig. 8. As the speed rises, the rotor lifts and is displaced to the right relative to the casing; as the load is taken up the rotor rises further, apparently due to temperature deformation of the cylinder. After full load was reached, the rotor gradually fell, and after about three hours was some 0.1 mm below the initial position. The reasons for this are discussed. Thus, these first tests to measure changes in the clearances during the starting and operation of three different types of turbines, revealed a number of important causes of damage to glands. The most instructive of these was the inadequate rigidity of the lower half of the casing of the first turbine. A formula is given for calculating the thermal bending of the turbine casings; the validity of the formula was verified by measurements on the turbine. Two other causes of reduced clearances are considered, namely, expansion of blading and elliptical distortion of the cylinder. A systematic classification of the causes

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Changes in the radial clearances in steam turbines  
during erection, starting and operation.

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of change in clearances is charted in Fig.10. Further investigations will be required to accumulate experimental data and to find ways of obviating the most dangerous of these effects during design and operation of turbines. There are 14 figures and 1 detailed reference.

ASSOCIATION: All-Union Turbine-Technical Institute (Vsesoyuznyy Teploekhnicheskii Institut)

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S/096/63/000/004/002/010  
E194/E455

AUTHORS: Rubinshteyn, Ya.M., Doctor of Technical Sciences, Professor,  
Borevskiy, Ye.I., Engineer

TITLE: Thermal efficiencies of turbine type K-160-130  
(ПБК-150 [PVK-150]) of KhtGZ im. Kirov

PERIODICAL: Teploenergetika, no.4, 1963, 8-14

TEXT: In 1961, the All-Union Heat Engineering Institute carried out thermal tests on a prototype turbine K-160-130 (PVK-150) of KhtGZ im. Kirov installed at the Pridneprovskaya GRES. It operates as a unit with drum-type boiler ТП-90 (TP-90). Previous to the tests the turbine had been in service for about 6213 hours and certain modifications had been made to improve starting conditions. Some forty tests were carried out in four series: balancing tests to check works' guarantees on heat consumption; tests to determine the efficiency of the low-pressure cylinder; tests to obtain a "universal curve" of corrections to output for changes in condenser pressure; tests to determine regulating-stage efficiency. A block diagram of the thermal circuit is given with the location of thermocouples. Test results are presented in graphs and tables  
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Thermal efficiencies ...

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and the following conclusions are drawn. The turbine meets guarantees in respect of heat consumption. At rated steam conditions (130 atm, 565/565°C) and condenser pressure 0.035 atm the turbine develops a maximum output of 164 MW with a steam consumption of 467 tons per hour. The internal relative efficiencies are as follows: high-pressure cylinder (stages 1 to 7) 78.5% (reckoned from conditions before first-stage nozzles) which is 7% (relative) below the calculated value; medium-pressure cylinder (stages 8 to 15) 91%, i.e. 3.5% (relative) above the calculated value; low-pressure cylinder (stages 16 to 21), allowing for discharge velocity losses, 81% which equals the calculated value. At rated conditions the following steam pressure-drops were observed: in the stop valve 3.5 kg/cm<sup>2</sup>; in the regulating valve 3 kg/cm<sup>2</sup>; in the reheating line 5.5 kg/cm<sup>2</sup>. The turbine regenerative system is generally working well and heats the feed water to the required temperature. The drainage coolers for high-pressure steam, numbers 6 and 7, are less effective than expected but drainage cooler no.8 operates as calculated. The Card 2/3

Thermal efficiencies ...

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second tapping position for feed-water heating is not well chosen.  
There are 11 figures and 4 tables.

ASSOCIATION: Vsesoyuznyy teplotekhnicheskiy institut  
(All-Union Heat Engineering Institute)

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BOREVSKIY, Ye.I., inzh.

Guarantees and tolerances. Elek. sta. 34 no.6:35 Je '63.

(MIRA 16:9)

(Steam turbines)

BOREVSKIY, Ye.I., inzh.; OSTROVSKIY, S.I., inzh.; GINZBURG, E.S., kand.  
~~tekhn. nauk~~

Study of the performance of metal and the construction of the  
gland when starting a R-100-300 KhTGZ steam turbine. Teplo-  
energetika 10 no.10:13-18 0'63 (MIRA 17:7)

1. Vsesoyuznyy ordena Trudovogo Krasnogo Znaneni teplotekhniches-  
kiy institut imeni Dzerzhinskogo i Khar'kovskiy turbinnyy zavod  
imeni S.M. Kirova.

GETTA, G.I., kand. veterin. nauk; KOZLOV, N.A., veterin. vrach; BAYKOV, M.L., veterin. fel'dsher; SLEPNEV, N.K., veterin. vrach; GOLUBITSKAYA, S.B., student; BOREYCHENKO, V.A., student; SINKEVICH, N.F., student; SHMUREY, P.R., student

Results of testing phenothiazine against warble fly infestation of cattle. Veterinariia 38 no.2:28-32 F '61.

(MIRA 18:1)

1. Sibirskiy nauchno-issledovatel'skiy veterinarnyy institut (for Getta). 2. Omskiy sel'skokhozyaystvennyy tekhnikum (for Zotov). 3. Tukhovichskiy veterinarnyy uchastok, Kholmnskogo rayona, Novgorodskoy oblasti (for Kozlov, Baykov). 4. Volkovyskiy veterinarnyy tekhnikum (for Slepnev, Golubitskaya, Boreychenko, Sinkevich, Shmurey).

L 24184-65 EWT(m)/EPF(c)/ENP(j)/T Pc-h/Pr-h RPL RM

ACCESSION NR: AP5003830

S/0190/65/007/001/0088/0093

AUTHOR: Berlin, A. A.; Sherle, A. I.; Belova, G. V.; Doreyev, O. M.

TITLE: Synthesis and investigation of polymeric complexes formed in the reaction of tetracyanoethylene with powdered metals

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 1, 1965, 88-93

TOPIC TAGS: coordination polymer, polytetracyanoethylene, tetracyanoethylene

ABSTRACT: Communication 58 of the series "Polymers with a Conjugated System" reports the preparation of copper, iron, and magnesium tetracyanoethylene (TCE) coordination polymers and metal-free polytetracyanoethylene. They were made by reacting TCE with copper, iron, magnesium, or bronze in a 2/1 molar ratio in nitrobenzene in a stream of argon at 210C for 10 hr. All the coordination polymers obtained were infusible black powders, insoluble in the common organic solvents but soluble in concd  $H_2SO_4$ . The copper-containing polymer was stable in  $H_2SO_4$ , but the magnesium-containing polymer lost the metal to form

Card 1/2

L 24184-65

ACCESSION NR: AP5003830

a metal-free polytetracyanoethylene which behaves like polymerization-prepared polytetracyanoethylene. Thermal-oxidative degradation curves were typical of conjugated polymers. A porphyrasine structure was assigned to the polymers. Orig. art. has: 3 figures, 1 table, and 3 formulas. (SM)

ASSOCIATION: Institut Khimicheskoy fiziki AN SSSR (Institute of Chemical Physics, AN SSSR)

SUBMITTED: 11Mar64

ENCL: 00

SUB CODE: 00, 00

NO REF SOV: 006

OTHER: 003

ATD PRESS: 000

Card 2/2



BOBOV, N.G., otv. red.; BRATSEV, L.A., otv. red.; BOREYEVA, N.V.,  
red.

[Geocryological conditions in the Pechora coal basin]  
Geokriologicheskie usloviia Pechorskogo ugol'nogo bas-  
seina. Moskva, Nauka, 1964. 222 p. (MIRA 18:1)

1. Moscow. Nauchno-issledovatel'skiy institut osnovaniy i  
podzemnykh sooruzheniy. Severnoye otdeleniye.

*BOREYKO, A.P.*

BOREYKO, A.P.

On the road of unfaltering progress. Leg.prom. 17 no.11:5-12 N '57.  
(MIRA 10:12)

(Russia--Manufactures)

BOREYKO, A.P.

Strain hardening of hard-to-machine steels caused by compression  
and tension. Trudy LPI no.250:80-82 '65.

Stressed and strained state of metal caused by the infeed of the  
cutting tool. Ibid.:83-85 (MIRA 18:9)

BOREYKO, A.P.

Widen the ways for the promotion of inventions and industrial  
efficiency. Kozh.-obuv.prom. 5 no.4:7-8 Ap '63. (MIRA 16:5)  
(Leather industry--Technological innovations)  
(Shoe manufacture--Technological innovations)

BOREYKO, A., inzh.

Using large brick blocks in building apartment houses in Kiev.  
Gor. i sel'. stroi. no.11:8-10 N '57. (MIRA 11:1)  
(Kiev--Building blocks)

PRISED'KO, B.S.; KUZ'MIN, N.F.; BOREYKO, A.V.; PALEVSKIY, S.A., inzh.,  
nauchnyy red.; SKVORTSOVA, I.P., red.izd-va; BOROVNEV, N.K.,  
tekhn.red.

[Constructing apartment houses using large brick blocks] Stroi-  
tel'stvo zhilykh zdaniy iz krupnykh kirpichnykh blokov; poka-  
zatel'noe stroitel'stvo po Novo-Gospital'noi ulitse v g.Kieve.  
Moskva, Gos.izd-vo lit-ry po stroit., arkhitekt. i stroit.mate-  
rialam, 1958. 55 p. (MIRA 12:9)  
(Kiev--Apartment houses) (Building blocks)

LYSENKO, Nikolay Prokof'yevich; BOREYKO, Aleksandr Vasil'yevich; YAVOR-  
SKIY, Georgiy Andreyevich; GIRSHTEL', Boris Isaakovich [deceased];  
SLIN'KO, B.I., red.; NARINSKAYA, A.L., tekhn. red.

[Continuous construction of residential blocks in Kiev] Opyt po-  
tochnoi zastroiki zhilykh massivov v Kieve. Kiev, Gos. izd-vo  
lit-ry po stroit. i arkhitekt. USSR, 1961. 141 p. (MIRA 14:9)  
(Kiev—Construction industry) (Apartment houses)

NESTERENKO, G.T., kand.tekhn.nauk; BOREYKO, F.I., gornyy inzh.

Tachymeter for rodless surveying of rock caving zones.  
Gor. zhur. no.12:27-30 D '62. (MIRA 15:11)

1. ~~U~~nesoyuznyy nauchno-issledovatel'skiy institut,  
Leningrad.

(Mine surveying)  
(Tachymeter)



BOREYKO, F.I., inzh.

Stability of outcrops of rock overlying a series at the S.M.Kirov  
mine. Bezop.truda v prom. 9 no.4:36-38 Ap '65.

(MIRA 18:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy marksheyderskiy institut.

BOREYKO, K.

PA 164T85

USSR/Radio - Receivers, Superheterodyne      Jul 50  
Tubes, Miniature

"Portable Superheterodyne Receiver," K. Boreyko

"Radio" No 7, pp 31-32

Describes portable five-tube superhet using miniature tubes, and standard dry batteries. Set uses 1K1P pentode as aperiodic hf amplifier, 1A1P pentode in converter stage, 1K1P pentode in if amplification, 1B1P diode-pentode acts as second detector, sensitivity control and lf voltage amplifier 2P1P pentode as output tube. Total weight with battery 8 kg.

164T85

BOREYKO, I.F.

Controlling the width of the flashes in the transverse recording  
oscillograph of a controlled directional sensitivity apparatus  
using an electric device. Biul.nauch.-tekh.inform VIMS no.1:103-  
104 '63. (MIRA 18:2)

1. Belorusskaya geofizicheskaya ekspeditsiya.

BOREYKO, M.K.; KALINICHENKO, I.I.

Polarographic study of an oxidized complex of nickel with dimethylglyoxime. Zhur. anal. khim. 20 no.1:31-35 '65. (MIRA 18:3)

1. Ural'skiy politekhnicheskiy institut imeni Kirova, Sverdlovsk.

S/072/62/000/011/001/001  
B101/B186

AUTHORS: Slavyanskiy, V. T., Candidate of Chemical Sciences,  
Krestnikova, Ye. N., Engineer, Boreyko, V. M., Engineer

TITLE: A new method of measuring glass viscosities in the  $10^5$  to  $10^{14}$   
poise range

PERIODICAL: Steklo i keramika, no. 11, 1962, 18 - 22

TEXT: Reference is made to the inadequacy of measuring the viscosity of glass by stretching a heated glass rod. Even deviations of 0.02 - 0.03 mm in a 1-mm rod cause errors of measurement reaching 4 - 6 %. In glass of low viscosity, extension sets in before the glass has reached furnace temperature. No reliable method has existed for the  $10^5$  to  $10^7$  poise range.

Therefore, a new method of measuring the viscosity in the  $10^5$  -  $10^{14}$  poise range is suggested which depends on submerging a loaded cylindrical rod into the heated glass. Tests on an experimental model showed that the depth of penetration is a linear function of time. On the basis of these findings several viscometers were constructed, comprising an electric furnace with thermostatic control containing a crucible made of graphite or

Card 1/3

A new method of measuring glass ...

S/072/62/000/011/001/001  
B101/B186

gold, the latter intended for measurements in the  $10^5 - 10^7$  poise range. The glass specimen, a plane disc not less than 3 mm thick, is melted in the crucible and a rod of 1 mm diameter is forced into it by direct loading. The rod is off-centre with respect to the crucible so that several measurements can be carried out on the same specimen by rotating it through  $45^\circ$ . Using a microscope the depth of penetration is read off a scale; the time is measured with a stopwatch and the velocity is calculated. For viscosities up to  $10^{12}$  poises, measurement takes 5 - 15 min; higher viscosities need 30 - 40 min. It is sufficient to read off depths of penetration of 0.8 - 1 mm. At viscosities below  $10^{11}$  poises, penetration immediately takes place at constant velocity. At higher viscosities, the elasticity of the glass causes the velocity of penetration to follow a curve at first, and it does not become linear till later. The non-linear section, and the duration of the measurement, can be shortened by heavier loading. The viscometer was calibrated with optical glasses, and the diagram  $\log \eta$  versus penetration rate ( $\mu/\text{min}$ ) was plotted for loads of 50 to 2000 g. Calibrations and measurements in the present investigation covered the  $10^{8.5} - 10^{12}$  poise range. Using smaller loads, the range of measurement

Card 2/3

A new method of measuring glass ...

S/072/62/000/011/001/001  
B101/B186

could be extended down to  $10^3 - 10^2$  poises. In the  $10^5 - 10^7$  poise range the diameter of the test rod should be 4 mm, and its end entering the glass should be gold, to avoid wetting. Above  $10^{12}$  poises, the rod should be made of very hard material, e. g. tungsten carbide, since loads of 3 - 10 kg are necessary. A further variation of this method would be to force a platinum sphere into the glass in a way similar to that as described by L. Shartsis, S. Spinner (Journ. Res. Nat. Bur. of Stand., 1951, v. 46, no. 3). There are 7 figures.

ASSOCIATION: Gosudarstvennyy opticheskiy institut im. S. I. Vavilova  
(State Optical Institute imeni S. I. Vavilov)

Card 3/3

BOREYKO, V. T.

Krestovnikova, V. A., Taratorina, O. M. and Boreyko, V. T. "On the problem of the etiology of contagious-toxic illnesses of newborns," Trudy VI Vsesoyuz. s'yezda det. vrachey, posvyashch. pamyati prof. Filatova, Moscow, 1948, p. 180-86

SO: U-3264, 10 April 1953, (Letopis 'Zhurnal 'nykh Statey, No. 3, 1949)



KHOKHOL, Ye.N., prof.; OTT, V.D.; KASHKAREVA, Ye.I.; BOREYKO, V.T.;  
YAKOVLEVA. O.N.

Ion-exchange milk and its use in the diet of children during  
the 1st year of life. *Pediatrics* 39 no.3:53-59 Mr '61.

(MIRA 14:4)

1. Iz kafedry gosital'noy pediatrii Kiyevskogo meditsinskogo  
instituta imeni A.A. Bogomol'tsa (dir. V.D. Bratus') i Insti-  
tuta pitaniya Ministerstva zdravookhraneniya Ukrainskoy SSR  
(dir. A.T. Stovbun) Chlen-korrespondent AMN SSSR (for Khokhol).  
(MILK) (ION EXCHANGE RESINS)

KASHKAREVA, Ye.I.; BOREYKO, V.T.

Effect of various sugars ingested in milk treated with ion-exchange resins on the intestinal microflora of infants. Vop.okh.mat.i det. 7 no.8:41-46 Ag '62. (MIRA 15:9)

1. Iz kafedry pediatrii (zav. - chlen-korrespondent AMN SSSR. prof. Ye.N.Khokhol) Kiyevskogo meditsinskogo instituta i Ukrainского nauchno-issledovatel'skogo instituta pitaniya (dir. - kand.med.nauk A.T.Stovbun).  
(SUGARS) (MILK) (ION EXCHANGE RESINS) (INTESTINES - MICROBIOLOGY)

KHOKHOL, Yelena Nikolayevna , prof.; GOLOVIN, Pavel Vasil'yevich, prof.; BABKO, I.M.; BOREYKO, V.T.; DALETSKAYA, L.P.; KASHKAREVA, Ye.I.; OTT, V.D.; STAL'NENKO, Ye.S.; SHAPOSHNIKOVA, Z.B.; NARINSKAYA, A.L., tekhn. red.

[Ionized milk; its preparation and use] Ionitnoe moloko; izgotovlenie i primeneniye. [By] E.N.Khokhol i dr. 2 izd. perer. i dop. Kiev, Gosmedizdat USSR, 1963. 150 p.  
(MIRA 16:12)

1. Chlen-korrespondent AMN SSSR (for Khokhol). 2. Chlen-korrespondent AN Ukr.SSR (for Golovin).

(MILK--THERAPEUTIC USE) (INFANTS--NUTRITION)

SLAVYANSKIY, V.T., kand.khim.nauk; KRESTNIKOVA, Ye.N., inzh.; BOREYKO,  
V.M., inzh.

New method of measuring the viscosity of glass between  $10^5$  and  
 $10^{14}$  poises. Stek.i ker. 19 no.11:18-22 N '62. (MIRA 15:12)

1. Gosudarstvennyy opticheskiy institut im. S.I.Vavilova.  
(Glass—Testing) (Viscosimetry)

AVDONIN, V.N.; BOREYKO, Ye.B.; GAAZ, A.Ya.

Orpiment and realgar in the limestones of the Kemenka Valley.  
Trudy Inst. geol. UFAN SSSR no.70:329-324 '65. (MIRA 18:12)

BOREYKO, Ye.I.

Peat-manure compost. Zemledelie 27 no.8:19-20 Ag '65.

(MIRA 18:11)

1. Predsedatel' kolkhoza "Sovetskaya Rossiya", Rudnyanskogo rayona, Smolenskoj oblasti.

UL'MAN, V.G.; TISHCHENKO, A.G.; BOREYKO, Ye.Ye.

Automatic control of coke weight charged into a blast furnace.  
Avtom. i prib. no. 1:7-9 Ja-Mr '64. (MIRA 17:5)

V-5

POLAND/Pharmacology and Toxicology - Adrenergics.

Abs Jour : Ref Zhur - Biol., No 21, 1958, 98531

Author : Boreyko-Chodkiewicz, Kazimierz

Inst : -  
Title : Treatment of Paroxysmal Supraventricular Tachycardia by a Preparation of the Sympatol Group (Phenylephrine).

Orig Pub : Polski tygod. lekar., 1957, 12, No 32, 1246-1250

Abstract : Metasympatol (I) (phenylephrine, neosynephrine, adrianol) - a synthetic, sympathomimetic amine, differs from adrenalin by the presence in the benzole nucleus of one, and not two, hydroxylic groups in the meta position. It is an isomer of sympatol in which the OH-group is in the para position. I acts more strongly on arterial pressure, but for a shorter period than sympatol. 3 cases of paroxysmal supraventricular tachycardia are described, which were quickly removed by intravenous introduction of 2-2.5 ml 0.5% solution of I. The indicator for emergency

Carč 1/2



BOREYKO-CHODKIEWICZ, Kazimierz; MIKOLAJCZYK, Wanda; SADOWSKI, Zygmunt;  
WAIC, Jan

Osmotic characteristics of the urine as a measurement of concentration capacity of the kidney in certain pathological conditions. *Polskie arch.med.wewnetrz.* 30 no.1:27-37 '60.

1. Z IV Kliniki Chorob Wewnetrznych A.M. w Warszawie. Kierownik:  
prof.dr.med. Z. Askanas.  
(KIDNEY FUNCTION TESTS)

MIKOLAJCZYK, Wanda; BOREYKO-CHODKIEWICZ, Kazimierz; SADOWSKI, Zygmunt

Comparative studies on the diagnostic value of daily endogenous creatinine clearance and osmotic properties of urine in kidney and urinary tract infections, hypertension and arteriosclerosis. Polskie arch. med. wewn. 31 no.5:667-676 '61.

1. Z IV Kliniki Chorob Wewnętrznych AM w Warszawie Kierownik: prof. dr med. Z. Askanas.

(URINARY TRACT INFECTIONS urine)

(HYPERTENSION urine)

(ARTERIOSCLEROSIS urine)

(CREATININE AND OSMOTIC VALUE)

BOREYKO-CHODKIEWICZ, Kazimierz

Total exchangeable sodium (Na-ex) in normal subjects: relation of Na-ex to the height and weight of the body and to the width of the knee. Pol. arch. med. wewn. 33 no.5:473-481 '63.

1. I Klinika Chorob Wewnętrznych SDL w AM w Warszawie  
Kierownik: prof. dr med. W. Hartwig.  
(SODIUM) (METABOLISM) (BODY HEIGHT)  
(BODY WEIGHT) (ANTHROPOMETRY) (KNEE)

BOREYKO-CHODKIEWICZ, Kazimierz

Studies on metabolic sodium in kidney diseases, Pol. arch.  
med. wewn. 33 no.7:725-734 '63.

1. I Klinika Chorob Wewnętrznych SDL w AM w Warszawie  
Kierownik: prof. dr med. W. Hartwig.  
(NEPHROTIC SYNDROME) (GLOMERULONEPHRITIS)  
(NEPHRITIS) (PYELONEPHRITIS)  
(ADDISON'S DISEASE) (SODIUM) (METABOLISM)

BOREYSHA, M. S.

Cand Agr Sci - (diss) "Local plums of the Mogilevskaya Oblast and their reaction on soil conditions and terrain." Minsk, 1961. 25 pp; (Academy of Agr Sci Belorussian SSR, Belo Scientific Research Inst of Farming); 200 copies; price not given; (KL, 7-61 sup, 250)

BOREYSHO, G.K.

"On the anatomy of the lymphatic vessels of the lower esophagus and the cardial section of the stomach", Sbornik trudov, posvyashch. prof. Savinykh, Tomsk, 1948, P. 80-83.

So: U-3261, 10 April 1953 (Letopis 'Zhurnal 'nykh Statey, No. 12, 1949).

BOREYSHO, G.K.

BOREYSHO, G.K., dotsent

Lymphatic system of the esophagus. Trudy ISGMI 17:83-102 '53.  
(MIRA 10:8)

1. Kafedra normal'noy anatomii Leningradskogo sanitarno-gigiyenicheskogo meditsinskogo instituta (zav. kafedroy chlen-korrespondent AN SSSR prof. D.A.Zhdanov) i Tomskogo meditsinskogo instituta imeni V.M.Molotova (zav. kafedroy dotsent Ye.I.Gontar')

(ESOPHAGUS, anatomy and histology,

lymphatic system)

(LYMPHATIC SYSTEM,

esophagus)

USSR/Human and Animal Morphology (Normal and Pathological) Lymph System S-4

Abs Jour : Ref Zhur - Biol., No 12, 1958, No 55140

Author : ~~Boreysko G.K.~~

Inst : Not Given

Title : The Internal Lymph Vessels of the Esophagus

Orig Pub : Arkhiv anatomii, gistol. i embriologii, 1957, 34, No 5, 28-34

Abstract : The lymphatic networks and the plexus of the esophagus were studied on 134 corpses (of 10 fetuses, 38 children and 86 adults) by macroscopical and microscopical methods. Their characteristics were studied in detail on the mucosa, the submucosa, as well as on the muscular membranes. The nature of age determined changes of the internal lymphatic system of the esophagus is presented.

Card : 1/1



BOREYSHO, Galina Konstantinovna for Doc Med Sci on the basis of dissertation defended 11 Feb 59 in Council of Tomsk State Med Inst, entitled "The lymphatic system of the esophagus." (BMVISO USSR, 1-61, 20)

BOREYSHO, C.K. (Tomsk, ul. Belinskogo, 27, kv.4); CHERNOVA, V.A. (Tomsk,  
prospekt Lenina, 132, kv.1)

Collateral blood circulation of the heart following ligation  
of the internal thoracic artery. Arkh.anat., gist. i embr. 47  
no.10:36-39 0 '64. (MIRA 18:6)

1. Kafedra normal'noy anatomii (zav. - prof. V.V.Kuntsevich) i  
kafedra obshchey khirurgii (zav. - prof. S.P.Khodkevich) Tomskogo  
meditsinskogo instituta.

BORGARDT, A.

"Optical Phenomena Connected to Spin of Electromagnetic Waves",  
Nauch. Zap. Dnepropetr. Univ. 41, 1953, pp 43-50.

The form of tensors for a moving homogeneous isotropic medium and for a gravitational field is given. The equations of the electromagnetic field in the medium and the canonic tensor of impulse energy are derived. The latter is asymmetric and symmetrization leads to the appearance of an additional internal spin moment securing the conservation law. (RZhFiz, No 1, 1955) SO: Sum. No. 443, 5 Apr. 55

BORGARDT, A. A.  
USSR/Physics - Field theory

FD-1861

Card 1/1      Pub. 146-21/25

Author      : Borgardt, A. A.

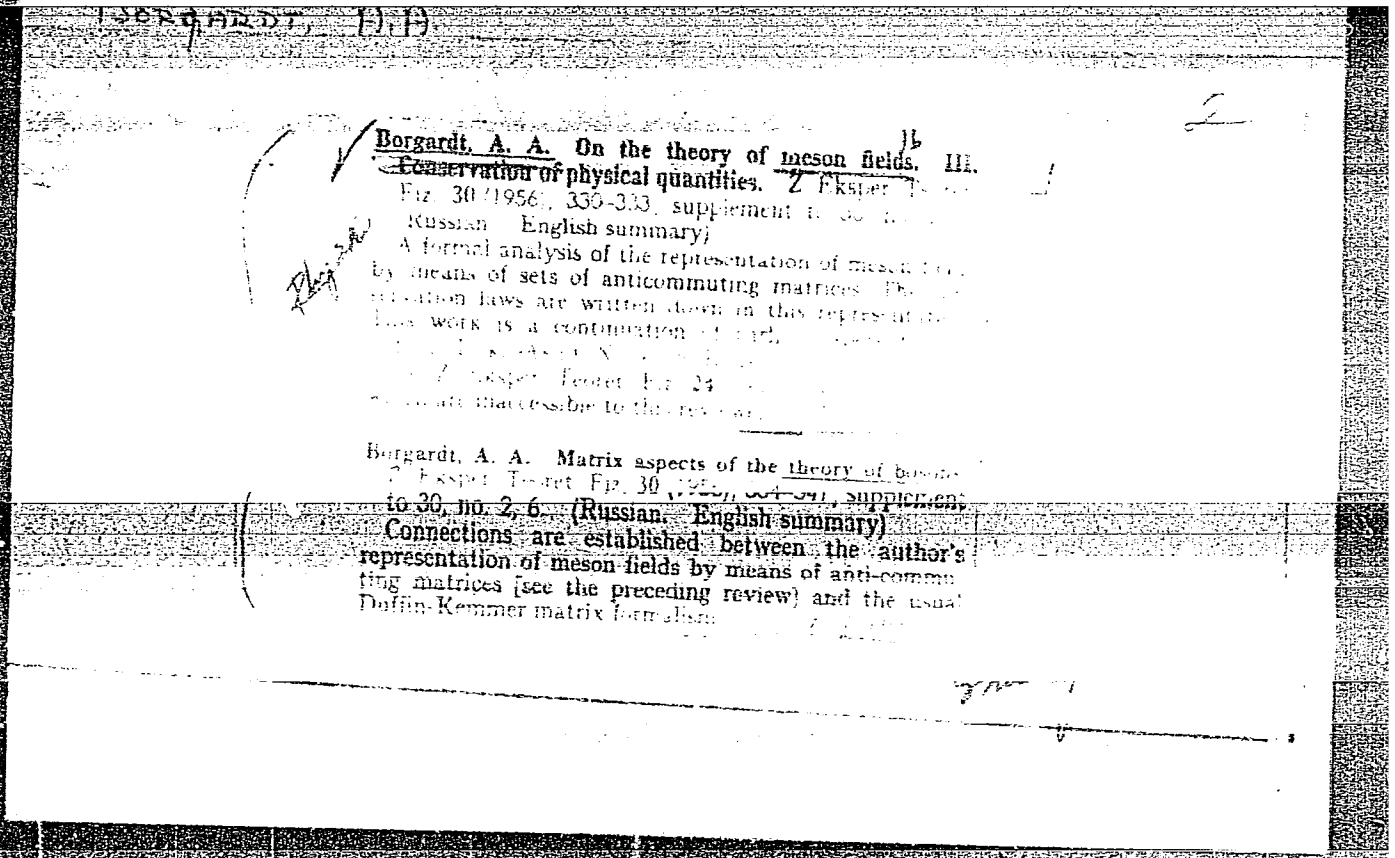
Title        : Gravitational self-energy of a particle in classical field theory

Periodical : Zhur. eksp. i teor. fiz. 28, 377, March 1955

Abstract    : In certain classical field theories (Born, Infeld; Podolsky, Schwed) a purely field self-energy is ascribed to the electron, this energy being calculated according to a general formula (A. A. Borgardt, *ibid.*, 24, 248, 1953) which permits one to take into account also the self-magnetism of the electron involving the field intensity vectors  $E, H$  and the dielectric permeability of vacuum  $\epsilon_0$ . The author considers the problem, usually unconsidered, of the form of the linear gravitational field of the electron with field mass. Four references; e.g. I. Z. Fisher, *ibid.*, 18, 668, 1948, (in which the gravitational field of the electron is considered).

Institution: Dnepropetrovsk State University

Submitted   : September 17, 1954



BORGARDT, A. A.

4851. MATRIX ASPECTS OF BOSON THEORY. 530.162 : 512.851

A. A. Borgardt.

Zh. eksper. teor. Fiz., Vol. 30, No. 2, 334-41 (1956). In Russian.

Some relations are presented which permit one to go over from anticommutative matrices to Kemmer matrices at any stage of the computations. A study is made of the connection between  $\Gamma_{14}$  and the matrices of irreducible representations of the Kemmer-Dirac algebra and also the Tamm matrices. A.

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I. Dnepropetrovskiy gosudarstvennyy universitet.  
(Quantum statistics)

SUBJECT USSR / PHYSICS CARD 1 / 2 PA - 1600  
 AUTHOR BORGARDT, A.  
 TITLE ~~The Nonlinear~~ Meson Field of a Nucleon at Rest.  
 PERIODICAL Dokl. Akad. Nauk, 109, fasc. 6, 1107-1108 (1956)  
 Issued: 12 / 1956

Without denying the applicability of the equations of the type  $(\square^2 - k_0^2 - \Psi^2)\Psi = 0$ , several possible types of nonlinear equations of the meson field with a self-effect of the third order are investigated. The general principles of nonlinear generalization resulting from looking upon self-effect as a collision among field quanta lead to the following equations of the meson field:

$$\beta_\lambda \frac{\partial \Psi}{\partial x_\lambda} + k_0 \Psi + (\lambda/k_0) \Psi^+ \beta \Psi \cdot R \beta \Psi = 0 \quad (1)$$

$$-\beta_\lambda^T \frac{\partial \Psi^+}{\partial x_\lambda} + k_0 \Psi^+ + (\lambda/k_0) \Psi^+ \beta \Psi \cdot \Psi^+ \beta R = 0 \quad (2)$$

Here the  $\beta_\mu$  obey KEMMER'S rules:

$$\beta_\mu \beta_\nu \beta_\rho + \beta_\rho \beta_\nu \beta_\mu - \beta_\mu \delta_{\nu\rho} - \beta_\rho \delta_{\nu\mu} = 0 \quad (3)$$

The operator  $\beta$  in (1) belongs to the covariant operators of the  $G_{126}$  group which forms one of the representations of KEMMER'S algebra. In the case of the operator  $R$  it is either  $I$  (in individual cases) or the projection operator  $(I - R_5)/2$  or  $(I + R_5)/2$  by which nonlinear interaction is introduced into the equations of motion or into the equations for field strength. The second

Dokl. Akad. Nauk, 109, fasc. 6, 1107-1108 (1956) CARD 2 / 2

PA - 1600

variety is, however, of less actual interest.

The solution of (1) in form of plane waves is reduced as a rule to elliptical functions. For the theory of nuclear forces static solutions are the most important. Here only the following four varieties are dealt with:

- a)  $\lambda \Psi^+ \Psi(k_0/2)(I-R_5)\Psi$ ;      b)  $\lambda \Psi^+ R_5 \Psi(k_0/2)(I-R_5)R_5 \Psi$ ;  
 c)  $\lambda \Psi^+ \beta_\lambda \Psi(k_0^2/2)(I-R_5)\beta_\lambda \Psi$ ;      d)  $\lambda \Psi^+ R_5 \beta_\lambda \Psi(k_0^2/2)(I-R_5)R_5 \beta_\lambda \Psi$

In the case of spherical-symmetrical sources (1) is reduced to a system of ordinary equations:  $\Psi_1'' + (2/\xi)\Psi_1' - (k_0 x_0)^2 \Psi_2 - \lambda(g\Psi_0)^2(A_1\Psi_1^2 - 2(k_0 x_0)A_2\Psi_1\Psi_2 -$

$-(k_0 x_0)^2 A_3\Psi_2^2 = 0$ ,  $\Psi_2' - \Psi_1 = 0$ . Here  $\Psi_1$  and  $\Psi_2$  denote scalar functions, and

$\xi = |\vec{x}|/x_0$ . The potential of the field is connected only with  $\Psi_2$  and the constant  $g$ , the meson charge, is only of asymptotic significance in the nonlinear theory. Nonlinearity becomes noticeable at small distances  $x \ll k_0^{-1}$ , where potentials are sufficiently high. In the neighborhood of zero it holds that:

$\Psi_1'' + (2/\xi)\Psi_1' - \lambda(g\Psi_0)^2 A_1\Psi_1^2 = 0$ ,  $\Psi_2' - \Psi_1 = 0$ , or for  $\Psi_2$ :  $\Psi_2'' + (2/\xi)\Psi_2' - \lambda(g\Psi_0)^2 A_1\Psi_1^2 = 0$ .

The solution of this equation is:  $\int_0^{\Psi(x)} \exp(-\lambda g^2 \Psi_0^2 A_1 \tau^2/2) d\tau = g/|\vec{x}|$ . The behavior of the potential is discussed in short. Divergence is considerably below  $1/0$  and approaches logarithmic divergence. The dipole difficulty is removed and the field-dependent self-energy of the nucleon is finite.

INSTITUTION: State University DNEPROPETROVSK



SUBJECT USSR / PHYSICS CARD 1 / 2 PA - 1475  
 AUTHOR BORGARDT, A.  
 TITLE Pseudoscalar Interaction in Nonlinear Mesodynamics  
 PERIODICAL Dokl. Akad. Nauk, 110, fasc. 1, 42-43 (1956)  
 Issued: 11 / 1956 reviewed: 11 / 1956

Nonlinear mesodynamics can be rigorously set up on the basis of the LAGRANGIAN

$$\mathcal{L}^{(1)} = C(\Psi^+(\beta_\lambda \frac{\partial}{\partial x_\lambda} + k_0) \Psi + \frac{\Lambda}{2} \Psi^+ \beta' \Psi \Psi^+ \beta'' \Psi) \text{ with } \beta_\mu \beta_\nu \beta_\rho + \beta_\rho \beta_\nu \beta_\mu - \delta_{\mu\nu} \beta_\rho - \delta_{\rho\mu} \beta_\nu = 0. \text{ Here } \Lambda = \Lambda(k_0) \text{ denotes the self-effect constant. Self-}$$

- effect is here assumed to be of the third order. The above LAGRANGIAN must  
 I. lead to relativistically covariant field equations,  
 II. warrant the conservation of energy and impulse (momentum) (In the case of non-linear fields this is not warranted by satisfying I),  
 III. the boundary transition  $k_0 \rightarrow 0$  must be made possible without the occurrence of divergences in the field equations.

Thus it is possible to express the operators  $\beta'$  and  $\beta''$  by  $\beta' = R' \beta$  and  $\beta'' = R'' \beta$  respectively, where  $\beta$  belongs to  $G_{126}$  and  $R'$ ,  $R''$  are reflection operators. The operator  $\beta$  may have two types: (A)  $(1/2)(I + R_5) \beta \cdot (1/2)(I - R_5) = 0$ ,

(B)  $(1/2)(I + R_5) \beta \cdot (1/2)(I + R_5) = 0$ . I,  $[\beta_\mu \beta_\nu]$ ,  $\{\beta \beta\}$  and  $\beta_5$  belong to (A), and  $-\beta_\mu, \beta_5 \beta_\mu$  belong to (B). For a pseudoscalar field the cases  $\beta = [\beta_\mu \beta_\nu]$ ,  $\beta = \beta_5 \beta_\mu$  and  $\beta_5$  are of no interest because the corresponding eigenvalues are equal to zero. The self-effect with  $R=I$  and  $\beta = \beta_\mu$  vanishes in the neutral field, and  $\beta = I, R_5$  and

Dokl. Akad. Nauk, 110, fasc. 1, 42-43 (1956)

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$\beta = R_5 \beta_\mu$  remain. With respect to  $R'$ ,  $R''$  attention is solely devoted to the following varieties: 1)  $R' = R'' = I$ ; 2)  $R' = R'' = (I + R_5)/2$ ; 3)  $R' = R'' = (I - R_5)/2$ ; 4)  $R' = (I + R_5)/2, R'' = (I - R_5)/2$ . The equations of the pseudoscalar field are then reduced in the static case and in the case of short distances to the following 5 types:

$$-\nabla^2 \Psi + \vec{\nabla} \Psi + \lambda \vec{\nabla} \cdot \vec{\nabla} \Psi^2 = 0, \quad \nabla \cdot \vec{\nabla} \Psi = 0 \quad (A_1, A_2) \quad (1)$$

$$\nabla^2 \Psi - \lambda \Psi^3 = 0 \quad (A_3) \quad (2)$$

$$\nabla^2 \Psi - \lambda \Psi (\nabla \Psi)^2 = 0 \quad (B_3) \quad (3)$$

$$\nabla^2 \Psi + \lambda \Psi (\nabla \Psi)^2 / (1 - \lambda \Psi^2) = 0 \quad (A_4, B_1, B_4) \quad (4)$$

$$\nabla^2 \Psi - 2 \lambda \Psi (\nabla \Psi)^2 / (1 + \lambda \Psi^2) = 0 \quad (B_2) \quad (5)$$

The integration of (1) is very complicated, but the equations (3), (4), (5), the integration of which is easy, have the following solutions

$$\int_0^{\Psi} d\xi \exp(-\lambda \xi^2/2) = \Psi_L(\vec{x}) \quad (3') \quad \Psi = (1/\sqrt{\lambda}) \sin(\sqrt{\lambda} \Psi_L(\vec{x})) \quad (4')$$

$\Psi = (1/\sqrt{\lambda}) \operatorname{tg}(\Psi(x)) \quad (5')$ . All three equations (3), (4), (5) have a mobile singular point for  $\lambda > 0$  at  $x = x_0(\lambda)$ . All potentials found (with the exception of (5')) are singular for  $\lambda < 0$ . The applicability of the results obtained to the nuclear theory must be examined from two points of view: 1) The introduction of the nonlinear potential must lead to the saturation of the nuclear forces. 2) The introduction of nonlinearity must remove dipole-difficulties. The removal of dipole-difficulties was rigorously proved for the potential (3').

INSTITUTION: State University of Dnepropetrovsk "300th anniversary of the union of the Ukraine with Russia".

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Translation from: Referativnyy Zhurnal Fizika, 1959, Nr 5, p 126 (USSR)

AUTHORS: Borgardt, A.A., Bystritskiy, G.P., Kirpichev, A.F.

TITLE: On the Theory of Ferromagnetism 7/10

PERIODICAL: Nauchn. zap. Dnepropetrovsk. un-t. 1956, Vol 45, pp 113 - 121 ✓

ABSTRACT: The article has not been reviewed.

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BORGARDT, A.A.

56-3-36/59

AUTHOR: Borgardt, A.A.

TITLE: On the Principle of Larmor-Invariance (O printsipe larmorovskoy invariantnosti) (Letter to the Editor)

PERIODICAL: Zhurnal Eksperim. i Teoret. Fiziki, 1957, Vol. 33, Nr 3 (9), pp. 791 - 792 (USSR)

ABSTRACT: In the present field theory usually the relativistic invariance of the basic equation is sufficient, which includes the invariance with respect to the fourdimensional displacements, rotations and reflections. In the case of a different eigenmass of the particles also the remaining transformations of the conform group is added. In electrodynamics also the so-called Larmor-transformation is known, which does not belong to the transformations of the conform group and leads to the same modification of parity and field quantities. Maxwell's electrodynamics is relativistically invariant, but not Larmor-invariant. It is therefore impossible correctly to formulate Huyghen's principle for Maxwell's electrodynamics. This is possible in a Larmor-invariant theory only, if it includes magnetic charges. According to T. Omura (Progr. Theor. Phys., 1956, Vol. 16, pp. 684, 685), it is neces-

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56-3-36/59

On the Principle of Larmor-Invariances

sary, from the point of view of the stability of the classical electrons, to take the magnetic charges into account. The wave equation of the bosons, invariant with respect to the Larmor-transformation, can be written down as follows:

$$\gamma_\lambda \partial \psi / \partial x_\lambda + k_0 \psi = q, \quad -\partial \psi^+ \gamma_\lambda / \partial x_\lambda + k_0 \psi^+ = q^+,$$

$$(1/2) \{ \gamma_\mu \gamma_\nu \} - \delta_{\mu\nu} I = 0, \quad \psi^+ = \psi^* R_4. \quad \text{Here } \psi^+ = -i \psi^* R_n,$$

$R_n = n, R_\lambda, n_\lambda^2 = I$  is true in the general case. Larmor's conjugated state is realized in this theory by the matrix  $\gamma_5 = R_5 \gamma_5$  and therefore Larmor's frequency is, according to the opinion of the author, necessary in the classical- as well as in the quantum theory. The invariance of the scheme just given leads to an interesting conclusion: The wave equations can be derived from two Lagrangians: from the scalar  $L = (1/2)(\psi + R_5 \psi + \psi^+ R_5 \psi)$ , and from the pseudoscalar  $\tilde{L} = (1/2)(\psi^+ \gamma_5 \psi + \psi^+ \gamma_5 \psi)$ , ( $\psi = \psi - q$ ) In reality, however, their linear combinations have to be used and the action in the form  $S = (1/4) \int$

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$$\int (\psi^+ R_5 (I \pm \gamma_5) \psi + \psi^+ R_5 (I \pm \gamma_5) \psi) (dx) \text{ has to be set up.}$$

On the Principle of Larmor-Invariances

56-3-36/59

There are 5 references, 2 of which are Glavic.

ASSOCIATION: Dnepropetrovsk State University  
(Dnepropetrovskiy gosudarstvennyy universitet)

SUBMITTED: April 27, 1957

AVAILABLE: Library of Congress

Card 3/3

AUTHOR

BORGARDT, A.A.

56-7-10/66

TITLE

Nonlinear Meson Field Equations

(Nelineynnye uravneniya mezonogo polya. Russian)

PERIODICAL

Zhurnal Eksperim. i Teoret. Fiziki, 1957, Vol 33, Nr 7, pp 59 - 66  
(U.S.S.R.)

ABSTRACT

According to the opinion of the author the saturation of the nuclear forces outside the framework of the nonlinear theory cannot be explained satisfactorily. The present paper investigates the nonlinearities in the equations of the meson field in the form of summands of the third order with respect to  $\varphi$ . Of all possible kinds of such a self-effect the variety of the type  $\lambda \varphi^3$  and the equation by SCHIFF ( $\square^2 - k^2 - \lambda \varphi^2$ )  $\varphi = 0$  connected with it has been investigated more or less thoroughly. The author here investigates all possible varieties of the pseudo-scalar mesodynamic with self-effect of the third order. He obtains asymptotic expressions for the nonrelativistic potentials of the punctiform nucleons for various kinds of self-effect. They all confirm the existence of mobile singular points at a certain sign of  $\lambda$ . Besides, conditions for the saturation in connection with the sign of  $\lambda$  are investigated. Eventually the wave solutions of the nonlinear equations obtained here, which correspond to plane waves, and the problem of the definite energy density are dealt with.

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## Nonlinear Meson Field Equations

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General relations: The author here assumes the following:

- 1.) The general covariance of all equations in the fourdimensional space,
- 2.) The conservation of energy-momentum in the free field,
- 3.) The possibility of going over to the boundary value  $k_0 \rightarrow 0$  in the case of any nonlinearities without causing additional divergences.

The LAGRANGIAN most suitable for these purposes has the form:

$$L^{(1)} = \alpha(\psi^+ (\beta_\lambda \partial/\partial x_\lambda + k_0) \psi + (\Lambda/2) \psi^+ \beta' \psi \cdot \psi^+ \beta'' \psi), \text{ where}$$

$$\beta_\mu \beta_\nu \beta_\rho + \beta_\rho \beta_\nu \beta_\mu - \delta_{\mu\nu} \beta_\rho - \delta_{\rho\nu} \beta_\mu = 0, \psi^+ = \psi^* R_\mu, R_\mu = 2\beta_\mu^2 - I, \text{ is true.}$$

The method of fusion: The problem of fusion of two spinor fields with nonlinear self-effect is very elementary and therefore the author here confines himself to short remarks. The order of self-effect decreases on the occasion of fusion. In the case of a pseudoscalar field a quadratical self-effect is impossible.

The pseudoscalar fields: Apparently the pseudoscalar theory is the most interesting for practical purposes because the pions are of pseudoscalar character and because the linear approximation furnishes the most satisfactory results with this variety. The author here investigates various operators  $\beta$  in the nonlinear terms of the wave equations of the ps field

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with a self-effect of the third order. For R-operators the author confines himself to the most simple varieties. The equations of the real fields resulting from these varieties are explicitly written down. To each of these equations the energy momentum tensor connected with them is also given.

The last two chapters deal with the static solutions and the wave solutions. In conclusion the present paper contains a mathematical appendix.

(With 2 illustrations).

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BORGARDT, A. A.  
Borgardt, A. A. [Dnepropetrovsk, Gosudarstvennyy universitet (State University)]  
"Orientational Polarization of Polar Gases, Solutions and Liquids With Regard to the  
Internal Field "

**(The Physics of Dielectrics; Transactions of the All-Union Conference on the Physics  
of Dielectrics) Moscow, Izd-vo AN SSSR, 1958. 245 p. 3,000 copies printed.**

**This volume publishes reports presented at the All-Union Conference on the Physics of  
Dielectrics, held in Dnepropetrovsk in August 1956, sponsored by the "Physics of  
Dielectrics" Laboratory of the Fizicheskii institut imeni Lebedeva AN SSSR (Physics  
Institute imeni Lebedev of the AS URSR), and the Electrophysics Department of the  
Dnepropetrovskiy gosudarstvennyy universitet (Dnepropetrovsk State University).**

BORGARDT, A.A.

Exact nonlinear gravitation equations for a particular case  
derived from Birkhoff's theory. Zhur.eksp. i teor.fiz.34  
no.6:1632-1633 Ja.'58. (MIRA 11:9)

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